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# Welfare reform, 1834: Did the New Poor Law in England produce significant economic gains?

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**Abstract**

The English Old Poor Law, which before 1834 provided welfare to the elderly, chil-dren, the improvident, and the unfortunate, was a *bête noire* of the new discipline of Political Economy. Smith, Bentham, Malthus, and Ricardo all claimed it created sig-nificant social costs and increased rather than reduced poverty. The *Poor Law Amendment Act* of 1834, drafted by Political Economists, cuts payments sharply. Because local rules on eligibility and provision varied greatly before the 1834 reform, we can estimate the social costs of the extensive welfare provision of the Old Poor Law. Surprisingly there is no evidence of any of the alleged social costs that prompted the harsh treatment of the poor after 1834. Political economy, it seems, was born in sin.

> [Of the English poor laws] Instead of making the poor rich, they are calculated to make the rich poor….The principle of gravitation is not more certain than the tendency of such laws to change wealth and power into misery and weakness.
>
> David Ricardo, 1817.[1]

## 1 Introduction

In this paper, we test whether the Old Poor Law, the extensive system of subsidies to the poor in England before 1834, was just a transfer to the poor, or whether it also created significant efficiency losses through reduced wages, lower land rents, and

[1] Ricardo (1919, 83, 86).

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misallocation of labor across locations. We test for such losses using the heterogeneity of the cuts imposed by the New Poor Law of 1834 across parishes in England.

The Old Poor Law dates back to the late sixteenth century. This system guaranteed subsistence to all, provided mainly as cash payments to the elderly, widows, working families with many children, the sick, the disabled, and the unemployed. Who qualified for such subsistence payments, and how generous the subsistence payments were, were decided, however, at the local level.

The numbers receiving relief expanded greatly in the late eighteenth century, at a time when English population had begun to grow rapidly, and it is likely that around 10% of people in England were in receipt of some such relief within each year between the 1790s and 1834.[2]

Smith, Bentham, Malthus and Ricardo all denounced the Old Poor Law.[3] In their writings, they complain it reduced the poor's incentives to work and save. It discouraged investment in high unemployment locations by taxing local employers. It impeded labor mobility out of impoverished areas, by subsidizing unemployed workers who chose not to move in search of employment. It increased the birth rate of the poor and the unemployed by subsidizing children. In summary, it "demoralized the working class, promoted population growth, lowered wages, reduced rents."[4] These complaints, of course, prefigure criticisms of modern welfare systems.[5]

Before the triumph of free trade in 1846, the first great achievement of the new school of Political Economy in England was the 1834 Poor Law reform. The 1834 *Poor Law Commission Report*, the reform manifesto, was written by Edwin Chadwick, Bentham's former secretary, and Nassau Senior, the first professor of Political Economy at Oxford. The Commission's Report prompted the radical reform of 1834, *The Poor Law Amendment Act*—the mother of all welfare reforms.

In the reform, the legal right to support was maintained, but welfare payments were to be made unattractive to all but the destitute. Welfare would be received under strict supervision in a workhouse. Thus was born the Victorian workhouse, immortalized by Charles Dickens in *Oliver Twist,* published as a serial in 1837–1839. These reforms were only partially implemented. By 1842, for example, only 16% of relief recipients had been forced into the workhouse.[6] But real payments per capita declined 40% between 1833 and 1838. Since workhouse provision of relief costs much more than traditional cash welfare payments, real benefits per person fell by nearly 50%.[7]

The reforms replaced a local system of welfare provision, with idiosyncratic payment levels and eligibility determined by the local parish, with uniform national

[2] 11% of the population were in receipt of some kind of relief in 1803, and 9% in each of the years 1813–1815. Payments per head of population reported for 1825–1834 were similar to 1803–1804, 1813–1815 (Great Britain, Parliamentary Papers 1803-4, 1818, 1830-1, 1835). Total payments as a share of GDP were, however, only around 2% 1783–1834 (Lindert 1998).

[3] Smith (1904), Bentham (2001), Malthus (1970), Ricardo (1919, 82–86).

[4] Blaug (1963, 151).

[5] On Sweden, see for example, Lindbeck (1997).

[6] Over the course of the nineteenth century, increasing proportions of relief recipients were in workhouses. The workhouse itself was not abolished in England until 1929.

[7] In 1842, the cost per workhouse relief recipient was 63 percent greater than for outdoor recipients (Statistical Society 1843, 256).

rules. This entailed that the brunt of the reform was borne by 1842 by a minority of parishes. We measure whether the 1834 reforms produced social gains by comparing land rents, wages and population changes in parishes before and after the reform, according to the magnitude of the imposed cuts. Were the losses to the poor from the welfare reduction more than compensated by gains in wages and land rents, and by increases in labor mobility? We find that changes in rents, wages and parish populations all indicate that the earlier system had no social costs. Other groups did not gain more than the poor lost as a result of the reform. The Old Poor Law represented just a transfer of income toward the poor. The first and most dramatic of all welfare reforms thus delivered none of the gains promised by Political Economy. The social costs of maintaining an extensive system of social support were modest.

The empirical strategy of the paper is as follows. First we show that the level of payments under the Old Poor Law varied very substantially by parish, and that most of that variation reflected not economic conditions but instead local customs. These variations in payments meant that only some parishes saw significant payment cuts when the New Poor Law was implemented. We can thus instrument for the expected severity of cuts under the new regime by using just the Old Poor Law payment level, to control for endogeneity between economic growth and welfare cuts. We then test for the effect of a £ of welfare cuts in a parish on land rents, wages, and on the combination of fertility and labor migration out of the parish. If welfare payments were imposing efficiency costs, and the labor market was competitive, then reductions in welfare payments would results in a more than proportionate rise in land rents. Also places with greater reductions would see lower fertility, and larger out migration of workers. We find that in fact welfare cuts produced little gain in rents despite land owners paying the taxes that provided them, and no gain in wages. And parishes with greater cuts saw no significant decline in their population.

We identify two features of the pre-1834 English system that avoided significant social costs. First local employers adjusted their hiring practices to take advantage of the welfare subsidy. Secondly because welfare payments were raised locally tax payers had an incentive to pay the costs of relocating the poor to where they would be most productively employed.

Before we get to these empirical tests, their logic, and their implications, we must delineate, however, how the Old Poor Law and the reformed New Poor Law of 1834 operated.

## 2 The Old Poor Law

From 1601, anyone in England unable to earn their subsistence had a legal right to support from their parish. Each of the 15,000 parishes and townships in turn had the right to levy a local rate on the occupiers of property to fund these payments to the

poor. The administration of relief in each parish was controlled by the parish vestry, composed of the occupiers of land and housing who paid the poor rates.[8]

The Old Poor Law thus mixed a national right to relief, with local setting of eligibility and relief levels. Support levels varied substantially by district. Thus in 1832–1833 the payment guaranteed to a family of a husband, wife and three children varied from 6 to 14 s. per week across 337 parishes whose payments were recorded in the *Poor Law Commission Report*.

