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CENTER DISCUSSION PAPER NO. 829

MORTALITY IN THE NORTH DUBLIN UNION DURING THE GREAT FAMINE

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Abstract

Responsibility for the tremendous excess mortality associated with the Great Irish Famine of 1846-51 is a continuing topic of debate. One view blames an inadequate government response for much of the tragedy. These debates are hampered by a lack of detailed information on how well relief efforts performed at a local level. Excess mortality ranged from one quarter of the entire population in parts of the west to negligible levels along much of the eastern coastline. Much of this cross-section variation reflects relative wealth. But another theme in the historiography stresses the importance of sympathetic or negligent local figures such as a landlord or priest. This study addresses the question of local agency with a case study of the North Dublin Union, the administrative unit responsible for administering the Irish poor law in the northern half of Dublin city and some adjacent parishes. North Dublin Union is unusual for the quality of its surviving administrative records. We use those records to study the Union's day-to-day functioning during the famine and to estimate mortality rates in the workhouse during the crisis. We find that the tremendous mortality of the North Dublin workhouse inmates during the famine primarily reflects the crisis outside the workhouse's walls; the guardians and managers did reasonably well in preserving human life under these trying circumstances.

JEL Codes: N33, J19, I39

Key Words: Ireland, famine, mortality, workhouses

The Great Irish Famine of 1846-51 was very uneven in its incidence across class and region. Though at its peak three million people out of a total population of 8.5 million were dependent on relief, for people in comfortable circumstances life went on more or less as normal. Excess mortality ranged from one quarter of the entire population in parts of the west to negligible levels along much of the eastern coastline. Mortality varied with poverty; in econometric work proxies for living standards on the eve of the famine account for a good deal of the variation in mortality across geographical units such as counties and baronies.[1] In local accounts of the famine, however, agents such as an indulgent landlord, an active priest or a corrupt workhouse administrator might help mitigate or exacerbate the disadvantages captured by other measures.

This study focuses on one issue often highlighted in such local accounts, the role of workhouse relief during the famine. It provides a case study of the North Dublin Union, the administrative unit responsible for administering the Irish poor law in the northern half of Dublin city and some adjacent parishes. Interesting for its own sake as a mainly urban area where the impact of the famine on residents would have been limited but for immigration from the rest of Ireland, North Dublin Union is unusual for the quality of its surviving administrative records. Its board minutes and indoor registers, which contain considerable detail on the condition and background of each pauper admitted to the union workhouse, provide the raw material for an analysis of the union's competence in relieving its poor during the famine years.

This paper is divided into four parts. Part 1 provides background and outlines some approaches to evaluating workhouse management. Part 2 introduces a case study of the North Dublin Union workhouse,

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[1] J. Mokyr, *Why Ireland Starved: A Quantitative and Analytical History of the Irish Economy 1800-50* (1985), ch. 9; P. McGregor, 'Demographic pressure and the Irish famine: Malthus after Mokyr', *Land Economics*, 65 (1989), pp. 228-38; C. Ó Gráda, *Black '47 and Beyond: The Great Irish Famine in History, Economy, and Memory* (Princeton, 1999), ch. 4; L.M. Cullen, 'The politics of the famine and famine historiography', in *Comhdháil an Chraoibhín 1996* (Boyle, 1997), p. 24.

focusing on the management of the institution before and during the famine. Part 3 uses statistical models to study the mortality experience of those admitted to the North Dublin Union before and during the famine. The final section concludes.

1. Background and Strategy

The Irish Poor Law of 1838 was modeled closely on the 'new' English Poor Law of 1834. It divided the country into 130 new administrative units known as 'unions'. These 'unions' of civil parishes were in turn subdivided into electoral divisions upon which poor rates were levied. Each union was to have its own workhouse, funded by the poor rates, and managed by a Board of Guardians. Membership of these boards, part elected and part ex officio, was dominated by the landed and commercial elites. The guardians, who were unpaid, sought to protect the interests of the property owners who voted them in. A troika of Poor Law Commissioners based in Dublin oversaw and constrained the work of the boards. By 1845 the necessary boards had been created and workhouses built, and the system was fully operational. Henceforth relief was in principle available to all those who needed it: a willingness to accept the spartan workhouse regime as laid down by the new law was deemed sufficient evidence of need. Fears that Irish poverty would make the principle of 'less eligibility' inoperable (i.e. that the workhouse regime could not be harsher than that faced by the poorest workers outside)[2] were not realized. In the event few of the workhouses had ever been full to capacity before the famine struck. From 1846 on, however, the system was subjected to challenges and strains never envisaged by its creators. Well over two hundred thousand

[2] For more on this see T. Besley, S. Coate, and T.W. Guinnane, 'Understanding the Workhouse Test: Information and Poor Relief in Nineteenth-Century England', Yale University Economic Growth Center Discussion Paper No. 701, September 1993.

people died in Irish workhouses and workhouse hospitals during the famine, the majority of them its victims.[3]

One of the problems facing any analysis of workhouse management is that the prospect of survival in the workhouse reflects not just conditions in the workhouses themselves but also the process which led some to enter the institution and others not to do so. Paupers who ended up in the workhouse were a group selected by events beyond their control (the specific impact of the famine on their household), by themselves (whether they decided to try to enter, say, the North Dublin workhouse), and by the workhouse officials (who carried out legislative mandates and policies dictated by guardians, but who also exercised considerable discretion themselves). Thus the population in a workhouse is a 'choice-based' sample. Two concrete examples will illustrate. A workhouse in which everyone died shortly after admittance might seem badly managed, but that would not necessarily be the case if it attracted only those in the most extreme state of need. Similarly, a workhouse where everyone survived might seem well-run, but it could also be one in which the master refused admittance to anyone who might actually need assistance.

