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Ireland's Peculiar Microfinance Revolution, c. 1836-1845

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Abstract:

In the decade before the famine, Ireland experienced a boom in Microfinance Institutions (MFIs). This paper analyses the motivations of MFI proponents and practitioners, and finds evidence linking the boom in MFIs with the introduction of the poor law in 1838. Many contemporary writers saw microfinance as a complex tax avoidance/reduction scheme that could lessen the burden on rate payers by helping the poor help themselves. The link between MFIs and the poor law is confirmed by an econometric analysis of MFIs at the level of the poor law union.

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1. Introduction

Microfinance – the provision of small-scale financial services to the poorest segments of society – is a key pillar of development policy (Armedáriz and Morduch 2007). While having existed and flourished for centuries, microfinance was ‘rediscovered’ and its importance lauded. International agencies referred to it as ‘revolutionary’ (Robinson 2001) and development textbooks made it central to their discussion (Nafziger 2012, Thirlwall & Pacheco-Lopez 2017, Sachs 2016). The award of the 2006 Nobel Peace Prize to Muhammad Yunus and the Grameen bank ‘for their efforts to create economic and social development from below’ celebrated the achievements and possibilities of modern microfinance.

For all the attention microfinance has garnered, much about its establishment, sustainability and reach are still unknown. The determinants of locational choice and diffusion of microfinance within countries are poorly understood (Vanroose 2016). The motivations of NGOs that establish and choose locations for their microfinance institutions are, surprisingly, not necessarily poverty reduction; they can instead be path-dependent (Bebbington 2004). Therefore, teasing out the locational choice and ultimate success requires the use of historical information. In this vein, Colvin et al. (2017) explore the structural changes and cultural factors that influence the market entry and success of microfinance in the Netherlands. Similarly, Suisse and Wolff (2019) find that structural change incentivises the expansion, but that land inequality can inhibit the spread of microfinance. These findings are reflected in the wider literature on financial development, with Rajan and Ramcharan (2011) showing that greater levels of inequality lead to lower levels of bank activity, while Fishback and Jaremski (2018) find that the relationship between inequality and financial development changes over time. This study contributes to the literature by studying the expansion of a particular form of microfinance in Ireland in the decade prior to the Great Irish

Famine. It finds, even in the presence of positive incentives to expand, inequality imposed a significant barrier.

In eighteenth century Ireland, Jonathan Swift, Dean of St Patrick's Cathedral, Dublin (author of *Gulliver's Travels* and other social satires), established a fund to lend to local weavers. The *Dublin Musical Society*, following his example, established a loan fund using profits from their concerts to serve the credit needs of the deserving poor (McLaughlin 2009). Further initiatives traced their lineage to these loan funds or, like the Derry loan fund, developed independently. While such forms of microfinance remained rare at the beginning of the nineteenth century, by the early 1840s a burgeoning ecosystem with 553 loan fund societies (LFSs)¹ and 78 Trustee Savings Banks (TSBs) had been established to serve the industrious poor – see figure 1. The accessibility and outreach of these institutions was huge, dwarfing that of the 10 banking companies. At their peak, the microfinance institutions combined made £2.99 million (£281.2M in 2017 pounds) in loans and held £3.36 million (£315.98M in 2017 pounds) in savings deposits.

LFSs were contemporaneously recognised as a critical component of the Irish financial system (Martin 1848, p.259). The importance and uniqueness of LFSs and their sister institutions, TSBs, cannot be doubted. As noted by a nineteenth century history of Irish banking, 'Charitable' LFSs were 'peculiar to Ireland' (Dillon 1889, p.108).² This study seeks to explore this peculiarity by examining various forces that led to the 1840s boom in MFIs, chief among them the 1838 Irish poor law which taxed property owners to provide for the destitute poor. Although LFSs had long existed, and opening one was straightforward and required little capital, before the poor law the impetus to do so remained weak. To reduce potential burdens on poor-rate payers, promoters of LFS and TSB systems touted microfinance as an explicit means to enable the poor to weather normal economic fluctuations on their own. While contemporaneous supporters of these MFIs

¹ 392 Loan Funds registered with the Loan Fund Board between 1838 and 1845, and 161 separate loan funds registered with the London Relief Committee.

² Dillon deemed them peculiar in comparison to the 'Sister Kingdom' where similar institutions had not been established. However, the peculiarity of loan funds is not evident from temporal and spatial comparison where other examples of microfinance are evident (Hollis & Sweetman 1998b).

believed they would complement (Shuldham 1839, Piesse 1841) or substitute for (Ryan 1838) public poor relief, contemporaneous opponents, such as the joint stock banks, saw them as a potent competitive threat (BPP 1854-55, Q. 470).

Understanding of modern-day microfinance has benefitted from studies of Irish LFSs. Hollis & Sweetman (2001, 2004) use Irish LFSs as a case study to explore the sustainability of microfinance institutions in the face of severe exogenous shocks, as exemplified by the Great Irish famine. Hollis & Sweetman (1998, 2001, 2004) argue, with a significant nod to Dean Swift and the Dublin Music Society, that LFSs arose endogenously to solve the failure of the Irish banking system to serve the poor. Goodspeed (2016) extends their work by focusing on the sustainability of microfinance in Ireland in the context of the long run impact of the Irish famine and in post-famine adaptation. The ahistorical focus of these studies leads to an underappreciation of the significance of the rival network of loan funds (Reproductive Loan Funds (RLF)) located on the west of the island (Black 1960, 153),³ the importance of savings banks to the lives of the deserving poor, and the considerable impact of the poor laws on the rapid expansion of the non-bank financial system. By focusing on lending and savings activities separately, they mistakenly fail to recognize the market implications of the LFSs, RLFs and TSBs predominantly monoline structures, the complex inter-institutional, the sometimes symbiotic, sometimes competitive relationships between the different microfinance providers (McLaughlin 2014), and the changes in the fiscal environment that provided a crucial impetus that the Christian duty to care for the less well-off had not.

This study provides new insights into Irish LFSs. Firstly, the study utilises new data from Porter (1841)⁴ who surveyed loan funds in 1840. Porter (1841) provides a rich source of information on

³ Hollis and Sweetman (2001, p. 296) refer to the 100 RLFs and their £50,000 capital, they are discussed in Hollis & Sweetman (1998b). However, RLFs do not feature in the empirical analysis presented in Hollis & Sweetman (1998) nor in the analysis of Goodspeed (2016).

⁴ Henry John Porter was a land agent and a LFS advocate and practitioner in County Armagh.

LFS activity (savings and borrowing) that has not previously been utilised in the literature.⁵ Secondly, the study analyses LFSs using novel poor law data. The key finding of this study is the importance of the 1838 Irish poor law for the founding of LFSs. The incentive to establish LFSs, an indirect means of reducing the poor rate levy, varied positively with the burden the poor rate imposed, and Porter's data indicates that elites, those most affected by the poor rates, founded LFSs and did so with deposits over £50 – a sizeable amount of money for the time. Whenever the benefits of helping the poor to help themselves (lower poor rates) made good fiscal sense, LFSs were supported and established.

The study also highlights other significant contemporary events that give greater context to our understanding of MFIs in Ireland and explains why MFIs thrived. Supportive legislation, the 1836 and 1838 LFSs acts, and geographic restrictions on bank note issue provided fertile grounds for LFSs to operate. However, potential LFSs had to assess their viability in areas already served by RLFs, essentially identical institutions from the perspective of the borrower but distinct from the perspective of the lender. Not surprisingly, LFS were less likely to enter markets where RLFs were already established.

2. The Poor Law and the Rise of Microfinance

The explosion of LFSs in Ireland coincides with the development of a nascent welfare system financed by a new land tax in 1838. Parliamentary inquiries in the 1830s investigated the scale of poverty in Ireland and advised that some measure of poor relief was required. The introduction of the poor rates – a tax on owners (landlords) and holders (farmers/owners of industrial sites in urban locations) of landed property,⁶ payable by 'every occupier of rateable hereditaments [property that could be inherited]',⁷ to be paid within two months of the stated date or legal action

⁵ Hollis & Sweetman (1998) use evidence of LFS activity from a sample of 2 LFSs. Porter (1841) provides evidence a much wider array of funds across the island.

⁶ (1 & 2 Vict.), c. 56, section lxi.

⁷ Ibid.

would be taken to recover the tax arrears⁸ – constituted a massive fiscal shock to land owners. Ignoring local opposition, in 1838 the poor law system, a replica of that in England and Wales, was introduced. This system, instead of providing a consistent level of relief for the destitute poor, was characterised by unequal provision linked to the distribution of wealth in the individual poor law unions. The greater the divergence in means between the rich and the poor the worse the provision of relief (Chapman 2019).

The poor law was intended to provide a safety net for the destitute poor, those unable to care for themselves out of their own resources. Since contemporaries feared the moral hazard associated with the ‘comfort’ of outdoor relief (i.e. free food rations), the system was designed to discourage (ab)use by requiring entry into a poorhouse, one per Poor Law Union (PLU), to receive assistance, making it unpopular. Even with these draconian features, opposition and resentment of the poor law by ratepayers remained (O’Connor 1995; Gray 2009).

Although tenants of properties with a capital value less than £5, later £4, were exempted from paying the tax;⁹ their tax burden was simply transferred to the property owner.¹⁰ To ensure payment, a portion of the rates could legally be deducted from rents due.¹¹ Given that poverty and the majority of the Irish population was rural, the poor law was effectively a tax on rural property. Implementation of the poor law was gradual: PLUs commenced from 1839 to 1840 and initial rates were levied from 1839 to 1846.

Given the variation in practical implementation, property owners in Unions had different incentives to attempt to minimise their tax liabilities by civil disobedience or by establishing MFIs.¹² TSBs were explicitly related to the poor law as they were encouraged contemporaneously in England and Wales, where poor relief was also contentious, to relieve pressure on the poor rates

⁸ Ibid, section lxxviii

⁹ (6 & 7 Vict), c. 92. This essentially meant small farms. The mean land occupation of those under £5 was 3.95 acres (BPP 1846).

¹⁰ (1 & 2 Vict.), c. 56, section lxxii.

¹¹ Ibid, section lxxiv.

¹² In 1843 alone 21 Unions violently resisted the collection of rates requiring the deployment of both military and police to enforce the payment (BPP 1844b, pp 322-326).

and make the poor more self-reliant (Gosden 1973).¹³ Thus, as Fishlow (1961, p. 26) argues, savings banks were officially encouraged ‘as part of social policy in England’.

TSBs were attractive to wage earners, such as servants, rather than small farmers and labourers who needed to finance investment rather than save for a rainy day. LFSs, the source of such finance, were idiosyncratically Irish. Seen as an affordable source of funds for the industrious poor, a direct contemporary link between LFSs and the poor law was made by the 1833-36 Poor Inquiry Commissions report and recommendations, which proposed that, ‘there shall be a loan fund established in each district [Poor Law Union], and that it be administered according to such regulations as the Commissioners shall approve’ (BPP 1836b, p. 27).¹⁴ The 1836 Loan Society Act post-dated the release of the 1833-36 report,¹⁵ and the subsequent LFS legislation in 1836 and 1838 actively encouraged the formation of LFSs. The 1836 legislation incentivised establishment of LFSs by allowing LFSs to charge high interest rates on loans and pay high rates on deposits, the first act to explicitly permit holding of deposits. In 1843 these incentives were lessened when allowable rates were reduced – see Table 1.¹⁶

The 1836 act established a governing body, the Loan Fund Board (LFB), for ‘the general control and superintendence of all loan fund societies established in Ireland under the authority of this act’.¹⁷ The LFB, given authority over all existing and future LFSs, had potentially quite vast supervisory powers ‘to inspect the books, accounts, and papers of or belonging to such societies.’¹⁸ LFSs were required to register with and submit a copy of their rules to the LFB. A failure to register or violation of rules caused the LFS to be excluded from the benefits of the acts, such as suing for any loan payments outstanding. LFSs were required to submit an annual report to the LFB, which

¹³ Eligibility and entitlement to poor relief being particularly divisive (Hindle 2004).

¹⁴ This aspect is also noted in Nicholls (1856, p.142) summary of the 1836 report.

¹⁵ The LFS bill was published in June 1836 and enacted in August 1836, this post-dated the release of the report which was leaked in April and published in June (Gray 2009, p. 188).

¹⁶ Loan funds established pre-1836 operated under a body of legislation enacted to support the work of the *Dublin Musical Society* and the RLFs.

¹⁷ (6 & 7 Will. 4), c. 55, section ii.

¹⁸ (6 & 7 Will. 4), c. 55, section iii; (6 & 7 Vict.), c.92, section xxix.

in turn produced an annual report on the LFS system for parliament; this is the main source of data on LFS activity.

Reference to the poor law was a common theme of contemporary pamphleteers. A prevalent argument for LFS formation was that it would decrease poor law expenditure thereby decreasing the pressure on rate payers.¹⁹ P. B. Ryan (1838, p. 5)²⁰ opposed the poor law on the grounds that it was to be funded by taxes on landed property and that ‘imposing burdens on the more meritorious classes, in order to support the less worthy’. Instead Ryan (1838) proposed a plan where a private LFS system replaced the planned system of public poor relief. Ryan suggested that if funds raised, by contribution or the issuance of debentures, were lent to industrious poor on interest, the resulting profits could be used to finance a workhouse system for the destitute poor and the old. He concluded by weighing a LFS system against a poor law system: ‘the one relieves millions without expense. The other only thousands by enormous taxation’ (Ryan 1838, p. 15).²¹

Matthew Barrington, another influential pamphleteer, referenced the poor law as a motivation, arguing that a public poor relief system could be financed from the profits of microfinance. Barrington (1836, p. 24) suggested that these funds would support medical charities as well as ‘go far in preventing the necessity of Poor Laws, by supporting the aged and infirm, and affording employment to a large portion of the labouring population of the country’. His attempt to do this in his home city of Limerick received a positive reception. The *Dublin University Magazine* stated that, although it was a local venture, ‘we observe in it the beginning of a complete and noble revolution in the system whereby our charitable establishments are now supported, and we regard the success of the sagacious experiment with an interest proportioned to the grandeur of the results which are likely to flow from it’ (Anon 1839). The Barrington model, profits from lending to the

¹⁹ Testing whether the presence of LFSs reduced poor law expenditure is complicated by the Great Irish Famine which occurred shortly after the implementation of the poor law.

²⁰ Manager of the Thurles branch of the Agricultural and Commercial Bank,

²¹ Other examples see: J. Caldwell (1837) and Connery (1837).

poor would support the poor, was attractive compared to the idea of supporting the poor by taxing the upper and middle strata of society.

Others saw microfinance as a complement to the poor law rather than as an outright substitute. Shuldham (1839, p. 11)²² argued that as ‘the half-employed labouring classes’ would be the potential users of poor relief; that surely any plan which holds out a rational prospect of diminishing the numbers requiring such aid, must deserve at least inquiry.²³ However, he was more nuanced in his prognosis and warned against his ‘zealous friends’ who saw LFSs as a substitute for poor relief. Instead he advocated LFSs as complementary to a poor law system (Shuldham 1839, p.13). The view of the LFB also supports Shuldham’s position. Piesse, secretary to the LFB and inspector of LFSs, published a letter that had been circulated to all Poor Law Unions in 1840 and all LFSs in 1841. The letter, written by Hon Rev T. P. Kennedy, advocated agricultural educational societies be established in each PLU and that these be funded through the profits of LFSs. Further he advocated that ‘one or more Loan Fund Societies, existing in each Poor Law Union might afford the means required’ (Piesse 1841, p. 33). In this light, LFSs were seen as complementary agents of contemporary social policy, ideally organized to be the sole provider of credit in an area within a Poor Law Union, so tax relief could be captured, highlighting the interconnectedness of microfinance and the poor law.

At the local level, LFS managerial reports made explicit reference to the poor law. The manager of the Carrick-on-Shannon LFS wrote that ‘several industrious tradesmen and poor dealers are most materially benefited ... [They] are not ashamed to say that “if the loan fund was closed, they should take refuge in the poor-house”’ (BPP 1843, p.52). The manager of the Duleek LFS asserted ‘that in very few instances have persons within the sphere of its operations been driven to the necessity of having recourse to the workhouse of the union’ (BPP 1843, p. 52). The manager of

²² Shuldham was a land agent in Cork who operated a LFS in Dunmanway, his views were held in high esteem by the LFB (BPP 1842, p. 40; BPP 1841b, p. 226)

²³ The pamphlet was dedicated to the Duke of Wellington, who Shuldham (1839, p. 1) understood ‘is inclined to look favourably on the small Loan-Fund system as a means of benefiting the working classes of the community,’

the Tobercurry LFS argued that the LFS ‘has been instrumental in checking mendicancy and has saved many families from the Poor-House’ (BPP 1843, p. 53).

3. The microfinance ecosystem in pre-famine Ireland

In the late 18th century, the poorer sections of society had little, if any, access to formal financial services but had access to high interest credit from pawnbrokers, local shopkeepers, merchants, and farmers. These informal borrowing services were either augmented or replaced by LFSs and RLFs while TSBs provided saving services. Together these MFIs provided financial services to the poor. Porter in his statistical account of LFSs (1841, p. 209) highlights how all counties in Ireland, except Kerry and Sligo where RLFs provided credit, were eventually served by LFSs’ – see figure 1. This section illustrates the history of LFSs, RLFs and TSBs and the fiscal and charitable motivation of their founders.