In more generous parishes, workers received support when they were too old to work, when they were ill, when they were unable to find work, and when their earnings fell below the adjudged subsistence level for their family. It was thus a mixture of unemployment payments, wage subsidies, and welfare payments to the indigent. Thus in Todenham in 1832–1833 those in receipt of poor relief were:

> eight efficient Labourers with four Children and upwards, 14 s. 8d.; three infirm old Men, 9 s. 6d.; three Bastards, 5 s. 8d.; eleven Widows, £1. 8. 5.; three with Families, £1. 0. 9. (Parliamentary Papers 1834b, p. 202b).

The allowance paid to employed laborers in Todenham was calculated as the difference between their wage and their family need, where this was measured as 15 d. per family member, plus 30 d. extra for the husband and wife.

Although parishes were required to provide subsistence, they could choose how it was provided. Some of the poor, typically the old, the infirm, and children were accommodated in Poor Houses. But the great majority were maintained in their own homes with weekly stipends and rent and clothing subsidies, as in most modern welfare systems. Many families received a weekly cash allowance from the Overseers of the Poor.

Wage subsidies were very common in many parishes by the early nineteenth century. In 81 out of 261 rural parishes surveyed in 1832–1833, the subsistence level set for a family with three young children equaled or exceeded the wage outside harvest for farm laborers. As noted above by the early nineteenth century, roughly 10% of the English population was in receipt of relief at some point in the year. But in rural southern England, the fraction receiving relief was even higher: 13% or more in 1813–1815.

Poor relief payments per person varied widely across parishes under the Old Poor Law. At one extreme, in Ardleigh in Essex, detailed poor relief expenditures and population figures for 1821–1823 show 28% of the population were in families in regular receipt of relief in 1823. A total of 22% of males aged 15–59 received unemployment payments at some point in the year 1821.[9] Elsewhere there were parishes where no one received relief.

Figure 1 shows the distribution of payments per person in 1829–1833 by parish. The average was £0.8 per person. Since average wage income per person was about £8 per year per person for laboring families, poor relief payments averaged more

[8] The vestry was the parish council. Up until 1834 local magistrates, with jurisdiction over groups of parishes, adjudicated if the parish denied relief to an applicant and set the level of relief that had to be offered (see, for example, Song 1998). Thus in the parish of Ardleigh, in Essex, in 1795 the overseer's account book notes "Relieved John Lilly on complaint by order, 5 s." (Essex Record Office, Overseers Accounts, D/P 263/12/1).

[9] Essex Record Office, Overseers Accounts, D/P 263/12/7-8, Census Returns 1821, D/P 263/28/1.

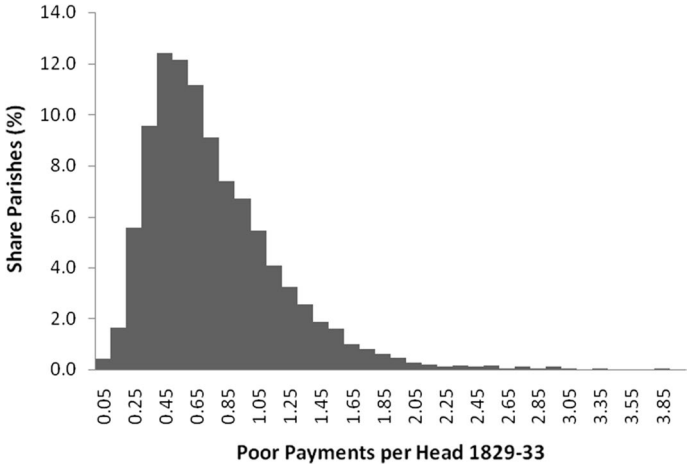


**Fig. 1** Poor payments per head, 1829–1833 (£). *Source*: Great Britain, Parliamentary Papers (1835)

than 10% of laboring families' budgets. But in 5% of parishes, payments were more than twice this average, and in 17% of parishes less than half.

Why did payments vary so much across parishes? The Old Poor Law has been interpreted in Political Economy terms by Boyer (1990) as not actually transferring income from property owners to the poor, but instead reallocated labor costs in rural parishes from farmers to non-labor hirers, such as house owners and the collectors of tithe payments from farmers. It persisted because rural landlords, whose tenant farmers operated the poor relief system within parishes, were gaining from the payments.[10] Such farmers operated within a competitive labor market, and needed to pay enough to retain adequate labor in the countryside. By laying-off workers when labor demand was low in winter, and having them supported by the parish, they reduced net labor costs since the occupiers of the houses and the tithe owners paid part of the poor relief.

George Boyer explained geographic variation in relief payments under the Old Poor Law as stemming from differences in the marginal product of labor in winter in different areas. Payments were greater in the grain growing southeast than in the equally poor but pastoral southwest. The grain growing areas had little demand for labor in winter. Thus farmers there could at little cost lay off workers and have the parish support them in the winter months.[11] Similarly much higher rural than urban

[10] Boyer (1990) considers the main loser from these transfers to be smallholders who did not hire labor, or house owners. But the tithe collectors, who could get as much as 20% of the rental income in a parish, would also typically not hire labor locally.

[11] Boyer's primary empirical support for his theory is data on a cross section of parishes in 1832–1833. He shows that parishes with higher poor law payments were those with more seasonal labor demands. High-payment parishes were also those with a larger proportion of ratepayers who were farmers (Boyer 1990).

payments stem from these seasonal labor demands, as well as the political power of labor hirers in rural as opposed to urban areas.

If we regress Poor Payments per head of population 1829–1833 on the share of employment in agriculture and the share of land in arable cultivation for 787 mainly rural parishes where we have information on wages and relief systems in 1832 from the *Poor Law Commission Report*, as in Eq. (1), then we do find a pattern consistent with Boyer's interpretation.

$$PPN_{1829-1833} = b_0 + b_1 Wage_{1832} + b_2 FracemploymentAgric_{1831} + b_3 Fraclandarable_{1837} + b_4 Lpopdensity_{1831} \quad (1)$$

$Wage_{1832}$ is the estimated annual wage in farming in the parish in 1832. $FracemploymentAgric_{1831}$ is the fraction of men aged 21 and over-engaged in farming in 1831. $Fraclandarable_{1837}$ is the fraction of parish farmland employed in arable farming in 1837.[12] $Lpopdensity_{1831}$ is the logarithm of people per acre in 1831.

However, there are a number of features of the payment pattern that do not fit with this proposed Political Economy of the Old Poor Law. These suggest that what determined relief levels was instead differences in regional tastes for welfare provision as well as the idiosyncracies of local government, where local officials had substantial freedom to determine poor relief policy.