Some of those people who perished in workhouses during the famine had entered them expressly to die, while others arrived in a dying condition. Many more died of infectious diseases such as dysentery and typhoid fever contracted in workhouses. Indeed, given the high incidence of such diseases in many workhouses, it is conceivable that some poorly-run workhouses did more harm than good during the famine. But how can we evaluate the performance of a workhouse or workhouses? The question is

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[3] Comparing the total number of deaths in workhouses in 1845 (5,979) and 1846 (14,662) with those in 1847 (66,890), 1848 (45,482), 1849 (64,440), and 1850 (46,721) is instructive in this respect. On the early history of the poor law in Ireland see G. O'Brien, 'The establishment of poor law unions in Ireland, 1838-43', *Irish Historical Studies*, 33 (1982-3). pp. 97-120; *id.*, 'The New Poor Law in pre-famine Ireland: a case history', *Irish Economic and Social History*, 12 (1985), pp. 33-49.

inherently relative. We can compare a union to its own pre-famine experience, or compare unions to each other. Neither of these comparisons is quite fair, since the strain caused by the famine varied from union to union. What measuring rods are available?: Neither the number of deaths nor the death rate are adequate by themselves. Both were bound to rise during the famine, and both were very much functions of conditions outside the workhouses. Indeed, no measure is quite immune to outside conditions.[4]

After considering several different approaches we settled on detailed analysis of mortality rates in a single Poor Law Union workhouse. The roads not taken are instructive and will motivate our strategy. One approach to evaluating workhouse performance would be to focus on what people died of in the workhouses. Such was the pressure on the workhouse system throughout Ireland from the autumn of 1846 on that it sometimes risked exacerbating rather than relieving the crisis. Preserving life in the workhouse entailed not only adequate food and shelter, but protecting inmates against infectious disease. Workhouse managers were expressly forbidden from admitting diseased claimants except when they had created special quarters for them at a safe distance from other inmates. Some workhouses had an adjoining fever hospital or at least separate accommodation for fever patients, but such facilities were very limited.[5] At the height of the famine it may not have been easy to identify and refuse, or segregate, all ill and diseased claimants. Congestion also increased the likelihood of contagion, but as the crisis intensified many boards of guardians found the pressure for relief impossible to resist, even though

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[4] For more on this see T.W. Guinnane and C. Ó Gráda, 'Workhouse mortality and the Great Irish Famine', in T. Dyson and C. Ó Gráda (eds.), *Famine Demography: Evidence from the Past and the Present* (Oxford, forthcoming).

[5] In mid-March 1847 the entire country contained workhouse accommodation intended for 93,860 inmates, 3,069 hospital places intended specifically for fever patients, and extra accommodation for 6,630. At that time there were about 120,000 inmates in the workhouses, including over eight thousand fever patients and another twelve thousand sick inmates. See British Parliamentary Papers (BPP), H.C. 1847 vol. LV, 'Copies or Extracts of Correspondence Relating to the State of Union Workhouses in Ireland', 3rd Series, 86-7.

admissions had already exceeded the accommodation provided. By early January 1847, for example, the workhouse in Fermoy in County Cork held 1,408 inmates in accommodation designed for nine hundred, and the ratios in two other workhouses in the same county, Kanturk and Dunmanway, were even worse.[6] A relatively small number of unions pursued a very restrictive admissions policy in order to minimize their tax burden, but a combination of compassion and popular pressure biased many more towards over-crowding. The trouble was that workhouses that gained a reputation for congestion and for allowing in diseased patients presumably deterred initially healthy paupers from entering them until they too were weak and sickly. The resulting selection bias in entrants to the workhouse may help explain why so many inmates died of infectious diseases. The point remains that admitting those afflicted with such diseases to the workhouses did them little service and risked killing others.

The prevalence of infectious disease and the pressure to admit sick people to the workhouse were greatest in the areas worst affected by the famine. So it should come as no surprise that the proportions succumbing to infectious diseases in workhouses were higher in the provinces of Connacht and Munster than those of Leinster or Ulster. More interesting are local similarities and anomalies. Thus the percentages of all deaths attributable to epidemic and contagious diseases in Kerry poor law unions did not vary much – from 67 per cent in Listowel to 78 per cent in Kenmare – but the low proportion of deaths attributed to infectious diseases in both Dublin City workhouse (30 and 33 per cent) relative to those of industrialising Belfast (48 per cent) and, to a lesser extent, Cork City (53 per cent) is significant.[7]

The cause of death data illustrate the pressure the famine created on workhouses and explains some of the perverse outcomes we observe. But the surviving workhouse registers do not record causes

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[6] Sir G. Nicholls, *History of the Irish Poor Law* (1856), pp. 325-6; BPP, H.C. 1847 vol. LV [863.], 'Copies or Extracts of Correspondence Relating to the State of Union Workhouses in Ireland', 2nd Series, 7-13.

[7] Guinnane and Ó Gráda, 'Workhouse mortality', Table 4.

of death comprehensively, making this measuring rod useful only for the union-to-union comparisons we have employed elsewhere.[8] We focus instead on a second strategy. Where workhouse registers survive, we can estimate mortality rates using the time lag between admission to the workhouse and death. Because the registers record a great deal of other information — including age at admission, health status at admission, sex, and many other characteristics — we can see how mortality rates differed across different types of inmates. The level of the mortality is interesting by itself. During the famine people who died of diseases such as dysentery and diarrhoea normally did so within days of contracting them. This implies that deaths from those diseases occurring within a workhouse several weeks and even months after admission were probably the product of contagion in the workhouse. If those who died in the workhouse did so very quickly after admission, this is an indication that they had probably caught the disease before entering. But large-scale mortality after several months in the workhouse is a fair indication of mismanagement.[9] We can also use the characteristics of those inmates with high mortality rates to tease out indications of the workhouse's management. For example, if those most likely to die are those who are brought to the workhouse very ill, the workhouse probably had little to do with their death. We discuss our approach and report an econometric model of workhouse mortality in section 3 below.

