

The first poverty line? Davies' and Eden's investigation of rural poverty in the late 18th-century England

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1. Introduction

The plight of the labouring poor at the end of the 18th century was famously documented by David Davies and Frederick Eden. Davies (1742-1819) came from a background of small farmers and became rector of the parish of Barkham in Berkshire in 1782, after earlier periods spent as a sugar plantation manager in Barbados and a tutor back in England. His observations of the slave trade and his intimate knowledge of his own English parish, led him to articulate a profound sympathy and understanding of the lives of the rural labouring poor.¹ Frederick Eden (1766-1809), in contrast, was the eldest son the governor of Maryland (who became a baronet in 1776). Eden made his career in the insurance business, being one of the founders and chairmen of the Globe Insurance Company, and his name in self-financed social and economic investigation, where he applied his considerable knowledge of poor relief administration and insurance.² The importance of their surveys, *The Case of Labourers in Husbandry*, and *The State of the Poor*, published in 1795 and 1797 respectively, was immediately recognised. A reviewer for the *Gentleman's Magazine* thanked Davies for his painstaking work, which he hoped would 'attract a degree of attention proportional to the importance of the subject and the merit of the execution'.³ Successive generations of historians have also acknowledged their indebtedness to Davies and Eden. Their surveys have been widely trawled for information on general economic and social conditions in the late 18th century and led the Hammonds to conclude that 'the normal labourer, even with constant employment, was no longer solvent' at the end of the 18th century.⁴ Their recordings of earnings and expenses also appeared in two early influential and widely used attempts at charting the long term course of wage and price fluctuations by Bowley (1899) and Phelps-Brown and Hopkins (1956).⁵

¹ Horn (2004), 'David Davies' (1742-1819)

² Winch (2004), 'Eden, Sir Frederick Morton, second baronet' (1766-1809)

³ Quoted in Oliver (1976), 'David Davies', p. 383

⁴ Hammond and Hammond (1911), *Village Labourer*, pp. 69-70. See also Pinchbeck (1930, 1980) *Women Workers*, ch. II; Snell (1985) *Annals*, p. 56; Boyer, *English Poor Law*, pp. 41-2.

⁵ Bowley (1899) 'The statistics of wages'; Phelps-Brown and Hopkins (1956) 'Seven centuries'.

More recently the budgets of Davies and Eden have been used by historians in two areas of debate. First are those interested in labour markets, wage levels and standards of living during the period of the industrial revolution Crafts (1980) used the studies, alongside that of Neild's on Lancashire, to estimate the income elasticity of demand for food during the industrial revolution.⁶ Lindert and Williamson (1983) utilised the wage data from Davies and Eden in their reassessment of living standards.⁷ Horrell and Humphries (1992, 1995, 1996) used the Eden and Davies budgets to investigate various questions connected to workers' living standards between the 1780s and 1860s., as did the new cost-of living index constructed by Feinstein (1998).⁸ Within this strand of the literature only one attempt, by Sokoll (1991), has been made to analyse Davies and Eden's budgets in isolation.⁹ Focusing on earnings, and the balance between earnings and expenses, Sokoll revealed the level of deficit in the budgets, and discusses the ways that poor families might have made these up.

The second area of debate is also linked to the standard of living but centres on labourers' diets and nutritional standards. Davies and Eden's budgets have proved a rich source for historians concerned with calorific intake. Shammass (1990) calculated that the national average calorific intake in the late 18th century ranged from 2,500 to 2,700 in terms of adult male equivalent units. This largely corroborated Fogel's daily calorific consumption figure of 2,826 for the 1790s.¹⁰ This, it followed, fell way below the needs of an early modern labourer, and some would have struggled to perform sustained heavy manual work, even allowing for the smaller stature of 18th century adults (Floud *et al* 2011).¹¹ This has been questioned by Muldrew (2011), who contends that food consumption levels were significantly underestimated in Davies and Eden as they were conducted during a period of high food prices when consumption had to be cut back. His calculations based upon a wider range of sources reaches a figure of 5130 calories for men, 4176 for women (at 0.8 male equivalent) and 2625 for children (at 0.5 male equivalent) in 1800. Muldrew calculations also

⁶ Crafts (1980), 'Income elasticities of demand'.

⁷ Lindert and Williamson (1983), 'English workers' living standards'.

⁸ Horrell and Humphries (1992), 'Old questions, new data'; Horrell and Humphries (1995), 'Women's labour force participation'; Horrell (1996), 'Home demand and British industrialisation'; Feinstein (1998), 'Pessimism perpetuated'

⁹ Sokoll (1991), 'Accounting the unaccountable'.

¹⁰ Shammass (1990), *Pre-Industrial Consumer*, ch. 5

¹¹ Floud, Fogel, Harris and Chul Hong (2011) *The Changing Body*, pp.119-133

make allowance for the energy derived from beer consumption, which is under-recorded in Eden and Davies budgets.¹² Horrell and Oxley (2012) have investigated the relationship between dietary quality and its impact on physical stature. They identify a positive relationship between regional diet and height in Eden's budgets, which had largely disappeared by the 1830s.¹³

It cannot be claimed therefore that Davies and Eden are newly discovered sources or that they have been neglected or under-utilised by historians. Why revisit them? We believe that despite their prominence, these sources have not been fully reappraised from the point of view of their original rationale – an investigation of the characteristics of poverty in the late 18th-century countryside. Davies and Eden's surveys need to be understood within the context of the growing debate on poverty, the cost of poor relief and the reform of the poor laws in the last quarter of the 18th century. Davies chided parliament for not enquiring into the actual circumstances of the poor at the same time as collating returns for poor-rates in 1775 and 1785. '... a perfect knowledge of the state of the poor', he argued, 'is the only basis upon which any new regulations respecting them can be safely raised'.¹⁴ His budgets were intended to go some way to fill this omission. Eden expressed his rationale in similar terms and hoped that by exposing 'accurate details respecting the present state of the Labouring part of the community, as well as the actual Poor' the results of his enquiries 'would be acceptable to the Public'.¹⁵ This unity in motivation should not distract from their distinct ideological positions however. Davies defended the right of the poor to relief, whilst Eden championed self-help and independence.¹⁶ This divide is indicative of other significant differences in approach between the two men, with the timing of their surveys and the methodological frameworks they employed diverging in crucial ways. These will be explored in more depth in the first section below, which will provide background to the surveys.

The article will then go on to assess the extent of poverty in the late 18th-century countryside in three main parts. The first explores Davies' concept of 'tolerable

¹² Muldrew (2011), *Food, Energy*, Table 3.16, p. 156

¹³ Horrell and Oxley (2012), 'Bringing home the bacon?'

¹⁴ Davies (1795), *Labourers in Husbandry*, p. 5.

¹⁵ Eden (1797, 1966), *State of the Poor*, vol 1, p. i.

¹⁶ Sokoll (1991), 'Accounting the unaccountable', pp. 37-8

comfort'. Notions of 'comfort' were becoming increasingly significant to late 18th century debates on the poor and their treatment. The Society for Bettering the Condition and Increasing the Comforts of the Poor was founded in 1796 to 'collect information respecting the circumstances and situation of the poor, and the more effectual means of ameliorating their condition'.¹⁷ Their reports over the following two decades chronicled a vast array of philanthropic and self-help experiments that implied criticism of the poor relief system as it existed but fell short of suggesting a blueprint for change.

Although 'comfort' cast a significant influence on the language and understanding of welfare in the late 18th century it was a contested and ill-defined term. Davies was one of the first, if not *the* first to attempt to measure empirically its meaning. For him it represented the level at which families earned enough to meet the expense of daily necessities and avoid the vagaries of local poor relief systems. Although Davies does not provide an estimate of the number of households in his study that fall below the 'tolerable comfort' standard, its level is carefully specified and provides him with the means to quantify the cost of children in larger families and investigate the relationship between household size and poverty. These analytical insights were developed and applied more systematically a century or so later in Booth and Rowntree's studies of London and York, and historians have traditionally cited them as the first to define and employ a 'line of poverty'.

Gillie (1996, 2008) has questioned this orthodoxy, pointing to the existence of poverty lines devised in the 1870s and 1880s by school boards throughout England and Wales who needed to identify which children should be eligible for the remittance of school fees after the 1870 Education Act.¹⁸ He argues that the 'mistaken belief' that the poverty line was invented by Booth, and then refined by Rowntree, has 'forestalled searches for earlier poverty lines' but dismisses suggestions that earlier investigations, such as those by King, Eden, Engels and Mayhew, contain early prototypes of a Booth/Rowntree-style poverty line.¹⁹ Within this debate Davies' contribution appears to have been largely over-looked. We show that Davies' 'tolerable comfort' standard

¹⁷ Quoted in Poynter (1969), *Society and Pauperism*, p. 92.

¹⁸ Gillie (1996), 'The origin of the poverty line': Gillie (2008), 'Identifying the poor'.

¹⁹ Gillie (2008), 'Identifying the poor', p. 302; Gillie (1996), 'The origin of the poverty line', p. 716 (fn 15)

can probably lay claim to being the first poverty line based on the application of a minimum consumption standard to household income. We explore the relationship between this standard and recorded total household income in all the budgets of Davies and Eden, to assess how far expenses exceeded earnings. We also evaluate Davies' conclusions on the cost of children and find that they are largely collaborated by empirical estimates of child costs derived from Engels type food share analysis.