3.1 RLFs & LFSs: origins and divergence

LFSs, in existence in urban centres in Ireland in the late eighteenth century, could trace their lineage to the *Dublin Musical Society*.²⁴ RLFs, on the other hand, originated from the response to a famine in the west of Ireland in 1822 (O’Neill 1974, p. 15). A London fund raised money to relieve those suffering distress (LRC 1823). While the subscription was intended for the immediate relief of the famine, the fund was oversubscribed leaving a substantial surplus in the trusteeship of the London Relief Committee after the crisis had subsided (LRC 1823, p. 5, p. 19 & p. 30). The Committee decided to use the surplus to establish income generating activities in the areas affected. The largest portion (£40,000) was to fund loans to the poor for the manufacture of flax and wool. The next step was to establish a means, the Reproductive Loan Funds, and, with the aid of local Trustees, to disburse loans to the poor in the designated areas (LRC 1823, p. 26). To design the

²⁴ There were, in addition, mutual loan funds in operation that were registered as Friendly Societies (McLaughlin 2013).

RLF system, William Hyett, the founder of RLFs in Ireland on behalf of the Irish Relief Committee, visited existing LFSs in Dublin, Limerick and Ennis which made loans to weavers and other urban labourers (BPP 1823, p. 18). The RLFs initially granted non-monetary loans, with a maximum value of £10 over a twelve-month period, where repayments could be non-monetary in nature (LRC 1823, p. 294). Management of the funds was delegated to local voluntary, unremunerated trustees,²⁵ who were answerable to a central authority in London. RLFs only operated in Connaught and Munster (excluding Waterford), the area for which the initial fund was designated. The locational choice follows Bebbington (2004)'s observation of path dependence, as RLFs were absent from equally poor and remote parts of island such as Donegal.

From 1836 onwards RLFs, ran on a similar basis to the LFSs associated with the LFB, as they were regulated by the same Acts of Parliament although with the notable exemption from LFB supervision and affiliation.²⁶ RLFs did not publish annual returns and this lack of information led to an accusation of 'gross mismanagement' as early as the 1830s (Inglis 1835, pp 309-310). Following their incorporation, the LRC published reports for the RLFs showing that the capital of RLFs grew by 3.29 per cent per annum from 1824 to 1845,²⁷ making them a significant source of microfinance in these rural areas of Ireland.²⁸

Contemporaries were aware of the distinct origins of the loan funds. In his letters to the *Times*, T. C. Foster (1846, p. 308) refers to the 'Irish Reproductive Loan Fund' and the 'Central Loan Fund' (LFSs). The distinction between RLFs and LFSs is empirically important, yet the sizeable legally, geographically, and operationally distinct RLF strand has been under-studied. This distinction had real and demonstrable implications in terms of regulation and supervision by the LFB. LFSs were required to register with the LFB in Dublin, submit annual returns and be subject to an annual audit. RLFs were exempt from these regulations and instead submitted returns to

²⁵ The report stated that they received support from the local gentry (LRC 1823, pp 296-297).

²⁶ LFS Act, 1838 (1&2 Vict.), c. 78, section 26.

²⁷ See McLaughlin (2015, Table 1)

²⁸ RLFs were also permitted to hold deposits but it is unclear what the extent of these holdings were.

London. The empirical significance of this is trifold: the scale of MFI activity is much greater than is, generally, currently acknowledged; a large unsupervised MFI sector operated on the fringes of the supervised sector creating the possibility of positive or negative spill-overs; and the motivation for the establishment of RLFs was distinct from that of LFSs.

3.2 TSBs

TSBs were institutional imports from Great Britain (Ó Gráda 2003; McLaughlin 2014). The first TSBs were set up in 1816 and were managed by local elites. Most TSBs active in the 1846 were founded between 1816 and 1831 (Figure 2). TSBs were complementary to LFSs and RLFs as they provided savings services absent from both institutions including services to Charitable and Friendly Societies. Notably, some RLFs held balances in TSBs (BPP 1847b, p.3).

The maximum interest paid by TSBs was legislatively determined. Central Government paid TSBs a fixed rate. TSBs transferred a lower rate, 3.42 per cent in 1828 reduced to 3.04 per cent in 1844, to depositors. TSBs had minimum (£0.05) and maximum annual (£30) deposits and aimed to encourage the “industrious poor” to save by paying interest on all deposits (to a limit of £150) (Maltby & Perriton 2015). TSBs were required to invest all deposited funds in government securities. Yields on these securities were lower than the rates paid to TSBs, implying there was a de facto subsidy. The government’s aim in offering subsidised interest rates was to encourage the lower classes to save, but the outcome was that the interest-rate-sensitive middle classes also used TSBs (Ó Gráda 2003). Legally, depositors were only permitted one account in any TSB; however, Ó Gráda (2009) shows that these rules were easy to circumvent.

In 1830 the average deposit in Irish TSBs was £28.54, with 50 per cent of depositors having accounts of less than £20 with average balances of £6.81 (Pratt 1830). In 1844 the average deposit balance was £30.13, with a similar skewed distribution; with 42 per cent of depositors having accounts of less than £20 and with average balances of £11.49 (Pratt 1846).²⁹

²⁹ There was regional variation in TSB balances per account and the Thurles TSB was above average (£36.40) compared to TSBs in Leinster (£29.09) and Ulster (£25.74).

From the perspective of 1840, whether the savings services then on offer reached the poor likely to request entry into the workhouse cannot be definitively determined. Ó Gráda's (2003) study of the Thurles TSB found that it was disproportionately used by well-to-do farmers and their families. His findings may not be representative. While a return from the Waterford TSB provides corroboration, it is not supported by evidence from TSBs in Drogheda and Derry where a more urban clientele – servants, labourers, small farmers and small shopkeepers – made up the bulk of depositors (BPP 1837, p 55, 72, 102), suggesting that location was an important factor determining a TSB's clientele and their relative poverty.

3.3 Setting up a loan fund: management and capital

Porter (1841, p.224) noted that LFSs were 'self-supporting' as they required no donations or subscriptions for their establishment, the only asset needed to establish an LFS was 'the time and laborious exertions of the local clergy and gentry'. Aligned with contemporary philanthropy, elites played a key role in founding and operating them on a *pro bono* basis (Prochaska 1988). The management of LFSs appears to have been in the hands of members who were large depositors, for example the Castletown Delvin LFSs rules stated that depositors over £100 were automatically members. Notably, membership of these was not a requirement for borrowing (McLaughlin 2013). Like TSBs, high level management of LFSs was by notable local trustees, on a voluntary basis, who appointed and paid others to carry out the day-to-day business. In a not atypical example, Lord Westmeath, trustee of the Castletown Delvin LFS, appointed the Reverend Robert Dunne, a Church of Ireland clergyman, as treasurer of the society.³⁰ The trustee system of management gave local depositors confidence in the institutions.

³⁰ See also the 1841 LFB Report for additional examples, such as Viscount Mandeville's role as Trustee of the Tandragee Loan Fund, p. 44 and The Earl of Huntingdon, Lord Carew's role as Trustee of the Gaultier Loan Fund, p37. Their interests were served by appointed treasurers.

In addition to clergy and gentry, ‘capital’ was the main cost of establishing a LFS, suggesting that barriers to entry were exceptionally low. LFSs’ ‘capital’ was comprised of a mix of donations, retained earnings and, significantly, large deposits. The distribution of the capital mixture is unknown pre-1845, but Porter (1841, p. 217) suggests that deposits over £50 are both the ‘most numerous’ and ‘most valuable’ in terms of setting up an LFS. When the LFB began reporting deposits, 90 percent of LFS capital was comprised of interest-bearing deposits (BPP 1846b). While LFSs paid interest on deposits (see Table 1), they restricted this to deposits exceeding £5 (Porter 1841, p.217), making smaller LFS deposit accounts little more than safe deposit boxes for the poor. Porter noted that working classes were unlikely to deposit in LFSs and advocated, without effect, that lower interest be paid on amounts from £0.25 to £4 to encourage saving (Porter 1841, p. 217). In Porter’s sample, the bulk of LFS depositors had balances of over £50, with only 20 per cent of depositors having balances below £5. LFSs depositors were, thus, unlikely to be poor, but were, according to Porter (1841, p.216), ‘comfortable farmers’. The greater part of LFS deposits ‘was formerly employed in usurious practices’.³¹

Although there were more LFSs than TSBs, and therefore were physically closer to their clients, they did not provide saving services to the poor. The mainly pre-existing TSBs, much larger financial institutions, did. In 1842, TSBs held deposits equal to five and half times the amount of capital invested in LFSs. In the peak year of LFS capital in 1845, TSBs held deposits equally six and half times this amount.

A key feature of Irish microfinance was that they operated as individual units rather than as branches.³² This organisational structure differed from what was commonly found in other UK financial institutions. Banks and charities operated branch networks (Prochaska 1988, p. 62). Because of this unit structure, the location of an LFS was totally up to the founders thereof, and this caused some concern for existing societies who feared that borrowers would borrow from

³¹ Denis Henry Kelly, a magistrate and landed proprietor in Castle Kelly, Galway also believed that former usurers were depositors with the LFS (BPP 1845, W. 431(Q. 29)).

³² Making Irish LFSs similar to unit banking operations in the US such as Savings and Loans (Mason 2004).

another society to repay their loans. This led societies to request that the LFB restrict the establishment of new LFSs in currently unserved areas (BPP 1841, p.22; BPP 1843, pp 48 and 52), a position endorsed by the LFB itself (BPP 1843, p.4). Coordinating depositors to establish a fund was helped by the small number of available depositors within a district. In 1842, there were 5,867 depositors in all LFSs, this averaged 19 per LFS and 52 per PLU. Effectively, this meant coordination amongst local elites, with the assistance of the LFB, to form coasean solutions to the provision of poor relief.

3.5 LFS Lending

The founders of LFSs – local elites – were influenced by the introduction of the contemporary poor law. But LFSs could only be of benefit to the poor if they were accessible and provided a beneficial service. This they did. LFSs provided small loans (under £10) over short periods (20 weeks/5 months) at low cost (6d/£, reduced later to 4d/£). Because of these legislated parameters (see Table 1), there was no or very limited price competition between loan funds. The legal rate of discount on LFS loans was initially 2.5 (6.52 APR) per cent, reduced to 1.67 (4.35 APR) per cent in 1843. Although high, made still higher by fines charged for late repayment and the need to compensate sureties (BPP 1845, W.601(Q.18), costs borrowers internalized, LFS lending rates were relatively cheap given that the rates charged by contemporary pawnbrokers were as high as 50 APR for loans under £1 and 25 APR for loans between £1 and £10,³³ or private moneylenders whose rates varied from 25 to 100 per cent APR.³⁴

While the £10 cap on loan fund loans coincided with a similar loan ceiling imposed on private pawnbroking,³⁵ the average loan sizes in LFSs were in the region of £3 to £4 in the 1830s and 1840s – Table 2. The average loan in the RLFs was £2 to £3. These loans were made to small traders and agriculturalists (BPP 1854-55, Q 716, p. 44; BPP 1845, W. 483 (Q.4)), were significant

³³ (28 Geo. 3) c. 49 [I], section 19)

³⁴(BPP 1845, W297(Q.18), W. 431 (Q. 28), W. 494 (Q.5); BPP 1845b, W.857(Qs19-20))

³⁵ (26 Geo. II), c. 43. [Ire].

given contemporary average weekly wages were approximately four shillings six pence (£0.23) in the 1840s still less for the ‘poor’, around two shillings (Bowley 1899), and significant relative to the price of livestock such as pigs (£1.50) and sheep (£2.18).³⁶

There was considerable regional variation in loan use. According to Porter’s (1841) account of the activity of 80 LFSs in 1840, the majority of loans were for investment: an average of 40 per cent for agricultural investment, such as livestock or purchase of seed, 17 per cent for manufacturing, such as looms and other manufacturing inputs, 15 per cent for dealing – see Table 2. However, a significant share of loans, 28 per cent on average, was for consumption, such as payment of rent, clearing debts and purchasing food, indicating that there were LFS borrowers who required credit for capital investment and borrowers who required credit for day-to-day survival, where the same borrower could at different times be both.

Porter (1841, p. 222) concluded that the group that could benefit most from access to loan funds were the “working classes”. In his summary of evidence, it was ‘small farmers’ who benefitted most by not having to rely on the much more expensive credit provided by pawnbrokers or private (unregulated) moneylenders. According to the Devon Commission borrowers from LFSs were predominantly small farmers and labourers (BPP 1847, p. 194). RLFs had similar borrowers, generally small traders and agriculturalists (BPP 1854-55, Q 716, p. 44; BPP 1845, W. 483 (Q.4)). The Castletown Delvin LFS reported in 1841 that 13 per cent of its borrowers were farmers holding more than 5 acres, 23 per cent were labourers or farmers of less than five acres and 45 per cent were dealers or hucksters.³⁷ The broad range of users and uses of funds suggests the credit provided by LFSs was relatively affordable and critical to efficient rural production.³⁸

³⁶ Average export prices of cattle, horses, sheep and swine in 1835 were, £7.18, £15.29, £1.50 and £2.18 (BPP 1837-38, Appendix B 9)

³⁷ However, farmers over 5 acres received 20 per cent of loans compared to 24 per cent for dealers.

³⁸ LFS and RLF loans are very much like payday loans today by providing credit to the severely credit constrained. While they are expensive (Elliehausen and Lawrence 2001, Stegman 2007), they are cheaper than the alternatives available to the borrowers, are generally used sparingly (Elliehausen 2009), and are easy and fast to procure (Stegman 2007).

The LFSs' realised profits were applied to charitable purposes or retained. They were seen by Porter (1842, p. 283) as 'the property of the poor, though in the hands of trustees for their benefit.' LFS loans were profitable due to the high turnover of capital, frequency of repayment, and the immediate discounting of interest. For example, the Abbeyleix LFS made loans averaging £30,000 per annum and used its profits³⁹ to build 20 cottages for rent to labourers at 10d per week; the rental income was used to fund other charitable ventures. Further profits were used to build a fever hospital (BPP 1845b, Appendix B. 154). The thinking on how profits were best used evolved. Initially they were to fund charitable works, substitutes for provisions of the poor law. Later regulation preferred profits be retained as security against losses or to augment capital.

In summary, although MFIs were found throughout the island different parts of the island were served by different institutions (RLFs in the West, LFSs in the East, TSBs in towns and cities). The timing and motivation for formation differed. While not perfect, together they did provide a means of helping the poor help themselves thereby avoid the poorhouse and moderate poor rates.

4. Analysing LFS activity

Given the scale of LFS activity outlined above, the key question is why were there so many LFSs in the late 1830s and early 1840s? Of all the MFIs in operation, there are consistent LFS data from the annual reports of the LFB – see Table 3 for an annual summary of key data from 1841 to 1845. Drawing on the narrative presented above and following Hollis & Sweetman (1998), the incidence of LFSs and their activity in the years 1842 and 1843 are analysed below using count models of the number of LFSs⁴⁰ and OLS to model LFS activity per capita. The motivation for

³⁹ Using 1843 as an example, the Abbeyleix made £27,567 loans, the gross income from this lending (discount and fines) was £1,210, expenses of management (salaries) were £302 (salaries £243) and interest on deposits were £330.

⁴⁰ With count data there is no natural a priori upper bound and 0 is an observed value for some of the observations in the population. Linear models have shortcomings when analysing count data most notably it can lead to negative predictive values of y . The most popular model for count data is a Poisson regression which assumes that y has a Poisson distribution and that the variance-mean ratio ($\sigma^2 > 0$). Where $\sigma^2 > 1$ implies overdispersion (the variance is greater than the mean). A popular alternative model in the presence of overdispersion is the negative binomial regression (Wooldridge 2002, pp 645-684). Formal testing for overdispersion (null of equidispersion against an alternative of overdispersion) determines the most appropriate count model.

these years is that 1842 was the peak year in terms of LFS registration with the LFB, whereas 1843 was the year when new LFS legislation was enacted and implemented.⁴¹ The change in regulation – reducing interest on capital and lending, and changing how profits could be distributed – was implemented by the end of 1843. It significantly influenced LFS activity since their sustainability, given the new rates, was brought into question. Therefore, through a comparison of the year immediately before and directly following exogenous legislative changes, we can discern some of the underlying motivation and business acumen of the founders of LFSs pre-reform of the LFS system.⁴²

The following model is estimated:

$$y_i = \beta X_i + \epsilon_i \quad (1)$$

Where y_i is a LFSs indicator (number LFSs or loan fund activity per capita) per PLU in a given year and X_i a matrix of explanatory variables such as Poor Law variables, the number of RLFs, the number of TSBs, and data relating to joint stock banks. Further controls for population density, the location of major cities, with additional controls for the industrial province of Ulster with its established banking system (Ollerenshaw 1987), and socio-economic indicators of poverty and wealth (illiteracy, fourth class housing and vested means)⁴³ from the census are also included.

The unit of observation analysed is the Poor Law Union (PLU).⁴⁴ Since there was no systematic effort to introduce the poor law simultaneously throughout the island, the timing of the commencement, rating, and opening of workhouses in PLUs varied from union to union.⁴⁵ The poor law influenced contemporary behaviour since the poor rate had nontrivial implications for

⁴¹ It is also the year that amendments were made to the poor law amid protests (Gray 2009); rates on TSBs were reduced in 1844

⁴² Results for additional years are reported in the appendix, Tables A2.1, A2.2 and A2.3. Although the study looks at yearly loan fund data, the approach taken is cross-sectional (year-by-year) as opposed of a short panel (observations on many units over a short period of time). Fixed effects panel estimators are most commonly used in economics, but in the case of this study, fixed effects would be perfectly correlated with time invariant variables.

⁴³ Illiteracy and fourth class housing are strongly correlated, only fourth class housing is used in the analysis.

⁴⁴ Two Unions (Tuam and Clifden) did not contain data on the number of rate payers and rate exempts and were excluded in the analysis. Tuam contained 8 RLFs and 1 LFS and Clifden contained 1 LFS.