2. The North Dublin Union Before and During the Famine

We can also learn more about the pressures facing workhouses by paying close attention to their management prior to the famine and during the crisis. Dublin city's workhouses invite study because most

[8] Guinnane and Ó Gráda, 'Workhouse mortality'.

[9] For a case-study see A. Eiríksson, *Ennistymon Union and Workhouse During the Great Famine: A Statistical Report* (Dublin: National Famine Research Project, 1998). NDU is one of seventeen surviving registers (and one of only five of them from outside Ulster) to cover the entire famine period. For a guide to surviving workhouse-related material see D. Lindsay and D. Fitzpatrick, *Records of the Irish Famine* (Dublin, 1994).

of their records have survived. The Poor Law divided Dublin into two unions, with the river Liffey offering a natural dividing line. The North Dublin Union, the focus of this study, began to receive paupers in early May 1840. Its catchment area included the north city and suburbs and adjoining rural districts in the baronies of Coolock, Castleknock and Uppercross. The union contained a population of just under one hundred thousand people (97,065 in 1841) and rateable property valued at £265,586-10-0, or £2.74 per capita. The bigger South Dublin Union, which opened its workhouse a few weeks earlier, contained 135,661 people and property rated at £402,516-13-4, or just under £3 per capita.[10]

The North Dublin Union's workhouse had operated as the city's House of Industry in North Brunswick Street until 1840. Although created as a private charity in 1772, the House of Industry had long relied on government funding. Originally intended as a place where vagrants would be committed to tedious work such as picking oakum, its main function soon became 'the relief of the aged and the infirm, and of those who laboured under temporary distress from want of employment'. Vagrants could be confined there and shirkers corporally punished, but the great majority of inmates entered voluntarily and could leave as they pleased.[11]

Refurbishment of the House of Industry left the new workhouse with accommodation for an estimated two thousand inmates. The Poor Law Commissioners hoped that this would be more than adequate, but the closure of the Dublin Mendicity Institution soon after the opening of the workhouses put

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[10] National Archives of Ireland, North Dublin Union (henceforth NDU) board minutes 14 March 1849. For more on the South Dublin Union see H. Burke, *The People and the Poor Law in Nineteenth-century Ireland* (Dublin, 1987). For conditions in Dublin generally during the famine see F. Corrigan, 'Dublin workhouses during the Great famine', *Dublin Historical Record*, 29 (1975-6), pp. 59-65; C. Cox, *Dead Dubliners: The Effects of the Famine in the North Dublin Union* (Dublin: National Famine Research Project, 1996); O. Callaghan, 'A study of Dublin 1845-50: the impact of the Great Famine on a city' (Department of Modern Irish History, University College Dublin, undergraduate thesis, 1971); Ó Gráda, *Black '47*, ch. 5.

[11] J. Warburton, J. Whitelaw, and R. Walsh, *History of the City of Dublin* (1818), vol. I, pp. 618-23; Cox, *Dead Dubliners*, 1-3; C. Maxwell, *Dublin Under the Georges* (1946), pp. 131-2.

both Dublin's unions under pressure.[12] This crowding-out effect is reflected in a motion proposed by a member of the Board of Guardians, Thomas Arkins, on 5 January 1842:

> that in as much as a very great number of women and children apply to this the North Dublin Union workhouse for admission and in consequence of the crowded state of the House are rejected...it is the duty of the Board to inform the public of this fact in order that the destitute poor may not be deprived of the assistance they formerly received from the charitable and humane under the idea that this House is all sufficient for their relief.

The workhouse of the North Dublin Union was the third to open its doors under the Irish poor law.[13] Although it would rarely contain its full complement of two thousand paupers before the famine, it always contained more than a thousand people. Johann Kohl, a German traveller who visited the North Dublin Union in 1842, believed that the poor would stay there only as long as absolutely necessary, trading their 'N.D.U.W.U. slave-costume' for 'their old miserable *sans-culotte* liberty dress'. The huge workhouse potato-boiler, which attracted Kohl's curiosity, boiled four to five hundred individual portions, separated by nets, simultaneously.[14]

The North Dublin Union workhouse was certainly managed with a view to economy. The American travelling evangelist Asenath Nicholson noted how the straw used for bedding and suds from the laundry were recycled to produce a 'rich manure', while pigs were fattened on the house's slops. In November 1845 in the wake of the first attack of blight the house acted on a suggestion from

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[12] The Mendicity was located at Moira House, Usher's Island. It had previously been the home of Lord Moira, whose family let it to the Mendicity Society in 1826. After the take-over 'the upper story of the edifice was removed, the handsome gardens covered with offices; and every measure adopted to render it a fitting receptacle for the most wretched paupers' (Gilbert, *History of the City of Dublin* (Dublin, 1903), vol. 1, 400). Richard Hall, assistant poor law commissioner, claimed that the health of Mendicity paupers had improved when they were moved to the North Dublin Union (*Saunders' Newsletter*, 21 October 1841).

[13] Only four workhouses were admitting paupers before the end of 1840. They were Cork city (1 March 1840), the South Dublin Union (24 April 1840), the North Dublin Union (4 May 1840), and Londonderry (10 November 1840).