The next section of the article then attempts to place the significance of Davies' standard of comfort into broader historical perspective by comparing it to the later poverty enquiry conducted by Rowntree and Kendall in the Edwardian countryside. The veracity of Davies' standard is tested by applying the later poverty lines to Davies and Eden's budgets. We investigate whether Davies' standard of comfort was overly generous in comparison to later poverty lines, once changes in prices have been allowed for. The article then moves on to consider the characteristics of poverty in the budgets of Davies and Eden in more depth, first by assessing the impact of income level and household composition and second the importance of region. How significant was household size in determining whether a family has sufficient income to meet a contemporaneously defined poverty line? How far was the ability of a household to meet 'tolerable comfort' dependent upon the earnings of women and children? Were labouring families better off, as widely believed, in the north than the south?

2. The Sources

Davies began his investigation by collecting the household income and expenditure of six families from his own parish of Barkham in 1787. He expressed the results into a standardised table, which he then sent out to fellow clergymen across Britain asking them to supply identical details for labouring families in their community. He received 34 responses, which, alongside his own, amounted to 134 household budgets. These he took to be representative of the population as a whole.²⁰ Davies' budgets span the years 1787 to 1797 but well over half fall between the years 1789 and 1790.²¹ Eden meanwhile eschewed the pitfalls of the self-selecting postal response, which he believed could be influenced by 'Private opinion and private

²⁰ Brunt (2001), 'The advent of the sample survey', p. 186.

²¹ 45 per cent are from 1789 and 15 per cent from 1790.

passions'. Instead he engaged the services of a researcher who travelled the country for twelve months 'for the express purpose of obtaining exact information', furnishing him with a set of queries relating to occupations, wage levels, price of provisions, the state of cultivation, poor relief, and the diet, earning and expenditure of labouring families.²² For Brunt (2001) this approach means that Eden's data suffers 'less severely from sample selection biases and 'may therefore be more useful to historians'.²³ From 16 parishes, 68 budgets were collected and published in the same tabulated form as Davies'. In addition, Eden published a number of budgets embedded in the text of his three volume study. In total we have extracted 208 budgets of agricultural labourer's and their families from the two studies. Eden's budget dates are slightly later than Davies', falling between 1792 and 1796, with just over half being collected in the year 1795.

The budgets were collected during a period of severe economic stress and rapid wartime inflation. The outbreak of war with France coincided with poor harvests in 1793 and 1794, interrupting the supply of agricultural produce and forcing the price of wheat to rise. In the 1790s it stood at 77s a bushel (it had been 37s in the 1770s).²⁴ Population figures also sustained an upward trajectory: in 1750 the population of England stood at around 5.7 million; by the turn of the 19th century it was 8.7 million. The link between population growth and price rises have been made by Overton (1996).²⁵ The wages of agricultural labourers also rose during the war years, when, according to the Bowley-Wood index 'average earnings in a normal week' increased from 57 in 1792 to 103 in 1814. But set against rapidly rising food prices, which as whole doubled between 1770 and 1800, real wages stagnated at best. This is shown in a wage series from Cobham Hall, Kent, where real wages throughout the war years stood below the 1790 level. In 1795, a year of real crisis and the one, as we saw above, when the majority of Eden's budgets were collected, real wages stood at 86 (1790=100).²⁶ It was this crisis that compelled Eden into action. In his preface he stated that the 'difficulties' labourers faced in the years 1794 and 5, the 'high price of grain, and of provisions in general, as well as of clothing and fuel', had induced him

²² Eden (1797, 1966), *State of the Poor*, vol I, p. ii

²³ Brunt (2001), 'The advent of the sample survey', p. 187

²⁴ Muldrew (2011) *Food, Energy* p. 12

²⁵ Overton (1996), *Agricultural Revolution*, p. 65

²⁶ Armstrong (1988), *Farmworkers*, p. 53

‘from motives both of benevolence and personal curiosity, to investigate their condition in various parts of the country.’²⁷ There is extensive comment in Davies on this question, for this, he tells us, is also what originally motivated his study in Barkham:

These poor people, in assigning the cause of their misery, agreed in ascribing it to the high prices of the necessities of life. “Every thing (said they) is so dear, that we can hardly live.” In order to assure myself, whether this was really the case, I enquired into the particulars of their earnings and expenses.²⁸

<Insert Fig. 1 about here>

Together Davies and Eden have been accused of geographical bias. Sokoll has argued that the arable south-east is ‘heavily over-represented in both samples’, but this is an exaggeration.²⁹ As Fig 1 shows, just over half of all Eden’s budgets are taken from south-eastern and Home Counties, over a third come from northern and south-western counties. Davies’ coverage is more even still, with both the south-east/Home Counties and south-west accounting for just over a third of all budgets each, and northern counties making up just over a fifth of budgets. Although the regional distribution of the budgets is not even, it allows us to investigate how far region had an impact on the incidence of poverty in the late 18th-century countryside. The authors themselves were conscious of several outward differences that existed between northern and southern labourers. Eden in particular described a gulf between what he saw as the independent and well-nourished northern labourer and his inferior southern counterpart:

It appears, for instance, that a labouring man in the county of Cumberland can, and does, earn nearly as much by his labour, as one in the same sphere of life in Hertfordshire; whilst his expenditure, (more especially in the articles of diet and apparel,) is comparatively insignificant. From his superior economical skill and care in culinary contrivances, he can often indulge himself in many savoury dishes, (even of meat,) which the labourer of the South can scarcely ever afford ...³⁰

²⁷ Eden (1797, 1966), *State of the Poor*, vol 1, p. i.

²⁸ Davies (1795), *Labourers in Husbandry*, p. 6.

²⁹ Sokoll (1991), ‘Accounting the unaccountable’, p. 39

³⁰ Eden (1797, 1966), *State of the Poor*, vol I, p. vii.

How far these differences are substantiated in the budgets will be examined below in section 5.

Fogel et al (2011) compare household income recorded in the Eden and Davies budgets with the estimated size distribution of household income in the third quarter of the 18th century. In both studies, recorded household income is a little below the estimate population median (£24.50 in 1759 pounds). But because in the population median income was only 53 per cent of mean income, they argue that the Eden and Davies households straddle a modern poverty line defined as household income less than 50 per cent of the mean. However, none of the households in the two studies are ultrapoor, using Williamson and Lindert's (1982) definition of household income of less than £10 per week in 1759 pounds. The ultrapoor would have been a sizeable group at this time (about 20 per cent of the population), mainly composed of paupers and vagrants.³¹

In terms of household composition, the two collections display much homogeneity. Both are dominated by two-parent families: just over 90 per cent of Davies' and 95 per cent of Eden's families fall into this category. Only 9 of Davies' budgets and 3 of Eden's were taken from one-parent families, and multi-generational households are non-existent. The predominance of complete families is anomalous: in early modern families just over 20 per cent of children had lost one or other parent (fathers more likely than mothers), whilst the figure for Humphries' working-class autobiographers was just over 28 per cent.³² Families with 3 of 4 children form 32 per cent of Eden's and 47 per cent of Davies' accounts, whilst 29 per cent of Eden's and 31 per cent of Davies' families have between 5 and 6 children. There is however a trend towards smaller families in Eden than Davies. 37 per cent of families consist of 2 children or under in Eden, but only 17 per cent of Davies' fall into this category. The mean number of co-residing children in Davies is 4.05, whilst in Eden it is 3.62.³³ In comparison Sokoll found that the average household composition in Ardleigh, Essex

³¹ Fogel *et al* (2011), *The Changing Body*, pp.91-3

³² Humphries (2010), *Childhood and Child Labour*, pp.63-4

³³ Armstrong (1988), *Farmworkers*, p. 257 fn 98.

in 1795-6 was 2.1 co-residing children in the average 'non-pauper' household and 3.41 in the average 'pauper' household (those in receipt of poor relief).³⁴

This had led to the accusation that both authors, consciously or not, amassed budgets from families at a 'tipping' point in the lifecycle when the strain on resources was at its height.³⁵ Fewer children are wage earners in Davies' accounts (46.5 per cent against 61.7 per cent in Eden), whilst more women are wage earners in Eden (82 per cent against 73 per cent in Davies). But only 21 households across both sources had no women or children working. Sokoll concludes that despite their high rates of activity, women's contribution to the family income was 'relatively limited', amounting to about 10 per cent of total family earnings, and did not really vary with family size. 'It was children who made the difference', he argues.³⁶ This claim will also be tested further in section 5.

How accurate are the recorded figures for household earnings and expenditure in Davies and Eden's accounts? The authors themselves were fully aware of the difficulties in capturing accurate information, particularly in relation to earnings. Eden confessed that it was very tricky to ascertain 'with great precision' the annual earnings of the working poor. For this he blamed the labourers' furtiveness and inattention to detail:

Some men are so habitually careless, that they are totally unable to give any satisfactory information; others, who could give tolerable answers, think that enquiries concerning them can have no important object in view, and are therefore inaccurate; and a third class, (which is by far the most numerous,) are so apprehensive that the ultimate object of questioning them is to effect a reduction in their wages, or something equally disagreeable, that they are unchangeably mysterious and insincere.³⁷

He suggested that labourers often estimated their earnings based upon the average of the parish rather than what they were actually paid and concluded that 'if the expenditure is not exaggerated, the income is, in most instances, considerably under-rated'.³⁸ With his sympathies lying elsewhere Davies held employers responsible for

³⁴ Sokoll (1993), *Household and family*, p. 157.