⁴⁵ In fact, when the poor law was initially being implemented only 60 workhouses were contracted, implying that the eventual number of unions exceeded the original expectations of the law's architects (Nicholls 1858, p.246).

property owners, who would seek to capture any reduction in local poor rates, and for the demand for poor relief.

Previous studies, Hollis & Sweetman (1998) and Goodspeed (2016), analyse LFSs from a demand-side perspective at the baronial level. The 327 Baronies were administrative units dating from the Elizabethan period (Ó Gráda and O'Rourke 1997). By the 1830s they served no function bar the reporting of census information. Instead, from the perspective of the MFIs studied, arguably the correct unit of ecological inference is the PLU. The 130 PLUs, while fewer in number, were economically and politically more significant being responsible for the administration and levying of poor rates as well as the provision of succour to the destitute poor. Moreover, many of the LFSs operated over an area greater than the radius of a barony but within and smaller than a PLU, making the PLU a more appropriate unit of aggregation, especially if the intention was to reduce poor-rates via successful LFS lending. The explanatory variables used in those studies originate from the 1841 census; however, as the poor law was not fully implemented at the time of the census, some of this data are not recorded at the PLU level. But as the focus of this study is the supply-side of the loan fund market, the available variables from PLU reports are more relevant (wealth, implementation of poor law, and incidence of rate levies), with additional baronial level data from Fernihough and Ó Gráda (2018) matched to the PLU boundaries. An instrumental variables methodology, similar to Goodspeed, is not taken owing to the difficulty of finding strong and credible instruments.⁴⁶ Therefore the following correlates cannot strictly be interpreted as causal estimates. However, as there is no discernible systematic timing of poor law implementation, there is an element of randomness to some of the explanatory variables.

The main poor law variables explored are the ratio of those exempt from rate paying to ratepayers, the Poor Law Valuation (per acre), the number admitted in the workhouse (percent of

⁴⁶ Goodspeed's uses modern day musical societies (from the 2000s) as instrument for the *Dublin Musical Society*. However, there are two issues with this instrument. One it is anachronistic: modern day musical societies founded from the 1950s onwards have no connection with the *Dublin Musical*. Secondly, this instrument violates the exclusion principle as the *Dublin Musical Society* was still an active loan fund (BPP 1839, p. 1).

population), and violent resistance to rate collection.⁴⁷ The hypothesis is that the timing of the introduction of the poor law influenced the establishment of LFSs. The ratio of rate exempts to ratepayers provides an indication of the level of inequality within a union. The poor law valuation provides an indicator of the wealth of a union which determines the capacity of a union to support its poor. Lastly, the number admitted to a workhouse indicates the functionality and credibility of the PLU.

The number of RLFs and the number of TSBs are included as explanatory variables. The hypothesis is that areas with RLFs might see competition, by providing substitutable financial services, and those with TSBs cooperation, by providing complementary financial services, and thus affect the entry, persistence or exit of LFSs and their activity.

The influence of the commercial banking sector is also included in the analysis. Given that JSBs were potential competitors to LFSs, like RLFs, they are included as explanatory variables as is the geographic radius of the Bank of Ireland's note-issue monopoly since this affected both Bank of Ireland, the Government's bank, and JSB behaviour.⁴⁸

The final aspect of the models includes a dummy for the industrial province of Ulster with its established banking system, alongside socio-economic variables from the census. The major difference between Ulster and the rest of Ireland at that point in time was that Ulster was industrialized while the rest of island was essentially rural, so that while home production still characterized the south, linen production in Ulster was done in mills (for wages) not in homes. Moreover, a banking industry developed alongside linen in Ulster, further negating the need for LFSs there. The share of families in fourth class housing, the lowest quality housing available (Prunty 1998, p. 41), reflects the scale of poverty. Whilst 'vested means' measures the proportion

⁴⁷ Other data available include the date of the first rate levying, rates paid (as a share of valuation), the date paupers were first admitted to workhouses but these are correlated with other poor law data, substituting in different variants of the data does not make a material difference to results.

⁴⁸ In previous studies the exclusion zone has been mis-coded (simply coded as Dublin in Hollis & Sweetman (1998, p. 374)). The extent of the zone is far greater and so the monopoly over note issue, and the seigniorage profits the monopoly ensured, more extensive than acknowledged as the critical distance was measured in Irish miles not statute miles.

of families whose income was derived from ‘vested means, professions, etc.’, effectively a proxy for the local elite (Fernihough and Ó Gráda 2018).

5. Results

Table 4a, 4b, and 4c presents results of negative binomial regressions of the number of LFSs⁴⁹ and OLS regressions of loan fund activity per capita for the years 1842 and 1843. The regressions are presented in a step wise process with only poor law variables and demographic controls included in the first models, then including the microfinance competitors, then the commercial banking infrastructure and finally including other socio-economic variables. Broadly speaking, the results suggest that the poor law, particularly in 1842, was an influential parameter. This is highlighted by the persistent negative correlation between the ratio of rate exempts to rate payers across models for 1842.⁵⁰

The number of LFSs and where they were located is consistent between 1842 and 1843 with a core number of LFSs registered in both years.⁵¹ As the entry and exit of LFSs was a straightforward and inexpensive process, although formal winding up when required by the LFB for malfeasance was time consuming, it would be expected that there would be similar coefficients for 1842 and 1843. Table 5a shows both unconditional and conditional correlates for 1842 and 1843, similar coefficients are observed for both years, the ratio of rate exempts to rate payers, poor law valuation per acre, workhouse admissions, Ulster and fourth-class housing were negatively correlated with the number of LFSs. The Bank of Ireland radius, the number of JSBs, population density, and vested means were positive correlates in both years. The only coefficient that changes sign is the dummy for the violent resistance to rate collection, which is positive in 1842 and turns

⁴⁹ Tests indicate presence of overdispersion in 1842 ($p = 0.041$) and 1843 ($p = 0.099$), a negative binomial regression (nb2) was chosen to analyse the count of LFSs (Cameron & Trivedi 1986, 2010, 2013).

⁵⁰ It is persistently negative correlation evident for the years 1840, 1841, 1842, 1844 and 1845. See tables A2-A5.

⁵¹ 90% of LFSs registered in 1842 appeared in 1843. 30 of the 1842 LFSs did not appear in 1843 and there were 28 newly registered LFSs, hence why the totals for the years, 300 and 298, hide this attrition.

negative in 1843. Throughout, the ratio of exempts to ratepayers is a significantly negative correlate with the number of LFSs. The poor law valuation is negative and gains significance as other variables are included. Workhouse admissions is consistently negative and significant in 1842 but its performance is inconsistent in 1843. When RLFs and TSBs are included they initially display expected signs of negative and positive respectively, but RLFs switch signs in other specifications. The Bank of Ireland's monopoly zone is significantly positive in 1842 and 1843, but this impact shrinks when socio-economic controls are added. Ulster is a consistently negative indicator, hinting that LFSs were not compatible with the established banking system and industrial economy. The negative correlation between the number of LFSs and the share of fourth class housing is striking, suggesting that LFSs were not being targeted towards the areas of greatest poverty or rather that poverty levels were too great for microfinance to be effective.

A clearer distinction between 1842 and 1843 is observable in LFS activity (Table 3). LFSs were very concerned about the effect of the 1843 Act's reduction in interest rates on their general sustainability and the general air of 'uncertainty to which effect the Act may have' on LFSs influenced their activity (BPP 1844, p. 3).⁵² Thus while in 1842 circulation and capital were negatively correlated with the ratio of rate exempts to rate payers, this effect was weaker and disappeared in 1843 (Tables 4b and 4c). Also, while in 1842 the Bank of Ireland radius was a positive correlate, this effect halved and became insignificant in 1843. Thus, although it would appear in the areas covered by the Bank of Ireland's geographic radius LFSs were substitutes for the absent bank branches, the cost pressure imposed by the 1843 Loan Fund Act undermined this form of financial innovation. The most striking findings relate to the negative correlation between RLFs on LFS activity. In the areas covered by RLFs, LFSs had to operate in a more competitive environment. When the socio-economic controls are added, the fourth-class housing variable

⁵² It was not until 1844 that the LFB began to provide information to LFSs that they could maintain high rates on lending by issuing monthly loans and started to advocate reducing rates on deposits to 4% as a solution to financial sustainability concerns (BPP 1845, pp 5-6).

yields a consistently negative impact on LFS activity in both years, although the impact is less in 1843.

As shown in tables 4a, b,c, the ratio of exempts to rate payers is a consistently negative influence on LFSs. However, this measure of inequality is inexact and could be interpreted not as a measure of the poor law burden but as a proxy for some combination of fixed characteristics of each poor law union. Ergo, do we observe more/fewer LFS because of the introduction of the poor law, or the fixed characteristics of the PLU, i.e. if there were no poor law introduced, would this coefficient still be statistically significantly different from zero? This can be tested using data on LFSs that pre-dated the establishment of the LFB, and RLFs and TSBs as these were established earlier with a different motivation – see Figure 4. Table 5 models the number of pre-LFB LFSs, RLFs and TSBs using the same explanatory variables as in Table 4a (col6).⁵³ Table 5 is treated as a placebo test, as the earlier LFSs, RLFs and TSBs were established with different motivations it is not expected that the same effects will apply and that coefficients would either be of different magnitude and/or opposing signs. For the most part, this is true, most notably the ratio of rate exempts to rate payers is not significant in any and has opposing signs for RLFs. Interestingly, fourth class housing is positively correlated with RLFs, indicating that the mission was to establish these funds in the poorest areas. RLFs did this as their capital was imported from London not in response to the poor laws, whereas LFSs relied on local donations and deposits to establish funds in the first instance. The positive correlation between RLFs and fourth-class housing also explains the noise in Table 4a-c. Table 5 (cols 5-8) repeats regressions Table 4a col. 6, including the earlier LFSs as an explanatory variable. While significantly positive in 1842, they do not detract from the baseline results.

⁵³ The number of LFSs in 1836 and the number of RLFs are modelled using zero-inflated negative binomials as there are excess zero's, the inflated portion of the model includes poor law variables only. TSBs are modelled using a logit model as the distribution is effectively binary (0/1) as there are only a small number of unions that have more than 1 TSB.

Further regressions, presented in an appendix Table A3.1, omit the ratio of exempts to payees and instead include various alternative indicators to measure the extent of inequality. These indicators have varying effects but tell similar stories. Both the average holding size and the share of holdings over 50 acres display negative coefficients, although only the average holding size attains statistical significance. These imply that greater inequality in land ownership reflects the ratio of exempts to rate payers. They are consistent with Hollis & Sweetman (1998) who find that a significant predictor of LFS formation is the share of second-class houses, an indicator for middling income. Residents in these houses were most likely involved in establishing and managing LFSs. The results presented here are supportive of that interpretation with the important nuance that it is relative land (in)equality and its effect on the poor law rating that is a key predictor of LFS incidence.

Given the importance of the ratio of the rate exempts to rate payers, what is driving these findings? Table A3.2 breaks the ratio into 3 components, if the ratio is less than 1 (more rate payers than rate exempts), equal to 1 (equal number of rate exempts and rate payers), and greater than 1 (more rate exempts than rate payers) – figure 1 illustrates the distribution of the ratio by PLU. Column 1 runs the regression with only the ratio of rate exempts to rate payers as the explanatory variable and the coefficient is of similar magnitude to that in Table 4a . When broken into component parts (effectively treating it as a dummy), the ratio less than 1 is positive and statistically significant, the ratio equal to 1 is null, and the ratio greater than 1 is negative and statistically significant. Columns 5-8 weight the LFSs by their size in terms of lending. Again, if the ratio is less than 1 this is positive, while a ratio equal to or greater than 1 is negative. The main driver of LFS formation appears to be the distribution of land ownership. In PLUs with higher levels of inequality LFSs were less likely to be formed. With very high levels of inequality the rate paying residents of a PLU could well have determined that paying their rates was less costly to them than

attempting to reduce their rates via establishing an LFS given the extent and prevalence of need. Thus, the legal means of tax avoidance/reduction was found in these PLUs to be ineffective.⁵⁴

5.1 Discussion

The findings are consistent with the historical narrative presented above that the poor law was a motivating factor in the establishment and activity of LFSs funds in particular. This can be gauged from the timing of LFS formation. Contemporaneously, given essentially free entry, there was a significant increase in the number of LFSs registered with the LFB (itself established in 1836) between 1838, when there were 50, and 1842, when there were 300. The timing of the increase in LFSs suggests a direct correlation with the introduction of the poor law.⁵⁵

Further evidence comes from Porter's (1841) survey of LFSs where he asked in what year were they formed. Of the 215 surveyed 163 provided this information, shown in Figure 3., where the majority of societies were formed *after* 1838.⁵⁶ Finally, it is possible to infer the year of formation from the LFB reports which suggest that, on average, the 300 LFSs in 1842 had only been operating for approximately 4 years. The exception to this were the older societies, most notably the *Dublin Musical Society*.

Thus, the regression results are consistent with the historical narrative that LFSs were influenced by the poor law, therefore it can be argued on the basis of this evidence, that the poor law was a causal influence on LFS formation and activity, and that this mechanism was primarily through inequality. The higher the ratio of rate exempts to rate payers the fewer LFSs established in a PLU. This implies that Unions with either equal or fewer rate payers than exempts were less likely to have LFSs. In these, ostensibly poorer, Unions it was difficult to cobble together adequate deposits or charitable gifts to make a LFS viable: there was too much need and too few funds. In

⁵⁴ Further robustness tests exclude the ratio of exemptees to ratepayers over 3 (Table A3.3), exclude LFSs over 5 (Table A3.4) and incorporate spatial lags of the dependent variable in the analysis (Table A3.5). These robustness tests do not affect the baseline results.

⁵⁵ In 1836 there were 141 LFSs registered, 93 of these were found in the area under the remit of RLF, whereas in 1838 the number of registered LFSs had increased to 247 and, of these, 124 were found counties associated with the RLF.

⁵⁶ Connaught was an outlier to this trend as 7 of the 9 LFSs in Porter's sample were formed before 1838.

these Unions the landlords could have been more indebted and/or absentee, locally less connected and less likely to pay their poor rates in any event. As the number of exempts increased relative to ratepayers there was less means to establish a LFS. At high valuations per acre there was also a negative correlation with the number of LFSs, suggesting that there was less need in the wealthier unions. This may be because these PLUs were more prosperous or that they could afford the poor rate obligations as these were expected to be low.

In addition to the poor laws, the structure of the financial system was also relevant since LFSs could be and were established as “shadow banks”, something made easier and less obvious by the proliferation of LFSs during this period. While LFSs were encouraged as part of social policy, the perceived risk they ultimately posed to the wider financial system could not be ignored. The subsequent reform of LFS system in 1843 may have been partly an attempt to discourage LFSs in order to prevent fraudulent banking speculations via the LFS channel to develop in the future.

6. Conclusion

Ireland experienced a peculiar microfinance revolution in the decade 1836 – 1845. Contemporaries were highly influenced and incensed by the introduction of the poor law as this imposed a new and highly resented tax on property owners in Ireland. LFSs were seen as a pragmatic coasean response to this fiscal shock, a preferred private means to the end of providing for the poor by enabling the poor to provide for themselves. The focus of the analysis was on the years following the promulgation of the poor law to highlight the role of LFSs at this particular time. The Great Irish Famine was, at this juncture, unanticipated. It did not and could not feature.

The paper has mapped the full extent of microfinance in pre-famine Ireland. LFSs registered and regulated by the LFB, the subject of the existing scholarship on Irish microfinance, were found in the east of the island. One additional, pre-existing influence on the formation of LFSs is the Bank of Ireland’s geographic monopoly of note issue which precluded banks from operating in this zone as they could not issue notes from their branches there. RLFs were the second strand of

microfinance highlighted, these were most predominant in the west and south of the island. The major source of capital for these sources of microfinance was from funds raised by the London Relief Committee, and therefore the formation of RLFs was exogenous to the introduction of the poor law in 1838. LFSs were less likely to enter markets where RLFs were already found: in these unions RLFs had a negative impact on LFS activity. However, LFSs sprang up throughout the island, and operated in all Poor Law Unions, providing credit where credit was needed, largely to the benefit of the target clientele, the “industrious poor” – essentially small farmers and hucksters. Their sister institutions, the TSBs provided much needed and government subsidised saving services to a similar clientele – but more likely to be wage earners and servants. All MFIs operating in Ireland at that time improved the lot of the “industrious poor” making them better able to help themselves, at least in normal times. However, the analysis of LFS incidence shows that levels of inequality were a negative influence on the formation of LFSs, thus supporting views that inequality is detrimental to financial development (Rajan and Ramcharan 2011). Thus, the industrious poor in more equal unions were more likely to be beneficiaries of microfinance before the famine.

Studies looking at the Irish famine have highlighted the short and long-run impact of this exogenous shock on Irish microfinance, but these studies have not taken account of the role of RLFs or TSBs. This study helps to better contextualise Ireland’s peculiar microfinance revolution in normal times away from the shadow of the famine. It shows that analysis of Ireland’s pre-famine past is context specific: the burgeoning of the LFSs cannot be understood absent the recognition of the poor laws and the MFIs that had come before. Drawing parallels for development policy today needs greater awareness of this context.