Thus if we add to Eq. (1) indicators for parishes located in northern England, in the southeast, and in the southwest (with the Midlands the omitted category), as in the estimation in column three of Table 1, we find that the share of land farmed as arable no longer is a significant predictor of payment levels. Also the $R^2$ of the fit increases significantly just adding these four regional indicators. Regional differences in taste for welfare explain a substantial share of the pattern of payments, while the production mix of individual parishes offers no further explanation.[13]

This is confirmed by Table 2, which shows welfare payments per head under the Old Poor Law by region for the most urban and most rural parishes. Even entirely urban parishes in the southeast paid more relief per person in 1829–1833 than urban parishes in the southwest and north. Poor payments per head in the most urban parishes, those with fewer than one male in 10 employed in agriculture in 1831, followed the same regional pattern as those in the most rural parishes, those with more than 8 in 10 males employed in agriculture.

Further evidence that the level of welfare payments under the Old Poor Law was inconsistent with the Boyer interpretation comes if we add to Eq. (1) also indicators for which parishes made payments in support of children to married men. These indicators are for support paid to men with 3 or even fewer children (15%), those where support started only with the fourth or fifth child (29%), and those that only

[12] The fraction of the land employed in arable cultivation comes from the tithe surveys carried out in parishes mainly in the years 1837–1845. Only for 35 percent of parishes do we have this fraction directly. For the rest, we estimate it as the average of the county the parish was in (there were 42 counties).

[13] Boberg-Fazlic and Sharp (2017) also find that once region controls are included, indicators of arable potential by county (Table 2, p. 67) do not show a significant link with Old Poor Law payments 1787 or 1815. They find proximity to London is associated with higher payments, but that is captured by our south east indicator variable in Table 1.

**Table 1** Explaining parish variation in poor payments per person, 1829–1833

| Variable | (1) | (2) | (3) |
|---|---|---|---|
| Farm wage 1832 (£/year) | 0.004<br>(0.003) | −0.010***<br>(0.003) | −0.004<br>(0.003) |
| Fraction of males in agriculture, 1831 | 0.692***<br>(0.088) | 0.454**<br>(0.081) | 0.413***<br>(0.075) |
| Fraction acreage arable, 1837 | 0.584***<br>(0.76) | −0.080<br>(0.082) | 0.030<br>(0.078) |
| Log population density, 1841 | 0.019<br>(0.022) | −0.050**<br>(0.020) | −0.043**<br>(0.019) |
| North | – | −0.350***<br>(0.038) | −0.249***<br>(0.037) |
| Southeast | – | 0.229***<br>(0.029) | 0.161***<br>(0.028) |
| Southwest | – | −0.249***<br>(0.039) | −0.207***<br>(0.036) |
| Child allowance 1–3 | – | – | 0.344***<br>(0.033) |
| Child allowance 4–5 | – | – | 0.203***<br>(0.027) |
| Child allowance 6+ | – | – | 0.078**<br>(0.031) |
| N | 787 | 787 | 787 |
| $R^2$ | 0.21 | 0.39 | 0.48 |

***Indicates statistically significant at the 1% level; **significant at the 5% level

**Table 2** Urban and rural relief payments by region, 1829–1833. *Source*: Great Britain, Parliamentary Papers (1833, 1835)

| Region | Most Urban Number of parishes | Most Urban Payments per head (£) | Most Rural Number of parishes | Most Rural Payments per head (£) |
|---|---|---|---|---|
| Southeast | 122 | 0.78 | 810 | 1.18 |
| Midlands | 142 | 0.68 | 683 | 0.90 |
| North | 340 | 0.25 | 330 | 0.77 |
| Southwest | 163 | 0.35 | 421 | 0.65 |

gave support to employed men with 6 or more children, or allowed support in an unspecified way to "large families" (15%).[14] The omitted category, 41% of parishes, were ones where no such child support for working men was offered. This regression, reported as the last column in Table 1, shows that an important source of high-payment levels was the practice of making generous child support payments

[14] Where child allowance was allowed just for "large families" without a specific rule it was often stated or implied that this was an infrequent occurrence.

to employed men. Since these were paid to employed workers, they would also act as a wage subsidy for all farmers, not just those with highly seasonal labor demands. Yet such payments were much more common in the heavily arable southeast. This conflicts again with Boyer's Political Economy story. It is consistent with the idea of regional welfare cultures.[15]

Thus the most important component in explaining variations in poor payments per head seems just to have been differences in parish and regional "tastes" for providing welfare payments, rather than labor demand (as indexed by wage levels), or the type of agriculture.[16]

Byung Khun Song argued from a study of Oxfordshire parishes that another important component in the level of poor relief was the share of the land held by the largest taxpayer (Song 1998, 477–479, 2002). The argument is that such "closed" parishes were able to escape poor relief payments for their labor when they became aged, sick, incapacitated, or had many children, by importing workers by the day from surrounding "open" parishes. Parishes dominated by large land owners in 1831 had indeed lower population densities, a more agricultural labor force, and also less poor relief per head. This land concentration variable is not included in the regressions above, but is unlikely to explain more than a few percent more of the variance in poor relief per head. We already have as control variables in the regression two variables that correlate with land concentration: population and the share of men employed in agriculture. We consider below whether this additional source of variation in pre-reform payments would affect the outcome of the reforms.

Higher wages had a very modest association with the level of poor payments. Going from the lowest annual wages of £19 to the highest of £46 reduced predicted poor payments per head by £0.11, much less than the differences induced by regional and local welfare tastes. Since the average poor payment per person was £0.8, the predicted difference of £0.75 between a northern parish without child allowances, and a southeastern parish paying the most generous child allowance was very substantial.

## 3 The 1834 reform

The Old Poor Law was argued by the *Poor Law Commission Report* of 1834 to have four significant social costs.

### 3.1 Reduced work incentives

The poor law allegedly destroyed the incentive of workers to work hard at work, and to seek out employment if they were unemployed. In a parish where the market wage

[15] King (2000).

[16] King (2000) makes the argument that there were regional differences in attitudes to welfare that created these different expenditures. Boberg-Fazlic and Sharp (2018) argue that the lower welfare payments in Northern England can be linked to more rapid social mobility rates in the North, which reduced public support for welfare payments.