³⁵ Armstrong (1988), *Farmworkers*, p. 42.

³⁶ Sokoll (1991), 'Accounting the unaccountable', p. 41.

³⁷ Eden (1797, 1966), *State of the Poor*, vol I, p.xxvi.

³⁸ Eden (1797, 1966), *State of the Poor*, vol I, p. xxvii.

confusion over wage rates. ‘It is not easy to come at the exact earnings of a day labourer’, he argued, ‘as the farmers keep no regular account of the distinct payments made to each labourer’.³⁹ The variety of payment methods in late 18th-century agriculture, with daily and weekly wages commonly existing alongside piece and task rates and assorted systems of payments in kind, make them susceptible to mis-recording. Despite these drawbacks historians who have used the budget records have been convinced by their thoroughness. Crafts points out that ‘Each of the budget studies was presented with a detailed commentary by the author and it is clear that they were all conducted with great scrupulousness’, a conclusion echoed by Sokoll who argues ‘There is no indication that the accounts were fiddled. On the contrary, they reveal a numerical scrupulousness which practically excludes the possibility of deception through ideological bias’.⁴⁰

Nevertheless, we find good reason for regarding the weekly earnings data as being more reliable than the annual total expenditure data. Davies’ and Eden’s fixed format tables provide weekly accounts of purchases. These are nearly all food expenditures, with a small amount of other household necessities, such as candles, matches and soap. The supporting text usually also provides additional information relating to household expenditures on housing, clothing, sickness and burials and fuel. These are not observed expenditures, but estimates by the investigator of the minimum that a household in the parish typically spent in a year on these items. Quite often these show no variation between households of different sizes – so, for instance, rent or fuel and lighting costs are assumed by the investigator to be the same for all households. In other cases, effort has been made to adjust these expenditures in accordance with varying household composition. We have further doubts about the reliability of these annual expenditure figures based on an empirical investigation of the relationship between the proportion of total expenditure on food (food share) and total expenditure. We find a weak positive relationship between food share and total expenditure, which seems implausible, whereas we find the expected negative

³⁹ Davies (1795), *Labourers in Husbandry*, p. 14.

⁴⁰ Crafts (1980), ‘Income elasticities of demand’, p. 155; Sokoll (1991), ‘Accounting the unaccountable’, p. 37.

relationship between food share and total earnings.⁴¹ For these reasons, all of the analysis we present here is based upon the records of weekly food purchases and total household earnings.

3. Poverty, ‘tolerable comfort’ and the cost of children in 1787

Both Eden and Davies make comment on the shortfall of agricultural labourer’s income, relative to their expenditures. Towards the end of his preface Eden anticipates that much comment will be made about the fact that ‘in most of the communications respecting labourers’ household accounts, their expenses exceed their earnings’.⁴² Whilst their investigations pre-date the more famous urban poverty enquiries of Booth and Rowntree by a century or so, it is clear at least from Davies’ analysis of the budgets that he collected, that he was motivated to estimate empirically whether or not agricultural labourer’s households had sufficient income to purchase basic necessities, allowing for all wages from employment. So, for example, he tells us that for the six Barkham households from which he collected details of income and expenditure at Easter 1787, two had ‘earnings so inadequate to supply of their wants’ and the remaining four households have a significant deficiency in earnings.⁴³

From an analysis of the average income and expenditures of these four households, Davies offers a figure of £26 as being the ‘sum that will suffice for the annual maintenance of such a family whenever bread made from wheat is commonly eaten.’⁴⁴ The mean earnings of these four households were £22. 15s, giving a shortfall of £3. 5s per annum from this ‘wheat bread’ standard. However, Davies also suggests a figure of £30. 5s per annum as being the sum, ‘.... labouring families should earn yearly, to enable them to provide for themselves all necessaries, and to live in tolerable comfort, independent of parochial assistance’.⁴⁵ For Davies, ‘tolerable comfort’ included the income necessary to brew ‘small beer’ from one bushel of malt a month and the ability to pay for children’s schooling.⁴⁶ The average shortfall of

⁴¹ In a regression with the share of food in total expenditure as the dependent variable and household size and weekly total expenditure as the independent variables, the coefficient on total expenditure is 0.03 (t=1.75).

⁴² Eden (1797, 1966), *State of the Poor*, vol I, p. xxvi.

⁴³ Davies (1795), *Labourers in Husbandry*, p. 23.

⁴⁴ Davies (1795), *Labourers in Husbandry*, p. 23.

⁴⁵ Davies (1795), *Labourers in Husbandry*, p. 24.

⁴⁶ Davies (1795), *Labourers in Husbandry*, p. 24. The cost of beer was £3.15s and schooling 10s, making an additional £4.5s per annum to be added to the £26 ‘wheat bread’ standard.

£3.5s from Davies' 'wheat bread' standard of £26 per annum at 1787 prices was a sum sufficient to 'maintain one young child'.⁴⁷ The four household accounts that he analysed were from two couples with three children, one couple with four children and another with two children. It is clear, therefore, that both Davies' 'wheat bread' standard of £26 per annum and his 'tolerable comfort' figure of £30. 5s per annum (140d per week) referred to a household comprising a man, wife and three small children:

.... we may infer, that the present wages of a labouring man constantly employed, together with the usual earnings of his wife, are barely sufficient to maintain in all necessaries, independent of parish relief, the man and his wife with two children: and that the sum of their earnings would be insufficient for this, if poor people were to allow themselves small beer in common.⁴⁸

<Inset Table 1 about here>

Table 1 translates Davies' observations into an equivalence scale for households of differing composition at 1787 prices. Clearly these are fairly crude linear scales that make no allowance for consumption economies of scale.⁴⁹ Prices were around 25 per cent higher in 1797 than they had been a decade earlier. The effect of these price changes on our calculations is to modestly increase Davies' poverty line through the late 1780s and early 1790s, and significantly increase it from the mid-1790s onwards. These adjustments also make children relatively more expensive at the end of the period than they had been at the beginning. The cost of children in Davies' scales rises from 15d per week in 1787 to about 20d per week in 1797.

We are able to compare Davies' assumptions about the cost of children with estimates of the child costs derived from the household budget data. Engel observed that as household income increased food consumption did not increase proportionately; in fact, the proportion of income spent on food decreased as households become richer.⁵⁰ The food share of the household budget is also dependent upon household structure

⁴⁷ Davies (1795), *Labourers in Husbandry*, p. 24.

⁴⁸ Davies (1795), *Labourers in Husbandry*, p. 24.

⁴⁹ The cost of a couple in the 'tolerable comfort' standard is net of the 10s per annum (about 2d per week) that Davies allowed for children's schooling.

⁵⁰ Deaton and Muellbauer (1986), 'On Measuring Child Costs'.

and *ceteris paribus* a larger household of the same income level will spend a higher proportion of its budget on food than a smaller household. As it is assumed that households have the same level of welfare if they have the same food share, the cost of children can be calculated as the income necessary to maintain the household at the food share they had before having an the additional child. This type of child cost calculation, based upon Engel's food share assumptions, is likely to provide relatively high estimates of the cost of addition children relative to the cost of additional adults and tend to over-state the true costs of children to the household.⁵¹ Other types of child costs estimates, based, for example, upon the expenditure share on adult goods, are not available to us because of poor recording of non-food expenditures in the survey.

We estimate of the cost of children from standard food-share equations using the 208 household budgets collected by Davies and Eden between 1787 and 1796, where the share of food in family of type k is:

$$S_k = a + \beta_1 \log X_k + \beta_2 \log N_k + \beta_3 C/A_k + e_k \quad (1)$$

Where S is the share of food in total earnings, X is total household earnings, N is household size, C/A is the ratio of children under 16 years to adults in the household and e_k is an error term. The results are reported in Table 2. All the parameters have the expected sign and are significant at the 5 per cent level.

<Insert Table 2 about here>

⁵¹ This is because food share does not correctly identify welfare across households with different compositions. Deaton provides an example that illustrates this case, where a child is born to a childless couple. If the couple is compensated in money terms for the child (defined as the amount needed to provide for the child's needs without affecting the couple's consumption), their welfare is unchanged compared with when they were childless. However, the child's consumption pattern will be different to its parents, as food is likely to account for a higher share of its consumption. In consequence, the food-share of the couple with child will be greater than the couple when they were childless and according to Engel, their welfare is reduced, despite the fact that they have additional income that allows them to maintain their pre-child consumption pattern. See Deaton (1997), *Analysis of Household Surveys*, pp. 251-55.