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Table 1: Business Parameters of Loan Fund Societies

	<i>Acts</i>			
	1823	1836	1838	1843
<i>Loan term</i>	Not stated	20 weeks	20 weeks	20 weeks
<i>Limit</i>	£ 10.00	£ 10.00	£ 10.00	£ 10.00
<i>Renewals</i>	Illegal	Illegal	Illegal	Illegal
<i>Discount 20 weeks</i>	Legal interest	6d in the £ (2.5%)	6d in the £ (2.5%)	4d in the £ (1.67%)
<i>Discount (APR)</i>		6.5%	6.5%	4.3%
<i>Contemporary annual discount calculations</i>		12 %	12%	8.25%
<i>Interest on savings</i>	Not stated	6%	6%	5%
<i>Fines</i>	Not stated	No Limit	No Limit	No Limit
<i>Liability of treasurers and clerks</i>	Bonds	Bonds	Bonds	Bonds
<i>Liability of management</i>	Not stated	Limited	Limited	Limited
<i>Allocation of Profits</i>	Retain	Retain & Charitable expenditure	Retain & Charitable expenditure	Retain, reserve fund & Charitable expenditure
<i>Regulator</i>	None	Loan Fund Board	Loan Fund Board	Loan Fund Board
<i>Exceptions</i>	From stamp duty	From stamp duty/ RLFs exempted from Loan Fund Board	From stamp duty/ RLFs exempted from Loan Fund Board	From stamp duty/ RLFs exempted from Loan Fund Board

Table 2: Loan distribution by activity and average loan sizes, 1840

	All loans	Agriculture	Manufacturing	Dealing	Consumption
	Share of number of loans				
	Total number of loans	%	%	%	%
Ireland	130,044	39.84	17.03	15.39	27.74
Ulster	72,659	36.05	19.08	17.78	27.09
Leinster	37,423	45.19	13.91	10.33	30.57
Munster	15,712	30.78	20.21	25.86	23.14
Connaught	4,250	48.31	17.05	8.96	25.68
	Share of loan amounts (£)				
	Total amount £ of loans	%	%	%	%
Ireland	473,538	42.17	16.46	16.54	24.84
Ulster	282,749	40.56	16.43	17.48	25.53
Leinster	141,837	47.97	14.28	11.39	26.35
Munster	39,124	31.33	19.41	28.50	20.76
Connaught	98,28	41.94	26.68	11.61	19.77
	Average loan sizes (loan amounts/ number of loans)				
	£	£	£	£	£
Ireland	3.38	3.80	3.36	3.53	3.09
Ulster	3.84	4.51	3.42	3.63	3.66
Leinster	3.32	3.75	3.72	3.70	3.08
Munster	3.23	2.56	2.46	3.12	1.88
Connaught	3.47	2.93	2.73	2.56	3.07

Source: Porter (1841).

Table 3: LFS activity, 1841, 1842, 1843, 1844, and 1845

	Amount of capital	Amount circulated	Number of loans	Average loan
1841 (268 LFSs)				
Total	370,054	1,435,725	411,044	
Mean	1,381	5,377	1,539	3.27
St Deviation	1,608	5,757	1,445	1.20
Min	53	15	2	0.31
Max	16,412	46,615	12,685	7.50
1842 (300 LFSs)				
Total	421,920	1,691,871	488,702	
Mean	1411	5658	1634	3.20
St Deviation	1557	6280	1612	1.10
Min	34	72	55	1.00
Max	13392	57729	16795	7.19
1843 (298 LFSs)				
Total	403,343	1,650,963	490,870	
Mean	1,363	5,540	1,653	3.16
St Deviation	1,716	6,571	1,771	1.06
Min	18	30	21	0.75
Max	19,473	65,768	19,558	7.07
1844 (259 LFSs)				
Total	417,584	1,702,918	488,207	
Mean	1582	6450	1,849	3.34
St Deviation	1852	7133	1,885	1.05
Min	0	143	83	1
Max	20014	67,516	19,806	6.78
1845 (255 LFSs)				
Total	444,427	1,857,457	507,339	
Mean	1750	7,313	1,944	3.49
St Deviation	1938	7,678	1,944	1.12
Min	0	39	40	0.70
Max	18669	72,821	19,892	7.12

Table 4a: Number of Loan Fund Societies in 1842 & 1843 by Poor Law Unions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	1842	1843	1842				1843			
	Unconditional		Conditional				Conditional			
Ratio exempts to ratepayers	-0.478***	-0.408***	-0.515***	-0.473***	-0.475***	-0.502***	-0.398***	-0.400***	-0.426***	-0.450***
	(0.147)	(0.148)	(0.152)	(0.147)	(0.145)	(0.156)	(0.151)	(0.145)	(0.138)	(0.150)
Poor law valuation per acre	0.00905	-0.00904	-0.184	-0.194	-0.199	-0.638**	-0.315*	-0.325*	-0.277	-0.659**
	(0.0879)	(0.0798)	(0.210)	(0.210)	(0.241)	(0.283)	(0.176)	(0.180)	(0.210)	(0.268)
Workhouse admissions (t) pop	-0.0997	0.141	-0.232	-0.251*	-0.260*	-0.344***	0.0768	0.0599	-0.0437	-0.159
	(0.103)	(0.0910)	(0.146)	(0.150)	(0.140)	(0.124)	(0.0960)	(0.0988)	(0.114)	(0.0995)
Violent resistance to rates	0.0132	-0.0285	0.156	0.187	0.218	0.0664	0.0117	0.00863	0.0600	-0.0517
	(0.208)	(0.183)	(0.244)	(0.260)	(0.251)	(0.239)	(0.214)	(0.231)	(0.230)	(0.226)
RLFs	-0.0697*	-0.0386		-0.0281	0.0136	0.0281		0.00753	0.0460	0.0330
	(0.0422)	(0.0411)		(0.0495)	(0.0502)	(0.0618)		(0.0486)	(0.0484)	(0.0610)
TSBs	0.167*	0.152		0.156	0.0850	0.0951		0.129	0.0598	0.0782
	(0.0959)	(0.102)		(0.123)	(0.137)	(0.137)		(0.123)	(0.141)	(0.140)
Bank of Ireland monopoly zone	0.429***	0.359**			0.419**	0.0320			0.454**	0.231
	(0.148)	(0.144)			(0.175)	(0.176)			(0.210)	(0.210)
JSBs	0.0929*	0.128**			0.0646	0.0318			0.0958	0.0794
	(0.0551)	(0.0500)			(0.0716)	(0.0626)			(0.0680)	(0.0658)
Ulster	-0.273	-0.214				-0.781***				-0.679***
	(0.167)	(0.169)				(0.219)				(0.219)
4 th class housing (%)	-0.024***	-0.016*				-0.0347**				-0.0209
	(0.009)	(0.009)				(0.0139)				(0.0140)
Vested means (%)	0.069	0.043				0.0222				0.0251
	(0.075)	(0.065)				(0.121)				(0.132)
Population density	0.106	0.0691	0.607	0.518	0.507	1.800**	0.890	0.817	0.617	1.748**
	(0.296)	(0.302)	(0.604)	(0.590)	(0.768)	(0.889)	(0.588)	(0.558)	(0.688)	(0.815)
City	0.236	0.195	0.374	0.371	0.309	0.378	0.254	0.246	0.188	0.227

	(0.353)	(0.242)	(0.805)	(0.798)	(0.683)	(0.474)	(0.555)	(0.576)	(0.457)	(0.409)
Constant			1.160***	1.108***	0.879***	2.284***	0.931***	0.899***	0.769***	1.715**
			(0.239)	(0.242)	(0.241)	(0.729)	(0.226)	(0.235)	(0.222)	(0.786)
Observations			128	128	128	128	128	128	128	128
N_reps			999	998	999	979	999	999	998	982
N_misreps			1	2	1	21	1	1	2	18
chi2			15.69**	16.94**	26.22***	45.80***	10.43	11.60	22.05**	35.29***
r2_p			0.0395	0.0453	0.0593	0.109	0.0346	0.0379	0.0553	0.0835
alpha			0.231	0.212	0.176	0.0695	0.183	0.172	0.136	0.0746
			(0.162)	(0.227)	(0.561)	(7.504)	(0.369)	(0.389)	(1.006)	(3.403)
LF test alpha=0			13.51***	11.54***	8.42***	1.66*	8.98***	7.84***	5.43**	1.88*
ll			-240.7	-239.3	-235.8	-223.4	-239.0	-238.2	-233.9	-226.9

Bootstrap standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

LFSs is the number of loan fund societies, 300 in 1842 and 298 in 1843; Violent resistance to rates is a dummy variable where 1 = a union violently resisted rate collection, 0 otherwise; Bank of Ireland monopoly is a dummy variable whereby 1 if a Union was within the Bank's monopoly radius and 0 otherwise. City is a dummy variable, 1 if a Union contains a major city (as defined by barony classifications).

Two unions did not contain data on rate exempts and rate payers, Tuam and Clifden. Both of these are found in Connaught. Tuam contained 8 RLFs and 1 LFS. Clifden contained 1 LFS.

Table 4b: Loan Fund Circulation per capita, 1842 & 1843 by Poor Law Unions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1842				1843			
Ratio exempts to ratepayers	-4.582**	-2.910*	-2.818*	-2.110	-2.778*	-1.627	-1.689	-1.458
	(1.921)	(1.746)	(1.601)	(1.656)	(1.556)	(1.873)	(1.802)	(1.820)
Poor law valuation per acre	-3.585	-4.005	-3.494	-3.612	-4.825	-4.949	-3.565	-3.093
	(5.171)	(5.172)	(5.676)	(6.376)	(4.413)	(4.605)	(4.970)	(6.304)
Workhouse admissions (t) pop	0.122	-0.181	-0.714	-1.937	6.041*	5.183	4.194	2.289
	(3.404)	(3.557)	(3.778)	(3.650)	(3.203)	(3.225)	(3.485)	(3.486)
Violent resistance to rates	-7.161	-4.743	-4.236	-5.923	-7.996**	-6.061	-5.855	-6.761
	(4.497)	(4.516)	(4.565)	(4.752)	(3.920)	(3.863)	(4.065)	(4.238)
RLFs		-3.267***	-2.672***	-1.113		-2.542***	-2.292***	-1.138
		(0.637)	(0.713)	(0.718)		(0.610)	(0.671)	(0.713)
TSBs		-0.628	-2.476	-2.445		-0.499	-1.483	-1.352
		(2.638)	(2.716)	(2.769)		(2.506)	(2.586)	(2.761)
Bank of Ireland monopoly zone			8.457*	1.233			4.183	0.486
			(4.668)	(4.823)			(4.535)	(4.749)
JSBs			1.683	0.277			1.560	0.602
			(1.637)	(1.605)			(1.493)	(1.490)
Ulster				-5.432				-3.442
				(5.438)				(5.071)
4 th class housing (%)				-0.878***				-0.622***
				(0.208)				(0.187)
Vested means (%)				-2.962				-2.313
				(3.099)				(3.032)
Population density	7.623	7.323	4.570	2.903	11.82	10.99	5.757	2.635
	(14.76)	(14.73)	(17.41)	(19.41)	(15.00)	(14.90)	(15.91)	(18.33)
City	2.509	5.458	5.102	8.351	3.843	6.224	4.911	7.322
	(12.11)	(11.77)	(13.05)	(17.05)	(9.825)	(11.04)	(12.85)	(17.40)
Constant	27.43***	30.26***	26.66***	69.83***	18.42***	21.54***	20.74***	53.03***
	(5.338)	(5.232)	(5.738)	(15.63)	(5.199)	(5.184)	(5.347)	(14.45)
Observations	128	128	128	128	128	128	128	128
R-squared	0.067	0.158	0.187	0.274	0.109	0.171	0.182	0.228

Bootstrap Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

Table 4c: Loan Fund Capital per capita in 1842 & 1843 by Poor Law Unions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1842				1843			
Ratio exempts to ratepayers	-1.025**	-0.614	-0.594	-0.417	-0.660*	-0.381	-0.386	-0.335
	(0.437)	(0.463)	(0.428)	(0.439)	(0.380)	(0.479)	(0.467)	(0.470)
Poor law valuation per acre	-0.862	-0.967	-0.859	-0.728	-1.221	-1.243	-0.666	-0.416
	(1.368)	(1.371)	(1.443)	(1.515)	(1.197)	(1.256)	(1.259)	(1.542)
Workhouse admissions (t) pop	0.318	0.233	0.117	-0.192	1.328*	1.154	0.952	0.451
	(0.832)	(0.848)	(0.888)	(0.837)	(0.745)	(0.763)	(0.833)	(0.851)
Violent resistance to rates	-1.991**	-1.401	-1.288	-1.712	-2.230**	-1.747*	-1.755*	-1.922*
	(1.002)	(0.999)	(1.026)	(1.065)	(0.913)	(0.905)	(0.953)	(1.007)
RLFs		-0.795***	-0.663***	-0.216		-0.638***	-0.593***	-0.191
		(0.157)	(0.177)	(0.180)		(0.151)	(0.169)	(0.176)
TSBs		-0.0877	-0.495	-0.473		-0.355	-0.611	-0.604
		(0.647)	(0.678)	(0.668)		(0.594)	(0.629)	(0.657)
Bank of Ireland monopoly zone			1.869*	-0.0326			0.770	-0.213
			(1.129)	(1.140)			(1.121)	(1.170)
JSBs			0.369	-0.0192			0.537	0.242
			(0.386)	(0.370)			(0.351)	(0.349)
Ulster				-1.281				-0.441
				(1.251)				(1.214)
4 th class housing (%)				-0.240***				-0.182***
				(0.0518)				(0.0504)
Vested means (%)				-0.880				-0.604
				(0.711)				(0.720)
Population density	2.357	2.258	1.665	0.719	3.053	2.950	0.894	-0.527
	(3.748)	(3.671)	(4.151)	(4.612)	(3.826)	(3.767)	(3.850)	(4.551)
City	0.301	1.020	0.946	1.805	1.629	2.240	1.573	2.427
	(3.130)	(3.022)	(3.100)	(3.301)	(2.554)	(2.713)	(2.933)	(3.534)
Constant	6.378***	7.043***	6.246***	18.15***	4.532***	5.369***	5.229***	14.30***
	(1.300)	(1.280)	(1.358)	(3.667)	(1.331)	(1.344)	(1.359)	(3.804)
Observations	128	128	128	128	128	128	128	128
R-squared	0.067	0.161	0.186	0.299	0.106	0.174	0.190	0.259

Bootstrap Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

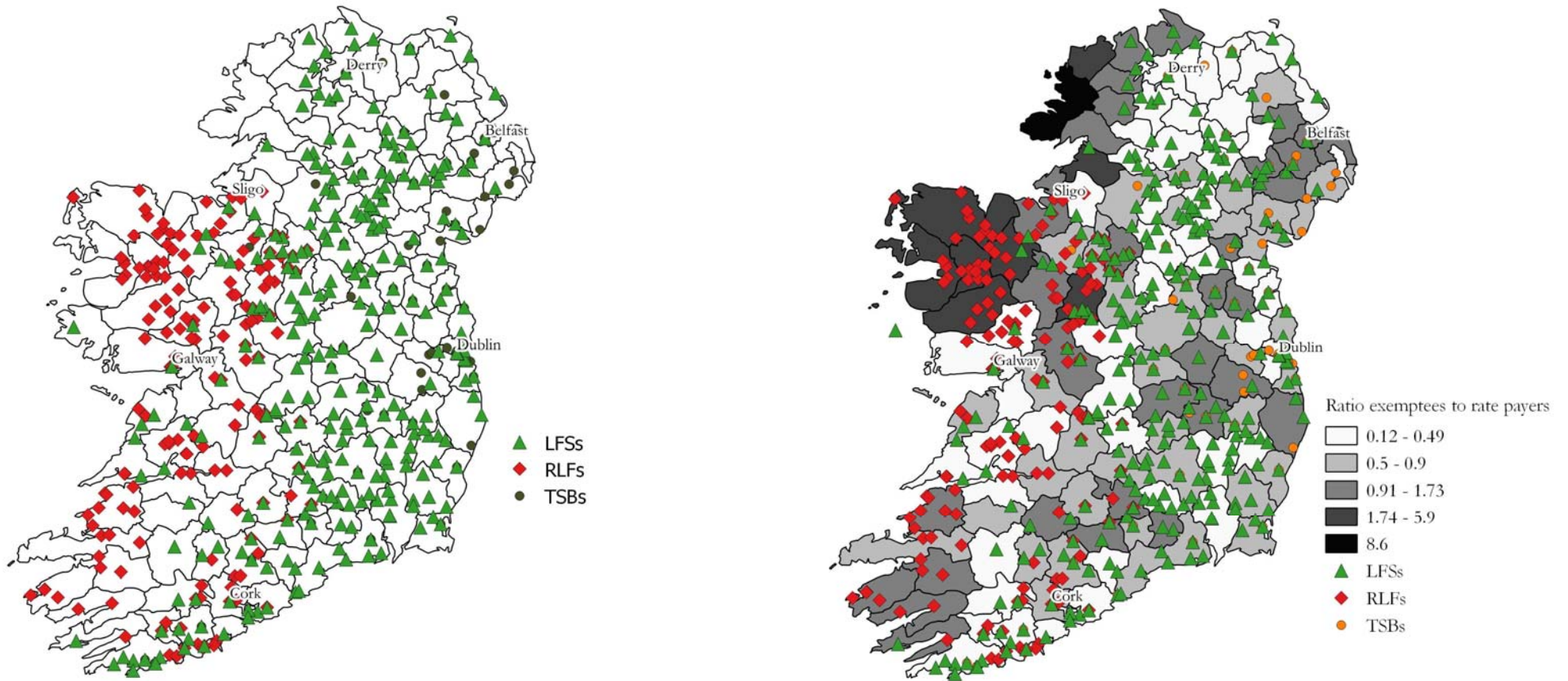
Table 5: Negative binomial regressions of 1836 Loan Fund societies & Reproductive Loan Fund Societies by Poor Law Union

