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Does Welfare Spending Crowd Out Charitable Activity?
Evidence from Historical England under the Poor Laws

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Abstract

This paper examines the relationship between government spending and charitable activity. We present a novel way of testing the ‘crowding out hypothesis’, making use of the fact that welfare provision under the Old Poor Laws was decided on the parish level, thus giving the heterogeneity we need to test for the impact of different levels of welfare support within a single country. Using data on poor relief spending combined with data on charitable incomes by county for two years before and after 1800, we find a positive relationship: areas with more public provision also enjoyed higher levels of charitable income. These results are confirmed when instrumenting for Poor Law spending using the distance to London and historical migration to London, as well as when looking at first differences.

JEL classification: H5, I3, N3

Keywords: Charity, crowding out hypothesis, England, Poor Laws

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1 Introduction

A long-running debate in the economics literature has been on the hypothesis of a ‘crowding out effect’, whereby government spending crowds out private voluntary work and charitable giving. The idea is that taxpayers feel that they are already contributing through their taxes, and thus do not contribute as much privately. To illustrate this idea, a comparison is often made between the United States and Europe, where the former famously has a smaller government and considerably more charitable giving. The crowding out hypothesis has important policy implications in terms of determining the extent of the welfare state. On occasion the idea of crowding out has also caught the imagination of politicians, most famously perhaps as part of the flagship policy of the British Conservative Party in the 2010 general election: the so-called ‘big society’. If crowding out holds, spending cuts could be justified by the notion that the private sector will take over. Crowding out makes intuitive sense if people are only concerned with the total level of welfare provided. However, many other factors might play a role in the decision to donate privately and, in fact, the empirical literature on this is rather inconclusive. Some studies find evidence of no effect, others even of ‘crowding in’. In the present work, we provide a simple test of the crowding out hypothesis using historical data, which we believe to be particularly suited to analyzing this issue.

The data we have are from the turn of the nineteenth century. The system of welfare provision at the time was the so-called ‘Poor Laws’, described as ‘a welfare state in miniature’ by Blaug (1964). These were implemented with a desire to improve society, and under the belief that a better and healthier society would be both more productive and useful for the military (Brundage, 1998). By 1700 poor relief was universal, but, although all poor were guaranteed relief, exactly how much was offered and who was eligible was decided by the individual parish - and it is this which gives the within country heterogeneity which allows us to test the crowding out hypothesis. Data are available both on welfare spending and charitable incomes on the county level thanks to reports commissioned by the British Parliament for years around the turn of the nineteenth century. At this time Poor Law spending was increasing rapidly, from 1.0% of GDP in 1748-50 to 2.7% of GDP in 1818-20 (Lindert, 1998). In per capita terms real relief expenditures for England and Wales increased by 1.12% during the period 1783/5-1803 and by 1.38% during the period 1803-1818/20 (Boyer, 1990). This increase occurred despite there being no changes in the laws regulating relief during this period and led to concerns among contemporary commentators and economists such as Malthus (1798) and Ricardo (1821). Edmund Burke expressed the belief that mandatory contributions through the poor rate would crowd out voluntary giving, thereby undermining social virtue (Brundage, 1998). Malthus famously believed that the increase in spending was due to a disincentive effect of poor relief. By providing incentives not to work and to marry early and thereby have more children that could not be afforded,¹ he stated that the Poor Laws ‘create the poor which they maintain’ (Malthus, 1798). Concerns were also raised about the administration of the Poor Laws as well as the administration of charitable trusts,

¹For this period, incorrectly as it turns out: see Møller and Sharp (2013).

and thus the Gilbert Act of 1787 created Poor Law Unions and required statistics to be produced about Poor Law spending and charities, and in 1818 the Charity Commission was established in order to provide proper supervision of charities by the government. Reform of the Poor Laws eventually came with the famous Poor Law Amendment Act of 1834 (the ‘New Poor Law’), which greatly reduced expenditure, and which many at the time saw as an example of ‘applied Malthusianism’ (Brundage, 1998).

The upshot of this historical debate is that we have rather good and detailed data on poor relief spending and the income of charitable trusts for the years preceding the reform. Moreover, since the Poor Laws were administered on the local level, we have variation in welfare spending within England, thus avoiding the obvious pitfalls of looking for evidence for crowding out across countries, which would be necessary today, since welfare expenditures are now administrated centrally at the national level. Thus, the historical setting of the Poor Laws in England gives us the opportunity to test the crowding out hypothesis at the macro level but within one country.

2 Literature review

The theoretical foundation of crowding out is based on the traditional public good model of charitable giving. Agents derive utility from a public good, in this case welfare provision or the well-being of others, and regard their own and other agents’ contributions to the public good as perfect substitutes. This means the agent is purely altruistic, in that he is only concerned with the total amount of welfare provided, such that the model predicts perfect (i.e. dollar-for-dollar) crowding out between government provision of welfare and private charity (see for example Warr 1982 or Bergstrom, Roberts and Varian 1986). However, since the prediction of perfect crowding out is not empirically supported and the predicted level of giving is unrealistically low, the model has been extended in several directions. One of these extensions is the impure altruist model developed by Andreoni (1989 and 1990).² Here, agents are said to be impurely altruistic as they derive utility from their own contribution to charity as well as the total level of welfare. One explanation could be that agents not only care about the well-being of others but also wish to donate to charities ‘to do the right thing’ or ‘to do good’. This leads to a situation where crowding out is less than perfect, i.e. less than one-for-one. Another explanation for less than perfect crowding out is, for example, a signalling effect of wealth from charitable giving, as in Glazer and Konrad (1996). However, the predicted relation is still negative.

There exists a rather large empirical literature testing the theoretically predicted crowding out effects between public and private welfare spending. These can be classified into three different strands: first, one using micro level data on specific charities, second, one

²Earlier work in the same direction includes, for example, Feldstein 1980, Cornes and Sandler 1984 or Steinberg 1987.

taking an experimental approach, and third, cross-country studies. The first makes use of micro data from specific charities or household expenditures, and estimates the effect of a larger provision of government funds on private donations to that charity. In general, imperfect crowding out is supported where the crowding out effect is usually rather small. Both Gruber and Hungerman (2007), using public welfare expansion during the Great Depression, and Abrams and Schmitz (1984), using tax return data from 1948-1972 across U.S. states, for example, estimate a crowding out coefficient of only 0.3 percent.³ Also Steinberg (1985) finds small crowding out effects of 0.6 percent using the UK Family Expenditure Survey combined with government expenditure on social services. Khanna and Sandler (2000) find evidence of crowding in, i.e. a positive relation, of public funds on private donations using data on 159 fund-raising charities in the UK. Roberts (1984) on the other hand argues for complete crowding out during the Great Depression due to an overprovision of public welfare which reduced private charity to zero. Acknowledging the fact that private donations still existed, he argues that almost none of these went to the poor. The approach taken in these studies differs from our approach taken here, however, since we are measuring the effect of the public provision of welfare and not the public funds devoted to private charities. Although this literature clearly tests the crowding out hypothesis in a setting where public and private funds are used to support the same cause, this kind of crowding out might not be what we are actually interested in, especially when thinking about differences in the extent of the welfare state across countries. Also, it is questionable how informed donors really are about the size of government grants to specific charities.

The second strand of the literature, using experiments, finds larger crowding out effects. The application of forced transfers in the dictator game has been found to lead to a crowding out of voluntary transfers of around 70 percent: see for example Chan, Godby, Mestelman and Muller (2002) or Bolton and Katok (1998). Although interesting and informative, crowding out coefficients of this size have not been observed outside the laboratory setting.