From the estimated coefficients on household size and structure, it is possible to derive equivalence scales between adults and children. These are reported in Table 3. The cost of children depend upon household size and the derived equivalence scale shows economies of scale as the cost of an extra child decreases as household size increases. The average household in Davies and Eden's survey comprised a couple plus 3.8 children. For this household structure, we estimate the cost of a child as being 75 per cent of an adult. This compares with Deaton's estimates for child costs in India and Pakistan in the 1980s of between 48 and 84 per cent, using a similar form of estimation.⁵²

<insert Table 3 about here>

In terms of the monetary cost of children, average total household income in the surveys is 122d per week. Average household size is 5.8 persons, which we estimate to be equivalent to 4.85 adults. Therefore, we estimate that across all the households for which we have budget data, on average an adult to cost 25d per week and a child 75 per cent of this sum, which is 18.75d per week. This result is in the very close to Davies' own estimate of the cost of children, which allowing for inflation, is in the range of 15d-20d per week. However, unlike Davies, we find clear economies of scale with respect to household composition, as the cost of an additional child falls as household size increases.

Turning now to Davies' poverty line, we apply Davies standard given in Table 1 to the 208 agricultural worker's household budgets collected by Davies and Eden between 1787 and 1797, allowing for the significant price inflation between these dates. Fig 2 shows a frequency distribution of the gap between Davies' standard of 'tolerable comfort' and recorded total household earnings (including parish relief). This is expressed in old pence (d) per week. In the figure, Davies 'tolerable comfort' standard is zero on the horizontal axis and it can be seen that the vast majority of households fall below this. The average shortfall across all 208 households included

⁵² Deaton (1997), *Analysis of Household Surveys*, Table 4.6, p. 253.

in Davies and Eden's investigation is about 51d per week – about three times the cost of maintaining a child in 'tolerable comfort' at 1787 prices (£3.5s per year equals 15d per week). Only 10 of the 208 households had earnings sufficient to meet this standard and only one of those exceeded the standard by more than Davies' estimate of the cost of maintaining a child at 1787 prices. If we compare households earnings to Davies' cheaper 'wheat bread' standard, about two dozen more households have earnings that are able to meet this standard.

<Insert Fig 2 about here>

Fogel et al (2011) compare household income recorded in the Eden and Davies budgets with the estimated size distribution of household income in the third quarter of the 18th century. In both studies, recorded household income is a little below the estimate population median (£24.50 in 1759 pounds). But because in the population median income was only 53 per cent of mean income, they argue that the Eden and Davies households straddle a modern poverty line defined as household income less than 50 per cent of the mean. However, none of the households in the two studies are ultrapoor, using Williamson and Lindert's (1982) definition of household income of less than £10 per week in 1759 pounds. The ultrapoor would have been a sizeable group at this time (about 20 per cent of the population), mainly composed of paupers and vagrants.⁵³

4. Davies' poverty line in historical perspective

Rowntree's famous study of poverty in the city of York in 1901 was followed by a study of poverty in the countryside in 1913. In *How the Labourer Lives*, Rowntree and his fellow investigator Kendall, recorded the household structure and budgets of 42 rural families from counties geographically dispersed in England.⁵⁴ This study of conditions in the countryside bore some similarity to his more famous urban investigation, although Rowntree was aware that conditions in rural England did not lend themselves to an income-based study as in York.⁵⁵ In *How the Labourer Lives*, Rowntree and Kendall are particularly interested in the adequacy of the household

⁵³ Fogel et al (2011), *The Changing Body*, pp.91-3

⁵⁴ Rowntree and Kendall (1913), *How the Labourer Lives*, pp. 27-35.

⁵⁵ Freeman (2003), *Social Investigation*, p. 116

diet (judged against contemporary nutritional standards) and the various ways in which agricultural labourers' households 'make ends meet'. Relatively little space in the book is devoted to the measurement and analysis of the incidence of rural poverty *per se*.

Rowntree and Kendall employ a similar methodology as Rowntree utilised for his study of York. This involved costing a diet that would meet contemporary nutritional standards and combining this with estimates of the minimum cost of rent and other necessities. Rowntree and Kendall allow only 2s per week for rent.⁵⁶ In much the same way as Rowntree approached the question of minimum expenditures for non-food items in York, they suggest minimum non-food poverty line expenditures based on the actual expenditures on these items recorded in rural household budgets.⁵⁷ Their overall rural poverty line is 20s 6d for a family of two adults and three children (including 2s for rent).⁵⁸ They do not provide details of their rural poverty line for households with different compositions, simply stating that they 'adopt the standard set forth in "Poverty"', merely making such modifications as are necessitated by differences between rural and urban conditions, and the cost of living then and now.⁵⁹ They also offer no estimate of the overall proportion of rural households in poverty, but they find that average earnings in every county in England and Wales were below this poverty line, with the exception of earnings in five counties. All these were situated in the north of England: Northumberland, Durham, Westmorland, Lancashire and Derbyshire. However, Rowntree and Kendall remind us what the implications are for Edwardian agricultural labourers living at a poverty-line income:

It means that from the point of view of judicious expenditure, the be all and end all of life should be physical efficiency. It means that people have no right to keep in touch with the great world outside the village by so much as taking in a weekly newspaper. It means that a wise mother, when she is tempted to buy her children a pennyworth of cheap oranges, will devote the penny to flour instead. It means that the temptation to take the shortest railway journey should be strongly resisted. It means that toys and dolls and picture books,

⁵⁶ Rowntree (1901) allowed rent to vary with household size, ranging from 2s 6d for a couple to 5s 6d for a household with four or more children.

⁵⁷ Rowntree and Kendall (1913), *How the Labourer Lives*, pp. 310-313

⁵⁸ Rowntree and Kendall (1913), *How the Labourer Lives*, p. 30

⁵⁹ Rowntree and Kendall (1913), *How the Labourer Lives*, p. 27. It is clear, however, that the different treatment of rent accounts for only part of the difference in the poverty line between Rowntree 1901 and Rowntree and Kendall 1912

even of the cheapest quality, should never be purchased; that birthdays should be practically indistinguishable from other days. It means that every natural longing for pleasure or variety should be ignored or set aside. It means, in short, a life without colour, space, or atmosphere, that stifles and hems in the labourer's soul as in too many cases his cottage does his body.⁶⁰

While recognising it is problematic to judge the extent of poverty in late 18th century England using an early 20th-century poverty standard, the application of Rowntree's poverty line (re-calculated at 1788-97 prices) to Davies and Eden's household budgets provides a benchmark by which to judge the generosity of Davies' standard of 'tolerable comfort'. Rowntree and Kendall's (1913) rural poverty line for a household of two adults and three children, and Rowntree's (1901) poverty line for different household compositions, are given in Table 4, at 1787 prices, with Davies 1795 'Tolerable Comfort' standard for comparison. For the reference household, Rowntree and Kendall's standard is 28 per cent higher than Davies' (179/140d) at 1787 prices. Notice that Rowntree in 1901, like Davies, does not provide for economies of scale in consumption, so that extra children were seen as a fixed cost, although Rowntree treats children as representing significantly greater costs than did Davies.⁶¹ Not surprisingly, therefore, a greater number of late 18th-century households would fall below Rowntree's line than Davies'. So, on the basis of this comparison, we conclude that Davies' finding – that the vast majority of the rural households surveyed had income insufficient to meet his 'tolerable comfort' standard – is not the result of an overly generous poverty-line. Moreover, Davies' treatment of children as fixed cost, with no scale economies, was a practice that was also enshrined in Rowntree's poverty-line calculations a century later.⁶² Because scale economies do exist, this assumption leads to an overly generous poverty line for larger households.

<insert Table 4 about here>

⁶⁰ Rowntree and Kendall (1913), *How the Labourer Lives*, pp. 312-3

⁶¹ Because poverty-line rent costs increased with household size in a lumpy, step wise fashion, each child cost between 27d and 35d in Rowntree's (1901), compared with 15d in Davies' tolerable comfort standard. As can be seen from the poverty-line calculations that exclude rent, all of this variation is due to Rowntree's poverty-line housing costs.

⁶² Gazeley and Newell (2000) 'Rowntree Revisited: Poverty in Britain in 1900' show that this assumption led Rowntree to significantly over estimate the extent of primary poverty in York.

5. Characteristics of poverty in the late 18th-century countryside

What characteristics explain the extent to which households were or were not able to meet Davies' standard of 'tolerable comfort' in the late 18th-century countryside? We explore this by analysing the impact of household composition, female and child earnings, age of children and region (defined by the prevailing wage in the county). Before we discuss these results however it is worth noting the significance and variability in male weekly earnings. Figure 3 shows a frequency distribution of weekly male earnings, with a mean of about 91d. Almost the entire sample had earnings between 70d and 125d per week (only 24 men had earnings outside of this range), although this pattern varied on a regional basis. A small number of households recorded no male earnings for the week of the survey, either because the man had no work that week through illness or hard times (and in these cases there would normally be a contribution from the parish), or because the household was female headed.

On the basis of what we have established relating to the costs of maintaining a child (about 15d a week in 1787 prices and 20d by 1797 according to Davies), it can be seen that the ability of a household to meet Davies' standard is likely to be highly dependent upon two factors: firstly whether the male worker is above or below mean male earnings and secondly, whether there are supplementary earners contributing to the household budget. Mean male weekly earnings of 91d per week is equivalent to an annual income of just under £20, which if he has a wife and three small children, is still below Davies' £26 'wheat bread' standard and significantly below his £30. 5s 'tolerable comfort' standard. In consequence nearly all households were dependent upon the extra earnings of the wife and or children.