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LFS_1836	RLFs	TSBs	TSBs	LFSS_42	LFSS_42	LFSS_43	LFSS_43
	ZINB	ZINB	Logit	Logit	NBREG	NBREG	NBREG	NBREG
Ratio exempts to ratepayers	-0.180	0.242	-0.239	-0.374	-0.451***	-0.479***	-0.413***	-0.418***
	(0.326)	(0.216)	(0.303)	(0.336)	(0.150)	(0.154)	(0.149)	(0.160)
Poor law valuation per acre	0.422	0.254	-1.123	-1.047	-0.580**	-0.584**	-0.621**	-0.621**
	(1.213)	(0.969)	(0.774)	(0.773)	(0.269)	(0.268)	(0.259)	(0.260)
Workhouse admissions (t) pop	-0.823	-0.332	0.126	0.114	-0.309**	-0.319**	-0.136	-0.138
	(0.611)	(0.633)	(0.568)	(0.560)	(0.128)	(0.125)	(0.109)	(0.105)
Violent resistance to rates	0.383	-0.333	0.0896	0.0920	0.0517	0.0479	-0.0624	-0.0623
	(0.722)	(0.448)	(0.824)	(0.806)	(0.248)	(0.241)	(0.235)	(0.232)
RLFs				0.190	-0.0395		-0.00579	
				(0.182)	(0.0659)		(0.0723)	
TSBs	-0.126	0.0860			0.105	0.103	0.0820	0.0817
	(0.347)	(0.356)			(0.138)	(0.140)	(0.141)	(0.140)
LFSS (1836)					0.0852*	0.0707**	0.0549	0.0527
					(0.0439)	(0.0360)	(0.0467)	(0.0381)
1.BankofIreland	0.581	-2.817	1.044	1.220	-0.0218	0.00665	0.188	0.193
	(0.548)	(6.637)	(0.709)	(0.764)	(0.185)	(0.179)	(0.220)	(0.211)
JSBs	0.0768	0.111	0.532**	0.519*	0.0390	0.0346	0.0833	0.0825
	(0.219)	(0.202)	(0.265)	(0.272)	(0.0642)	(0.0633)	(0.0683)	(0.0682)
Ulster	-1.980***	-19.52***	-0.328	-0.0761	-0.723***	-0.707***	-0.631***	-0.629***
	(0.522)	(3.185)	(0.574)	(0.639)	(0.218)	(0.213)	(0.219)	(0.216)
4 th class housing (%)	0.00600	0.0217	-0.0154	-0.0313	-0.0304**	-0.0336***	-0.0180	-0.0185
	(0.0257)	(0.0233)	(0.0337)	(0.0387)	(0.0140)	(0.0115)	(0.0145)	(0.0118)
Vested means (%)	-0.194	0.385	0.452	0.414	0.00877	0.00600	0.0201	0.0195
	(0.390)	(0.493)	(0.404)	(0.417)	(0.126)	(0.125)	(0.135)	(0.133)
Population density	1.507	-0.223	2.691	2.351	1.674**	1.668**	1.668**	1.667**
	(2.378)	(1.789)	(2.655)	(2.671)	(0.846)	(0.832)	(0.797)	(0.786)
City	-0.635	0.127	2.086	2.174	0.326	0.348	0.207	0.210
	(6.346e+12)	(4.639)	(1.336)	(1.348)	(0.451)	(0.461)	(0.393)	(0.408)
Constant	0.388	-0.985	-1.567	-1.079	2.078***	2.194***	1.552*	1.571**
	(1.712)	(2.061)	(2.095)	(2.205)	(0.753)	(0.685)	(0.827)	(0.740)
Inflate								
Ratio exempts to ratepayers	-0.0115	-5.005						
	(6.336)	(21.41)						
Poor law valuation per acre	1.284	6.784						
	(5.922)	(20.32)						
Workhouse admissions (t) pop	-2.489	-15.25						
	(17.11)	(55.64)						
Violent resistance to rates	0.00498	-16.70						
	(18.15)	(39.23)						
Constant	-1.131	-2.070						
	(23.06)	(37.89)						
Alpha					0.0605	0.0581	0.0721	0.0720

					(11.310)	(37.896)	(0.497)	(0.519)
LR test alpha = 0					1.33	1.23	1.82*	1.82*
Observations	128	128	128	128	128	128	128	128
Number of zero observations	70	84	67	67	21	21	21	21
N misreps	949	756	634	634	980	983	991	984
N reps	51	244	366	366	20	17	9	16
ll	-171.9	-114.7	-71.71	-70.81	-221.0	-221.2	-226.0	-226.0
chi2	24.47**	44.04***	22.51**	22.08**	48.06***	48.65***	33.07***	32.27***
Pseudo r2			0.192	0.202	0.118	0.117	0.0874	0.0874
Model	ZINB	ZINB	Logit	Logit	NBREG	NBREG	NBREG	NBREG

Bootstrap standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

Figure 1: Microfinance institutions by Poor Law, c. 1842

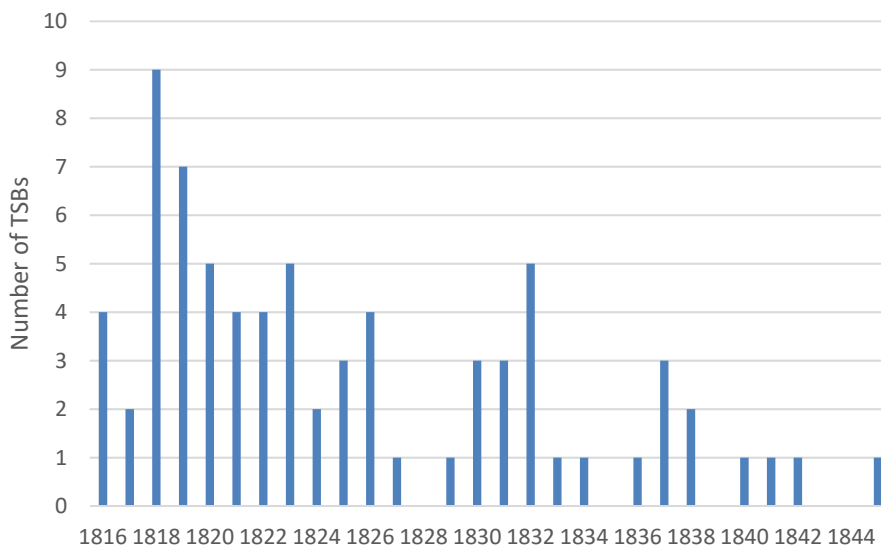


Notes: LFSs 1842, RLFs c. 1839, TSBs 1844. There were 130 Poor Law Unions from 1838 to 1846.

Two unions did not contain data on rate exemptees and rate payers, Tuam and Clifden. Both of these are found in Connaught. Tuam contained 8 RLFs and 1 LFS. Clifden contained 1 LFS.

Shape file of poor law boundaries: Gregory & Ell (2004):

Figure 2: Year of formation of TSBs operating in 1846



Source: Pratt (1846).

Figure 3: Year of formation of LFSs in Porter's 1840 survey

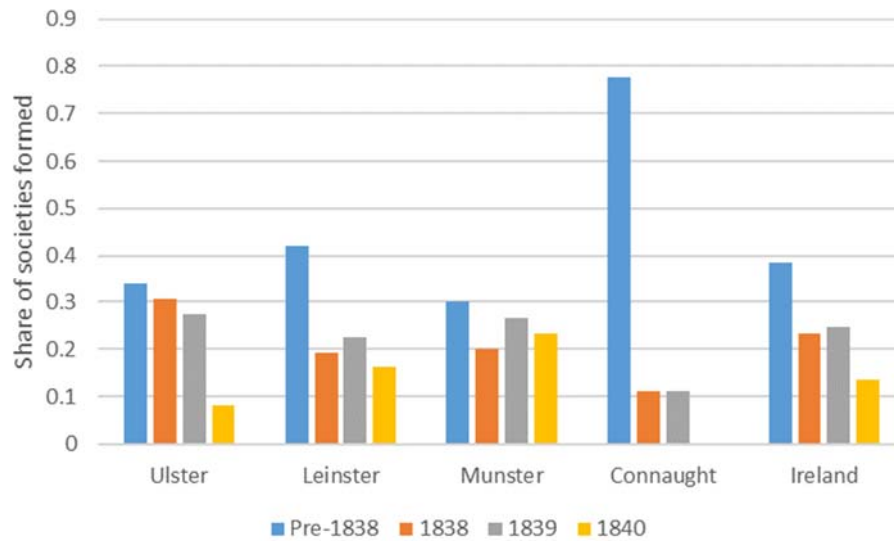
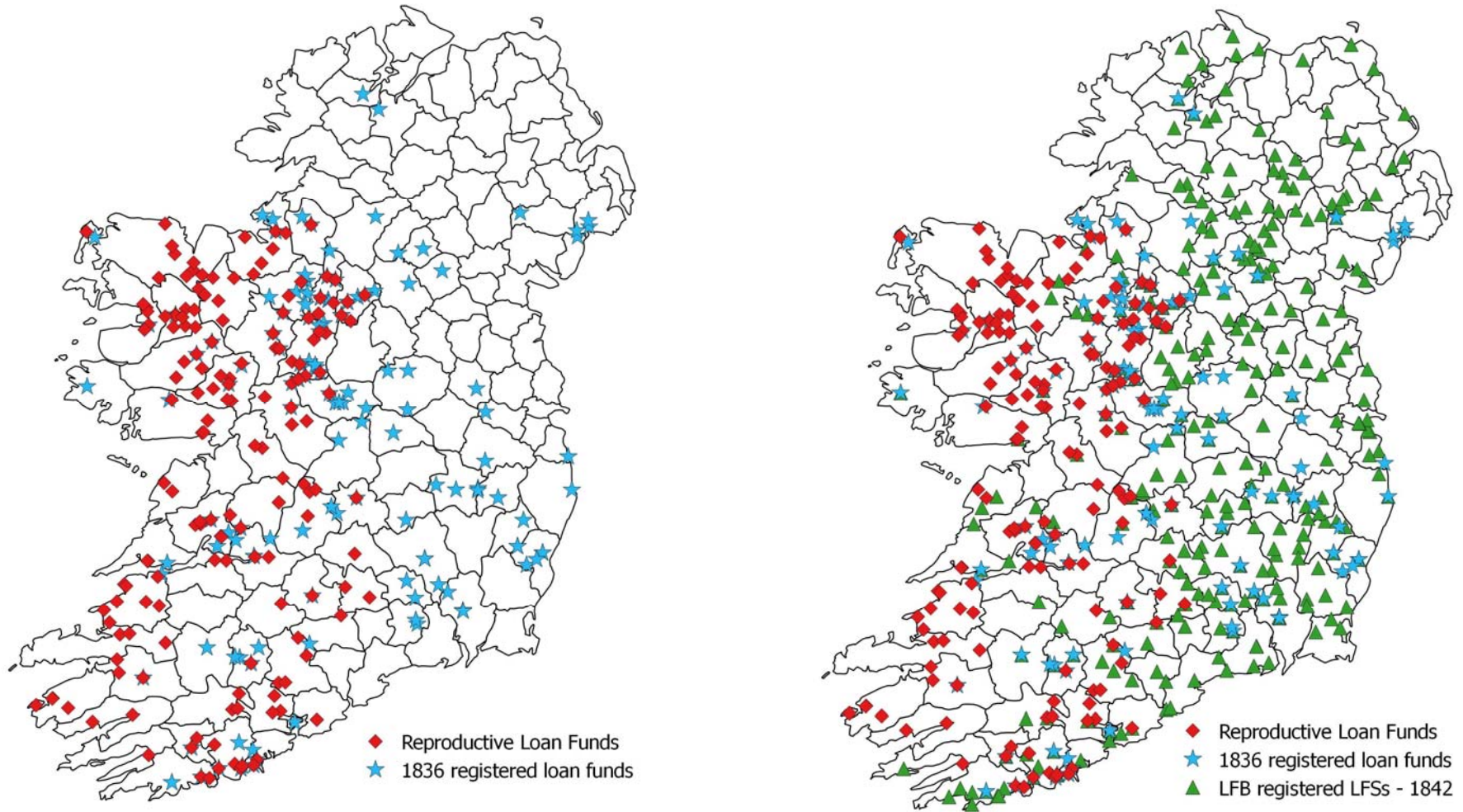


Figure 4: Microfinance institutions pre-dating poor law introduction (Poor Law Boundaries)



Notes: 1836 Registered Loan funds (n=141), Reproductive Loan Funds c. 1839 (n=161), 1842 LFSs (n=300).
Shape file of poor law boundaries: Gregory & Ell (2004):

Appendices

A1: Sources and summary statistics

Data matched to Poor Law Union using GIS software. LFS location mapped using methodology in McLaughlin (2009) and matched to Poor Law Union boundaries from Gregory and Ell (2004).

LFS data: From Loan Fund Board reports (BPP 1839, 1840, 1841, 1842, 1843, 1844, 1845c, 1846b).

RLF locations: (BPP 1840)

TSB locations: Pratt (1846).

JSBs: Barrow (1973).

Vested means & Share of 4th class housing: Fernihough & Ó Gráda (2018).

Poor Law Data: Date of first admission of paupers, valuation per acre, rates 1839-1844, number admitted to workhouse (BPP 1844b, appendix b table 12-15), ratio exempts to rate payers (BPP 1846).

Average holding size, share under 10 acres, share between 10 and 50 acres, share over 50 acres, ratio under 10 to over 50 acres (%) and share held in common land. BPP (1845c).

Summary statistics

Y variables

	(1)	(2)	(3)	(4)	(5)
	N	mean	sd	min	max
LFSS					
LFSS_42	130	2.308	2.011	0	9
LFSS_43	130	2.292	1.923	0	10
Other microfinance					
LFS_count_1836	130	1.085	1.851	0	11
RLFs	130	1.238	2.188	0	9
TSBs	130	0.600	0.774	0	5
Circulation					
Circulation_42	130	13,014	13,352	0	70,059
Circulation_43	130	12,700	13,307	0	76,766
Circulationpop_42	130	22.34	21.56	0	107.3
Circulationpop_43	130	21.36	20.25	0	114.4
Capital					
Capital_42	130	3,246	3,290	0	16,674
Capital_43	130	3,103	3,420	0	22,773
capitalpop42	130	5.518	5.165	0	26.01
capitalpop43	130	5.158	4.920	0	23.99

Summary stats X variables

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	sd	min	max
Ratioexempteestoratepayers	128	0.902	0.990	0.123	8.599
Valuationperacre	130	0.910	1.444	0.0627	12.68
Numberadmitted42pop	130	0.367	0.623	0	3.525
Numberadmitted43pop	130	0.904	0.794	0	4.360
Violentlyresistingratecollect	130	0.162	0.369	0	1
RLFs	130	1.238	2.188	0	9
TSBs	130	0.600	0.774	0	5
BankofIreland	130	0.338	0.475	0	1
JSBs	130	1.154	1.332	0	5
Ulster	130	0.331	0.472	0	1
fourthclasshouseperc	130	35.93858	12.26527	15.724	76.800
vestedperc	130	2.367	1.053	1.139	10.341

popdensity	130	0.456	0.407	0.141	3.462
City_Town	130	0.0615	0.241	0	1

Summary stats appendices

Summary stats Y variables

	(1)	(2)	(3)	(4)	(5)
	N	mean	sd	min	max
LFSS					
LFSS_40	130	1.654	1.622	0	7
LFSS_41	130	2.062	1.896	0	9
LFSS_42	130	2.308	2.011	0	9
LFSS_43	130	2.292	1.923	0	10
LFSS_44	130	2.031	1.752	0	8
LFSS_45	130	2.023	1.723	0	7
Other microfinance					
TSBs	130	0.600	0.774	0	5
RLFs	130	1.238	2.188	0	9
LFS_count_1836	130	1.085	1.851	0	11
Circulation					
Circulation_40	130	8,938	10,550	0	51,351
Circulation_41	130	11,044	11,972	0	55,087
Circulation_42	130	13,014	13,352	0	70,059
Circulation_43	130	12,700	13,307	0	76,766
Circulation_44	130	13,099	14,200	0	80,803
Circulation_45	130	14,288	15,561	0	80,712
Circulationpop_40	130	15.07	17.36	0	83.11
Circulationpop_41	130	18.87	19.00	0	81.33
Circulationpop_42	130	22.34	21.56	0	107.3
Circulationpop_43	130	21.36	20.25	0	114.4
Circulationpop_44	130	22.01	21.25	0	108.1
Circulationpop_45	130	23.98	23.84	0	117.6
Capital					
Capital_41	130	2,847	3,171	0	19,558
Capital_42	130	3,246	3,290	0	16,674
Capital_43	130	3,103	3,420	0	22,773
Capital_44	130	3,212	3,599	0	23,328
Capital_45	130	3,419	3,837	0	22,026
capitalpop41	130	4.777	4.663	0	18.26
capitalpop42	130	5.518	5.165	0	26.01
capitalpop43	130	5.158	4.920	0	23.99

capitalpop44	130	5.378	5.223	0	25.53
capitalpop45	130	5.696	5.685	0	26.13

Summary stats X variables

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	sd	min	max
Ratioexempteestoratepayers	128	0.902	0.990	0.123	8.599
Ratio_under1	128	0.368	0.305	0	0.934
Ratio1	128	0.0558	0.233	0	1.058
Ratio_over1	128	0.478	1.132	0	8.599
Valuationperacre	130	0.910	1.444	0.0627	12.68
Averageholdings	130	23.36	9.797	6.995	51.82
shareunder10acres	129	0.471	0.142	0.112	0.777
Share10to50acres	129	0.424	0.105	0.162	0.671
Shareover50acres	129	0.105	0.0748	0.00739	0.385
Ratiounder10toover50	129	11.27	15.92	0.358	91.86
Shareoflandheldincommonru	129	0.28	0.068	0	0.413
Numberadmitted42pop	130	0.367	0.623	0	3.525
Numberadmitted43pop	130	0.904	0.794	0	4.360
Numberadmitted44pop	130	0.704	0.586	0	2.897
Numberadmitted45pop	130	0.830	0.626	0	3.820
Numberadmitted46pop	130	0.946	0.658	0	4.569
Violentlyresistingratecollect	130	0.162	0.369	0	1
TSBs	130	0.600	0.774	0	5
RLFs	130	1.238	2.188	0	9
BankofIreland	130	0.338	0.475	0	1
JSBs	130	1.154	1.332	0	5
fourthclasshouseperc	130	35.93858	12.26527	15.724	76.800
vestedperc	130	2.367	1.053	1.139	10.341
popdensity	130	0.456	0.407	0.141	3.462
City_Town	130	0.0615	0.241	0	1