More closely related to our approach is the third strand of the literature, which estimates crowding out on a cross-country basis. Several papers have estimated the effect of the extent of the welfare state on voluntary activity. Although the crowding out theory would suggest that a larger welfare state would induce people to volunteer less, since the state already provides the service, this finds little empirical support. Salamon and Sokolowski (2001) find crowding in between social spending and the level of volunteering and no significant relationship between the level of government support for charity and volunteering, based on an analysis of OECD countries. Also Kriinen and Lehtonen (2006) find that social engaging is in fact higher in more developed welfare states. Van Oorschot and Arts (2005) find a similar result looking at European countries only: both when considering the welfare regime type (as defined by Esping-Andersen, 1990) as well as welfare effort (the amount of social spending), crowding in rather than crowding out is supported. Bielefeld, Rooney and Steinfeld (2005), using micro data from the US, include state-level controls such as total state expenditure on

³Other examples include Abrams and Schitz (1978), Kingma (1989) and Ferris and West (2003).

welfare in a study on the determinants of charitable giving. They find no clear evidence for crowding out but their results rather suggest crowding in, i.e. private donations to charity are higher in states with higher total welfare expenditure.

Thus, although theory seems to predict a negative crowding out coefficient, the empirical literature is rather inconclusive. It is generally accepted that crowding out is not perfect, i.e. we would expect a negative coefficient of numerically less than minus one. However, especially cross-national studies often do not support this prior and point more towards a positive relationship between public and private welfare provision. Also, there seems to be a gap between the theoretical and the empirical literature, where the theory is not able to capture the case of no significant relation or of crowding in which is often found empirically. What could explain a positive relationship? One possible explanation is of course always product differentiation, i.e. that public and private welfare provision are used for different purposes. From our discussion of this issue in the next section and the evidence from previous studies, discussed above, it seems that this cannot explain the lack of evidence for crowding out alone. Another potential explanation would be that the welfare state regime one lives in reflects a certain welfare culture or a culture of caring for others and thereby has a positive effect on the decision to donate privately. One could imagine that a more developed welfare state helps people to believe in the need for and the desirability of providing for others, such that the agent would also want to give privately. This could of course also work through social pressure where one feels obliged to contribute privately, rather than a purely voluntary decision to donate. Supportive of this argument would be welfare regime theory, which suggests that the welfare regime type shapes the political and ideological beliefs of citizens. Jæger (2009) provides empirical support based on social survey data from 15 countries showing that the welfare regime type has an effect on the support for redistribution among citizens. Bielefeld, Rooney and Steinfeld (2005), in their study on US micro data including state-level controls, also try to capture cultural effects by including voting patterns and a Caring Index. Especially the latter has a significant positive effect on the individual probability of making a donation as well as on the size of that donation.

In relation to the historical setting we are concerned with here, this notion is for example supported by Ben-Amos (2011), presenting evidence that the parish was actively promoting private giving alongside the Poor Law provision. Also Hindle (2004), although for an earlier period, notes the social pressure on the gentry and even the less wealthy to care for the poor of the parish over and above paying the tax financing poor relief. He describes this social pressure as an expectation to give food, cash and bequests to those in need. Within the idea of a culture of giving there could still be product differentiation as giving to private charity allows for giving to more specific purposes, such that agents concerned with a particular purpose would wish to give to that purpose besides the compulsory contribution through the tax rate. However, if people just always wished to donate some given amount to specific purposes, we cannot explain a potential positive relation between public and private welfare provision without the presence of a spill-over effect from government provision. A culture of giving could also be interpreted as a signalling effect, if the government does not deem it

necessary to help the poor one might be inclined to believe that there is also no need to do so privately. With a higher tax rate, on the other hand, the government might signal it to be both necessary and correct to help the poor.

Based on this idea one could imagine agents have the following utility function

$$U_i = U_i(x_i, Y, \phi(\tau)g_i) \quad (1)$$

which is an extension of the utility function used in models of pure or impure altruism as, for example given by Andreoni (1990), with a cultural factor reflected by the term $\phi(\tau)$. Here, x_i is personal consumption of a composite good, Y is total welfare (government + private charity) and g_i is private giving to charity by agent i . If the function ϕ is increasing in the tax rate, τ , the tax regime the agent lives in promotes a culture of giving, which has a positive effect on the agent's valuation of donations to private charity.

3 Historical Background

In 1601 the Act for the Relief of the Poor established that every parish had to implement a system of assistance to paupers. Although the Act was to be implemented nationwide it was the responsibility of the individual parish to establish the system and determine eligibility for relief and the size of payments. This meant that relief was financed locally by a property tax, called the poor rate, on the value of land, above a certain minimum level. Ratepayers were occupiers of land, i.e. if land was rented out the person renting the land rather than the owner would pay the rate. Formalities of the relief system were administered by the 'vestry' which either comprised all ratepayers of the parish or only selected ones, elected by the other ratepayers. The vestry would then set the rate to be paid and appoint an administrator (Boyer, 1990). Whereas the Old Poor Laws were established by the Act of 1601 it took several decades for all parishes to actually implement the system. We do not know exactly when each parish implemented a poor relief system, but Slack (1990) estimates that around one third of the parishes had relief systems in place by 1660 and that it was universally implemented by 1700. Relief was only given in the home parish, meaning that migrants had no right to relief.

During the course of the Old Poor Laws several amendments were made, mainly trying to restrict the use of outdoor relief, i.e. relief paid to people living at home and not required to stay in the workhouse. However, keeping a workhouse was expensive and thus not viable for many of the smaller parishes. Gilbert's Act of 1782 allowed parishes to form Poor Law unions to establish a workhouse together, which should mainly take care of the poor who were not able to work. Those able to work, should either be put to work or relieved at home if that was cheaper for the parish. Additionally, the Act required each parish to produce statistics on Poor Law expenditures as well as on charitable activities in the parish. The idea

was that a sensible reform of the Poor Laws was only possible on the foundation of reliable statistics. These numbers were then collected by the Royal Commissions and reports were produced which form the basis of our analysis.

In order to provide a valid test for the crowding out hypothesis, we need to know more about what poor relief included and whether this was comparable to what charity was given for. In the original reports only county totals are given, and we thus have to turn to other sources for more details. King (2000) examines poor relief in several parishes across England on the basis of individual applications to the parish administrator of poor relief. From these it is possible to divide relief expenditures into three broad categories: regular payments (mainly pensions), irregular payments in cash and irregular payments in kind. In the years 1790 and 1820, regular payments constituted around half of total spending. Approximately equal shares of the other half went to irregular payments in cash or in kind. The largest share of irregular cash payments were given without a specific purpose and to medical assistance or rents. Most in kind payments covered clothes, food or medical assistance. But poor relief would also cover other items such as apprenticeships for the children of poor families, tools and fuel. Hindle (2004) finds around the same proportions of regular and irregular payments for several individual parishes as King, though looking at the period prior to 1770. He describes irregular payments as going mainly to medical care, food, clothes, fuel and rent. Slack (1990) also finds that cash relief was most common.

Parallel to the history of poor relief there is a similar story for private charities. The reports from which we are taking the data include all charitable trusts for the ‘use and benefit of poor persons’. In 1601 the Statute of Charitable Uses Act defined the purpose of charitable trusts as:

‘relief of aged, impotent, and poor people; some for maintenance of sick and maimed soldiers and mariners; schools of learning; free schools and scholars in universities; some for repair of bridges, ports, havens, causeways, churches, sea banks, and highways; some for education and preferment of orphans; some for or towards relief, stock, or maintenance of houses of correction; some marriages of poor maids; some for support, aid, and help of young tradesmen, handicraftsmen and persons decayed; and other for relief or redemption of prisoners or captives; and for aid or ease of any poor inhabitants concerning payments of fifteens, setting out of soldiers, and other taxes.’