[14] J.G. Kohl, *Travels in Ireland* (1844), pp. 280-1.

the Poor Law Commissioners to try converting diseased potatoes into farina, but this attempt failed.[15] The spartan regime followed in the workhouse is well reflected in the union's minutes and reflected the harshness of life outside. In June 1840 the matron complained of the lack of tables and chairs in the dining room and of inmates catching cold from sitting on the flagstones. There were complaints of inferior oatmeal and watery potatoes. On November 18 1840 the board complied with a request for unclaimed bodies for anatomical dissection. The sectarian divisions of the day were also reflected in life in the workhouse and in recurrent controversies between guardians.[16]

Sentiments of economy and compassion alternated in board discussions about the treatment of paupers. In May 1842 a proposal in favour of better breakfasts by one guardian was met with a claim from another that his own workmen were less well fed than the adult inmates and a protest from a third that the house was not 'a board and lodging house'. In October 1846 a complaint from one guardian that workhouse women were being employed in breaking stones out of doors was met with the quip from another that but for the potato blight women like them 'would be in the open fields digging potatoes, with their sleeves tucked up'. Corporal punishment and physical labour were standard, though within limits. In March 1841 the schoolmaster was reprimanded for using 'a very severe instrument' with seven thongs on one of the boys, and a few months later for severely beating

[15] A. Nicholson, *The Bible in Ireland* (New York, 1927), p. 6; NDU Minutes, 12 December 1845; 26 November 1845.

[16] At the outset the board had a protestant majority (*Saunders Newsletter*, 28 October 1841). Alleged proselytism in both city workhouses was a recurring theme. On 6 May 1846 two North Dublin Union Guardians proposed that 'the Roman Catholic religion not being the true religion we object to pay for the teaching of its doctrine'. See too Burke, *The People and the Poor Law*, pp. 87-92.

another boy.[17] The harsh routine was mitigated by treats such as the occasional visit to the zoo by the workhouse children and a meat dinner once a year, on Christmas Day.[18]

In its early years the North Dublin Union attracted considerable controversy. The death rate in the workhouse seemed excessive, with the high number of infant deaths attracting particular notice. The accusation of high infant mortality prompted an interesting and sophisticated pamphlet by Rev. Thomas Willis of St. Michan's, who highlighted the poverty of the Union's catchment area. Travellers such as Kohl, Nicholson, and William Thackeray toured the workhouse on the eve of the Famine.[19] Thackeray saw old men 'in considerable numbers' and at least four hundred old ladies 'sitting demurely on benches' (some of whom stood up when the visiting party entered, to Thackeray's embarrassment). He also saw lots of young, healthy females with sly 'Hogarthian faces', and eighty babies in the nursery attended by their mothers. Nicholson deemed the rooms well-ventilated and floors clean. The 'open door' policy which allowed in such visitors may have been part of a public relations exercise.

Venality and carelessness were common accusations against poor law guardians in the early years of the Irish poor law. Attendance at meetings was correlated with the value of patronage to be dispensed or contracts negotiated. In Ballina 'the Fair of Moyne prevent[ed] a full attendance' of guardians on 24 July 1847, even though the crisis facing the union was such that the six guardians present had to sign an undertaking to pay £10 each within a month to any merchant who would

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[17] NDU Minutes, 19 May 1842; *Saunders' Newsletter*, 4 March 1841, 29 July 1841, 22 October 1846.

[18] In December 1841 a motion in favour of a beef dinner was passed by a big majority. See *Freeman's Journal*, 16 December 1841.

[19] Willis, *The Social and Sanitary Condition of the Working Classes of Dublin City* (Dublin, 1844), pp. 7-9; Kohl, *Ireland*, 276-82; W.M. Thackeray, *Irish Sketchbook*, in *Collected Works*, vol. 18 (1888), pp. 344-6; Nicholson, *The Bible in Ireland*, pp. 5-6.

advance a supply of provisions for the workhouse.[20] Corruption on the part of rate collectors and the workhouse staff was also a problem. On the other a strict inspection system and strong popular resistance to paying rates limited the scope for abuse.[21]

Elections to the North Dublin Union board of guardians, consisting of thirty-three elected and twenty-seven ex officio members, were keenly contested along confessional or party-political lines, and there was a considerable turnover of guardians. The first meeting of a new board on 30 March 1841 attracted thirty-nine guardians. Rarely, however, did more than half the board membership attend meetings, so that in practice the board was run by a minority of activist members. Sectarian issues provoked more controversy on the board than any other topic and voting patterns on that score were predictable. However, divisions on other union matters tended not to be on party-political or sectarian lines. On the whole the North Dublin Union guardians did not let sectarianism or politics get in the way of the management of the union. The pressure to keep down rate charges and the near-constant presence of a representative of the Poor Law Commissioners also constrained rent-seeking. Its records and contemporary press commentary suggest that, compared to other boards, it was relatively was free from scandal and corruption.[22]

How well managed was the North Dublin Union workhouse during the Famine? As noted above any answer can only be relative. It must not be forgotten that Dublin was less affected by the famine than almost any other region or county in Ireland. Dubliners were less reliant on the potato than the rural population for which it was a staple. The impact of the failure on the cost of subsistence

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[20] C. Ó Murchadha, *Sable Wings over the Sand*: *Ennis, County Clare, and its Wider Community During the Great Famine* (Ennis, 1998), p. 22, also pp. 158-60, 209-12; National Library of Ireland, Ms. 7850.