A2: Year-by-Year regressions

Table A2.1 Number of Loan Fund Societies by poor law union, 1840-45

VARIABLES	(1) 1840	(2) 1841	(3) 1842	(4) 1843	(5) 1844	(6) 1845
Ratio exempts to ratepayers	-0.489*** (0.178)	-0.405*** (0.154)	-0.502*** (0.156)	-0.450*** (0.150)	-0.429*** (0.138)	-0.416*** (0.145)
Poor law valuation per acre	-0.698** (0.338)	-0.820*** (0.289)	-0.638** (0.283)	-0.659** (0.268)	-0.525* (0.288)	-0.444* (0.269)
Workhouse admissions (t) pop	-0.297* (0.152)	-0.297** (0.125)	-0.344*** (0.124)	-0.159 (0.0995)	-0.197 (0.153)	-0.258 (0.163)
Violent resistance to rates	0.0531 (0.290)	-0.0759 (0.252)	0.0664 (0.239)	-0.0517 (0.226)	0.0125 (0.231)	0.0579 (0.224)
RLFs	0.0337 (0.0839)	0.00224 (0.0695)	0.0281 (0.0618)	0.0330 (0.0610)	-0.0306 (0.0656)	-0.0160 (0.0638)
TSBs	0.174 (0.141)	0.0792 (0.127)	0.0951 (0.137)	0.0782 (0.140)	0.0396 (0.149)	0.0188 (0.146)
Bank of Ireland monopoly zone	0.197 (0.190)	0.224 (0.186)	0.0320 (0.176)	0.231 (0.210)	0.0240 (0.186)	0.0578 (0.189)
JSBs	-0.00805 (0.0721)	0.0245 (0.0653)	0.0318 (0.0626)	0.0794 (0.0658)	0.0916 (0.0672)	0.104 (0.0667)
Ulster	-0.480* (0.251)	-0.748*** (0.231)	-0.781*** (0.219)	-0.679*** (0.219)	-0.729*** (0.234)	-0.771*** (0.238)
4 th class housing (%)	-0.0457*** (0.0165)	-0.0357** (0.0144)	-0.0347** (0.0139)	-0.0209 (0.0140)	-0.0252* (0.0141)	-0.0262** (0.0133)
Vested means (%)	-0.0356 (0.146)	0.0500 (0.102)	0.0222 (0.121)	0.0251 (0.132)	0.0115 (0.125)	0.00860 (0.121)
Population density	1.646 (1.061)	2.033** (0.881)	1.800** (0.889)	1.748** (0.815)	1.354 (0.878)	1.069 (0.840)
City	0.819 (1.231)	0.691 (1.208)	0.378 (0.474)	0.227 (0.409)	0.232 (0.506)	0.309 (0.476)
Constant	2.335*** (0.846)	2.045*** (0.731)	2.284*** (0.729)	1.715** (0.786)	1.969** (0.767)	2.105*** (0.728)
Observations	128	128	128	128	128	128
alpha	0.0328 (0.481)	0.0338 (0.439)	0.0695 (7.504)	0.0746 (3.402)	0.0688 (1.077)	0.0528 (0.599)
LR test Alpha=0	0.18	0.3	1.66*	1.88*	1.16	0.66
r2 p	0.126	0.126	0.109	0.0835	0.0831	0.0813
chi2	56.82***	59.82***	45.80***	35.29***	34.65***	30.92***

N misreps	22	27	21	18	7	19
N reps	978	973	979	982	993	981
ll	-193.1	-210.7	-223.4	-226.9	-217.6	-217.0

Bootstrap Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

Table A2.2 LFS circulation per capita 1840-45 by Poor Law Unions

	(1)	(2)	(3)	(4)	(5)	(6)
	1840	1841	1842	1843	1844	1845
Ratio exempts to ratepayers	-1.599 (1.550)	-1.719 (1.529)	-2.110 (1.656)	-1.458 (1.820)	-1.900 (1.691)	-2.530 (1.959)
Poor law valuation per acre	-2.689 (5.586)	-3.182 (5.563)	-3.612 (6.376)	-3.093 (6.304)	-1.483 (6.831)	-0.482 (7.242)
Workhouse admissions (t) pop	-1.510 (2.906)	-2.452 (3.216)	-1.937 (3.650)	2.289 (3.486)	2.357 (4.456)	-1.233 (5.167)
Violent resistance to rates	-4.257 (3.696)	-5.693 (4.053)	-5.923 (4.752)	-6.761 (4.238)	-7.656* (4.466)	-7.793 (5.150)
RLFs	-0.0368 (0.603)	-0.865 (0.631)	-1.113 (0.718)	-1.138 (0.713)	-0.878 (0.762)	-1.278 (0.853)
TSBs	-0.275 (2.323)	-2.283 (2.459)	-2.445 (2.769)	-1.352 (2.761)	-2.677 (3.003)	-3.222 (3.398)
Bank of Ireland monopoly zone	5.849 (3.916)	5.440 (4.108)	1.233 (4.823)	0.486 (4.749)	0.312 (5.401)	-0.873 (6.215)
JSBs	-1.379 (1.421)	0.247 (1.446)	0.277 (1.605)	0.602 (1.490)	1.455 (1.572)	1.671 (1.765)
Ulster	1.875 (4.551)	-3.846 (4.816)	-5.432 (5.438)	-3.442 (5.071)	-2.411 (5.424)	-4.394 (6.563)
4 th class housing (%)	-0.582*** (0.166)	-0.717*** (0.175)	-0.878*** (0.208)	-0.622*** (0.187)	-0.653*** (0.214)	-0.804*** (0.264)
Vested means (%)	-3.616 (3.092)	-3.583 (3.383)	-2.962 (3.099)	-2.313 (3.032)	-2.342 (2.999)	-3.250 (3.184)
Population density	2.353 (17.48)	3.580 (16.97)	2.903 (19.41)	2.635 (18.33)	-3.994 (19.75)	-6.634 (22.00)
City	12.19 (12.54)	8.310 (15.02)	8.351 (17.05)	7.322 (17.40)	8.919 (22.44)	8.710 (23.79)
Constant	47.12*** (13.65)	58.88*** (14.72)	69.83*** (15.63)	53.03*** (14.45)	56.58*** (16.43)	71.56*** (19.88)
Observations	128	128	128	128	128	128
R-squared	0.252	0.302	0.274	0.228	0.216	0.214
Replications	999	999	999	999	999	999

Bootstrap standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

Table A2.3 Capital per capita 1840-45 by Poor Law Unions

	(1)	(2)	(3)	(4)	(5)
	1841	1842	1843	1844	1845
Ratio exempts to ratepayers	-0.396 (0.384)	-0.417 (0.439)	-0.335 (0.470)	-0.395 (0.427)	-0.535 (0.468)
Poor law valuation per acre	-0.885 (1.479)	-0.728 (1.515)	-0.416 (1.542)	-0.457 (1.621)	-0.144 (1.705)
Workhouse admissions (t) pop	-0.0849 (0.863)	-0.192 (0.837)	0.451 (0.851)	0.592 (1.130)	-0.261 (1.321)
Violent resistance to rates	-1.928* (1.004)	-1.712 (1.065)	-1.922* (1.007)	-2.101* (1.096)	-2.216* (1.216)
RLFs	-0.149 (0.162)	-0.216 (0.180)	-0.191 (0.176)	-0.197 (0.190)	-0.275 (0.204)
TSBs	-0.685 (0.612)	-0.473 (0.668)	-0.604 (0.657)	-0.873 (0.698)	-0.904 (0.785)
Bank of Ireland monopoly zone	0.969 (1.004)	-0.0326 (1.140)	-0.213 (1.170)	-0.259 (1.375)	-0.509 (1.496)
JSBs	-0.0295 (0.339)	-0.0192 (0.370)	0.242 (0.349)	0.369 (0.388)	0.417 (0.416)
Ulster	-1.213 (1.126)	-1.281 (1.251)	-0.441 (1.214)	-0.852 (1.350)	-1.420 (1.547)
4 th class housing (%)	-0.200*** (0.0435)	-0.240*** (0.0518)	-0.182*** (0.0504)	-0.180*** (0.0571)	-0.209*** (0.0657)
Vested means (%)	-0.890 (0.789)	-0.880 (0.711)	-0.604 (0.720)	-0.520 (0.695)	-0.636 (0.731)
Population density	1.403 (4.397)	0.719 (4.612)	-0.527 (4.551)	-0.740 (4.816)	-1.633 (5.122)
City	2.301 (3.427)	1.805 (3.301)	2.427 (3.534)	2.485 (5.338)	2.386 (5.628)
Constant	15.51*** (3.556)	18.15*** (3.667)	14.30*** (3.804)	14.67*** (4.267)	17.58*** (4.884)
Observations	128	128	128	128	128
R-squared	0.312	0.299	0.259	0.232	0.223
Replications	999	999	999	999	999

Bootstrap standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications.

A3: Robustness tests

Table A3.1 Negative Binomial Regressions of LFSs with alternative measures of inequality by Poor Law Union, 1842

	(1)	(2)	(3)	(4)	(5)	(6)
	LFSs	LFSs	LFSs	LFSs	LFSs	LFSs
Average holdings	-0.0205*					
	(0.0105)					
Share under 10 acres		-0.227				
		(0.705)				
Share 10 to 50 acres			1.250			
			(0.988)			
Share over 50 acres				-2.227		
				(1.375)		
Ratio under 10 to over50					0.00129	
					(0.00611)	
Share of land held in Rundale						0.334
						(1.426)
Poor law valuation per acre	-0.529*	-0.642*	-0.654**	-0.548*	-0.604*	-0.630**
	(0.306)	(0.335)	(0.322)	(0.302)	(0.356)	(0.317)
Workhouse admissions (t) pop	-0.239*	-0.312**	-0.311**	-0.240	-0.301**	-0.300**
	(0.143)	(0.144)	(0.140)	(0.151)	(0.146)	(0.145)
Violent resistance to rates	-0.0592	-0.000979	0.0228	-0.0326	-0.0154	-0.00307
	(0.227)	(0.239)	(0.240)	(0.227)	(0.233)	(0.240)
RLFs	-0.0640	-0.0149	-0.00327	-0.0500	-0.0252	-0.0213
	(0.0677)	(0.0632)	(0.0610)	(0.0663)	(0.0623)	(0.0641)
TSBs	0.0850	0.0993	0.105	0.0865	0.0974	0.0994
	(0.136)	(0.146)	(0.140)	(0.140)	(0.145)	(0.144)
Bank of Ireland monopoly zone	-0.0552	0.0326	0.0970	-0.0480	-0.00138	0.00665
	(0.185)	(0.205)	(0.204)	(0.194)	(0.195)	(0.192)
JSBs	0.0321	0.0427	0.0483	0.0306	0.0423	0.0384
	(0.0625)	(0.0642)	(0.0636)	(0.0621)	(0.0651)	(0.0626)
Ulster	-0.890***	-0.785***	-0.853***	-0.909***	-0.803***	-0.787***
	(0.230)	(0.246)	(0.266)	(0.240)	(0.238)	(0.243)
4 th class housing (%)	-0.0278*	-0.0329**	-0.0339**	-0.0307**	-0.0322**	-0.0328**
	(0.0145)	(0.0142)	(0.0137)	(0.0143)	(0.0142)	(0.0147)
Vested means (%)	0.0334	0.0390	0.0451	0.0471	0.0371	0.0390
	(0.120)	(0.128)	(0.126)	(0.121)	(0.126)	(0.126)
Population density	1.326	1.855*	1.953*	1.443	1.701	1.801*
	(0.992)	(1.089)	(1.047)	(0.955)	(1.146)	(0.994)
City	0.400	0.376	0.320	0.430	0.397	0.377
	(0.457)	(0.455)	(0.434)	(0.439)	(0.463)	(0.431)
Constant	2.370***	1.922**	1.242	2.153***	1.842**	1.834**
	(0.785)	(0.783)	(0.969)	(0.730)	(0.763)	(0.761)
Observations	130	129	129	129	129	129

L1	-230.4	-231.7	-230.5	-230.2	-231.7	-231.7
Alpha	0.0870	0.108	0.102	0.0915	0.105	0.106
	(0.525)	(0.630)	(0.699)	(0.842)	(0.621)	(0.676)
Alpha = 0	2.39*	3.66**	3.39**	2.69*	3.42**	3.54**
r2_p	0.0910	0.0800	0.0847	0.0857	0.0798	0.0799
chi2	53.10***	41.48***	39.91***	51.95***	41.89***	40.53***
N_misreps	18	11	11	9	11	7
N_reps	982	989	989	991	989	993

Bootstrap standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

Table A3.2 Negative Binomial Regressions of LFSSs and the Ratio of exempts to rate payers (< 1, = 1, and >1)

	(1)	(2)	(3)	(4)	(4)	(6)	(7)	(8)
	LFSS	LFSS	LFSS	LFSS	LFSS (weighted)	LFSS (weighted)	LFSS (weighted)	LFSS (weighted)
Ratio exempts to ratepayers	-0.478*** (0.147)				-0.535*** (0.199)			
Ratio <1		0.823*** (0.232)				1.061*** (0.391)		
Ratio = 1			-0.222 (0.736)				-0.610 (0.633)	
Ratio >1				-0.436*** (0.127)				-0.535*** (0.198)
Constant	1.215*** (0.133)	0.512*** (0.136)	0.856*** (0.0791)	0.981*** (0.0807)	-3.164*** (0.198)	-4.013*** (0.212)	-3.544*** (0.131)	-3.416*** (0.135)
Alpha	0.260 (0.090)	0.257 (0.111)	0.321 (0.105)	0.238 (0.090)	1.12E-13 (3.59E-12)	1.12E-13 (1.32E-11)	1.12E-13 (4.37E-11)	1.12E-13 (5.50E-12)
Alpha = 0	16.51***	15.63***	22.2***	14.3***	0	0	0	0
Observations	128	128	128	128	128	128	128	128
Ll	-243.3	-245.2	-250.4	-241.5	-14.48	-14.45	-14.62	-14.42
r2_p	0.0293	0.0217	0.000816	0.0363	0.0113	0.0130	0.00171	0.0148
chi2	10.65***	12.60***	0.0911***	11.73***	7.212***	7.366***	0.931***	7.324***
N misreps	0	0	1	0	32	18	35	15
N_reps	1000	1000	999	1000	968	982	965	985

Bootstrap standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

Table A3.3: Robustness – deleting ratio > 3

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	1840	1841	1842	1843	1844	1845
Ratio exempts to ratepayers	-0.430** (0.194)	-0.387** (0.188)	-0.482*** (0.180)	-0.479*** (0.178)	-0.389** (0.174)	-0.424** (0.181)
Poor law valuation per acre	-0.676* (0.353)	-0.803*** (0.302)	-0.620** (0.294)	-0.702** (0.274)	-0.527* (0.298)	-0.473* (0.286)
Workhouse admissions (t) pop	-0.297* (0.164)	-0.299** (0.137)	-0.345** (0.135)	-0.156 (0.0956)	-0.198 (0.151)	-0.274 (0.168)
Violent resistance to rates	0.0407 (0.274)	-0.0720 (0.243)	0.0668 (0.224)	-0.0277 (0.217)	0.0140 (0.233)	0.0797 (0.225)
RLFs	0.0375 (0.0875)	0.00441 (0.0748)	0.0307 (0.0658)	0.0145 (0.0618)	-0.0368 (0.0689)	-0.0328 (0.0681)
TSBs	0.168 (0.139)	0.0776 (0.125)	0.0934 (0.132)	0.0846 (0.132)	0.0385 (0.143)	0.0244 (0.143)
Bank of Ireland monopoly zone	0.210 (0.198)	0.229 (0.197)	0.0376 (0.186)	0.206 (0.215)	0.0227 (0.196)	0.0431 (0.196)
JSBs	-0.00410 (0.0704)	0.0300 (0.0660)	0.0376 (0.0626)	0.0697 (0.0664)	0.0912 (0.0660)	0.0981 (0.0659)
Ulster	-0.463* (0.251)	-0.740*** (0.234)	-0.773*** (0.223)	-0.703*** (0.223)	-0.730*** (0.246)	-0.795*** (0.250)
4 th class housing (%)	-0.0445*** (0.0162)	-0.0358** (0.0141)	-0.0347** (0.0140)	-0.0207 (0.0134)	-0.0244* (0.0141)	-0.0259** (0.0131)
Vested means (%)	-0.0380 (0.148)	0.0472 (0.109)	0.0196 (0.121)	0.0348 (0.123)	0.0147 (0.125)	0.0178 (0.122)
Population density	1.589 (1.079)	1.975** (0.918)	1.743* (0.942)	1.887** (0.861)	1.367 (0.948)	1.162 (0.907)
City	0.816** (0.400)	0.682 (0.791)	0.369 (0.759)	0.239 (0.327)	0.236 (0.360)	0.329 (0.373)
Constant	2.262*** (0.835)	2.042*** (0.725)	2.274*** (0.734)	1.711** (0.748)	1.914** (0.765)	2.102*** (0.725)
Observations	124	124	124	124	124	124
L1	-192.5	-208.8	-221.4	-222.8	-215.6	-213.7
Alpha	0.0301 (0.289)	0.0337 (0.287)	0.0693 (0.459)	0.0723 (0.497)	0.0699 (0.464)	0.0529 (0.887)
Alpha = 0	0.15	0.30	1.65	1.78*	1.19	0.66
r2_p	0.108	0.112	0.0920	0.0726	0.0664	0.0700
chi2	46.84***	56.31***	42.90***	35.31***	28.24***	29.90***
N misreps	28	22	16	10	19	14
N_reps	972	978	984	990	981	986