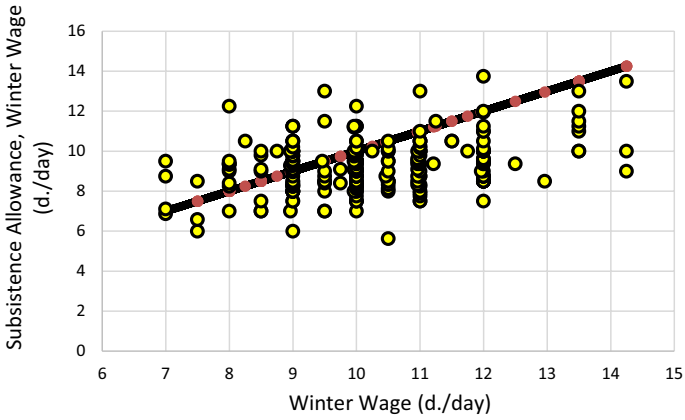


**Fig. 2** Winter wages versus the subsistence allowance, 1832

rate for a worker was below the guaranteed minimum, the worker faced effectively a 100% marginal tax rate. This should have reduced work effort since unemployment costs were lowered. The commissioners concluded this would lower market wages.[17]

Figure 2 shows for 261 parishes or townships in 1832–1833 both the reported weekly wage in winter for an adult male in agriculture, and the level of income below which the parish would give an allowance to a family of husband, wife, and three young children. On average that subsistence allowance for men with families was 93% of the winter wage, and in 24% of cases it exceeded the winter wage. The report concluded:

> We have seen that in every instance in which the able-bodied laborers have been rendered independent of partial relief, or of relief otherwise than in a well-regulated workhouse—
> 1. Their industry has been restored and improved
> 2. Frugal habits have been created or strengthened
> 3. The permanent demand for their labor has increased
> 4. And the increase has been such that their wages, so far from being depressed by the increased amount of labor on the market, have in general advanced.[18]

### 3.2 Reduced labor mobility

Since workers were guaranteed a subsistence income in their place of birth they had reduced incentives to bear the costs and hazards of moving in response to higher wage opportunities in the cities, or in other parishes. Thus poor relief impeded labor mobility. Figure 3 shows annual agricultural wages in 1832 in parishes within 60

[17] The logic of the commissioners argument has been criticized. See, for example, McCloskey (1973).
[18] Great Britain, Parliamentary Papers (1834a, 146).

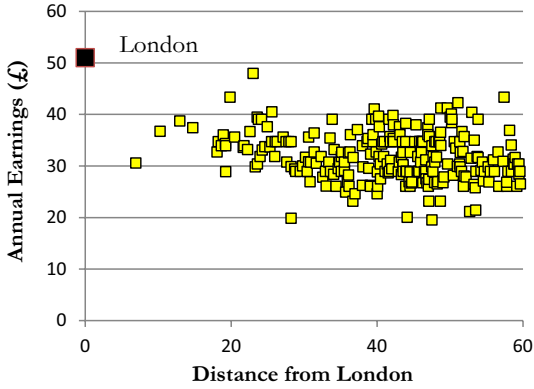


**Fig. 3** Wages in London and nearby parishes. *Source*: Great Britain, Parliamentary Papers (1834b)

miles of London in the south of England, as well as the annual wage of a building laborer in London (£51). The average wage in these parishes was less than £32. Housing was much more expensive in London, but even taking this into account, the real wage in London substantially exceeded that in nearby rural areas. There were parishes less than 50 miles from London where the annual wage was below £20. The poor relief system was retarding labor mobility to high-wage opportunities.

### 3.3 Reduced investment

The Old Poor Law reduced landowners' incentive to invest capital in land improvement. Poor relief was paid out of parish taxes assessed on the estimated rental value of property. Land value was partly determined by soil fertility, but it also strongly depended on investments in farmhouses, buildings, roads, fences, drainage, and soil amendment. The tax rate on property under the Old Poor Law was as high as 40% in some rural parishes. In these parishes, the required return on investments in land improvement would be correspondingly greater. Thus the Old Poor Law reduced rural labor demand by discouraging investment.

### 3.4 Increased fertility by the poor

In many parishes, each additional child beyond some established minimum—2, 3, 4, 5, or more—received a proportionate allowance from the poor rates. It was feared that precisely for the poorest of the population, relief recipients, and the normal economic costs of greater fertility had been taken away. Where for richer groups earlier marriage implied more children and a substantial decline in living standards, for the poor earlier marriage had no costs. Fertility would be increased most precisely in those areas with the least demand for labor. And fertility would increase for those with the least education and prospects.

The *Poor Law Amendment Act* of 1834 enacted radical reforms. The legal right to relief was maintained, but now able-bodied relief applicants were expected to enter a workhouse to receive it. In the workhouse, the conditions were deliberately planned to be wholesome but monotonous and confining. This was the so-called Workhouse

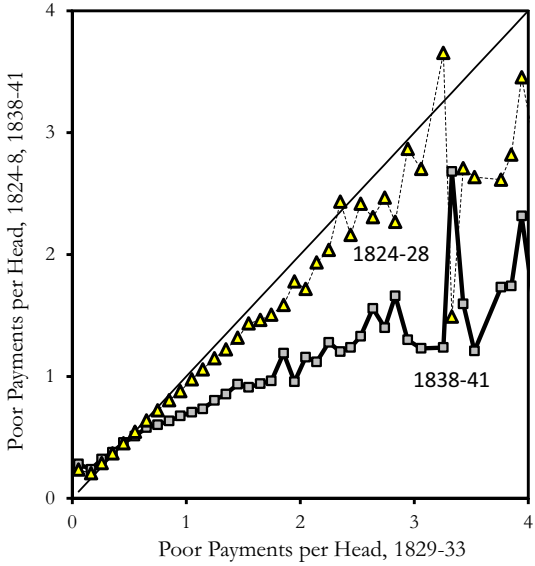


**Fig. 4** The effects of the New Poor Law by earlier payments per head. *Note*: The figure shows on the horizontal axis average poor payments per head in 1829–1833. It shows on the vertical axis the average payment per head in 1838–1841 and 1824–1828 for the corresponding group of parishes

Test. There was to be no payment to relief to those living independently or as a subsidy to wages, except on a temporary basis in the case of illness. Indoor relief was more expensive than outdoor, but the hope was that the new regime would discourage all but the truly needy from applying. Workers would instead migrate in search of work, limit fertility (through delaying marriage), or make do with what the market offered.[19]

To ensure compliance with the reform objectives at the local level, parishes were grouped into unions, where the decision about who was entitled to relief, and how much relief to provide, was now to lie with the Board of Guardians of the union. The Board of Guardians was composed of the magistrates resident in the Union, along with an elected representative from each parish. In the election for the guardians, however, large occupiers and large landowners were given more votes. Though the 1834 reform was not immediately implemented in all its rigor—there were not sufficient workhouse places and there was significant local opposition to the measures—it did lead to a sharp reduction in poor relief.

In the years before the reform, there is a strong correlation between the places with high payments in 1829–1833 and those with high payments in 1824–1828, with little sign of regression to the mean. The payment pattern across parishes was stable, as Fig. 4 shows. After the reform the payment pattern is largely unchanged for parishes with payments per head of population of less than £0.60: average payments per head fell from £0.42 to £0.40. But in the higher paying parishes there is a clear pattern of cuts. The higher the payment the greater the proportionate cut. Parishes paying more than £0.60 per year saw a decline in average payments from £1.07

[19] Besley and Coates (1992) set out a micro-theoretic conditions which would underpin this approach.

to £0.68. Thus the reforms imposed real cuts and imposed them in the areas of the highest relief payments per head.[20]

Our interpretation is that in low payment parishes payments before 1834 were principally to the elderly, widows and orphans and were unaffected by the strictures of the New Poor Law. The areas of high payments per capita were those with wage subsidies in support of children, and thus were cut. The effects found in aggregate also show up if we divide the data into four regions, the North, the Midlands, the Southwest, and the Southeast. Payments fell most where they had been the highest. In rural parishes in the Southwest average poor payments per head fell from £0.62 to £0.58. In the Southeast average payments fell from £1.09 to £0.73.