<insert Fig. 3 about here>

How far did household size and the earnings capacity of women and children modify this shortfall? The results of OLS regression are shown in Table 5. The dependent variable in this regression is the gap between Davies' 'tolerable comfort' standard (S) and recorded household earnings (Y) relative to the standard; that is: $((S - Y)/S)$. The value of this variable for the Davies and Eden household budgets is in the range -0.68 to +0.48. The results reported in Table 5 suggest that Davies was correct to focus on

the impact of larger family size on the household's ability to meet his standard of 'tolerable comfort'. This is the single largest coefficient and suggests that a 10 per cent increase in household size would lead to the family being 6 per cent further away from Davies' *tolerable comfort* poverty line.

<insert Table 5. About here>

Poverty is reduced as the age of the first child increases, almost certainly reflecting the child's increased earnings contribution. In about half the households in Davies' and Eden's investigations, the children made no contribution to the household economy. Of those children that were working, the variance in earnings was considerable. This is shown in Figure 4. This variance in earnings is largely explained by the age of the oldest child. Davies recognised this in his commentary on the budgets from Stinsford, Dorset, which returned annual incomes in excess of expenditures of between 9s 11d and £2. 11s 1d. 'The exceedings ... are only owing to the age of the children', he noted, 'which enables them to contribute so much to the family stock, and to the care to supply them with constant employment'.⁶³ Some of the high earnings of children recorded by Davies and Eden actually refer to adult wage levels for children over 18 years.⁶⁴

<insert Fig.4 about here>

Figure 5 provides a stem and leaf plot that shows the relationship between children's earnings and the age of the first child. This shows that households with young children who were not earning would, other things being equal, find it more difficult to provide the basic necessities. We find that other family structure variables, including the presence of very young children, were not significant and no other household economy variables were significant, including the incidence of women's

⁶³ Davies (1795), *Labourers in Husbandry*, p. 181.

⁶⁴ Davies and Eden always record the age of the oldest and youngest child, but typically the ages of the middle children are not recorded.

employment.⁶⁵ In the vast majority of Davies and Eden households, the wife was in paid work, but the average contribution to the household budget was small, at just under 10d per week. Our data also shows that the woman's earnings does not appear to be related to the level of male earnings. There was variability in women's earnings, but other than in households with extremely low male earnings, women's contribution to the household economy was, on average, typically the same whether the household had a high earning or low earning male worker, as the stem and leaf plot given in Figure 6 shows.

<insert Fig.5 about here>

<insert Fig.6 about here>

Our findings confirm those of other studies in three important ways. First the male wage is the decisive factor in determining the level of household poverty. Horrell and Humphries found that apart from factory workers and outworkers between 1787 and 1815, there was a reliance on the male wage across all periods and occupations in their study of household budgets. 'While few families were entirely dependent on husbands and fathers', they argue, 'for many families male earnings were of crucial importance'.⁶⁶ This conclusion has been recently reiterated by Humphries in her analysis of working-class autobiography and child labour during industrialisation. By the end of the 18th century, she claims, the male breadwinner/female dependent paradigm was already well-established. The reliance on the male wage could leave families 'vulnerable when men's wages stagnated or even fell'.⁶⁷ Although male earnings were key to families of the rural labouring poor they were not enough to cover basic necessities.

This deficiency was made up by other sources of income and it was children's, rather than women's earnings that made the most significant contribution. Again, this conclusion is broadly in line with the current accepted position in the secondary

⁶⁵ We experimented with a variety of household structure variables, including the presence of children in a variety of age categories. None were found to be significant and were dropped from the regression.

⁶⁶ Horrell and Humphries, 'Women's labour force participation', p.105

⁶⁷ Jane Humphries (2010), *Childhood and Child Labour*, p. 120

literature and confirms Sokoll's position that child wages were the most important to the families. Horrell and Humphries' (1997) found that mother's earnings had 'never been a mainstay of family incomes' and at best represented a tenth of families incomes. Although children's contributions varied both by father's occupation and over different time periods, in general they exceeded those of their mothers.⁶⁸ Evidence from the Poor Law Report of the early 1830s on rural family incomes across the English counties also suggests that the importance of child earnings was much greater than those of women.⁶⁹ The data on wage levels extracted from working-class autobiographies shows that young boys could earn between 10 and 20 per cent of an adult male wage and by their early teens most boys could out earn their mothers. The reliance on child earnings, rather than women's, was a rational choice according to Humphries. It needs to be understood within the context of household decision making. Child labour made more sense than women's labour because their 'rates of pay were higher, they had wider employment opportunities and unburdened by domestic cares, they could work longer hours'.⁷⁰

This leads us to the third general point: the ability of women to contribute to household income was coming under increasing strain in the late 18th century. Horrell and Humphries found that women's contribution was not consistently related to family income level but was associated with demand-side constraints. Thus low-wage agricultural families, who remained one of the poorest groups in their study throughout the period they investigated, saw relatively small levels of female (and child) contribution compared to better-off families, such as those employed in factories.⁷¹ Both Davies and Eden were aware that rural women's earnings capacity was increasingly constricted because of economic changes sweeping through both the agrarian and industrial sectors. Perhaps the most significant transformation was in the supply of spinning work. Domestic hand spinning had been a ubiquitous employment for rural women in early modern England, being complimentary to childcare and household responsibilities, and other types of paid work.⁷² It was also a boon to family income. Davies believed that spinning was one means by which women and

⁶⁸ Horrell and Humphries (1997), 'Male breadwinner family', pp.32-5

⁶⁹ Verdon (2002), 'The rural labour market', p. 318

⁷⁰ Humphries (2010), *Childhood and Child Labor*, p. 251

⁷¹ Horrell and Humphries (1995), 'Women's labor force participation', p. 105

⁷² Deborah Valenze (1995), *First Industrial Woman*, ch. 4

girls could 'bring something into the common stock' and if encouraged from an early age, instilled habits of industry and domestic comfort.⁷³ Citing the case of family consisting of a man, wife and five children where the woman and two girls earned 2s 4d a week (or £5 17s a year) in spinning, he argued that 'It is owing to the money gained by spinning, that this family is enabled to keep out of debt, and to live so decently'.⁷⁴ By the 1790s however the effects of the transition to machine spinning and the transfer of production to workshops and factories in the industrial north were being felt in rural areas. The decline of spinning wages was noted by Eden in several districts. At Seend in Wiltshire there had been a 'great reduction in the price of spinning' and the poor 'scarcely have the heart to earn the little that is obtained by it'.⁷⁵ At Kirkoswald in Cumberland, spinning wages were 'very inconsiderable: a woman must labour hard at her wheel, 10 or 12 hours in the day, to earn 4d'. At Brixworth in Northamptonshire women earned between 4d and 6d a day, sums that were 'much lower than formerly'. At Swineshead in Lincolnshire earnings from spinning were 'so extremely low that scarcely one person in ten will apply to it'.⁷⁶

Opportunities for women to contribute to the household income through agricultural labour were also restricted. Married women were traditionally employed as day labourers to perform a limited range of seasonal tasks on arable land: haymaking and harvesting, weeding and stone-picking, and planting and picking a range of root crops. The demand for women labourers was regional, with women in northern areas more likely to be employed on a wider range of work, whilst the use of heavier hand technology in the corn harvest restricted women's summer work in the south and east.⁷⁷ Women's day wages in agriculture were low in comparison to men's. Across the late 18th and early 19th century women earned between a half to a third of the male day wage in agricultural work.⁷⁸ Eden himself noted this wage gap in Cumberland. Although women performed a 'large portion' of agricultural labor it was only 'with great difficulty' that they were paid 'half as much' as men. 'It is not easy to account

⁷³ Davies (1795), *Labourers in Husbandry*, p.84

⁷⁴ Davies (1795), *Labourers in Husbandry*, p. 86

⁷⁵ Eden (1797, 1966), *State of the Poor*, vol III, p. 796

⁷⁶ Eden (1797, 1966), *State of the Poor*, vol 2 p. 84, p. 528 and p. 404.

⁷⁷ Roberts (1979), 'Sickles and scythes'

⁷⁸ Sharpe (1999), 'The female labour market'; Burnette (2008), *Gender, work and wages*; Verdon (2002), *Rural Women Workers*.

for so striking an inequality; and still less easy to justify it'.⁷⁹ Burnette claims that women were paid a market rate for their labour, their lower levels of productivity being expressed in lower wages than men: women tended to work fewer hours than men (because of household duties), were unreliable (moving in and out of the labour market due to reproduction and child rearing) and were physically weaker.⁸⁰ Taking into account childcare costs, wear and tear on clothing and footwear, and low remuneration, the ability of married women to contribute to the family income through agricultural labour may not have been cost effective.