Donations were often given in the form of bequests but also throughout life. It was popular to subscribe to charities, and although there were large aristocratic donors, charitable giving became increasingly popular among the middle classes during the eighteenth century (Owen, 1964).

In order to get a better picture of what the income of charitable trusts was used for,

we can look at the report of 1815. Here, every charity is listed individually and often it is possible to see the purpose from the name of the particular charity. A large share of the charities have a general purpose, with names such as ‘Park’s charity to the poor’ or simply ‘Distributed to the poor’. Many others have more specific purposes such as ‘paying rents for poor tenants’, ‘annuity to six poor widows’, ‘Forrester’s charity, distributed to poor widows and widowers’, or ‘Distributed in clothes to three poor men’. All of these are very reminiscent of the items paid for by poor relief. Moreover, Hindle (2004) notes that donations were often given conditionally to poor who had ‘morally acceptable’ behavior, i.e. were not drinking, swearing, criminal, and were conditional on the person being from the parish, i.e. they did not give to migrants. This reflected developments in poor relief expenditure, as the concept of the ‘deserving poor’ became very important in the discussion of relief during the eighteenth century. However, charities also include schools and hospitals. Hospitals are not such a large share but the schools are rather numerous, which could be a problem for our analysis if this means that poor relief and charity were simply spent on different things, making the idea of crowding out less obvious. We discuss this more below, and take account of it in our empirical analysis.

To sum up, both poor relief and charity were given to a variety of people with different needs but were largely used for the same purposes. The setting of the Old Poor Laws thus gives us the opportunity to test the crowding out hypothesis at the macro level but within one country, allowing us to overcome what has been the main objection to previous attempts at testing.

4 An Empirical Test of the Crowding Out Hypothesis

4.1 The data

The data on poor relief in the years 1785 and 1815 is taken from Marshall (1834). For the year 1785 this is an average of the three preceding years ending Easter 1785. The data on charity is taken from the *Report from the Committee on Charitable Donations* in the years 1787 and 1815, which gives the income of private charities in the respective years ending Easter (5th of April in 1815 and the report of 1787 was finished on 23rd of May).⁴ Charitable income includes rents and profits of land as well as dividends received from stocks owned by the charity. All figures are given by county.⁵ As mentioned earlier, charities also include schools which we would not want to be driving our results. Details on the individual

⁴Greg Clark has also made use of data on charities but from the later Charity Commission reports from 1818. We cannot use these because they do not cover the whole country as a snapshot from a single year, but rather report different counties each year. See Clark (1996, 1998a, 1998b, and 2002).

⁵In the year 1815, some large royal hospitals, situated in Greenwich and in Southwark are included in the figures for Kent and Surrey, respectively. They overstate the numbers for these two counties, and we therefore subtract the income of the *Royal hospital*, the *Chest at Greenwich for the relief of wounded seamen*, the *Royal hospital for the education of seamen’s children* and the *Royal naval asylum* from Kent and *Guy’s hospital* and *St. Thomas’ hospital* from Surrey.

charities are only available in the 1815 report but not in 1787. We thus remove all schools from the 1815 data and rerun the analysis. Using the data from 1815 only gives the same qualitative results as those below, as does assuming the same share of schools in charitable income in 1787 and rerunning the analysis for both years. As including the schools does not alter our results, the analysis shown below includes schools, such that we do not have to make additional assumptions about the share of schools in 1787. We use per capita figures throughout the analysis for both poor relief and charitable income, where population figures for 1791 are taken from Wrigley (2007) and for 1811 from Mitchell (1988). Data for London and Middlesex are not available, which leaves us with 38 counties and two observations for each. Figures 1 and 2 below display the data on per capita relief spending and per capita charitable income by county.

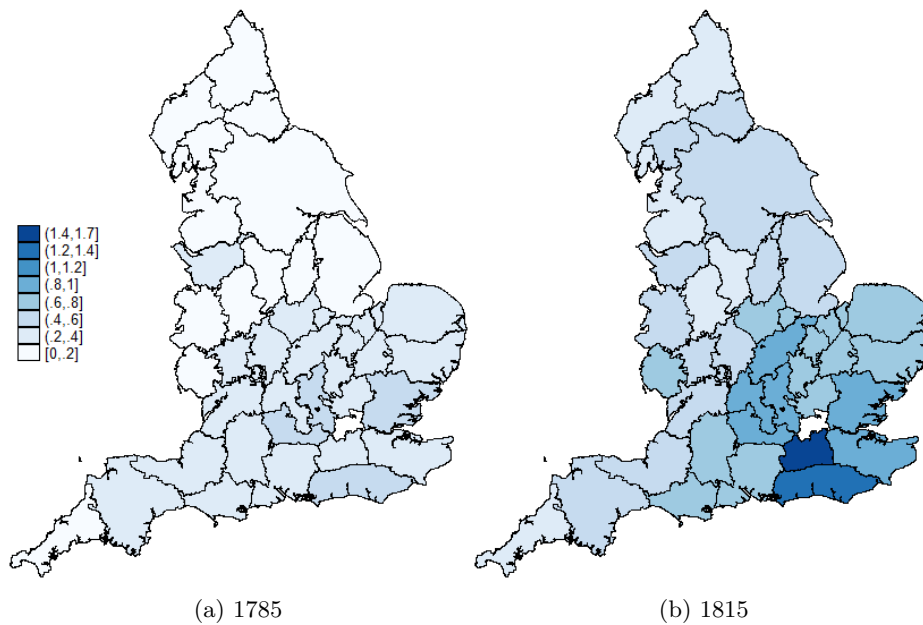


Figure 1: Per capita poor relief spending

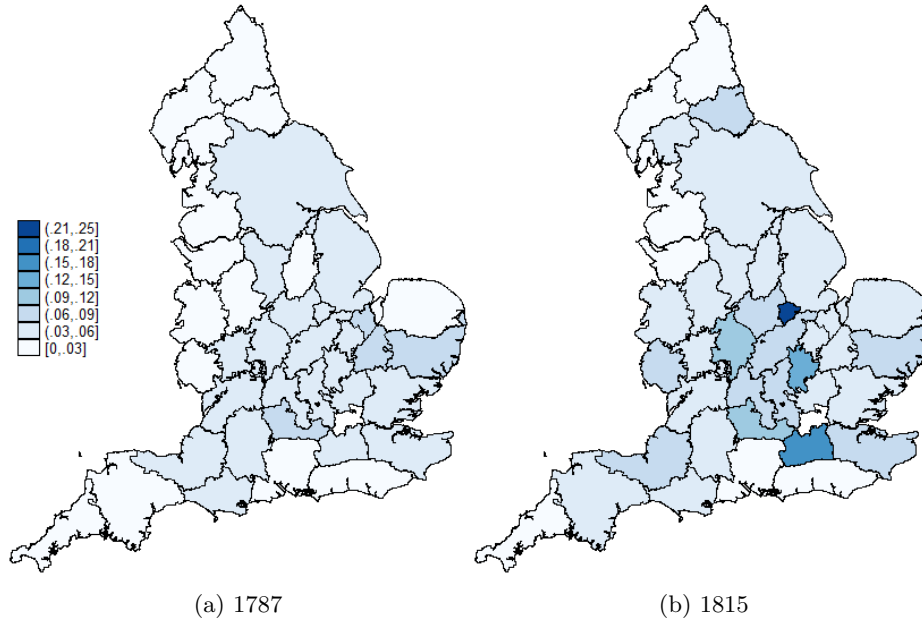


Figure 2: Per capita charitable income

We can clearly see the large increase in poor relief spending between 1785 and 1815, which led to discussions and concerns about assistance to the poor. We also see that there is substantial geographic variation in both poor relief and charity. The model to be estimated is then given by the following

$$\ln(\text{pcCharity}_{it}) = \alpha + \beta \ln(\text{pcRelief}_{it}) + \delta t + X_i' \gamma + \epsilon_{it} \quad (2)$$

where both charity and relief are given in logs of pounds per capita for county i in period $t = 1785/87, 1815$. We include a time dummy for the year 1815 and a vector of exogenous controls X_i' . ϵ_{it} is the error term, clustered at the county level. The coefficient of interest is β .