We can explain 51% of the variance in the change in poor payments per head by parish or township between 1829–1833 and 1838–1841 ($\Delta PPN$) with the simple regression specification

$$\Delta PPN = \beta_0 + \beta_1 PPN_{1829-1833} + \beta_2 DHIGH \cdot \left(PPN_{1829-1833} - 0.5\right) + \varepsilon \quad (2)$$

where $PPN_{1829-1833}$ is the poor relief payments per resident in 1829–1833, and $DHIGH$ is an indicator variable which is 1 when $PPN_{1829-1833} \geq 0.5$. In contrast if we look at the changes under the Old Poor Law regime between 1824–1828 and 1829–1833, then the same specification explains just 8% of the variance. Thus the regime change alone explains nearly half of the changes in poor payments per head between 1829–1833 and 1838–1841.[21]

In the tests of the effects of the poor law reform below, we will be using as an independent variable poor payments per acre in rural parishes, defined as those with the majority of workers employed in agriculture. Changes in poor payments per acre in rural parishes are even more predictable than changes in poor payments per head. If we translate the equation above into poor payments per acre by multiplying every term by people per acre in 1831, then we can explain 64% of the variance in changes in poor payments per acre between 1829–1833 and 1838–1841, just from the initial level of payments.[22]

## 4 Estimating the effects of reform on land rents

The Poor Law Commissioners optimistically expected that in parishes with high welfare payments reform would raise wages, raise land rents by more than the decrease in the tax, and reduce fertility by the poor. It would also increase labor

[20] We include the 1824–1828 data to show that the relationship between the payments in 1829–1833 and 1838–1841 cannot be just the result of larger random components in the higher paying parishes in 1829–1833. If so the curve relating 1824–1828 payments to 1829–1833 would show a similar regression to the mean.

[21] Addition of other variables such as indicator variables for local effects, for urban versus rural parishes, and for the poor law union the parish belonged to can raise the $R^2$ to 0.64. But this implies that these other elements explain only a very small share of the variance.

[22] Again looking at the change from 1829–1830 to 1831–1833 under the Old Poor Law the same variables explain only 2% of the variance across time periods in poor payments per acre.

mobility out of these parishes. Can we detect any of the anticipated social gains from the reform? Below we estimate the effects of the cuts on land rents, wages, and (in combination) fertility and labor mobility.

Poor relief payments were paid through taxes on property. Did property owners benefit significantly from the reforms? For this test, we concentrate on rural parishes where most of the poor were concentrated. In these parishes, the main payment for the law came from a tax on land. To estimate the gains by landowners, we assume that the farmland rent per acre in each parish $i$ with poor payments of 0 would be in year $t$, $V_t + \varepsilon_{it}$. When a poor rate is charged, the actual rent per acre becomes

$$RENT_{it} = V_t - b \cdot POOR_{it} + \varepsilon_{it} \tag{3}$$

The change in rent between the earlier period and 1842 is thus

$$\Delta RENT_i = \Delta V_i - b \cdot \Delta POOR_i + \Delta \varepsilon_i \tag{4}$$

$\Delta POOR$ measures the change in the tax per acre on farmland in each parish between the two periods. $\Delta V_i$ is assumed to be a constant, $\Delta V$. $b$ measures the fraction of the reduction in the tax rate which gets translated into higher rental values for land owners. If poor payments were just a transfer to the needy from landowners, with no effects on investment, wages, or labor efficiency, then changes in wages and property values net of the tax will be zero, and the estimate of $b$ will be 1.

The Poor Law Commission interpretation, however, was that poor relief was reducing investment in land improvement by driving up the cost of capital, and raising the effective cost of labor. In this case when we estimate (4), we will find $b > 1$. For $b$ will pick up also gains in property values after reform from the lower real labor cost and the greater investment in land improvement.

The estimation of $b$ from (4) will be a biased estimate of the total effects of poor relief reforms on land rents if the changes in poor relief payments were partially endogenous. This bias could go in either direction. Suppose, for example, poor relief payments declined more in 1829–1833 to 1838–1841 in parishes close to growing urban areas because of a more buoyant demand for labor. The growing urban areas would also increase farmland rents. In this case, the estimated value of $b$ will be biased upwards from the true value. Alternatively suppose that some parishes had faster population growth for reasons independent of welfare provision, such as a better health environment or accidents of demography. The enhanced labor supply would drive down wages, and drive up land rents. But if the decline in wages was accompanied by more poor relief payments, it would bias the estimate of $b$ downwards toward 0.

We control for this endogeneity by using an instrument for the change in poor rate payments per acre 1829–1833 to 1838–1841. That instrument, based on Fig. 4, is just the predicted change in poor payments per unit of rent in a parish based on the level of those payments per person in 1829–1833. Since the instrument depends only on features of the parish before the cuts in welfare payments,

it is purged of any endogenous connection between changes in rents and changes in poor rate payments in a parish after 1829–1833.[23]

The instrument for changes in poor payments per head, $\Delta PPN^*$, is thus

$$\Delta PPN^* = 0.132 - 0.278 PPN_{1829-33} - 0.315 DHIGH \cdot \left(PPN_{1829-33} - 0.5\right) \quad (5)$$

In the first stage, the $R^2$ for the regression of changes in payments per head on this instrument is 0.52. The instrument for changes in poor payments per acre of land, $\Delta PPA^*$, is derived from the above as

$$\Delta PPA^* = \frac{Population1831}{ParishArea} \cdot \Delta PPN^* \quad (6)$$

In the first stage, the $R^2$ for the regression of changes in payments per acre on this instrument is 0.64. Thus these are both strong instruments.

Table 3 shows the results of estimating Eq. (4) using both Ordinary Least Squares and Instrumental Variables. We include also two control variables in the regression. A transition occurring in English agriculture throughout this period was the conversion of land from partially common ownership to pure private status. This change was accompanied by rent increases per acre. We know the fraction of land that was still common land in parishes in 1842. We know also the fraction of the plots that was used for the earlier rent estimate that was common. Thus we can construct a measure of the change in the fraction of private land between our estimates for these two dates. This variable is included as a test of whether rents were indeed responsive to the economic value of land even over this short period, and whether our measured change in rent indeed contains information about changing land values. We know the magnitude of this coefficient should be around 0.3 for this period based on earlier work on the gains from enclosure of common land in this period.[24] We also include controls for the 42 counties of England, since as a result of the Industrial Revolution population and rents on average were growing faster in the industrializing areas in the north.