Women and children may have been able to contribute to the household by non-waged forms of labour. In recent years historians have increasingly pointed to the range of self-provisioning strategies that constituted the 'makeshift' economy of the rural labouring poor.⁸¹ The poor availed themselves of charity, poor relief, common rights (cow keeping, fuel gathering, and gleaning), and networks of barter and exchange. They took in lodgers, washing and sewing, and pawned goods, as well as taking part in a range of less legitimate (criminal) activities. Women were adept at exploiting these opportunities and it allowed them to augment family income through means other than paid work in the formal labour market. Davies and Eden's commentaries are most revealing about the availability of common rights. According to Eden the purchase of a cow and 'the good management of the wife' could prevent the family from resorting to parish relief 'as long as the cow lasted'.⁸² One woman made 'some money by geese', another family 'made up their deficiencies by keeping two pigs and cultivating a little garden'.⁸³ Historians have attempted to clarify the value of such activities. Humphries (1990) shows that turf cuttings translated into a monetary value of around 20s, whilst the produce from keeping a cow on common land represented up to half the adult male labourers wage.⁸⁴ Shaw-Taylor (2001) suggests however that only around 15 per cent of labourers who lived in southern and eastern England had access to cow keeping rights in the late 18th century.⁸⁵ Davies

⁷⁹ Eden (1797, 1966), *State of the Poor*, vol II p. 47

⁸⁰ Burnette (2008), *Gender, work and wages*,

⁸¹ A recent overview of the range of activities is presented in Tomkins and King (2003), *Poor in England*

⁸² Eden (1797, 1966), *State of the Poor*, vol 1, p. 628

⁸³ Davis (1795), *Labourers in Husbandry*, p. 179; Eden (1797, 1966), *State of the Poor*, vol III, p. cccxli

⁸⁴ Humphries (1990), 'Enclosures', p.31 and p. 33

⁸⁵ Shaw-Taylor (2001), 'Labourers, cows, common rights and parliamentary enclosure'

himself recognised that ‘very few’ labourers could ‘afford to buy a cow’ and had nowhere to pasture her even if they could. He was concerned that enclosure was depriving labouring families of ‘some advantages which they formerly enjoyed’.⁸⁶ Not all common rights were under threat however. Eden understood that families could glean ‘as much wheat as will serve them for bread for the whole year, and as many beans as will keep a pig’.⁸⁷ King (1991) calculated that total gleanings represented between 3 and 14 per cent of the average labouring family’s annual income between 1750 and 1850, although it was specific to regions specializing in arable agriculture.⁸⁸ Women’s contribution to household income in the budgets of Davies and Eden through paid work was small but their efforts in the ‘economy of makeshifts’ may have proved crucial to keeping the family afloat. As Davies noted for four families who took in lodgers in Surrey, this ‘lessens their rent ... is not included in the weekly earnings, and which contributes to account for making up the deficiencies’.⁸⁹

Finally how far did regional location affect agricultural labourers’ households’ ability to escape poverty? Was Eden correct to draw a distinction between the ‘intelligent’, ‘ingenious’ ‘contented and happy’ northern ‘peasant’ and the ‘less provident’, ‘wanting’ ‘South-country labourer’?⁹⁰ Certainly the wage structure of the English agricultural counties would seem to confirm a growing north-south divide. Hunt (1986) has shown a movement towards high-wage counties being situated in the north by the middle of the 1790s, with low-wage areas most likely to be in the south.⁹¹ The counties included in Davies and Eden’s study include examples from low, middle and high wage counties. We included dummy variables for low and high wage counties, corresponding to Hunt’s classification. The regional dummy variable for high wage county is insignificant in the regression, suggesting that other things being equal, moving from a mid-wage county to a high-wage county to elsewhere in England generally made little difference to the household’s ability to live in ‘tolerable comfort’. In contrast, the low-wage dummy is significant in the regression, with a relatively large negative coefficient, confirming the well-known observation that

⁸⁶ Davies (1795), *Labourers in Husbandry*, p. 37 and p. 25

⁸⁷ Eden (1797, 1966), *State of the Poor*, vol II, p. 547

⁸⁸ King (1991), ‘Customary rights and women’s earnings’

⁸⁹ Davies (1795), *Labourers in Husbandry*, p. 181

⁹⁰ Eden (1797, 1966), *State of the Poor*, vol I, p. viii.

⁹¹ Hunt (1986), ‘Industrialisation and regional inequality,’ p. 941, fig 5.

households in many parts of the south of England faced the most acute difficulties in providing for their families. However, it is worth remembering that Davies and Eden's investigation was extremely localized. Often they would only collect household budgets from families in one parish in a county. It is possible that the variance in earnings *inter*-county was high relative to the *intra*-county variance. Variations within counties were frequently reported by the authors of the first series of General Views of Agriculture, produced in the mid 1790s. They often noted a divergence in wages within counties was linked to the distance from local industry. In Wiltshire in 1794 it was reported that 'The price of labour varies very much in different parts of the country ... and is chiefly affected by proximity to, and distance from, the manufacturing towns', whilst in Lancashire it was argued that the price paid for agricultural labour varied more 'than probably any other in the kingdom' depending on 'the distance of townships from the seats of manufacturers'.⁹² Complex *intra*-county divergence in agricultural wage rates is not revealed in Davies' and Eden's budgets.

6. Conclusion

We found that most rural labouring families were in poverty in the late 18th century, but not all. Applying Davies' poverty line of 'tolerable comfort' (which was less generous than the poverty line used by Rowntree and Kendall over a century later) to the 208 household budgets collected by Davies and Eden in the 1780s and 90s, suggests endemic levels of poverty across the country. Allowing for inflation, roughly four out of every five households in Davies and Eden's surveys fell below Davies' own poverty-line (171 households from a total of 208). The overall incidence of poverty among households living in low wage counties was, not surprisingly, a little higher than the incidence evident in high wage counties.⁹³ What really mattered, however, was the size of the household and the presence of children old enough to earn money to supplement the household budget. The incidence of rural poverty was, therefore, clearly influenced by life-cycle, a conclusion recently substantiated in

⁹² Davis (1794), *Wiltshire*, p. 88; Holt (1794), *Lancaster*, p. 53.

⁹³ 45 household from a total of 53 households were in poverty in low wage counties (85 percent) against 33 from a total of 45 households in high wage counties (73 percent)

Williams' study of Bedfordshire.⁹⁴ We find that the earnings of women could be important in determining whether an individual household was in poverty defined by Davies, but across the two surveys, the incidence of poverty was not highly correlated with the absence of a women wage earner. We also corroborate Davies' conclusion concerning the cost of children in the late 18th century, although he did not fully allow for economies of scale in consumption. We estimate child costs across the two surveys to have averaged around 18 or 19d, which was about 75 per cent of the cost of an adult.

Davies did not attempt to determine how many families in his study fell short of his own standard of 'tolerable comfort' but we have shown that his careful calculations allow the historian to explore the standard of living in the English countryside in the last decades of the 18th century in much more detail than previously thought.

Evaluating the standard of living of agricultural labouring families is important as they were the single largest occupational group in late 18th -century England, and for many historians are an important, perhaps the most important, bellwether for judging the impact of early industrialisation.⁹⁵ Davies' and Eden's budgets were extraordinary in several respects. They were collected during a decade of wartime inflation, rising food prices and sustained population increase. The households in their samples were biased towards complete families with several children. The families were selected precisely because they were poor, and the levels of poverty they experienced may have been exceptional. The deficits recorded in their household budgets could have been made up by other sources of income gained in the formal and informal economies. However they remain remarkable sources. Davies' standard of 'tolerable comfort' was an important early attempt at calculating the level of household income needed to meet everyday necessities. Whilst recognising the worth and utility of Davies' household budgets (alongside those of his contemporary investigator Eden), historians have overlooked his significance in the history of the development of the poverty line.

⁹⁴ Williams (2011), *Poverty*

⁹⁵ Thompson (1963), *The Making*.

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Fig 1: The regional distribution of Eden and Davies' budgets.

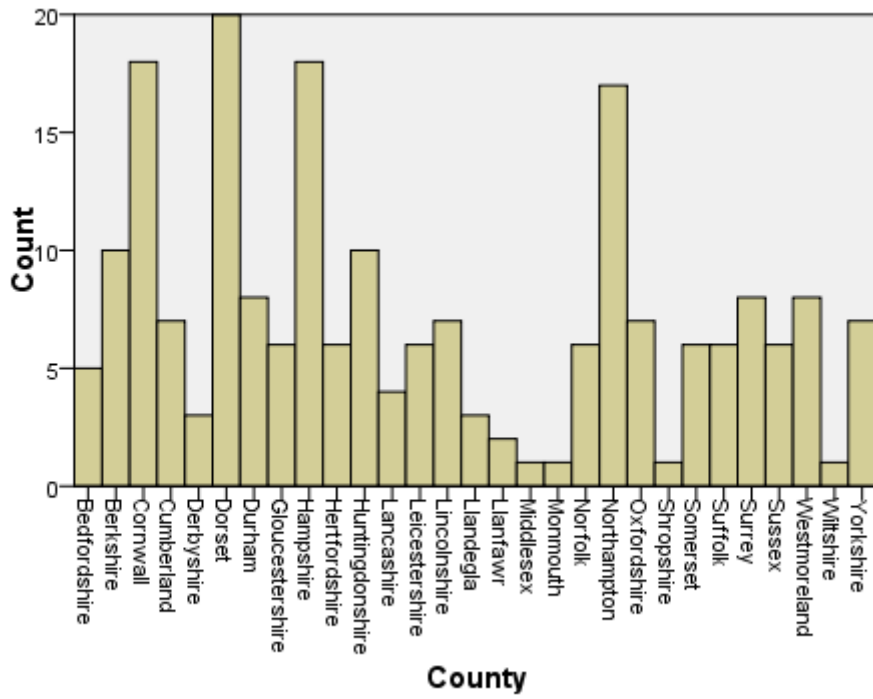


Fig 2: Frequency distribution of the gap between household earnings and Davies' standard of 'tolerable comfort'