4.2 Determinants of poor relief and charitable giving

Based on a large literature survey, Bekkers and Wiepking (2011) and Wiepking and Bekkers (2012) identify income as the most important determinant of charitable giving. Other factors include religion, education, and wealth.⁶ The positive effect of religion on charitable giving is most often found in the context of giving to charities associated with religious causes but not

⁶Other factors considered relevant by Bekkers and Wiepking (2011) include marital status, gender, and the number of children. The importance of marital status is largely due to tax reasons, which is not relevant in our case and besides marriage was the norm. The effect of gender is usually found to be insignificant when controlling for other factors such as education, religion, and income. The number of children also does not seem relevant, since there were no significant regional differences in fertility rates (see Boberg-Fazlic, Sharp and Weisdorf 2011).

to secular charities (see for example Wilhelm, Brown, Rooney and Steinberg, 2008). Since we are only concerned with non-religious charities here, the lack of data availability on religiosity does not seem to pose a big problem. In studies on modern data education is almost always included as a control. Bekkers and Wiepking (2011) identify two mechanisms for how education affects philanthropic behaviour: through cognitive ability and through an income effect. Higher cognitive ability should lead to a higher awareness of the needs of others. This might be very relevant in the modern world where many charities operate on the national or even international level as one would have to be informed about conditions potentially far away. Awareness of need in this context might require a certain level of education. In our setting, however, charity and relief occur at the very local level - the individual parish. The income effect of education is thus more relevant for this study. Overall, controlling for income/wealth seems most compelling. We do this by including a number of geographical controls. These include land quality measuring the suitability for agriculture,⁷ since agriculture was still the most important source of income during our period. Furthermore we include a dummy variable for access to the coast. For example Rappaport and Sachs (2003) have shown the importance of coastal access for productivity giving access to trade and extended markets. The same argument can be used for access to navigable rivers (Sokoloff, 1988). We account for this by including length of rivers to county area as a control variable.⁸ We also control for coal fields as a share of county area taken from Redmayne (1903). For example Wrigley (1988), Pomeranz (2000) and Allen (2009) have emphasized the role of coal during the industrial revolution. Our period falls within the beginning of the industrial revolution and access to coal is therefore a potentially important determinant of income.

Apart from these general factors influencing charitable giving which might also determine the extent of public welfare, it is often suggested that a division between arable and pastoral farming influenced the level of poor relief spending due to higher seasonality in arable agriculture. One possibility could have been to pay a wage also during the low season, but it was more profitable to spread the off-season costs on other non-labor hiring ratepayers by providing poor relief (Boyer, 1990). Another channel through which this division could influence both poor relief and charitable giving is inequality. Engerman and Sokoloff (2000) argue that inequality is greater in areas more suitable for crops with scale economies, though in the context of Latin American countries. Jewell (1994) makes the similar argument that arable agriculture is more likely to be based on a system of large landowners whereas pastoral farming allows for smaller holdings. To account for these structural differences we therefore include the suitability of the county for arable agriculture, as given by the Food and Agriculture Organization of the United Nations as a control variable.⁹

Another potentially important factor in determining the amount of poor relief spending

⁷Our variable measures the share of county area classified as grade 1 or 2 according to the Agricultural Land Classification given by www.naturalengland.org.uk and available for download at www.magic.gov.uk. This measure combines an assessment of climate, site and soil.

⁸Available at http://download.geofabrik.de/osm/europe/great_britain

⁹'Crop suitability index (class) for low input level rain-fed cereals', i.e. using traditional methods of agriculture, from GAEZ, Global Agro-Ecological Zones, at the Food and Agriculture Organization of the United Nations.

and charitable income, specific to our setting, is that of enclosure. There were two waves of enclosure in England, one in the sixteenth century and one in the eighteenth and nineteenth centuries. During the first wave land was mostly enclosed by voluntary agreement, whereas during the second wave most enclosure was through Acts of Parliament. Enclosure not only varied through time but also by region. Chapman (1987) shows that enclosure of arable land spread in circles, starting around 1792 in the Midlands. On the other hand, counties like Kent and Essex, for example, never really had open field farming to be enclosed. Increased poverty among laborers and smallholders is often mentioned as a consequence of enclosure, especially at the time. Arthur Young described the effects of enclosures on labourers in the General Report on Enclosures (1808), based on interviews with labourers, farmers and clergymen in 69 parishes who were enclosed between 1760 and 1800, concluding that the majority of labourers were worse off after enclosure. It has therefore been suggested that enclosure increased the need for welfare spending (see for example Turner, 1984). Enclosing a piece of land was not without cost, which implies that there were incentives to enclose more valuable land. The effect of enclosure might therefore be already captured in our control of agricultural quality of land. Additionally, the period we are looking at was one of exceptionally high wheat prices due to the French wars. Land suitable for growing wheat was therefore especially attractive for enclosure (see also Boyer, 1990). We therefore also include the more specific control of land suitability for growing wheat.¹⁰

Summary statistics and a correlation matrix for the variables described above and additional variables used in later analyses as well as a scatter plot of per capita relief spending and per capita charitable income can be found in the appendix.

4.3 OLS results

We first estimate equation (2) as a pooled OLS model with standard errors clustered at the county level. All regressions include regional dummies to account for possible fixed effects.¹¹ Results are given in Table 1 below.

¹⁰Here we use the ‘Crop suitability index (class) for low input level wheat’, i.e. using traditional methods of agriculture, from GAEZ, Global Agro-Ecological Zones, at the Food and Agriculture Organization of the United Nations.

¹¹The regions are based on the NUTS2 regions defined by Eurostat and include: North West (Cumberland, Westmorland, Lancashire, and Cheshire), North East (Northumberland, Durham, Yorkshire), West Midlands (Shropshire, Staffordshire, Herefordshire, Worcestershire, Warwickshire, East Midlands (Derbyshire, Nottinghamshire, Lincolnshire, Leicestershire, Rutland, Northamptonshire), East (Huntingdonshire, Cambridgeshire, Norfolk, Suffolk, Bedfordshire, Hertfordshire, Essex), South West (Gloucestershire, Somerset, Wiltshire, Dorset, Devon, Cornwall), and South East (Oxfordshire, Buckinghamshire, Berkshire, Hampshire, Surrey, Kent, Sussex).