Bootstrap standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

Table A3.4: Robustness – dropping LFS>5

	1840	1841	1842	1843	1844	1845
Ratio exempts to ratepayers	-0.419** (0.190)	-0.318** (0.143)	-0.372*** (0.140)	-0.269** (0.133)	-0.319** (0.134)	-0.311** (0.141)
Poor law valuation per acre	-0.477 (0.350)	-0.655** (0.286)	-0.458* (0.253)	-0.430* (0.229)	-0.335 (0.250)	-0.278 (0.243)
Workhouse admissions (t) pop	-0.222 (0.180)	-0.246* (0.129)	-0.241* (0.124)	-0.201** (0.0965)	-0.191 (0.166)	-0.191 (0.175)
Violent resistance to rates	0.0790 (0.341)	-0.0849 (0.246)	0.0399 (0.246)	-0.00867 (0.207)	-0.0328 (0.210)	0.00274 (0.196)
RLFs	0.0641 (0.0958)	0.0199 (0.0756)	0.0635 (0.0679)	0.0562 (0.0581)	0.0269 (0.0642)	0.0347 (0.0620)
TSBs	0.147 (0.138)	0.123 (0.108)	0.0706 (0.0995)	0.0427 (0.102)	0.00990 (0.122)	-0.00278 (0.129)
Bank of Ireland monopoly zone	0.201 (0.208)	0.114 (0.199)	0.00373 (0.186)	0.00357 (0.203)	-0.00277 (0.177)	0.0121 (0.191)
JSBs	-0.0148 (0.0709)	0.0160 (0.0639)	-0.00833 (0.0620)	0.0291 (0.0588)	0.0690 (0.0618)	0.0788 (0.0630)
Ulster	-0.171 (0.230)	-0.526** (0.230)	-0.508** (0.227)	-0.628*** (0.201)	-0.569** (0.230)	-0.607** (0.230)
4 th class housing (%)	-0.0508*** (0.0162)	-0.0383*** (0.0132)	-0.0386*** (0.0127)	-0.0357*** (0.0119)	-0.0378*** (0.0122)	-0.0363*** (0.0119)
Vested means (%)	-0.0495 (0.173)	0.0322 (0.110)	0.0218 (0.113)	0.000286 (0.120)	-0.0441 (0.126)	-0.0429 (0.126)
Population density	0.889 (1.048)	1.478* (0.827)	1.252 (0.802)	1.114 (0.694)	0.734 (0.737)	0.522 (0.740)
City	0.968 (1.028)	0.701 (2.064)	0.338 (0.973)	0.215 (0.352)	0.407 (0.277)	0.420 (0.346)
Constant	2.336** (0.912)	2.019*** (0.672)	2.172*** (0.672)	2.232*** (0.669)	2.403*** (0.672)	2.403*** (0.668)
	-0.419**	-0.318**	-0.372***	-0.269**	-0.319**	-0.311**
Observations	115	119	116	117	122	122
L1	-155.3	-179.2	-179.8	-183.0	-191.5	-192.5
Alpha	1.57e-07 (0.00002)	1.23e-07 (2.83e-06)	9.21e-08 (0.00001)	6.97e-08 (5.55e-07)	1.36e-07 (0.00002)	8.74e-08 (9.13e-08)
Alpha = 0	0	0	0	0	0	0
r2_p	0.125	0.110	0.0964	0.0791	0.0887	0.0826
chi2	35.06***	36.91***	28.57***	26.31***	30.01***	26.14***
N misreps	55	59	62	43	34	51
N_reps	945	941	938	957	966	949

Bootstrap standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1; standard-error estimates include only complete replications

A3.1 Spatial analysis of Loan Fund Societies in 1842.

The following provides spatial analysis of LFS activity using spatial lags of the dependent variable. Spatial models take the form

$$Y_i = \rho WY_i + \beta X_i + u_i$$

Where W is a spatial weight matrix and Y_i is the dependent variable. WY is endogenous (Elhorst 2014) as it reflects the behaviour in neighbouring regions (Manski 1993).

The analysis in the previous tables are repeated here with the exception that the count variables are linearized by scaling by population. This is a common procedure owing the difficulties applying spatial models to count data (Glaser 2017). Moran's test for spatial independence indicate that the number of LFSs per capita is spatially correlated, but that the loan fund activity is not (results for circulation per capita are only presented here). The following report results of OLS, Spatial autoregressive with a lag of the dependent variable, and Instrumental variables with spatial lag of dependent variables as an instrument.

Table A3.5 Spatial analysis of Loan Fund Societies in 1842.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	LFS 1842 / pop	LFS 1842 / pop	LFS 1842 / pop	£loans 1842/ pop	£loans 1842/ pop	£loans 1842/ pop
	OLS	OLS	IV	OLS	OLS	IV
W LFS 1842 / pop		0.555**	0.482			
		(0.235)	(1.350)			
W £loans 1842/ pop					0.0654	0.751
					(0.130)	(0.967)
Ratio exempts to ratepayers	-0.612**	-0.502***	-0.517*	-2.110	-2.140*	-2.458*
	(0.289)	(0.184)	(0.312)	(1.887)	(1.101)	(1.423)
Poor law valuation per acre	-0.548	-0.208	-0.253	-3.612	-3.195	1.180
	(0.908)	(0.850)	(1.305)	(5.920)	(5.546)	(7.968)
Workhouse admissions (t) pop	-0.884*	-0.705**	-0.729	-1.937	-1.622	1.686
	(0.524)	(0.356)	(0.522)	(3.415)	(3.522)	(5.394)

Violent resistance to rates	-0.148	-0.199	-0.193	-5.923	-5.610	-2.333
	(0.772)	(0.733)	(0.688)	(5.035)	(4.641)	(5.924)
RLFs	-0.0762	-0.0718	-0.0724	-1.113	-1.031	-0.173
	(0.178)	(0.159)	(0.154)	(1.158)	(0.685)	(1.227)
TSBs	-0.0158	0.201	0.173	-2.445	-2.336	-1.191
	(0.409)	(0.392)	(0.631)	(2.668)	(2.238)	(2.894)
Bank of Ireland monopoly zone	-0.451	-0.410	-0.415	1.233	1.313	2.157
	(0.750)	(0.769)	(0.735)	(4.894)	(4.875)	(5.158)
JSBs	-0.400	-0.388*	-0.389*	0.277	0.318	0.751
	(0.252)	(0.218)	(0.211)	(1.641)	(1.555)	(1.788)
Ulster	-1.868**	-1.118	-1.216	-5.432	-5.280	-3.689
	(0.787)	(0.798)	(2.093)	(5.135)	(5.295)	(6.317)
4 th class housing (%)	-0.147***	-0.104***	-0.109	-0.878***	-0.822***	-0.243
	(0.0364)	(0.0390)	(0.111)	(0.237)	(0.233)	(0.855)
Vested means (%)	-0.199	-0.159	-0.165	-2.962	-2.827	-1.411
	(0.428)	(0.408)	(0.382)	(2.790)	(2.186)	(3.421)
Population density	0.149	-0.761	-0.641	2.903	1.977	-7.735
	(2.932)	(2.776)	(3.881)	(19.12)	(18.62)	(22.60)
City	0.883	0.534	0.580	8.351	7.647	0.255
	(1.603)	(0.715)	(1.116)	(10.45)	(9.387)	(14.31)
Constant	12.35***	9.036***	9.473	69.83***	65.67***	22.09
	(2.221)	(2.600)	(8.168)	(14.49)	(16.78)	(63.14)
Observations	128	128	128	128	128	128
R-squared	0.284	0.327	0.326	0.274	0.277	0.034
Moran test spatial dependence	6.37**			2.38		
First stage F statistic			4.89			7.46

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Notes: The prefix W indicates spatial lag of the corresponding variable. The spgen command with swm(pow 8) and dist(.) options is used to generate spatial lags (Kondo 2016, 2017). The instruments for the spatial lag of the dependent variable is the spatial lag of 4th class housing.

A4: Average Marginal Effects

Table A4.1 Number of Loan fund Societies in 1842 and 1843 by Poor Law Union

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	1842	1843	1842				1843			
	Unconditional		Conditional				Conditional			
Ratio exempts to ratepayers	-1.117 (0.361)	-0.946 (0.360)	-1.202 (0.385)	-1.102 (0.370)	-1.109 (0.366)	-1.168 (0.388)	-0.922 (0.368)	-0.925 (0.355)	-0.988 (0.344)	-1.041 (0.372)
Poor law valuation per acre	0.021 (0.203)	-0.021 (0.183)	-0.429 (0.493)	-0.453 (0.491)	-0.464 (0.570)	-1.485 (0.692)	-0.730 (0.419)	-0.752 (0.425)	-0.641 (0.498)	-1.524 (0.656)
Workhouse admissions (t) pop	-0.230 (0.244)	0.324 (0.209)	-0.543 (0.351)	-0.585 (0.361)	-0.607 (0.336)	-0.801 (0.301)	0.178 (0.223)	0.139 (0.229)	-0.101 (0.265)	-0.368 (0.231)
Violent resistance to rates	0.031 (0.485)	-0.065 (0.411)	0.384 (0.638)	0.466 (0.694)	0.550 (0.688)	0.158 (0.583)	0.027 (0.499)	0.020 (0.537)	0.142 (0.556)	-0.118 (0.505)
RLFs	-0.161 (0.097)	-0.089 (0.094)		-0.066 (0.115)	0.032 (0.118)	0.065 (0.144)		0.017 (0.113)	0.106 (0.114)	0.076 (0.141)
TSBs	0.386 (0.224)	0.350 (0.239)		0.363 (0.289)	0.198 (0.323)	0.222 (0.323)		0.297 (0.286)	0.139 (0.329)	0.181 (0.325)
Bank of Ireland monopoly zone	1.047 (0.376)	0.864 (0.361)			1.031 (0.454)	0.075 (0.412)			1.125 (0.563)	0.548 (0.518)
JSBs	0.215 (0.130)	0.293 (0.119)			0.151 (0.167)	0.074 (0.145)			0.222 (0.159)	0.184 (0.153)
Ulster	-0.599 (0.354)	-0.472 (0.359)				-1.675 (0.472)				-1.459 (0.459)
4 th class housing (%)	-0.056 (0.020)	-0.036 (0.019)				-0.081 (0.032)				-0.048 (0.032)
Vested means (%)	0.161 (0.174)	0.099 (0.149)				0.052 (0.283)				0.058 (0.306)
Population density	0.245	0.158	1.417	1.208	1.183	4.193	2.060	1.891	1.429	4.042

	(0.686)	(0.694)	(1.415)	(1.379)	(1.807)	(2.156)	(1.377)	(1.299)	(1.610)	1.971
City	0.605	0.488	1.03	1.021	0.829	1.044	0.659	0.634	0.472	0.581
	(1.006)	(0.656)	(2.644)	(2.608)	(2.109)	(1.550)	(1.617)	(1.662)	(1.250)	1.156

Standard errors in parentheses (delta method).

LFSs is the number of loan fund societies, 300 in 1842 and 298 in 1843; Violent resistance to rates is a dummy variable where 1 = a union violently resisted rate collection, 0 otherwise; Bank of Ireland monopoly is a dummy variable whereby 1 if a Union was within the Bank's monopoly radius and 0 otherwise. City is a dummy variable, 1 if a Union contains a major city (as defined by barony classifications).

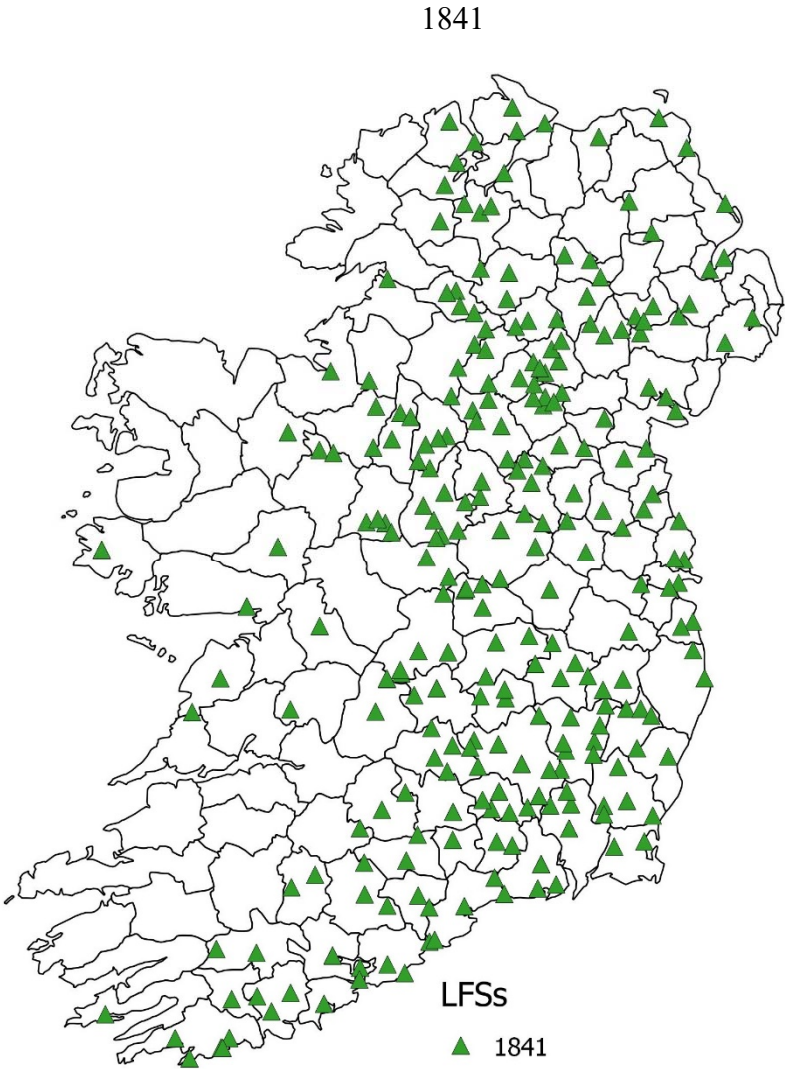
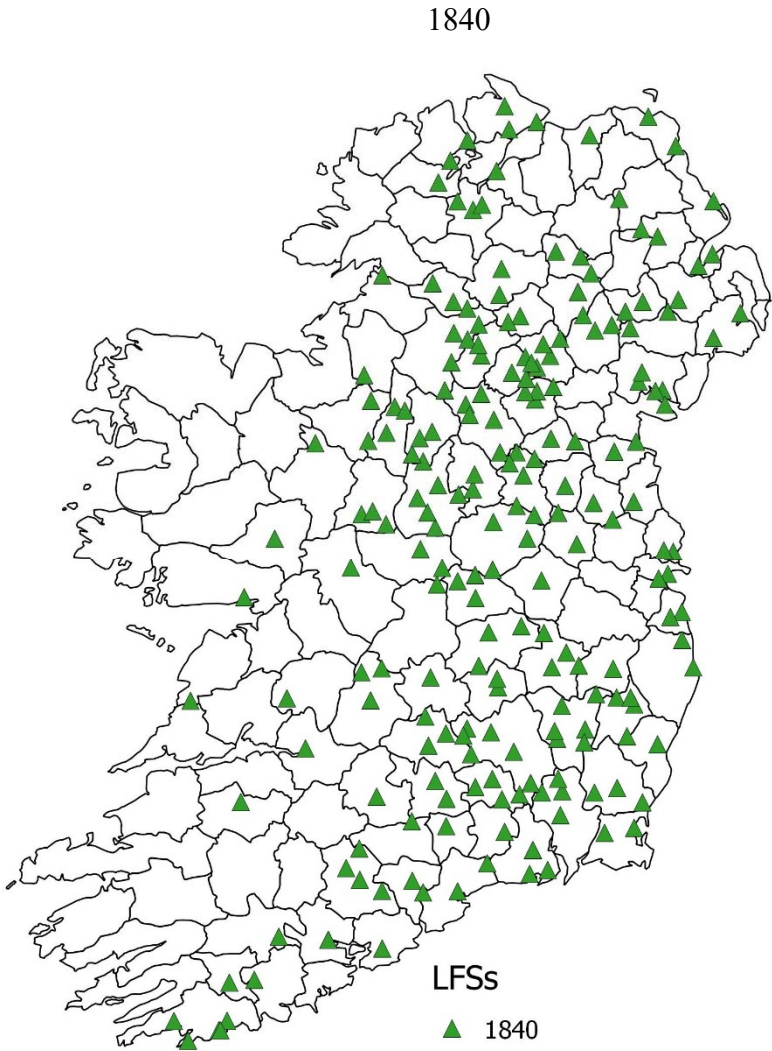
Two unions did not contain data on rate exempts and rate payers, Tuam and Clifden. Both of these are found in Connaught. Tuam contained 8 RLFs and 1 LFS. Clifden contained 1 LFS.