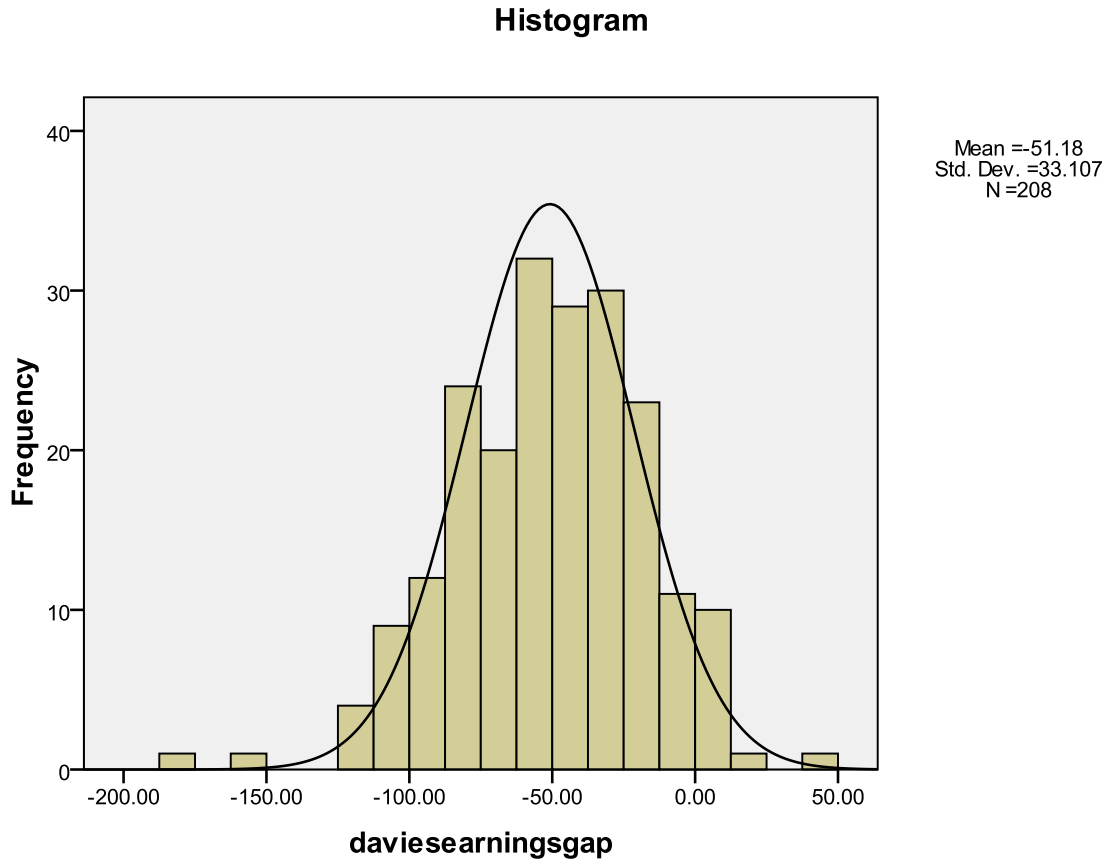
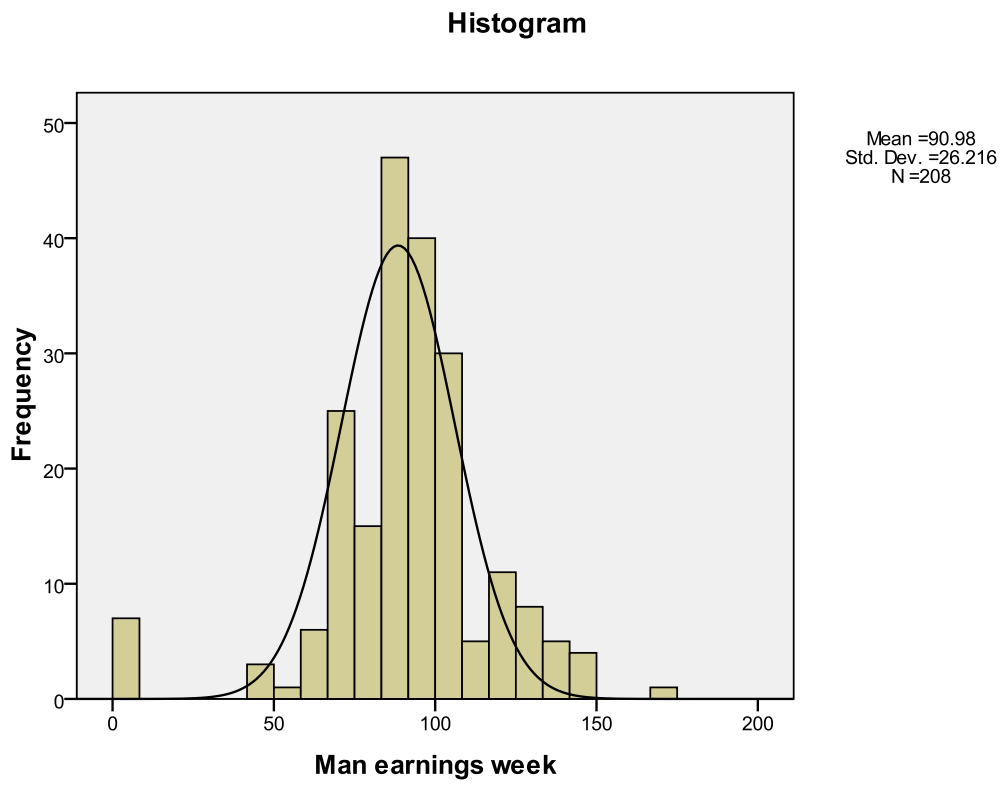


Figure 3: The distribution of male adult weekly earnings (d per week)



r.

Figure 4: Frequency distribution of children's earnings (d per week)

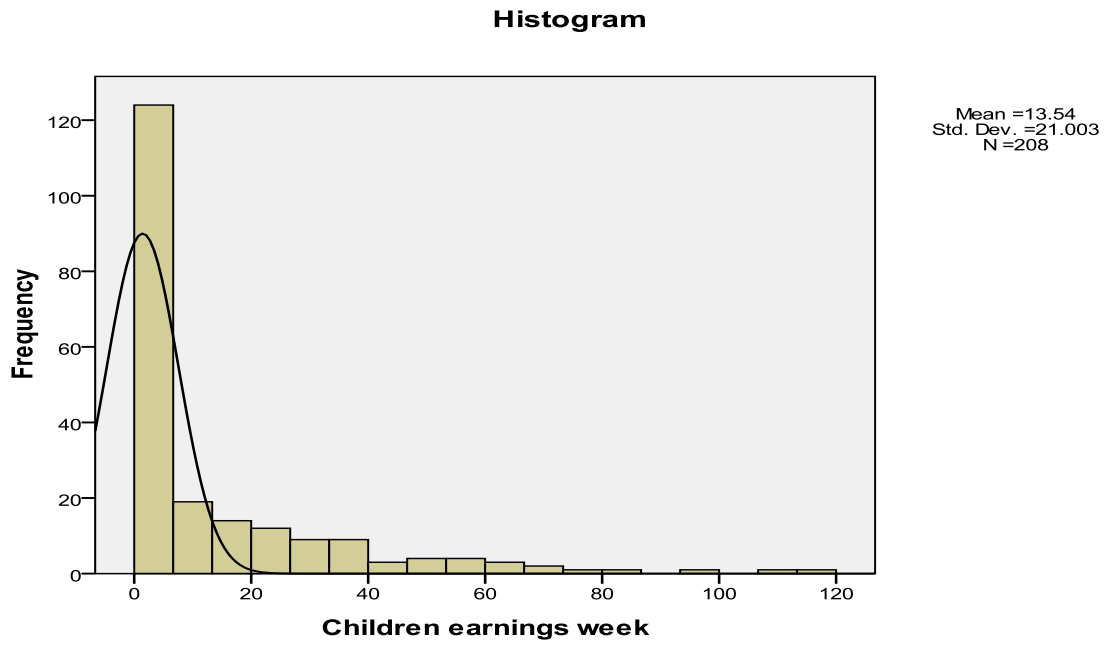


Figure 5: Children's earnings and age of first child (d per week)