[21] Thus Clifden workhouse did not open its doors to paupers until March 1847 even though 'their special attention had been called to some recent deaths in Clifden from starvation', while in Castlebar the Guardians blamed a lack of funds for their refusal to admit inmates while the workhouse contained only one-sixth of its capacity. See 'Copies or Extracts of Correspondence', 2nd series, 8-9; *Tenth Annual Report of the Poor Law Commissioners*, 43-4, 59-64.

[22] *Thom's Irish Almanac and Official Directory 1845*, 654; *Thom's Directory 1848*, 597.

in Dublin should not be dismissed, but the famine's indirect impact, as an externality imposed by hardship in the rest of the country, was more serious. As the crisis intensified thousands from the rural interior headed for Dublin for relief and for work, and Dublin was also the main port of embarkation for Liverpool.[23]

During the famine the North Dublin Union usually catered for a disproportionate share of the city's poor. In early February 1847 it accommodated 2,506 inmates against the South Dublin Union's 2,246; at the end of April the numbers were 2,838 and 2,258, respectively.[24] The north side of the city was poorer, as reflected in the lower valuation per head of land and housing north of the river Liffey. The workhouse's location also meant that infirm and disabled paupers dispatched from England or Scotland landing at the North Wall were more likely to become charges on its ratepayers. The location of the city's main night asylum on Bow Street north of the Liffey was also a factor, 'centraliz[ing] in this locality a frightful mass of destitution, not alone of our own poor, but also of the distressed and starving population of country districts, flying from their wretched and famine stricken homes'.[25] The North Dublin guardians repeatedly complained that the union's taxpayers were unfairly carrying the can for those western unions which supplied a significant share of admissions to its workhouse.

Since Dublin was virtually excluded from relief under the Labour Rate Act (the measure which channelled public funds into public works throughout most of Ireland until the summer of 1847), from the outset the burden of the famine fell disproportionately on the poor law. Though admissions and departures were subject to some seasonality, before the famine the North Dublin Union was nearly always at least three-quarters full. In 1846 the number of inmates never fell below 1,700, and it already exceeded its official capacity of two thousand by early November 1846. Still the pressure for

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[23] Ó Gráda, *Black '47*, ch. 5.

[24] 'Copies or extracts of correspondence', 3rd Series, 10-1, 172-3.

[25] NDU minutes, 20 Jan 1847; NDU minutes, 14 April 1847.

admission continued to mount, leaving the Guardians no option but to convert the workhouse's dining hall into a dormitory. In late 1847 the union's capacity was doubled to four thousand places.

Table 1 reports a breakdown of deaths in the North Dublin workhouse in the first four months of 1847, a period when famine mortality was at its height in Dublin. The breakdown into 'immigrants' and 'Dubliners' is rather crude; 'immigrant' refers simply to inmates born outside the union. Though the category was meant to highlight the impact of famine-induced immigration on the North Dublin Union, almost certainly some of the 'immigrants' were long-standing residents of Dublin's northside. Nevertheless, the breakdown gives some sense of the famine's impact on the city. The high concentration of men and women aged sixty years and above among the dead is particularly noteworthy.

3. Death in the North Dublin Workhouse

Our earlier discussion of workhouse conditions raised the question of whether workhouses actually helped anyone, and if so, who. The best way to examine this is to study how individuals of specific characteristics fared once in the workhouse. There are several possible outcome measures one might like to examine here, but perhaps the most important is the only one available to us, which is whether inmates survived their stay in the workhouse, and if so for how long. Using a one-in-ten random sample of all who entered the North Dublin Union between 1844 and 1850, we analyse who died in the workhouse and how long they survived before dying.

Our main tool is one of a class of models that go by various names. Demographers call them 'event-history analysis' while economists are more likely to use the biometric terms 'failure analysis' or 'duration analysis'.[26] The basic idea is that we study the determinants of the duration of spells: the length of time between the beginning of a spell (in this case, entry into the workhouse) and the end of

[26] For an earlier application of this methodology to Irish economic history see T.W. Guinnane, 'Age at leaving home in rural Ireland, 1901-1911', *Journal of Economic History*, 52(3) (1992), pp. 651-74. The model used in the present paper differs in some important respects.

the spell (the person either dies or leaves the workhouse alive). Most of our interest is in the conditional probability that a spell ends at a particular time, that is, whether a male would survive longer than a female, or an infant longer than an adult. The Cox proportional-hazards model, which is perhaps the most popular, has two important virtues for our purposes. The model is semi-parametric, which means that we do not need to know much about the correct shape of the underlying hazard rate. The Cox model lets the data shape the hazard as its wants, and only assumes that the effect of each covariate is to produce a proportional shift in the hazard. The Cox model also makes it simple to incorporate time-varying covariates. This permits us to test for the impact of things that change while an individual is in the workhouse. For example, we use a monthly proxy for non-workhouse mortality in Dublin to capture the effect of overall mortality risks. Clearly this variable changes over time and the Cox model captures this feature nicely.

The data involve some complications. There was one way to start a spell – to enter the workhouse – but two ways to end it – either to die in the workhouse or to leave. Technically we have a competing-risks model, which corresponds to a multiple-decrement life table. Someone who dies in the workhouse cannot leave the workhouse, and vice versa. There is some potential for complication here if there is much correlation between the two risks. In modern mortality studies, for example, the fact that smoking causes both heart disease and cancer means that these two death risks are correlated for smokers. In our situation the correlation seems low. In any case the approach we adopt amounts to assuming that the risks are conditionally independent (in the statistical sense); once we control for our covariates, the model assumes that the risk of dying in the workhouse is independent of the risk of walking out of the workhouse. This is the most common approach, which is an over-used justification, but here it is hard to construct stories that imply strong correlation between the risk of dying in the workhouse and the risk of leaving it. We have not tried to deal with a second complication, which is the problem of unobserved heterogeneity. Suppose that each inmate in the workhouse had some trait unrecorded in the data that improved their ability to survive in the

workhouse. Then those still alive in the workhouse after six months would have a higher value of this trait; the weak ones would die first. In general unobserved heterogeneity biases the estimated hazard rate in such a way as to make it decline with time (or rise less slowly with time). The estimated hazards in our model do in fact decline sharply with time; most who die in the workhouse do so relatively quickly. (The median spell from admission to death for those who died in the workhouse was only 1.6 months. Twenty-five percent died within a fortnight.) This effect may reflect unobserved heterogeneity in part. We have not tried to employ any of the proposed ways of dealing with unobserved heterogeneity in duration models because of reservations about the additional assumptions these models require.