The main result that emerges is that cuts in poor rate payments produced surprisingly little gain in land rental values. The effects are greater with the instrumental variable estimates. But even there we estimate each £1 saved in poor rate payments increased rents by only £0.24–0.41. We can rule out with confidence the idea that poor rate payments imposed any significant burden on rents above the actual amount collected. If the Old Poor Law was causing substantial inefficiencies, they were not showing as losses to land owners. If there were substantial efficiency costs, it would have to be in wage losses to workers.

[23] To be a valid instrument, the level of poor payments per head before the reform also must have no direct effect on the change in rent. We demonstrate in Table 1 above that these payments were largely determined by local tastes for welfare, which we expect are unconnected directly with subsequent changes in the rental values of farmland.

[24] Clark (1998, 88).

**Table 3** Estimate of the effects of poor payments on land rental values

| Independent variables | OLS | OLS | OLS | IV | IV | IV |
|---|---|---|---|---|---|---|
| ΔPoor rate per acre | 0.15 | −0.25 | −0.23 | 1.04*** | 0.27 | 0.41 |
| | (.24) | (.24) | (.27) | (.29) | (.29) | (.32) |
| ΔShare land private | – | 0.35*** | 0.39*** | – | 0.35*** | 0.39*** |
| | | (.09) | (.09) | | (.09) | (.09) |
| Population per acre, 1831 | – | 1.02*** | 0.95*** | – | 0.93*** | 0.87*** |
| | | (.17) | (.18) | | (.17) | (.18) |
| County dummies | NO | NO | YES | NO | NO | YES |
| Number of parishes | 2207 | 2207 | 2207 | 2207 | 2207 | 2207 |

***Significantly different from 0 at the 1% level

As was discussed above, there were allegedly "closed" parishes which because of concentrated land ownership were able to limit their resident labor population, and instead employ some workers who commuted daily to work from nearby "open" parishes with excess labor forces. If there were significant numbers of workers employed in this fashion, then the effects of poor relief payment reductions on land rents at the parish level would potentially underestimate the global effect on rents, because some of the effects in terms of better incentives to workers would be experienced by landowners in neighboring closed parishes.

However, the fraction of rural workers commuting between parishes must necessarily have been small. Such commuting could only occur where "closed" and "open" parishes were adjacent. Also the average radius of a rural parish in England was 1.5 miles, and the parishes tended to be nucleated. Song reports that an enquiry in 1850 into such commuting workers found they walked an average of only 1.2 miles to work (Song 2002, p. 221). Thus likely only a small fraction of rural workers even lived within commuting distance of farms in other parishes.

Could our failure to find much gain in rents from the reform stem just from very poor measures of rents, so that the left-hand side of Eq. (4) is just noise? This can be ruled out in two ways. First if either the pre- or post-rent measures was just noise then the two sets of measures would be uncorrelated. However, if we regress the average rental value per acre of holdings in the years 1820–1834 ($rent_{20-34}$) in the sample of rural parishes on the rental value per acre of the parish as a whole in 1842 ($rent_{42}$) the estimate is

$$Rent_{20-34} = \underset{(.047)}{1.011} + \underset{(.031)}{0.560} rent_{42} \qquad R^2 = 0.13 \tag{7}$$

There is thus information in our measure on rent changes by parish from pre-reform to post-reform. Secondly we do detect very clearly the gains from land switching from common to private control over the same interval. The magnitude of this effect is even stronger than that found in Clark (1998), and is highly significant statistically.

## 5 Reform, fertility and labor mobility

Two other potential costs of the Old Poor Law alleged by the Poor Law Commission were its implicit subsidy to fertility among the poorest, and the distortion of the labor markets it created by subsidizing workers who stayed in low-wage parishes.

Parishes with the highest payments typically had child allowances that supported all additional dependent children beyond a specified minimum from the public purse. Malthus, one of the great critics of the Old Poor Law, referred to these subsidies as "a direct, constant, and systematic encouragement to marriage."[25] The *Poor Law Report* envisioned the Old Poor Law as multiplying the population in precisely those parishes where there was little demand for labor. But at the same time by paying workers allowances above the market wage level, the Old Poor Law impeded the movement of that labor to parishes where its marginal product was higher by subsidizing the poor to stay where they were born.

Even if there was no impediment to labor mobility, from the *Poor Law Commissioners Report* we would expect more children per employed laborer in parishes with generous welfare in 1834 from earlier and more frequent marriage, and hence greater population densities. It has been debated ever since whether indeed the Old Poor Law stimulated fertility. James Huzel looking at a time series of parishes before and after elimination of child allowances in the 1820 s under the Old Poor Law finds no evidence of a positive effect of child allowances on fertility.[26] However, Huzel's study had no controls for the potential endogeneity of the decision to end allowances. George Boyer looking at a cross section of 214 parishes in 1832 finds that the generosity of child allowances correlated positively in cross section with the birth rate under the Old Poor Law. Parishes giving a child allowance for the third and higher children reporting birth rates 25% greater than those with no child allowance.[27]

In 1831 with the high fertility levels of this period, those under age 20 were 50% of the population of rural parishes. If child allowances stimulated fertility in the way expected from Boyer's study, we would expect noticeably higher population densities in rural parishes with high levels of poor relief. In fact the estimation in Table 1 suggests that rural parishes with high poor payments tended to be less densely populated in 1831. But many other variables can intervene in such a cross section, obscuring the true relationship.

If the *Poor Law Commissioners Report* was correct, however, then the end of child allowances, and the tightening of general conditions of relief after 1834, should have led to a relative decline in population in rural parishes with previously generous benefits. First the number of dependents per employed laborer should drop in these parishes between 1831 and 1841, as laborers delayed marriage, or reduced

[25] Quoted in Boyer (1989, 94).

[26] Huzel (1980, 369–375).

[27] Boyer (1989, 105) controls in his estimations for such things as the income of laborers, and the availability of housing and other income sources.

fertility within marriage. Second labor would migrate away from parishes where workers no longer received a supplement to their wages.

To test whether jointly the Old Poor Law increased fertility and reduced emigration, we estimate the parameters of the expression

$$\left(\frac{N_{41}-N_{31}}{N_{31}}\right)_i = a + b\Delta PPN_i + \sum_j c_j CONTROLS_{ji} + e_i \tag{8}$$

where $N_{31}$ and $N_{41}$ are the parish populations in 1831 and 1841, and *PPN* is poor payments per head of population. It is not possible with these data to disentangle the effects of enhanced out migration with those of potential fertility reductions from delayed marriages. Instead we will see a combined effect. How did population change in parishes with large welfare cuts compared to those with no cut? If the Poor Law Commission Report was correct, we would expect to see *b* be positive and large.

Population rose by on average 8% between 1831 and 1841 in the predominantly rural parishes in our sample. This is much less than for England as a whole. Since rural birth rates were higher than in urban parishes most rural parishes experienced significant out migration: 7% or more of their population over 10 years.[28] The average poor payment per head in 1829–1833 was £0.8, more than 10% of the income of rural laboring families. If these payments were increasing fertility or reducing out migration, then we should be able to detect changes by 1841.