Table 1: Pooled OLS regressions

	(1)	(2)	(3)	(4)	(5)
	ln(pcCharity)	ln(pcCharity)	ln(pcCharity)	ln(pcCharity)	ln(pcCharity)
ln(pcRelief)	1.260*** (0.368)	1.224*** (0.434)	1.233*** (0.402)	1.229*** (0.404)	1.267*** (0.399)
agr. quality		0.762 (0.489)			0.677 (0.496)
grain suitability			1.298 (0.877)		
wheat suitability				1.306 (0.894)	1.231 (0.859)
coast access		-0.325* (0.175)	-0.336* (0.171)	-0.337* (0.172)	-0.345* (0.179)
rivershare		2.099 (2.016)	0.541 (2.249)	0.508 (2.251)	0.752 (2.313)
share_coal		-0.0590 (1.013)	-0.0373 (1.006)	-0.0238 (1.010)	0.215 (1.022)
ln(area)		-0.0735 (0.179)	-0.0279 (0.180)	-0.0370 (0.174)	-0.0585 (0.180)
Constant	-1.994*** (0.489)	-2.141*** (0.527)	-2.127*** (0.495)	-2.103*** (0.495)	-2.136*** (0.502)
Observations	76	76	76	76	76
R^2	0.490	0.559	0.571	0.570	0.581

Robust standard errors in parentheses, clustered at the county level

All regressions include time and regional fixed effects

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Per capita poor relief spending turns out to have a significant positive relationship with per capita charity. Column (1) in Table 1 shows the most parsimonious specification without control variables, only time and regional fixed effects are included. As mentioned above, especially income is an important confounding variable of relief and charity, which we have to control for. Columns (2)-(4) therefore include the geographical control variables described above. As the measure for agricultural quality, grain suitability, and wheat suitability are likely to be correlated, we include these one at a time (columns (2) and (3) and (4)). Since especially grain and wheat suitability seem to be correlated (the coefficient of grain suitability drops to -0.09 when including all three variables), we only include agricultural quality and wheat suitability in the rest of the specifications, as shown in column (5). Our observations include counties of very different sizes, and one way we account for this is by including the area of the county (in logarithms) as a control variable. Another possibility is to exclude the smallest counties as we would not want these to drive our results. Results excluding the five smallest counties, by population in 1811, can be found in the appendix. Following Peri (2012), we also show results when excluding the counties directly bordering London. One might worry that there was a special culture of charity in London, maybe due to its exceptionally high death rates, spilling over to the surrounding counties and thereby

driving our results.¹² However, this does not seem to be the case as the estimated coefficients hardly change when excluding the counties directly bordering London. Overall it is evident that the coefficient of interest, indicating a positive elasticity of around 1.2, is remarkably stable across specifications. The partial correlations plot, shown in Figure 3 below, indicates the strong positive relationship. Cornwall appears as a potential outlier, but excluding the county does not change the fact that we find a significant, positive relationship.

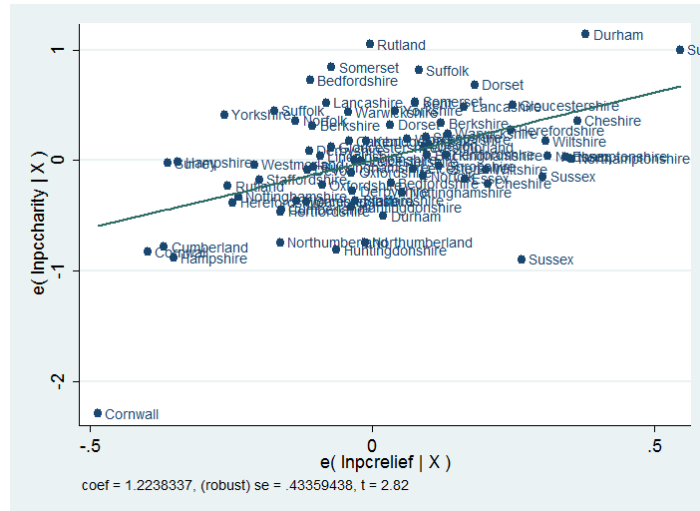


Figure 3: Partial correlation between per capita relief spending and per capita charitable income

However, causality here could go either way: we want to identify the crowding out effect of public on private welfare provision, but of course it has to be expected that there is also an effect of private on public provision. Especially, in our setting where the economic elite of the parish decided on the poor rate themselves, it should be expected that the OLS coefficient is biased downwards as crowding out could go either way. Higher public provision could lead to lower donations to private charity and higher private donations could lead to a preference for lower public provision. The crowding in effect, potentially stemming from a culture of giving promoted by the government as described earlier, is expected only to be present from public to private welfare provision, however. In addition, the OLS coefficient might be biased due to omitted variables. We therefore turn to an IV approach in the next section.

4.4 IV results

Boyer (1990) suggests that poor relief was granted as a means to mitigate the gains from migration. In order to keep laborers in the parish and prevent them from migrating to urban centers with non-seasonal employment opportunities, poor relief would have to be granted

¹²This may be more relevant in the next section where we use distance to London as an instrument for poor relief. For consistency we also show the results excluding counties bordering London for OLS.

during the low season. Under the Old Poor Laws, London was the most important and attractive urban centre for migrants. In 1801 London had a population of 959,000 which increased to 1,139,000 in 1811, despite death rates exceeding birth rates. Compared to that the second biggest city in 1801 was Manchester with 75,000 inhabitants increasing to a population of 89,000 in 1811 (Mitchell, 1992). Although Manchester had a similar growth rate to London during the period, the absolute number of migrants attracted was still far from that of London. As Clark (1979) notes, ‘London was by far the most powerful urban influence on regional patterns of migration in late 17th and early 18th century.’ (p.77). Although this position was somewhat weakened with industrialization in the northern counties, the pull of London continued to be strong, attracting migrants from all over England and especially from nearby counties (Nicholas and Shergold, 1987). Owen (1964) describes London as ‘the magnet which attracted immigrants from all over the Kingdom’ (p. 38) during the eighteenth century such that the city saw great rates of expansion despite very high death rates. Also Wareing (1980) and Friedlander and Roshier (1966) note that London continued its demographic growth mainly due to migration during the eighteenth and nineteenth centuries, respectively. We take up this idea, that poor relief was a given as a means to offset gains from migration, by using the exogenous parts of the propensity to migrate to instrument for poor relief. As London clearly was the main destination for migration during our period, we concentrate on the propensity to migrate to London.

The factors influencing migration rates can be broadly categorized as the expected gains and the costs of migration. As the gains of migration are basically determined by income, which clearly also is a determinant of poor relief and charitable giving, we focus on the cost of migration in our identification strategy. Motivated by the gravity model, the cost of migration is usually measured by the geographical distance (see e.g. Peri, 2012). The geographical distance can be interpreted as capturing the actual travel cost but also the psychological cost of leaving the family and the cost of obtaining information (Nicholas and Shergold, 1987). Since distance is clearly exogenous, we use distance to London as an instrument for the amount of poor relief given in a particular county: the closer to London a parish was situated, the lower the cost of migration for laborers. Therefore, the parishes closer to London had to provide higher relief to the poor to keep laborers in the parish. As our instrument is time invariant, we can only use it in a cross-sectional analysis on the levels of relief spending. This leaves a potential problem of county fixed effects which we cannot account for. As above, we therefore include regional dummies in all regressions as well as the control variables described above. It would especially be a problem for our identification strategy if such a confounding factor would violate the exclusion restriction. The distance to London could have a direct effect on charitable income if its effect on poor relief spending was not due to the cost of migration but rather due to some other factor which would increase the need or potential for assistance to the poor in general, most notably the wage of laborers and the wealth of those paying for poor relief and giving to charity. We try to control for income with the geographical controls, but we also have other means to check whether distance to London is correlated with income. First, we use the wealth ranking compiled by Buckatzsch (1950), which is based on property tax returns, thus measuring the

wealth of those who are most likely to contribute to poor relief as well as charity. Maps for the ranking in the years 1803 and 1814 (the years closest to our periods) can be found in the appendix. The wealthiest counties are spread throughout the country, with London, sites of industrialization (i.e. Manchester, Liverpool and Birmingham) and Bristol, being an important port, showing the highest wealth. No clear pattern between wealth and proximity to London appears. Furthermore, Hunt (1986) provides wages of agricultural laborers for the periods 1767-1770 and 1794-1795.¹³ As agricultural laborers were the most likely to receive welfare, this is more of a measure of need than of potential for giving. Correlating wages with the distance to London shows in fact a negative relation in the first period and no relation in the second period. Thus, if anything, this effect goes in the opposite direction.