Definitions of covariates

We measure time in the number of months since the person enters the workhouse. After some experimentation with censoring the data at one year (by which time most individuals had either died in the workhouse or left it under their own power) we decided to include the full length of every spell. The results are not affected by this choice. Our covariates are of two types: those that reflect a characteristic of the inmate that does not change over time (for example, sex or the age at which the inmate was admitted to the workhouse), and those that change over time (such as proxies for the fiscal problems facing the Guardians). We have organized the information in a way that reflects a trade-off between manageable numbers of variables on the one hand, and learning as much as possible from the sample on the other. We use a dummy variable for sex, and we interact this dummy with several other covariates in a search for gender effects. Many inmates were admitted to the workhouse as part of a family group, and we employ a dummy variable for those admitted alone. We parameterize age as follows: we have dummies for infants and for children (1-4 years), and for those

aged sixty and above. Those aged 5-59 have a (continuous) spline term for age and age squared.[27] Another set of covariates are dummies describing health status on admission. As noted, workhouses were forbidden to admit people who had fever or other contagious illness, though many did. Here we divide the many notations into those who appear to be healthy (the omitted category); those admitted with minor illnesses; those suffering from fever, cholera, and other more serious illnesses (many of whom were 'recovering'); and those with chronic illnesses. Many inmates are missing this information, and we use a separate dummy for those who health status on admission is not known to us. This missing information is unfortunate, but our "Health status unknown" variable does not create any bias; it amounts to a distinct health status.

We have two sets of controls for the individual's physical condition when first admitted to the workhouse. One refers to their appearance, and contains notations such as 'dirty' or 'ragged'. We take this variable to give some indication of how far gone the person was before seeking refuge in the workhouse. The omitted category here is 'clean'. Another set of covariates pertains to the inmate's place of birth. Most inmates in the North Dublin workhouse came from Dublin city and county. For the sample period as a whole Dubliners accounted for about half of all inmates. But the proportion is not constant, and in 1845 Dubliners accounted for 69 percent of all entrants. The proportion declined as the Famine intensified. Indeed, the collection of information on place of origin reflects the Guardians' increasing concern with the financial burden of catering to Famine immigrants from the countryside. This place of origin variable is of interest because it helps us to control for an inmate's need. Presumably someone having come from Connacht (on the west coast of Ireland) is more likely to have been in poor physical condition and dire need. We also use a set of dummies for the year the inmate was admitted to the workhouse.

[27] We experimented with several specifications of age and other effects, and discuss these alternatives below.

Some factors that affect the risk of death in the workhouse change over time. We employ three sets of time-varying covariates to capture the effect of these risks. The first is a proxy for mortality conditions in the city at large. We use the number of burials per month in Prospect Cemetery, located north of the city in Glasnevin.[28] This burials information is the best proxy available for general mortality conditions in the city of Dublin. A second proxy attempts to capture the Guardians' problem of feeding a large number of inmates on a fixed and inadequate budget. (High-frequency data on workhouse expenditure is not available.) After some experimentation with prices for oats and maize, we opted for the average price of potatoes as reported in newspapers. We know from workhouse records that the inmates were not actually eating potatoes once the potato failed.[29] During the Famine the workhouse purchased oatmeal and Indian meal (maize). We use potato prices because they are strongly correlated with the prices of oats and maize throughout our period, and because they are continuously available in a way maize prices are not.[30] Finally, we suspect that there were significant seasonal variations in the risk of dying in the workhouse as elsewhere; the winter months, for example, were harder on the sick and weak than others. To capture this seasonality we use dummies for months. This seasonality should already be reflected in the burials data, but to the extent it is not we can capture it with the monthly dummies.

Results

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[28] Our data refer to burials in the "general" plots. Our thanks to John Kinahan, secretary of Glasnevin cemetery, for allowing us to consult the relevant records.

[29] On 1 July 1846 the guardians ordered an end to the use of potatoes in the workhouse (NDU minutes).

[30] Our potato price data, which we owe to Peter Solar, are bi-monthly, but we assume that the price in even-numbered months is equal to the price in the preceding month. Solar collected a 'high' and 'low' series: ours is the average of the two, though this choice does not materially effect the outcome. The correlation over our period of the average price of potatoes with the average price of oats is 0.65 and with the average price of maize, 0.62.

We experimented with several different specifications, the main implications of which we now mention. Table 2 reports our preferred model. The coefficients are relative hazard rates; so, for example, being an infant raises the risk of dying by 3.7 times the "baseline" hazard. The t-ratios have the usual interpretation. Our age results show that infants and children were at great risk in the workhouse, being more than three times as likely to die in a given month. Although striking, this outcome should be set against the high death rates of infants and children in congested cities such as Dublin at this time. Neither age splines nor the dummy for older inmates is statistically significant, although both have plausible signs. Moreover, excluding the age splines and the older inmate dummy dramatically affects the model's overall fit, which is why these variables are included here.[31] This finding suggests complicated interactions between age and the other covariates in the model.