As with the change in rents, $\Delta PPN$ is potentially endogenous. Suppose parishes are subject to labor demand shocks in a way not controlled for by the *CONTROL* variables. A parish which experienced a positive shock between 1833 and 1841 could see both a decline in relief payments per head, and a larger than expected population relative to 1831. We deal with this again by using as an instrument for $\Delta PPN$ the predicted change from payments per person in 1829–1833, as specified in Eq. (5) above.

Table 4 reports OLS and IV estimates of the parameters of Eq. (8) linking population change to changes in poor payments per head. With the OLS estimation, there is a significant negative association between the change in poor relief payments per head and the population change. This is because parishes where poor payments per head fell saw greater population growth. Thus the 15% of parishes where poor payments per head fell £0.5 or more had a population growth of 12% on average between 1831 and 1841. But this association came from unobserved shocks on labor demand that both increased population and reduced poor relief payments. With the instrumental variable estimation, this association disappears. Poor payment cuts had no statistically significant association with population change from 1831 to 1841.

Indeed the best estimate from Table 4 is that a reduction in poor payments in a parish equivalent to about 7.5% of annual wage income for all workers, the typical

[28] We excluded parishes where less than 50% of males were employed in agriculture in 1831, and where the population in 1831 was less than 50 people.

**Table 4** Estimate of the effects of poor payments on population changes, 1831–1841

| Independent Variables | OLS | OLS | OLS | IV | IV | IV |
|---|---|---|---|---|---|---|
| ΔPoor expense/person | −0.14** (.008) | −0.14** (.008) | −0.17** (.009) | −0.003 (.011) | 0.003 (.011) | 0.018 (.013) |
| $(N_{1831}–N_{1801})/N_{1801}$ | – | −0.04** (.008) | −0.05** (.008) | – | −0.05** (.008) | −0.07** (.023) |
| Population per acre, 1831 | – | −0.14** (.024) | −0.12** (.028) | – | −0.09** (.017) | −0.09** (.029) |
| Fraction agricultural employment 1831 | – | – | 0.07** (.021) | – | – | 0.06** (.021) |
| County dummies | NO | NO | YES | NO | NO | YES |
| Number of parishes | 6948 | 6948 | 6948 | 6948 | 6948 | 6948 |

**Indicates differs from 0 at the 1% level of statistical significance. *Indicates defers from 0 at the 5% level of statistical significance

reduction in the Southeast, would lead to a decline in population between 1831 and 1841 of 0.65%. Even at the 95% confidence limit, the most reform of the poor law could have reduced population in rural parishes by 1841 was by 0.9%, taking into account both changes in fertility and migration. This is a tiny fraction of the observed average migration of more than 7% per decade. Thus whether the population movements induced by the poor law reform were statistically significant or not, they had an imperceptible impact in England in 1834.

In Table 4, we also include county-level fixed effects, to allow for any differences in average parish population growth 1831–1841 associated with the general migration to the north in this period. Though, since we are concentrating on more rural parishes the direct effects of the Industrial Revolution on population movements would tend to be similar across the entire country as people left agriculture and moved to industry and trade.

The population changes after the reform of the Old Poor Law are not consistent with the law having large efficiency effects through misallocation of labor. They are similarly inconsistent with the idea that the Old Poor Law induced significantly higher fertility in parishes with high-payment levels. In that case, the seven years between the 1834 reform and the 1841 census means there was plenty of time for the elimination of child subsidies to show up through delay or avoidance of marriages.

## 6 Reform and wages

Landlords gained little from the reform, and perhaps not even as much as their reduced tax payments. Fertility and labor allocation did not change. But perhaps all the gains of the reform went to the poor themselves in the form of higher wages?

We have much less complete wage data for rural England in these years. But what there is strongly suggests that rural labors did not make significant gains in wages as a result of these reforms. Table 5 shows average nominal winter day wages in

**Table 5** Day wage movements after the poor law reform. *Source*: Clark (2001). These are male wages between October and May, outside the harvest season

| Period | North (d./day) | Midlands (d./day) | Southeast (d./day) | Southwest (d./day) |
|---|---|---|---|---|
| 1830–1834 | 24.1 | 23.4 | 22.6 | 18.8 |
| 1835–1839 | 23.2 | 22.7 | 21.4 | 19.1 |
| 1840–1844 | 23.0 | 23.9 | 22.2 | 19.5 |
| 1845–1849 | 25.3 | 23.5 | 21.8 | 19.9 |
| Average change | −0.3 | 0.0 | −0.8 | 0.7 |
| Estimated welfare cut per laborer | 0.4 | 1.0 | 1.9 | 0.2 |

the four regions of England used above in each of the 5 year periods, 1830–1834, 1835–1839, 1840–1844, and 1845–1849, from a sample of farm accounts in each of these regions. Also shown is the change in average daily wages between 1830–1834 and 1835–1849. The last row of the table shows the implied cuts in welfare payments per worker per day of work in each region, on the assumption that adult male workers were 30% of the population, and that the low paid laborers who would receive welfare were on average half the labor force.

As noted before, the welfare cuts were concentrated in the southeast. There they would have constituted a decline of as much as 7% in the average income of the poorest workers. Yet there is no sign that day wages in the southeast adjusted to compensate for these cuts, or indeed that wages rose strongly in the southeast as the labor market was freed up with the ending of many welfare payments. The evidence of day wages suggests instead that the relative earnings of workers in the southeast fell after the reforms.

## 7 Interpretation

Clearly the 1834 welfare reform fulfilled none of the hopes of the Political Economists. It is estimated that rents rose in parishes with the greatest reduction in welfare payments, but most likely by less than the reduction in poor rate taxes. Certainly there were no gains for landowners beyond the decline in their tax burden. Labor did not migrate faster from rural parishes after the reforms, nor is there sign of any reduction in fertility. The reform did not spur any observable increase in wages in the southeast where payments were high through enhancing the discipline and efficiency of workers, and inducing greater capital investment.

On Boyer's interpretation, where poor relief payments were mainly a replacement for wages, the reduced form estimate of $b$ in Eq. (4) above will actually be negative. For if we assume that wages in each rural parish are set by the wage level in the nearest urban community, then the total of poor relief plus wage payments in each parish will not change after the reform. Thus for every £1 of relief payments avoided wages have to be supplemented by a £1. But since others were paying some of the

taxes landowners end up paying an increased wage bill, and hence land rents fall. Boyer would also predict no increase in wage rates to compensate for the reduction in poor relief payments, and no increased migration out of villages with high poor payments after the cuts. However, we saw above that the pattern of poor rate payments across rural parishes, and across urban areas, is not consistent with Boyer's Political Economy explanation of the operation of the Old Poor Law.

Another way to interpret the results would be that farmers did not lobby for the particular welfare systems we observe in the Old Poor Law, but they did respond to the local welfare culture in their own compensation to workers. Where relief was generous they did not have to compensate the workers as well to keep them in the rural areas. When welfare was cut by the New Poor Law of 1834, they had to increase compensation to labor.