One factor reducing the cost of migration is that of pre-existing networks. The idea is that a network of earlier migrants from the same location will make it easier for other migrants to follow as they can more easily obtain information through the existing network. This could include information concerning the migration process, work opportunities, or housing for example. Thereby, migrants are attracted to places where others from the same region have migrated to. There exists an extensive literature on the importance of networks during the migration process. For example, Massey and Espana (1987) applied this concept to Mexican migration to the US and also Munshi (2003) finds positive effects of migrant networks for job search outcomes in this setting. Carrington, Detragiache and Vishwanath (1996) provide a theoretical foundation and find evidence for the importance of networks during the Great Black Migration in the US. Based on these findings another branch of the migration literature uses historical migration rates as an instrument for current migration, initiated by Card (2001). We follow this idea and use the share of migrants from county i to London as a further instrument for poor relief, measuring the network effect of migration. Good historical data on migration is sparse, since birthplace was first recorded in the census of 1851. Thus, we have to rely on a sample of migrants to London to be able to use migration rates from before our period. We use data on apprentices and on indentured servants from Wareing (1980, 1981). We use the apprentice data from 1740-50 and servants recorded during the period 1749-75. Figures are only given on a regional basis, so we distribute the number of migrants to the counties in the region by their respective population shares, using population data from 1761 taken from Wrigley (2007).¹⁴ Although, historical migration is widely used as an instrument for current migration, one could worry that both historical and current migration are determined by deeper determinants, which are constant over time (e.g. Ager and Brueckner (2013) or Boustan (2010)), most notably income. As our measure of migration networks is the share of ‘London population’ (in this case the total number of apprentices and servants recorded), we only have to be concerned with the relative income of county i to all other counties. This is important as there is no reason to expect that the relative income would have a direct effect on charity, whereas the income level of county i

¹³The figures for Yorkshire are the population weighted average of the East Riding, North Riding and West Riding.

¹⁴We find this necessary as some regions include counties of very different sizes, such as Rutland and Yorkshire. It is to be expected that the absolute number of migrants depends on the county’s population size. We make the assumption that people in the same region have the same likelihood to migrate.

probably will influence the amount of charity given in county i . As described above, both charity and poor relief were given at the very local level, in the parish. If there were any considerations on relative incomes these are then also likely to be at a much more local scale. Most likely even within the parish as charity was often given to particular families or in relation to neighbouring parishes. We therefore use the historical migration share as an exogenous determinant of the propensity to migrate to London and thus as an instrument for the amount of poor relief spending.¹⁵

We follow Peri (2012) and use the distance to London and migration networks in London as two separate instruments. Column (1) in Table 2 below shows the first stage results for this specification and column (2) the second stage results. All regressions include time and regional fixed effects. Historical migration does not have a significant effect on poor relief beyond the distance to London, indicating that the two measures are correlated. Also, the Kleibergen-Paap test statistic is not above the threshold level of 10, usually used to indicate the strength of an instrument. Nevertheless, the Hansen J test of overidentification does not reject that both instruments are correctly specified as being exogenous. Due to these weaknesses when using both instruments simultaneously, columns (3)-(6) show the results when using them separately. When used individually they are both very significant in the first stage and the Kleibergen-Paap test statistic is above 10. All three specifications give a result very similar to those of the OLS regressions. Per capita poor relief spending has a significant positive effect on per capita charity with an elasticity slightly above 1. Thus, counties with higher public welfare spending also exhibited higher private charitable activity. The estimated ‘crowding in’ coefficient is slightly larger than with OLS as predicted, although it is not significantly different. As in the OLS specification, robustness checks of excluding the smallest counties and excluding the counties directly bordering London are shown in the appendix.¹⁶ Overall, the results are very stable, somewhat larger in the specifications excluding small counties and counties neighbouring London, however not significantly different from our previous results.

¹⁵At a later stage we also control for the relative wage of county i to all other counties, which makes no difference to our results.

¹⁶We also tried a placebo test using the distance to Manchester instead of London as an instrument. As expected distance to Manchester was not significant in the first stage.

Table 2: 2SLS estimates

	(1)	(2)	(3)	(4)	(5)	(6)
	1st stage: distance, migration	2nd stage: distance, migration	1st stage: distance	2nd stage: distance	1st stage: migration	2nd stage: migration
ln(LondonDistance)	-0.326* (0.170)		-0.379*** (0.106)			
ln(HistMigrShare)	0.0457 (0.0938)				0.220*** (0.0552)	
ln(pcRelief)		1.680** (0.662)		1.731** (0.677)		1.383** (0.658)
agr. quality	-0.0439 (0.188)	0.761* (0.457)	-0.0720 (0.189)	0.771* (0.457)	0.0191 (0.159)	0.701 (0.465)
wheat suitability	-0.290 (0.285)	1.315* (0.786)	-0.285 (0.274)	1.325* (0.788)	-0.285 (0.290)	1.255 (0.772)
coast access	0.0725 (0.0675)	-0.339* (0.176)	0.0777 (0.0648)	-0.339* (0.179)	0.0221 (0.0852)	-0.343** (0.162)
rivershare	0.600 (0.884)	0.975 (2.256)	0.585 (0.872)	1.003 (2.270)	0.277 (0.985)	0.815 (2.196)
share_coal	-1.234*** (0.299)	0.795 (1.147)	-1.176*** (0.258)	0.868 (1.152)	-1.537*** (0.243)	0.378 (1.201)
ln(area)	-0.0868 (0.127)	-0.0452 (0.178)	-0.0369 (0.0583)	-0.0436 (0.180)	-0.276*** (0.0809)	-0.0548 (0.168)
Constant	0.558 (0.436)	-1.786*** (0.655)	0.574 (0.412)	-1.742*** (0.676)	0.0171 (0.221)	-2.038*** (0.608)
Observations	76	76	76	76	76	76
Kleibergen-Paap		7.210		12.86		15.90
Anderson-Rubin (p-value)		0.100		0.0429		0.0317
Hansen J (p-value)		0.430				

Robust standard errors in parentheses, clustered at the county level

All regressions include time and regional fixed effects

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

One might have doubts about the representativeness of the migration data from before our period. Additionally, Angrist and Krueger (2001) suggest that one instrument is preferable to a set of instruments. We therefore conduct a further robustness check using the census data from 1851. Based on the idea of using the supply-push component of migration (see Card 2001), we first determine the exogenously determined propensity to migrate for county i by the following regression

$$\ln(MigrShare1851_i) = \alpha + \beta_1 \ln(LondonDistance_i) + \beta_2 \ln(HistMigrShare_i) + \epsilon_i \quad (3)$$

where the distance to London measures the cost of migration and the historical migration measures the network effect, as before, and ϵ_i is the error term. The estimation results of equation (3) are shown in column (1) of Table 3, below. With an R^2 of 0.854 we are able to explain quite a large share of migration. We then use the fitted values of equation (3) as an instrument for poor relief. Column (2) of Table 3 shows the first stage and column (3) the second stage of the IV estimation. The results are very similar to our previous results.

The instrument is strong, as indicated by the Kleibergen-Paap statistic and the estimated elasticity between relief and charity is around 1.4. As mentioned earlier, one might be concerned that relative income determines the county shares of London migrants. As we are only interested in the exogenous components of migration, we do not include it in equation (3). However, as a robustness check we include the relative wage, based on the data in Hunt (1980) for the period 1767-70, as a control variable. The relative wage is calculated as the wage in county i relative to the average of all other counties, in logarithms. As these wages are from before our period, this measure will also be exogenous to relief spending and charitable income. Column (4) shows the second stage results for a specification including the relative wage as a control variable. The relative wage turns out insignificant and the size of the crowding out coefficient is therefore unchanged.