Neither the main effect for sex nor the interaction of sex with infant and children status has any significant impact. (We also tried interacting sex with the age splines and the older-inmate dummy, with similar lack of result). The coefficient on the main effect for sex and on female infants is also greater than one, which implies that females were at greater risk. Most studies find that male mortality exceeds female during famines, and in this respect the Irish famine is no exception. We cannot claim on the basis of our results that sex made no difference to the survival of inmates in the North Dublin workhouse. Perhaps admission to the workhouse was conditioned on sex in some way, or that men were in better condition when admitted, in ways that our data do not capture. But it is noteworthy nonetheless that our extensive efforts to uncover sex impacts have come to so little.[32]

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[31] The chi-square statistic for the likelihood-ratio test that age, age squared, and the dummy for elderly are jointly zero is 19.2 (p=0). There are four other blocks of variables included in our specification where some individual effects are not statistically significant, but we include them because they are part of a block of variables that is collectively significant. These include the health status dummies (chi-square = 28.4, p=0), the place of birth dummies (chi-square=21.9, p=0.003), the month dummies (chi-square =19.0, p=0.061), and the year of admission dummies (chi-square=27.8, p=0).

[32] On the issue of gender and famine in Ireland and more generally see D. Fitzpatrick, 'Gender and the famine', in M. Kelleher and J.H. Murphy (eds.), *Gender Perspectives on Nineteenth-Century Ireland* (Dublin, 1997); Ó Gráda, *Black '47 and Beyond*, 101-4; Kate

Other features of the inmate's age and characteristics upon admission also yield some surprising results. Entering the workhouse alone, as opposed to as part of a family group, raises the risk of death considerably. (Infants who entered alone actually did better, but the number of inmates in this category was tiny.) This result may reflect, again, unobserved differences in the inmate's condition. A more disturbing and probably more likely interpretation is that supervision in the workhouse did not prevent staff and inmates from taking advantage of inmates unable to fend for themselves alone. If this is the right interpretation of our finding, it is disturbing evidence that workhouse organization was insufficient to prevent desperate inmates from preying upon one another. We also investigated two other effects with so little impact that we omit them from our preferred model. The workhouse register lists each inmate's religion and marital status. We found that neither religion nor marital status had any important impact on mortality risks. This may well be because our other covariates have already captured the essential differences between Catholics and Protestants, or between married inmates and others.

The next block of variables, describing the person's health status at entry into the workhouse, contains few surprises. People suffering from serious illness when admitted did not last long in the workhouse. The "unknown" category here is also positively correlated with mortality risk, suggesting that when information was not recorded the inmate was ill on admission. The condition variables (Dirty, Ragged) have surprising signs, but this variable also suffers from serious under-reporting, greatly reducing their value to us. About 78 percent of inmates have no information on their "condition." The place of origin dummies, we hoped, would help control for the individual's sense of desperation. Their performance is consistent with that expectation. Dublin City is the omitted category here. Compared to Dubliners, people from the hard-hit provinces of Connacht and Munster had higher risks of death. People who made it to Dublin from the west of Ireland were more likely to be in bad

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Macintyre, 'Famine and the female mortality advantage', in Dyson and Ó Gráda, *Famine Demography*.

shape, and their experience in the workhouse reflects their condition on entry. The same applies to those whose place of origin was not stated. Although the outcome is plausible, this category reflects current conditions in the workhouse as much as anything else. Overall about 9 percent of the sample did not state a place of origin, but in 1844 this figure was 90 percent and in 1849, 51 per cent. Again, by including a dummy for inmates whose birthplace was not known we avoid any bias in the other estimates, but it is unfortunate that for some years this information for so many inmates is missing.

The final block of time-invariant covariates are the dummies for the year in which the inmate was admitted. For the most part these are as expected, but the coefficient on 1845 is surprising; the model implies that 1845 (the last year before the Famine) was worse than 1846 or 1847, the two worst years of the Famine, and the difference is statistically significant.[33] Our burials covariate in principle controls for the large spike in mortality in Dublin in 1845, so our finding should not reflect just how bad the year was in Dublin as a whole. Higher morbidity levels in the workhouse itself in 1845 may well have been a factor, however.[34]

We have three sets of time-varying covariates. The first, mortality, implies that the death rate in the city at large affected risk in the workhouse. There are probably two effects at work here. One is that the same environmental factors affected both workhouse inmates and other Dubliners. The second is that mortality crises were caused by the same factors that drove people into the workhouse. The potato-price covariate (and its interaction with the dummy for inmates aged 60 and older) shows that higher potato prices increased the risk of dying in the workhouse. The potato prices are a proxy

[33] That is, the likelihood-ratio test for *ADMIT45=ADMIT46* has a value of 5.74, which is distributed as chi-square with a probability of 0.0165. The test statistic for ADMIT45=ADMIT47 is 7.56 (with a probability of .006). Another possibility, suggested by Carolyn Moehling, is that to the extent that our age controls are not picking up weakness, our results may simply be reflecting the fact that before the famine the population of the workhouse was disproportionately old and sick, while during the famine the inmates were more representative of the population at large.

[34] The proportion of inmates receiving medical treatment in the workhouse in 1845 was considerably higher than in 1844. For example, 29 per cent were receiving treatment in the week ending 29 November 1843, 32 per cent in the week ending 13 November 1844, 42 per cent in the week ending 3 November 1845, and 40 per cent in the week ending 4 November 1846.

for the cost of running the workhouse. Higher prices meant not only that each calorie in inmate diet was more expensive, but also that there was less left over for fuel, medical care, and clothing. The effect is especially strong for the elderly. This dependence of mortality on potato-prices illustrates the severe problems facing the workhouse master and his staff; conditions in the workhouse were partly under his control but also reflected his limited budget and the economic crisis in the country at large. The monthly dummies are intended largely as controls, but they display a strong and expected seasonal pattern. The risk of dying fell in the summer and peaked in the fall and winter.