Our data on winter day wages, from Table 5, which show no sign of adjusting after the end of the Old Poor Law, are discordant with this. But there were other dimensions along which farmers could adjust labor compensation. They could offer more days of employment per worker over the winter. Varying amounts of work were offered at piece rates, which traditionally offered higher compensation per day. They could also offer more employment opportunities for wives and children. Thus it is possible that rents rose little after the reforms, and labor did not migrate from the countryside, because farmers had to raise labor payments to workers in compensation.

But all these depend on the earlier system having modest efficiency costs. Given our description above of that system how was it possible not to have had such social costs? A key element here was that it was the people operating the system at the local level who bore the costs. As owners of land, or more frequently as tenants, any money they saved from reduced poor payments went directly to their pocket (though for tenants those savings would in a few years get transferred to the landlord in the form of higher rents when the next lease renewal came). Within the constraints of the law, then, they had the incentive to operate the system as efficiently as possible.

Take the example of allowances paid in aid of wages. Since the minimum subsistence income set for a man with three or more children frequently exceeded the going wage, the argument was that such payments must have severely undermined labor incentives, and so driven up real labor costs even beyond the amounts paid in poor rate taxes. However, the detailed records of parishes like Ardleigh in Essex suggests that, well aware of the incentive issues, parishes would fix a standard allowance to be paid, independent of the actual earnings of the family. If the husband could earn more at work, then he got to keep all of it. The very pervasiveness of such payments reflected in part an attempt to avoid the incentive problems that would arise if industrious workers lost out as a result of their industry.

Similarly the lack of any increased emigration out of parishes with high poor rate payments after the cuts reflects the fact that local parishes before the reform were legally entitled to use the poor rate to pay the costs of emigration for families. If rural parishes had surplus workers who could productivity be employed elsewhere, parishes had a financial incentive to pay the costs of their relocation. Even before the reform of 1834, there were some such schemes organized by groups of parishes. One of the provisions of the New Poor Law was an explicit authorization for parishes to

subsidize the foreign immigration of their poor. In 1836–1852 English parishes, for example, paid for the emigration of paupers to Australia. Yet the numbers involved were very modest in proportion to the total rural population. And in 1852 Australia refused to accept such pauper immigrants (Richards 1993). There was no large pool of productive pauper labor awaiting reallocation.

## 8 Conclusion

Despite the polemics of the political economists and pamphlet writers, the Old Poor Law seemingly imposed little cost on land owners before 1834. It had no impact on rural wages and was little barrier to labor mobility. Nor did it increase the fertility of the poor. The draconian reforms of the New Poor Law, in place in England until 1906, and dramatized by Charles Dickens in *Oliver Twist* in 1838, had no measurable social benefits.

Over the course of the nineteenth century, hundreds of thousands of the poor in England were subjected to the harsh regime of the workhouse based on the mistaken conclusions of the Political Economists. Parents were separated from each other and their children, men and women were set to long hours of meaningless make work like breaking stones. The children in laboring families with the misfortune to produce large numbers of surviving children were brought up in conditions of grinding poverty.

Yet this deliberately induced suffering gained little for the land and property owners who funded poor relief. Nor did it raise wages for the poor, or free up migration to better opportunities in the cities. One of the first great triumphs of the new discipline of Political Economy, the reform of the Poor Laws, consequently had no effects on economic growth and economic performance in Industrial Revolution England. Political Economy was born in sin.

## Data Appendix

Because of the intense public debate about reforming the poor law, the English collected a great deal of information about poor payments, population and occupations by parish in the years 1825–1842.

For the tests outlined above, we measure farmland rents in 1842 from the tax valuations for this year of all farmland in a parish (Great Britain, Parliamentary Papers, 1845). For properties let within 7 years of the assessment (i.e., 1835–1842), the rental value was the contracted value. For properties on longer leases, it was the assessed market value. Thus the parish land rents measured in 1842 all stem from the post-reform period. We added any tithe payments (also recorded in this source) to the rents, so that the 1842 measure is for all rental claims on farmland in the parish. Only parishes with more than two-thirds of the property value coming from land in 1842 were included so that we are dealing mainly with rural parishes.

To get the rent per acre in 1842, we divide by the land area of the parish. Since not all of this parish area was farmland, it introduces an error in this measurement,

which fortunately is on the left-hand side of our estimation of Eq. (4). In some rural parishes, a large part of the land was not used for agriculture, being too hilly. For rural parishes, the fraction of the area that was actually farmland will correlate with the population density. So we include population density as a control for this measurement error when estimating Eq. (4). In Table 3, the estimated coefficient on population density is positive, which is what we would expect from the nature of the measurement error.

There is no parish-level data available on land rents before the 1834 reform. To get rental values in the years before the reform, we use data collected by Clark on newly formed rents (and tithes) on individual plots within parishes in the years 1820–1834.[29] From these, we estimate parish rental values per acre before the reform by adjusting for plot sizes. Rents per acre tended to be much higher on smaller plots. We adjust land rents to the average plot size that would be expected for a parish of that character (based on population density, location, and type of agriculture). In 1820–1834, overall farm rents stayed constant (Clark, 2002) but in estimating pre-reform parish rents we included year dummies to control for such year effects. From 5739 plot rentals, we estimate 2207 rural average parish land rents per acre.

Though the data come from very different sources, the parish rent per acre for 1820–1833 estimated in this way is strongly linked to rents per acre in 1842. Thus

$$Rent_{20-34} = \underset{(.047)}{1.011} + \underset{(.031)}{0.560} rent_{42}$$

Note that the intercept is greater than 0, and the coefficient on the 1842 rent less than 1. This implies, as we indicate above, significant errors in the later measures of rent per acre at the parish level.

Data are available from the Parliamentary Papers on poor rate collections in each of the years 1824–1833, and 1838–1841 (Great Britain, Parliamentary Papers, 1830-1, 1835, 1844). We average these into poor rate collections in 1824–1828, 1829–1833, and 1838–1841, and so calculate poor rate payments per head, and poor rate payments per acre based on the 1831 and 1841 population totals. We calculate poor payments charged on farmland by multiplying these parish totals by the share of the parish property value in 1842 that was land. We calculate poor payments per acre by dividing the totals for the parish by the measured land area of the parish. This would introduce a measurement error which would bias the estimate of $b$ toward 0, except that we are effectively normalizing on the left-hand side of Eq. (4) with the same imperfect measure of farmland area.

We measure the fraction of land which was common property in 1842 using parish-level data on common land from Tate and Turner (1978). The fraction of common on the plots earlier is estimated as discussed in Clark (2002).

The 1831 census supplies information for each parish on the population, the number of resident farmers hiring labor, the number of resident farmers not hiring labor, and the numbers of agricultural laborers (Great Britain, Parliamentary Papers 1833). We can thus identify rural parishes where most employment in 1831 was in

[29] Clark (2002).

agriculture. We kept in the sample only parishes where agriculture was the listed occupation for at least 50% of adult males in 1831.

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