Table 3: Using 1851 migration data

	(1)	(2)	(3)	(4)
	ln(MigrShare1851)	1st stage: ln(pcRelief)	2nd stage: ln(pcCharity)	2nd stage: ln(pcCharity)
ln(LondonDistance)	-0.324*** (0.102)			
ln(HistMigrShare)	1.015*** (0.0848)			
Fitted values (1)		0.196*** (0.0483)		
ln(pcRelief)			1.454** (0.644)	1.434** (0.609)
ln(rel. wage)				0.574 (0.510)
Constant	0.277 (0.504)	0.120 (0.251)	-1.977*** (0.606)	-2.066*** (0.575)
Geogr. controls	No	Yes	Yes	Yes
Observations	38	76	76	76
R^2	0.854	0.915	0.578	0.584
Kleibergen-Paap			16.53	16.57

Robust standard errors in parentheses, clustered at the county level

All regressions include time and regional fixed effects

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Although we have to be careful with a causal interpretation, as we cannot completely rule out the existence of omitted variables, we have presented evidence for a robust positive relationship between public and private welfare. As discussed earlier, an explanation for the observed pattern could be that public emphasis on support for the poor fosters a ‘culture of giving’ encouraging the richer parts of society to also contribute more privately. King (2000) posits that differences in poor relief spending were due to different cultures of welfare. Investigating individual applications for relief in different parishes, he finds that northern

parishes were in general less willing to provide relief. He also finds that relief was granted later, i.e. after a longer period of distress in the North, and that lower payments were given. Relief payments in the North would only cover approximately one third of subsistence, whereas a subsistence income was provided in the South. Boberg-Fazlic and Sharp (2013) provide evidence that the differences in culture could be rooted in differing historical levels of social mobility. Of course, we cannot measure culture in 1800. The, so far indicative, positive correlation between relief and charity might however be evidence for there being different welfare cultures or cultures of giving across the country, as suggested by the utility function in equation (1).

4.5 First differences

Finally, we look at the changes in charitable income over time. Since our instrument is time-invariant, it is useful to look at differences across our period to eliminate potential county fixed effects and to verify our results. We thus estimate the following model

$$\Delta \ln(pcCharity_i) = \delta + \beta \Delta \ln(pcRelief_i) + \Delta X_i' \gamma + \Delta \epsilon_i \quad (4)$$

where X_i' now includes a number of time varying controls, discussed below. In line with the previous analysis, we would expect to find higher increases in private charity in those counties which exhibit larger increases in poor relief spending, which the analysis below does indeed demonstrate. Note, however, that we are only performing an OLS analysis here and can therefore not say anything about causality in this case. As mentioned earlier, poor relief expenditures increased sharply after 1750. Several reasons have been put forward. Contemporaries, most prominently Malthus, ascribed this to a disincentive effect of the overly generous Poor Laws and increasing population due to family allowances. Boyer (1990) believes it reflects a decline in employment opportunities for women and children in the cottage industry, as well as the effect of enclosure and a decline in the wages of agricultural laborers. We control for the effects of enclosure by including the difference in the percentage of the county area enclosed in the decade prior to our period. This data is taken from Gonner (1966) and includes enclosure of commons and common field. Additionally, we control for the change in wages of agricultural laborers given by Hunt (1986), and for the change in population density to account for changes in productivity.

Table 4: First difference regression

	(1)	(2)	(3)	(4)
	Dln(pcCharity)	Dln(pcCharity)	Dln(pcCharity)	Dln(pcCharity)
Dln(pcRelief)	0.986** (0.408)	1.200** (0.504)	0.974** (0.418)	1.188** (0.518)
Dln(popdens)	-0.647 (0.646)	-0.333 (0.779)	-0.668 (0.662)	-0.352 (0.803)
Dln(wage)		-0.414 (0.564)		-0.407 (0.574)
Denclosure			-0.451 (2.188)	-0.309 (2.213)
Constant	-0.441 (0.440)	-0.606 (0.496)	-0.423 (0.455)	-0.590 (0.516)
Observations	38	38	38	38

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Again, we find a positive relation such that counties with larger increases in poor relief also had larger increases in charity. With an elasticity of around 1, the size of the coefficient is in line with our earlier results.

5 Conclusion

We find strong empirical support for a positive relationship between welfare provision and charitable giving using data from the late eighteenth and early nineteenth centuries, at a time when both were expanding, but were subject to increasing criticism, in particular by economists. This mirrors the situation since the end of the Second World War, when the size and scope of government provision has come increasingly under attack. There are certainly many theoretical justifications for this, but we believe that the crowding out hypothesis should not be one of them. On the contrary, there even seems to be evidence that government can set an example for private donors.

Apart from the empirical test given above, what else can we learn from the history of poor relief in England? As stated in the introduction, largely due to pressure from Malthusians, a New Poor Law was enacted in 1834, with the intention of substantially lowering the drain on the public purse, in particular by ending the practice of outdoor relief, and forcing paupers into the workhouses. Brundage (1998) describes how the effect was less than desired, however, and that outdoor relief continued, leading to renewed calls in the 1860s for more restrictions. In 1868 the Charity Organization Society was formed working together with the Poor Law Board and using case work (tests of character and tests of destitution) to identify

the undeserving who should be sent to the workhouse. In the end, however, the campaign to end outdoor relief failed for several reasons: first, it proved difficult to handle the effects of the trade cycle and mass unemployment; second, there was the rise of democratization and collectivism in politics; third, there was an increasing professionalization of both poor relief and charity; and fourth, the public did not always agree with the suggestions of the economists. In fact, Brundage (1998) argues that both expenditures on poor relief and charity increased throughout the nineteenth century, which gives the lie to those who idealize the nineteenth century as a time when voluntarism flourished while government took a back seat.

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Appendix

A Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
1787					
pcRelief	38	0.25	0.10	0.10	0.50
pcCharity	38	0.03	0.02	0.01	0.07
wage	38	6.81	0.98	5.04	9.04
enclosure	38	0.03	0.04	0.00	0.17
population (in thousands)	38	186	141	17	815
1815					
pcRelief	38	0.64	0.27	0.26	1.67
pcCharity	38	0.06	0.05	0.00	0.25
wage	38	8.17	1.21	6.03	10.65
enclosure	38	0.04	0.04	0.00	0.16
population (in thousands)	38	218	185	16	986
LondonDistance	38	176	109	34	434
HistMigrShare	38	1.01	0.74	0.06	3.44
MigrShare1851	38	0.75	0.65	0.04	2.87
agr. quality	38	0.17	0.16	0.00	0.74
grain suitability	38	0.11	0.12	0.00	0.40
wheat suitability	38	0.11	0.12	0.00	0.40
coast access	38	0.53	0.51	0.00	1.00
rivershare	38	0.12	0.03	0.04	0.18
share_coal	38	0.06	0.10	0.00	0.34
ln(area)	38	1.04	0.61	-0.93	2.75

Table A.1: Summary statistics

B Correlation matrices

	1787					1815				
	pcRelief	pcCharity	population	wage	enclosure	pcRelief	pcCharity	population	wage	enclosure
pcRelief	1					1				
pcCharity	0.55	1				0.46	1			
population	-0.23	-0.18	1			-0.32	-0.27	1		
wage	0.48	0.27	-0.01	1		0.06	-0.05	0.30	1	
enclosure	0.07	0.33	-0.19	0.02	1	0.09	0.08	-0.26	-0.07	1
agr. quality	0.26	0.34	-0.11	0.07	0.08	0.11	0.03	-0.09	-0.14	0.52
grain suitability	0.40	0.46	-0.19	0.19	-0.05	0.18	0.05	-0.21	-0.27	0.11
wheat suitability	0.38	0.43	-0.17	0.21	-0.09	0.17	0.05	-0.19	-0.27	0.06
coast access	-0.17	-0.52	0.43	-0.20	-0.51	-0.24	-0.39	0.44	0.07	-0.43
rivershare	-0.28	-0.27	0.10	-0.10	-0.22	-0.21	-0.27	0.08	-0.06	-0.16
share_coal	-0.62	-0.49	0.26	-0.28	0.00	-0.53	-0.23	0.34	0.26	-0.18
ln(area)	-0.19	-0.34	0.75	-0.09	-0.27	-0.26	-0.57	0.72	0.21	-0.23
LondonDistance	-0.82	-0.70	0.21	-0.57	-0.20	-0.73	-0.38	0.28	0.24	-0.24
HistMigrShare	0.37	0.04	0.55	0.40	-0.30	0.45	0.00	0.44	0.14	-0.36
MigrShare1851	0.54	0.17	0.39	0.54	-0.35	0.49	0.02	0.28	0.03	-0.29