5. Conclusions

Our study of workhouse mortality in North Dublin points to three features of inmate experience. First, contrary to expectation, males and females faced similar risks of dying in the workhouse. Second, the impact of inmate health status on arrival, and the patterns found in the place-of-birth information, show that the inmate's condition upon admission to the workhouse was a powerful predictor of mortality. The workhouse had no control over who asked for admission, and as the status of those who sought entry became more desperate, workhouse mortality increased. Third, forces entirely external to the workhouse, its inmates, and its management, including food prices and mortality conditions in the city at large, played a strong role in determining death risks inside the workhouse. All these findings must be tempered with the reminder that our information on workhouse admissions, while unusually rich for the Irish famine, is still incomplete. Although unlikely, it is possible that unobserved characteristics of the North Dublin Union's inmates affected their mortality risks in ways that are picked up by the covariates we are using to proxy for forces external to the workhouse. Yet overall our findings show that the Poor Law Union and its employees performed credibly in these most trying circumstances.

The North Dublin Union, the particular focus of part of this study, was transformed by the Great Famine. A system intended to cater mainly for the elderly, the very young, and the temporarily

unemployed, was confronted with a catastrophe that left some Dubliners destitute and drove thousands of others to the city in search of charity and work. In the most basic sense, the Union's managers faced the challenge competently if not brilliantly. But we should not congratulate them over-much. The North Dublin Union never faced the challenges or the horrors witnessed and endured in the south and west of Ireland. This Union also had one of the highest poor law valuations per capita in the country. On the other hand, it faced the problem of caring for a huge refugee inflow, and doing so within a system that stressed local rates even for the care of those from outside Dublin.[35] There is ample evidence of incompetence and venality in other workhouses and Poor Law Unions during the famine. In the case of the North Dublin Union, however, most of the blame for excess mortality in its workhouse rests somewhere else.

[35] Guinnane and Ó Gráda, "Workhouse Mortality" puts the North Dublin Union and its experience in the context of all the Poor Law Unions of Ireland.

TABLE 1: DEATHS OF INMATES TO THE NORTH DUBLIN UNION IN JANUARY-APRIL 1847

	Immigrants				*Dubliners*			
Age-group	*Males*	*(%)*	*Females*	*(%)*	*Males*	*(%)*	*Females*	*(%)*
0	19	22	18	19	60	52	65	50
36-29	9	10	13	14	9	8	15	12
20-29	2	2	3	3	2	2	7	5
30-39	3	3	7	8	11	10	5	4
40-59	21	24	21	23	17	15	18	14
60 +	33	38	31	33	16	14	19	15
Total	87	100	93	100	115	100	129	

Source: North Dublin Union indoor registers

TABLE 2: Estimates of the risk of dying in the North Dublin Union workhouse.

Cox proportional-hazards model

Covariate	Relative hazard rate	T-ratio	Mean of covariate
Time-invariant covariates:			
Age and sex at admission:			
Female	1.172	1.459	0.504
Infant	4.118	4.317	0.026
Female * infant	1.099	0.321	0.011
Child	3.251	3.773	0.080
Female * child	0.985	-0.055	0.027
Infant * alone	0.224	-1.690	0.002
Alone	1.488	2.645	0.665
Child * alone	1.780	1.592	0.006
Age spline	1.003	0.138	14.094
Age spline squared	1.000	0.800	427.394
Aged 60 or older	1.445	1.027	0.125
Health status at admission (omitted category is no health problems):			
Minor illness	0.992	-0.039	0.080
Fever	1.397	1.974	0.199
Chronic illness	2.609	2.819	0.006
Cholera	1.801	4.138	0.269
Health status unknown	1.211	1.144	0.143
Place of birth (omitted category is Dublin city)			
Britain or abroad	0.537	-1.279	0.012
Connacht	1.438	1.796	0.039
Dublin region	1.221	1.204	0.070
Ulster	1.183	0.821	0.047
Elsewhere in Leinster	0.951	-0.277	0.087
Munster	1.404	1.506	0.029
Birthplace not known	1.626	3.793	0.237
Condition upon admittance (omitted category is no information given)			
Dirty	0.796	-1.451	0.113
Ragged	0.554	-2.454	0.085

Table 2, continued

Year admitted to workhouse (omitted category is 1844)			
1845	2.746	3.146	0.058
1846	1.625	1.431	0.115
1847	1.080	0.177	0.243
1848	1.115	0.280	0.203
1849	1.964	2.087	0.164
1850	2.806	3.282	0.127
	Time-varying covariates		
Dublin Mortality	1.007	1.500	379.153
Dublin Mortality squared	1.000	-1.490	155759.000
Potato prices	1.079	2.181	7.800
Potato prices * elderly	1.082	2.751	0.918
February	1.018	0.079	0.091
March	0.663	-1.775	0.091
April	0.977	-0.103	0.087
May	0.817	-0.849	0.084
June	0.747	-0.885	0.078
July	0.895	-0.393	0.075
August	0.842	-0.697	0.075
September	1.185	0.729	0.077
October	1.301	1.187	0.078
November	1.106	0.426	0.083
December	1.410	1.608	0.088

Note: Log-likelihood is -316.5; Wald statistic is 304. The sample includes 3330 inmates, 402 of whom die in the workhouse. There are 14,633 inmate-months of exposure in total.