Table A4.3 1836 Loan Fund societies & Reproductive Loan Fund Societies by Poor Law Union

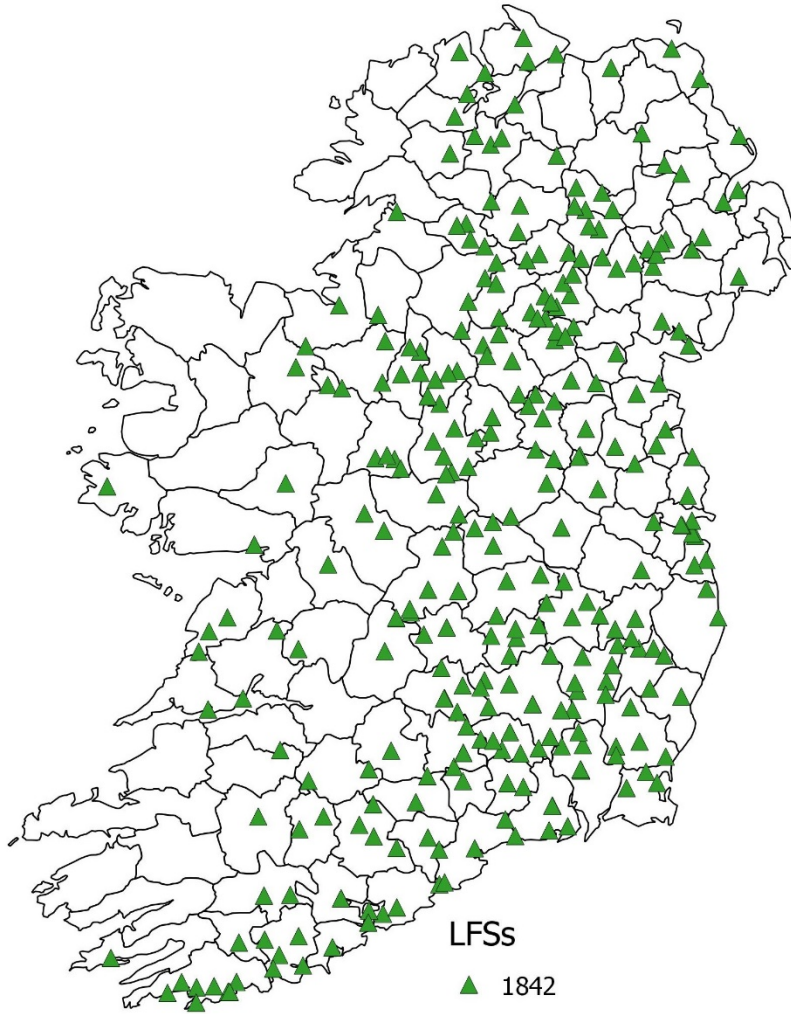
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LFS 1836	RLFs	TSBs	TSBs	LFSS 42	LFSS 42	LFSS 43	LFSS 43
Ratio exempts to ratepayers	-0.206 (5.39E+10)	0.620 (2.290)	-0.046 (0.057)	-0.070 (0.062)	-1.051 (0.371)	-1.116 (0.386)	-0.955 (0.366)	-0.967 (0.393)
Poor law valuation per acre	-0.003 (2.90E+09)	-0.143 (3.598)	-0.214 (0.145)	-0.197 (0.143)	-1.352 (0.651)	-1.362 (0.652)	-1.436 (0.631)	-1.437 (0.634)
Workhouse admissions (t) pop	-0.001 (3.89E+09)	0.610 (10.118)	0.024 (0.108)	0.021 (0.105)	-0.721 (0.307)	-0.743 (0.300)	-0.315 (0.252)	-0.319 (0.242)
Violent resistance to rates	0.502 (1.19E+11)	-0.236 (2.611)	0.017 (0.157)	0.017 (0.152)	0.123 (0.601)	0.113 (0.582)	-0.141 (0.522)	-0.141 (0.516)
RLFs				0.036 (0.033)	-0.092 (0.155)		-0.013 (0.167)	
TSBs	-0.147 (3.86E+10)	0.103 (0.491)			0.245 (0.326)	0.240 (0.328)	0.190 (0.329)	0.189 (0.325)
LFSS (1836)					0.199 (0.105)	0.165 (0.085)	0.127 (0.110)	0.122 (0.090)
Bank of Ireland monopoly zone	0.746 (2.09E+11)	-1.594 (3.568)	0.209 (0.136)	0.238 (0.139)	-0.051 (0.430)	0.015 (0.418)	0.445 (0.533)	0.457 (0.513)
JSBs	0.090 (2.35E+10)	0.133 (0.318)	0.101 (0.044)	0.098 (0.045)	0.091 (0.150)	0.081 (0.148)	0.193 (0.160)	0.191 (0.159)
Ulster	-1.540 (4.37E+11)	-1.770 (3.829)	-0.062 (0.108)	-0.014 (0.120)	-1.551 (0.467)	-1.517 (0.452)	-1.357 (0.454)	-1.352 (0.057)
4 th class housing (%)	0.007 (1.84E+09)	0.026 (0.055)	-0.003 (0.006)	-0.006 (0.007)	-0.071 (0.032)	-0.078 (0.027)	-0.042 (0.033)	-0.043 (0.027)
Vested means (%)	-0.227 (5.95E+10)	0.460 (1.010)	0.086 (0.075)	0.078 (0.077)	0.020 (0.294)	0.014 (0.291)	0.046 (0.314)	0.045 (0.308)
Population density	1.760 (4.62E+11)	-0.267 (2.153)	0.512 (0.502)	0.442 (0.500)	3.903 (2.045)	3.887 (2.012)	3.860 (1.919)	3.857 (1.893)
City	-0.569 (4.07E+12)	0.160 (6.251)	0.357 (0.177)	0.360 (0.171)	0.879 (1.403)	0.948 (1.465)	0.526 (1.090)	0.532 (1.134)

A5: Map appendix

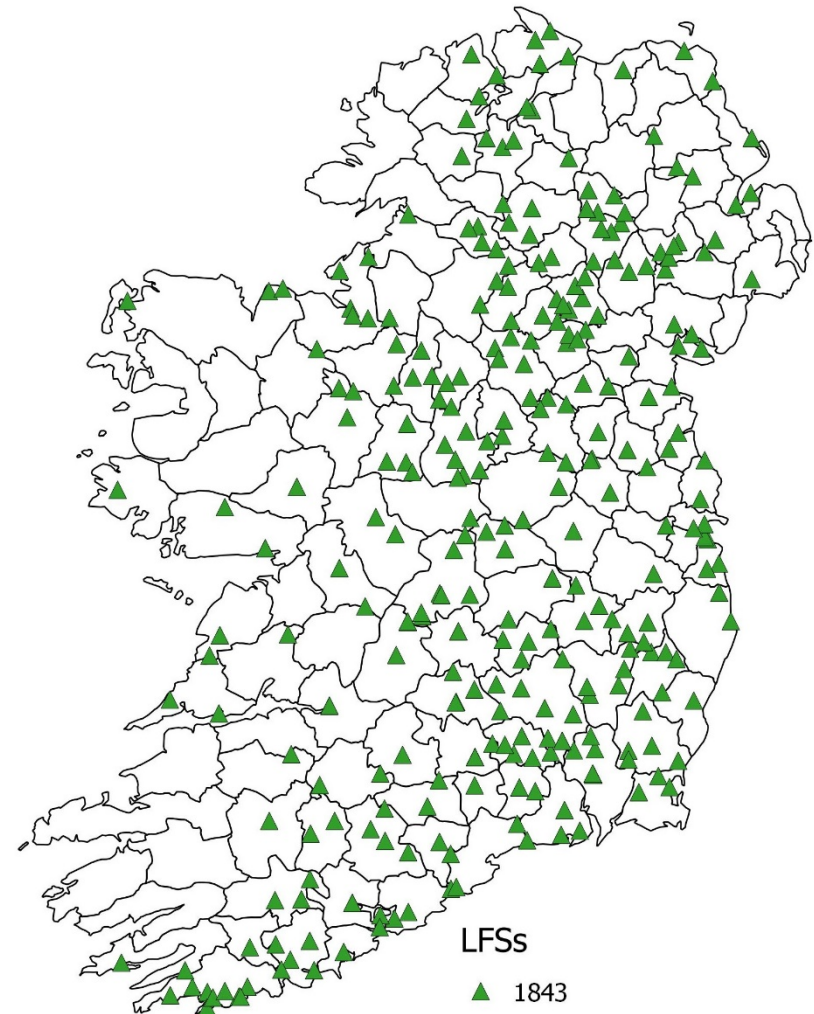
A5.1 Loan fund Society Maps by Poor Law Union, 1840-1845



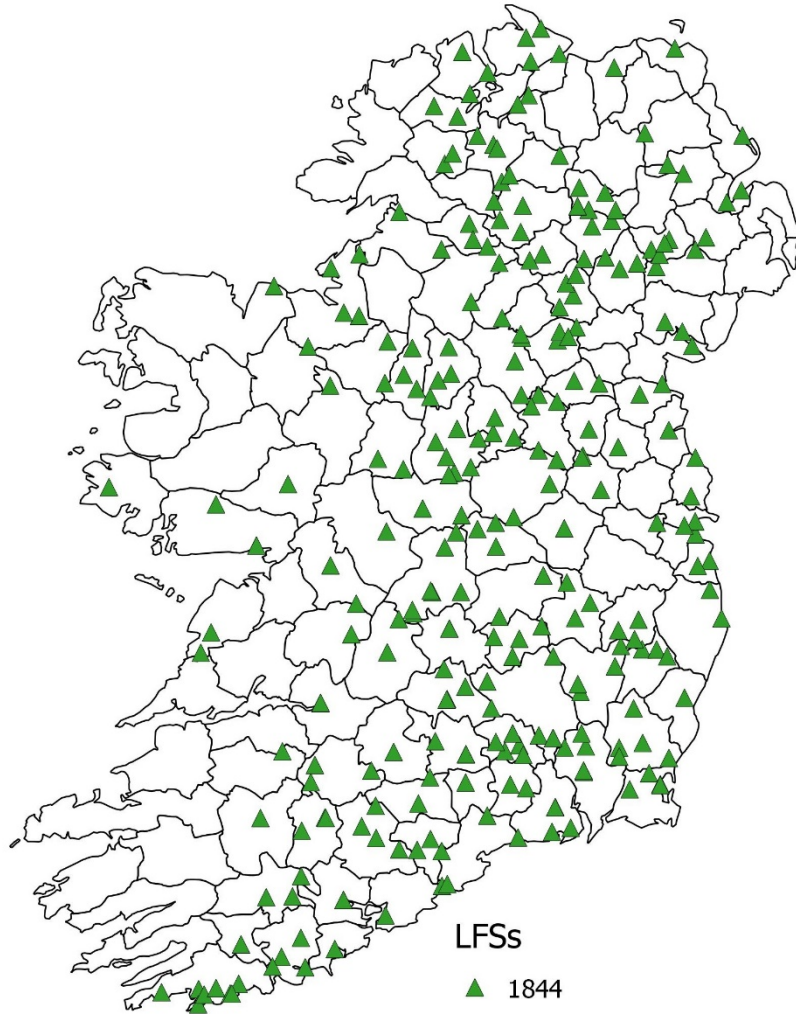
1842



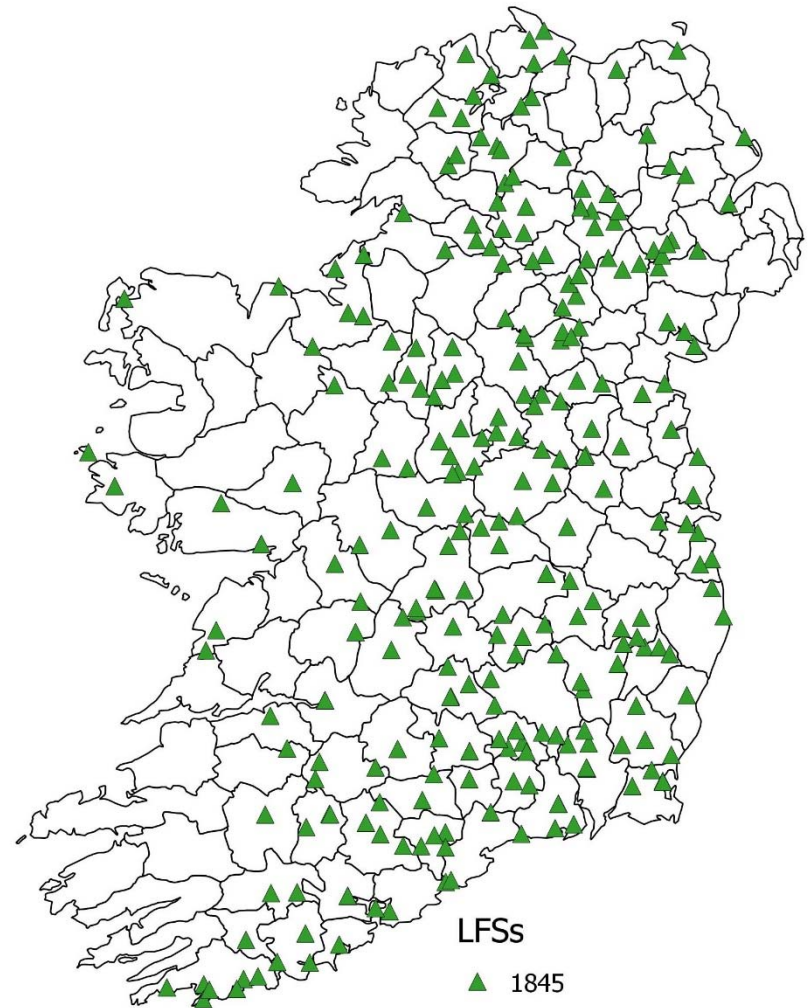
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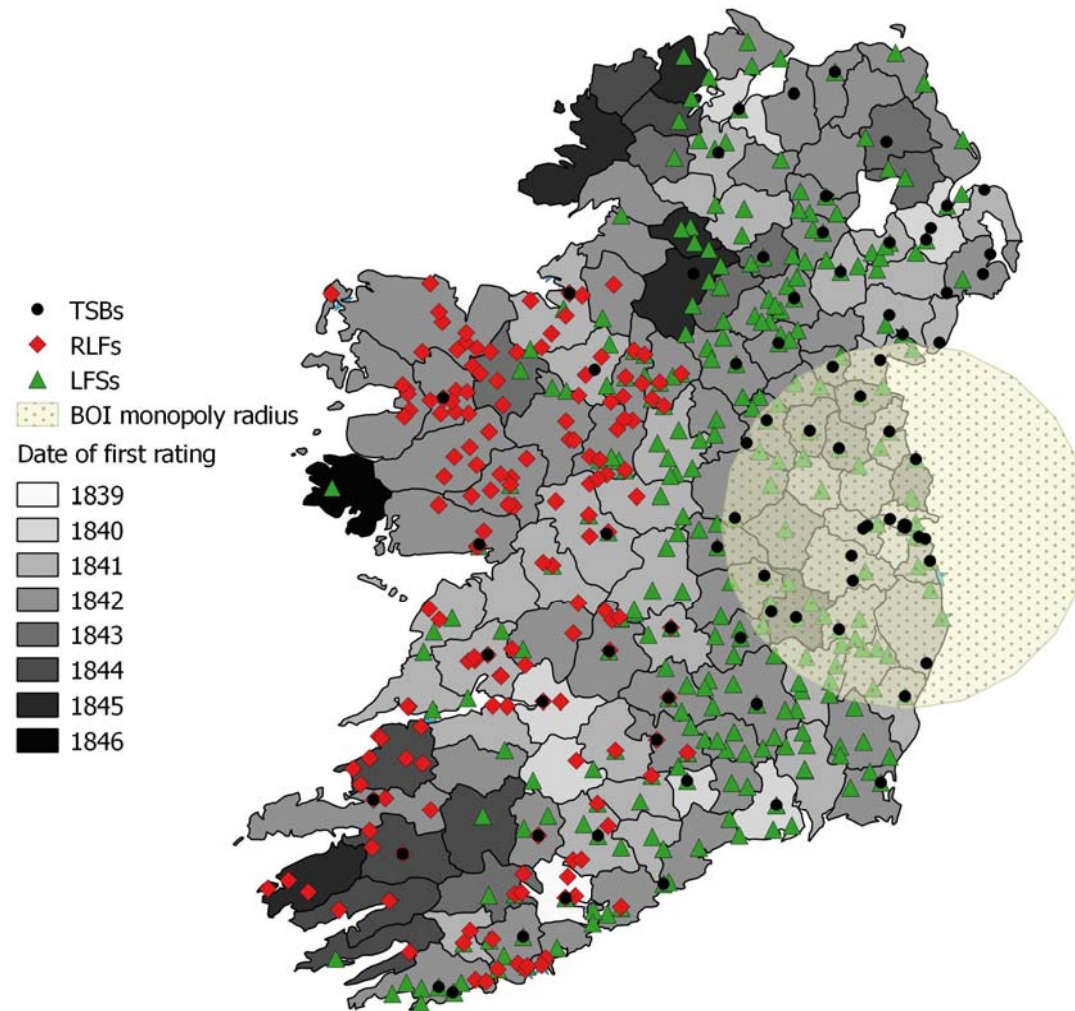
1844



1845



A5.2 Loan Fund societies, Bank of Ireland monopoly zone, and Poor law ratings



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