Table B.1: Correlation matrix by period

	agr. quality	grain suitability	wheat suitability	coast access	rivershare	share_coal	ln(area)	LondonDistance	HistMigrShare	MigrShare1851
agr. quality	1									
grain suitability	0.38	1								
wheat suitability	0.36	0.99	1							
coast access	-0.08	-0.16	-0.13	1						
rivershare	-0.12	0.12	0.13	0.08	1					
share_coal	-0.30	-0.31	-0.31	0.10	0.21	1				
ln(area)	-0.09	-0.18	-0.14	0.66	0.23	0.21	1			
LondonDistance	-0.38	-0.47	-0.45	0.41	0.38	0.54	0.38	1		
HistMigrShare	0.03	0.11	0.13	0.30	-0.03	-0.18	0.46	-0.34	1	
MigrShare1851	0.08	0.22	0.24	0.32	-0.06	-0.34	0.38	-0.45	0.90	1

Table B.2: Correlation matrix for time-invariant variables

C Scatter plots

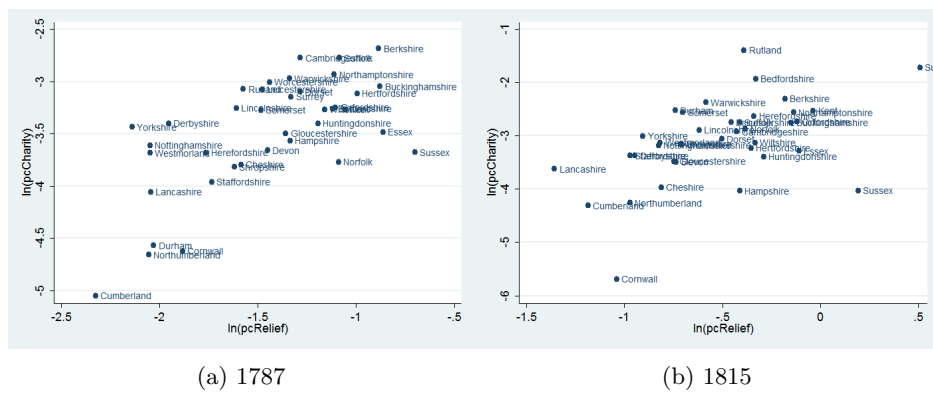
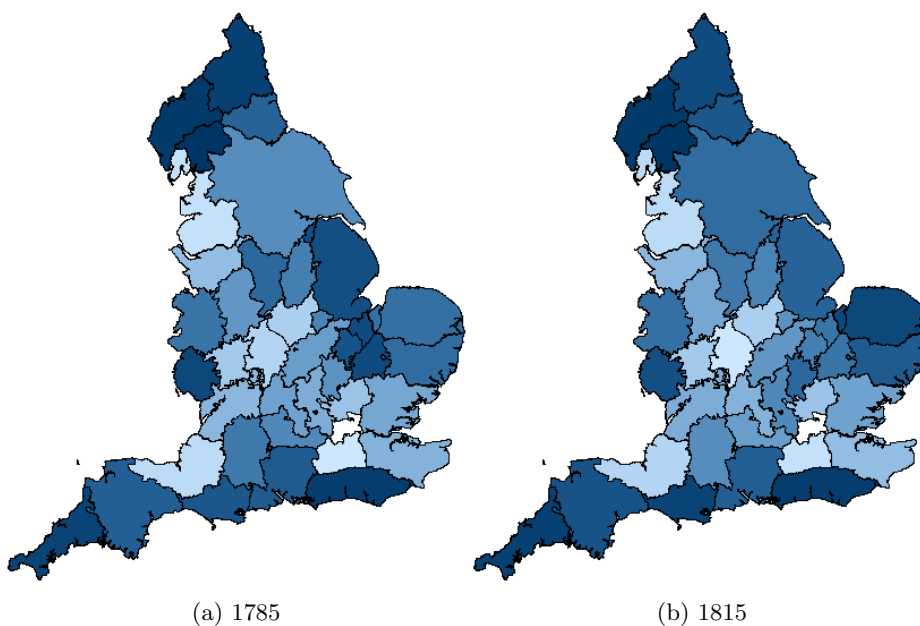


Figure C.1: Scatter plots of per capita poor relief and per capita charitable income

D Maps of wealth ranking



Maps of the wealth ranking in Buckatzsch (1950). Darker shading indicates a lower ranking.

E Robustness checks for OLS estimations

Table E.1: Pooled OLS regressions - Robustness checks

	(1) ln(pcCharity) excl. small counties	(2) ln(pcCharity) excl. London border counties
ln(pcRelief)	1.470*** (0.414)	1.309** (0.484)
agr. quality	0.985** (0.455)	0.269 (0.524)
wheat suitability	1.821 (1.163)	2.103** (0.960)
coast access	-0.444** (0.213)	-0.313* (0.180)
rivershare	1.747 (2.497)	-0.201 (2.520)
share_coal	1.451 (1.165)	0.315 (1.170)
ln(area)	0.310 (0.212)	-0.0379 (0.190)
Constant	-2.459*** (0.501)	-2.350*** (0.593)
Observations	66	64
R^2	0.619	0.588

Robust standard errors in parentheses, clustered at the county level

All regressions include time and regional fixed effects

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Five smallest counties (by population in 1811): Rutland, Huntingdonshire, Westmorland, Bedfordshire, and Herefordshire.

Counties bordering London: Essex, Hertfordshire, Buckinghamshire, Berkshire, Surrey, and Kent.

F Robustness checks for IV estimations

Table F.1: Robustness checks - 2SLS estimates

	(1)	(2)	(3)	(4)
	1st stage: excl. small counties	2nd stage: excl. small counties	1st stage: excl. London border counties	2nd stage: excl. London border counties
ln(LondonDistance)	-0.366*** (0.121)		-0.625*** (0.123)	
ln(pcRelief)		2.064*** (0.634)		2.154*** (0.640)
agr. quality	-0.0333 (0.229)	1.066** (0.428)	-0.314* (0.159)	0.436 (0.517)
wheat suitability	-0.391 (0.363)	2.146** (0.949)	-0.131 (0.252)	2.215** (0.866)
coast access	0.120 (0.0833)	-0.457** (0.217)	0.110* (0.0623)	-0.292 (0.198)
rivershare	0.313 (1.064)	2.023 (2.525)	1.291 (0.984)	0.294 (2.641)
share_coal	-1.332*** (0.315)	2.479** (1.159)	-1.095*** (0.242)	1.491 (1.057)
ln(area)	-0.131 (0.0916)	0.415** (0.195)	-0.0287 (0.0594)	-0.00506 (0.202)
Constant	0.647 (0.466)	-2.058*** (0.645)	1.571*** (0.492)	-1.599** (0.705)
Observations	66	66	64	64
Kleibergen-Paap		9.171		25.94
Anderson-Rubin (p-value)		0.0280		0.000420
Hansen J (p-value)				

Robust standard errors in parentheses, clustered at the county level

All regressions include time and regional fixed effects

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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