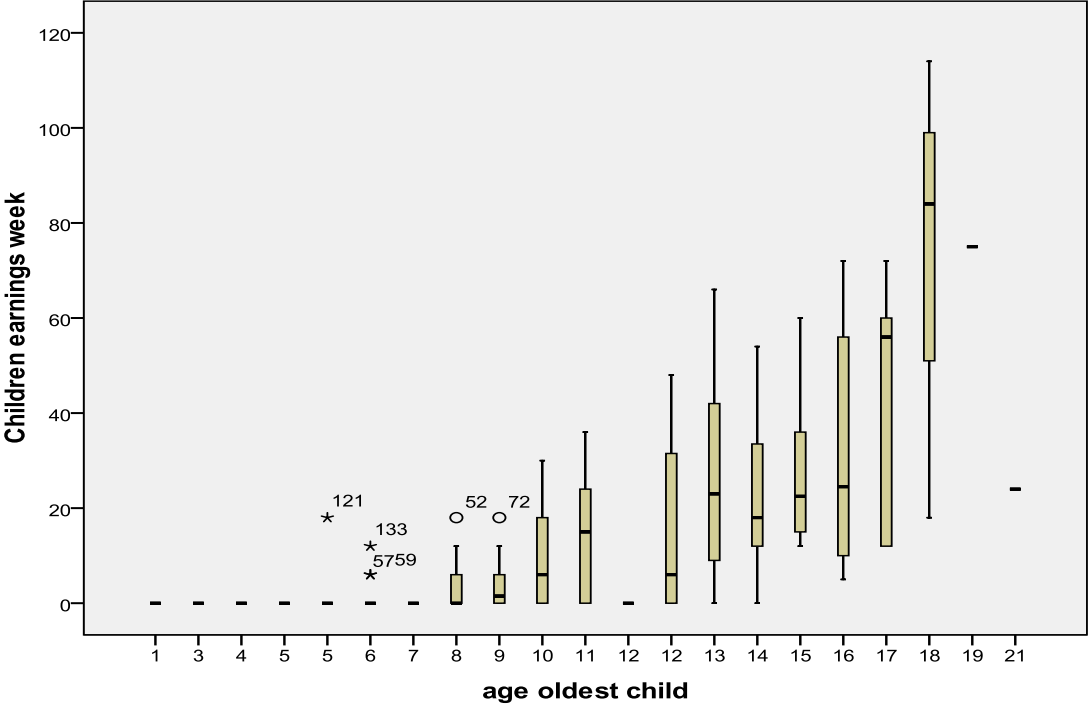


Fig 6: Women's earnings at a given level of male earnings (d per week)

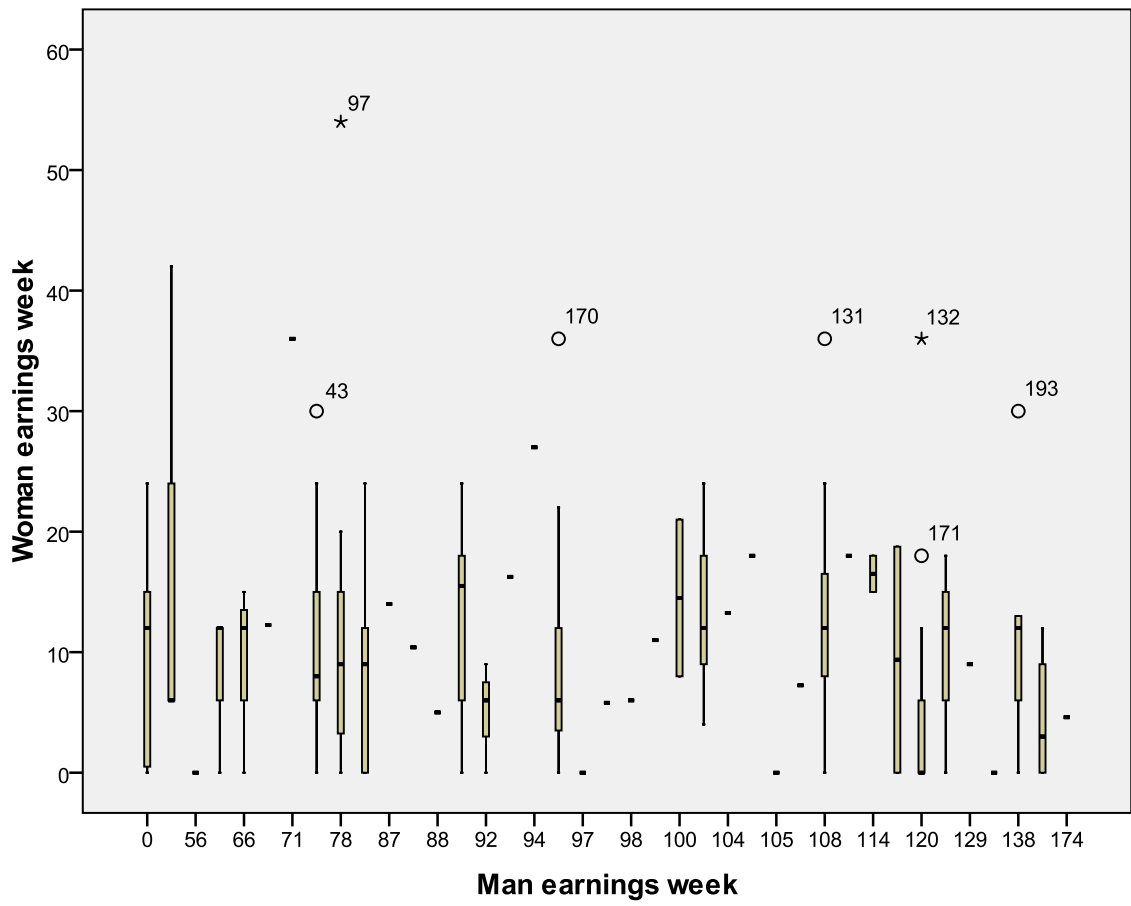


Table 1: Equivalence scales for Davies ‘wheat bread’ and ‘tolerable comfort’ standards (d per week) at 1787 prices and needs of a couple = 100

	Couple	One child	Two children	Three children	Four Children	Five Children	Six Children
‘Wheat Bread’	75d	90d	105d	120d	135d	150d	165d
‘Tolerable Comfort’	95d	110d	125d	140d	155d	170d	185d
‘Wheat Bread’	100	120	140	160	180	200	220
‘Tolerable Comfort’	100	116	132	147	163	179	195

Source: Davies (1795), *Labourers in Husbandry*

Table 2: OLS Estimated Parameters for Engel Food Share Equation. (1)

	a	β_1	β_2	β_3	F	Std Error	R square
Weekly Food Share in Total Household Earnings	1.244 (4.916)	-0.238 (-4.425)	0.480 (7.182)	-0.045 (-2.752)	22.81	0.17656	0.251

t-statistics in parenthesis

Table 3: Estimated Equivalence Scale and Child Costs from Eden and Davies budgets

<i>Household Structure</i>	<i>Child Costs</i>
Couple + 1 Child	0.86
Couple + 2 Child	0.82
Couple + 3 Child	0.78
Couple + 4 Child	0.74
Couple + 5 Child	0.71
Couple + 6 Child	0.67
Couple + 3.8 Child	0.75

Notes: The expression $\exp\left[\frac{C}{A}\right]^{\frac{\beta_3}{\beta_2}}$ gives us how the lnN term is adjusted. From the estimated parameters from equation (1), $\frac{\beta_3}{\beta_2} = -.09375$. For 1child and 2 adults, $\exp(C/A) = \exp(1/2) = 1.6487$ and $\exp\left[\frac{C}{A}\right]^{\frac{\beta_3}{\beta_2}} = 0.9541$. So here $N=3$. $3 \cdot 0.954 = 2.8624$. So a child is 0.86 of an adult.

Table 4: Rowntree (1901), Rowntree and Kendall (1912) and Davies' (1795) poverty line and cost of children at 1787 prices (d per week)

	Couple	One child	Two children	Three children	Four Children	Five Children	Six Children
Rowntree 1901 (excluding rent)	90	118	146	173	201	229	257
Rowntree 1901 (including rent)	115	142	185	213	255	283	311
Rowntree & Kendall 1912 (excluding rent)	n/a	n/a	n/a	161	n/a	n/a	n/a
Rowntree & Kendall 1912 (including rent)	n/a	n/a	n/a	179	n/a	n/a	n/a
Davies 'Tolerable Comfort' 1795 (including rent)	95	110	125	140	155	170	185
Rowntree child cost (exc. rent)		28	28	27.7	27.8	27.8	27.8
Rowntree child cost (inc. rent)		27	35	32.7	35	33.6	32.7
Davies child cost child (inc rent)		15	15	15	15	15	15

Source: Rural: Rowntree and Kendall (1913), *How the Labourer Lives*, p.30. Urban: Rowntree (1901), *Poverty a Study of Town Life*, p. 110. These poverty lines are net of rent and converted from 1899 and 1912 prices to 1787 prices using the consumer prices series given in Office for National Statistics (2004), 'Consumer Price Inflation since 1750' Table 1, p.43.

Table 5: OLS regression results for Davies' standard of tolerable comfort

<i>Estimation method</i>	<i>OLS</i>
Dependent variable	Proportion earnings gap ((S-Y)/S).
<hr/>	
<i>Family structure</i>	
Household size	-0.061* (-6.73)
Age of oldest child	0.15* (3.19)
Youngest child aged under 2 years	-0.017 (-0.60)
<hr/>	
<i>Household economy dummy</i>	
Woman working	-0.024 (-0.962)
Children working	-0.026 (0.967)
<hr/>	
<i>Regional dummy</i>	
High wage county	0.04 (1.556)
Low wage county	-0.078* (-3.201)
<hr/>	
<i>Investigator dummy(Davies)</i>	-0.055* (-2.576)
F	13.80*
Std Error	0.130
R-sq	0.406

Notes: * denote conventional significance at 5% level.