Housing Rents, Housing Quality, and Living Standards in England and Wales, 1640-1909

Gregory Clark
University of California, Davis
(gclark@ucdavis.edu)

October, 1999

The paper constructs measures of house rental values controlling for quality, of house quality, and of the amounts of house services generated in England and Wales from 1640 to 1909 from a large sample of dwellings owned by charities. The charity data is shown to reliably predict national housing rental trends in the years after 1845. Housing rents rose more rapidly in the early Industrial Revolution period than Feinstein (1998) finds, strengthening his pessimistic conclusion that living standards rose little before the 1840s. Further the charity sample implies that average housing quality was unchanged from 1640 to 1849. Again this suggests that the Industrial Revolution had little effect on real living standards before the 1850s. Only in the late nineteenth century does substantial quality improvement in housing appear on charity properties.

Introduction

This paper uses information on dwellings purchased, rented or sold by charities in England and Wales to estimate both the rental cost of housing of constant quality from 1640 to 1909 in England and Wales, and the average quality of housing. The paper also estimates the value of the rental services of housing to the economy from 1640 to 1909.

The rent series from charity properties are constructed for the years 1842-1909 mainly as a check on whether the charity housing is likely to be a reliable guide to national trends in house rental values and house quality before 1842. For there is good information on housing costs in England for the years 1842 and later from the Property Tax and Inhabited House Tax returns. Using this material Charles Feinstein has constructed an index of housing rental values from 1845 on which controls for changes in the quality of the housing stock (Feinstein (1988)).[1]

---

[1] Singer (1941) earlier constructed a constant quality rental series for a wider definition of houses and commercial properties.

For the years before 1845, however, there is little other information on the rental values of houses of constant quality, or the average quality of housing. The narrative histories of housing such as John Burnett's Social History of Housing, 1815-1985 have no systematic information on house rents or house qualities. The only tax statistics before 1842 are for six years between 1803 and 1814. Thus Feinstein in his recent paper on living standards in the Industrial Revolution had to interpolate and extrapolate bravely even to estimate housing rents which do not control for quality in the years 1770-1841 (Feinstein (1995), pp. 23-4, Feinstein (1997)).[2] For the years before 1806 contemporary estimates (such as those of Arthur Young) were employed. The reliability of these estimates is of course unknown. Young's, for instance, pertain only to rural cottage rents.

There is extensive evidence available on housing owned by charities in the years 1817-37 and before in the 26,000 pages of Reports of the Brougham Commission of 1818-1837. There is further evidence for the years 1838-1912 in the various subsequent reports and inquiries published by the permanent Charity Commission from 1856 on.[3] Table 1 shows by decade the number of rents or prices reported, the number of dwellings concerned, and the distribution of the dwellings between those described as "houses", "cottages", "messuages", "tenements" and "public houses".[4] As can be seen there is a large body of data for the years 1810-39, and a moderate amount by decade all the way back to the seventeenth century, and forward to 1912. For the later period not all the data available has been coded since it is needed only to show the

---

[2] For example, in the years 1825, 1832 and 1840 he calculated from the returns of local rating assessments for poor rate the assessed rental value of buildings compared to land. He then used estimates of farmland rents on a number of large estates for these years to derive the total rental value of all buildings. Then a deduction was made for commercial buildings. Finally dividing this sum by the estimated numbers of houses Feinstein gets estimates of average rental values in 1825, 1832 and 1840.

[3] These reports are discussed in Clark (1998a).

[4] The number of dwellings is more than the number of observations since often a single lease or sale involved several dwellings.

Table 1: The Data Available from the Charity Commission Reports

Decade	Observations	Total number of Dwellings	Messuages	Tenements	Houses	Cottages	Public Houses
1520-29	18	25	1	5	0	19	0
1540-49	3	6	0	5	1	0	0
1550-59	9	23	14	5	3	1	0
1560-69	14	24	9	7	6	2	0
1570-79	3	5	1	0	2	2	0
1580-89	11	17	10	1	6	0	0
1590-99	11	27	8	1	18	0	0
1600-09	23	56	15	22	16	2	1
1610-19	35	53	26	9	15	3	0
1620-29	29	39	27	1	7	3	1
1630-39	43	72	37	10	18	6	1
1640-49	21	35	13	9	12	0	1
1650-59	33	100	46	26	21	6	1
1660-69	28	69	42	1	19	3	1
1670-79	36	75	34	16	13	6	2
1680-89	33	59	27	1	15	12	4
1690-99	22	31	8	2	12	6	3
1700-09	51	92	25	9	37	14	3
1710-19	40	69	27	1	20	18	1
1720-29	53	104	27	5	42	28	2
1730-39	52	69	21	8	28	11	1
1740-49	46	81	19	9	31	8	3
1750-59	47	72	18	3	27	18	4
1760-69	75	121	37	19	36	23	5
1770-79	79	138	42	7	62	20	4
1780-89	142	313	59	33	175	29	5
1790-99	335	597	110	18	409	33	14
1800-09	560	893	211	34	525	82	34
1810-19	1,194	1,849	236	148	1,115	244	70
1820-29	3,389	6,073	605	405	3,431	1,312	158
1830-39	2,709	4,994	603	569	2,295	1,294	118
1840-49*	90	130	18	0	99	12	1
1850-59*	145	220	27	0	155	35	3
1860-69*	155	319	17	3	166	120	7
1870-79*	264	651	37	28	452	110	12
1880-89*	242	578	9	23	400	128	14
1890-99*	498	1,252	31	165	849	192	11
1900-09*	650	1,017	6	30	428	524	10
All	11,188	20,346	2,502	1,638	10,966	4,326	495

Note: *Not all the information is available for these years was collected.

validity of the Charity sources as a way of estimating rental values.

Charities owned properties of all descriptions, from the meanest cottages to the grandest houses. Thus in the years 1817-1837 the rental value of charity dwellings varied from 2/- per year (a cottage in Peterstow, Hereford) to £319 per year (a house in Cornhill, London). The charity reports almost always give the parish or township a property is located in, and often some description of the type of the property such as whether it is a "cottage" or a "house," or the land area covered. I show below that these descriptors are highly correlated with the rental value of different properties. The meaning of these descriptors, however, may have changed over time. Thus a "tenement" was originally any dwelling but later came to designate each dwelling in a subdivided house. A "cottage" was originally a small house for a laborer, but in the nineteenth century the term acquired a romantic connotation and was also used to describe smaller middle class rural and suburban houses.

The rental values come in a number of forms. Sometimes a lease is described. Sometimes the rental value of the property is given. Sometimes the purchase or sale price of a property is given. Where the lease involved a fine paid by the tenant or a specified amount to be spent on repairs this has been annualized (using the rate of return on mortgages and bonds for that decade) and included in the rent.[5] Unless the amount expended by a tenant at the beginning of a lease is explicity given, or there is reason to believe no fine was paid, rents from leases of terms of more than 21 years were not used. Where a lease was for three lives the expected term was assumed to be 61 years based on life expectancies in the eighteenth century.

---

[5] The return on bonds and mortgages is from Clark (1998b).

Leases longer than 21 years were often given because the tenant was going to engage in extensive repair of premises. It was thus a little unclear whether such leases should be included even where no fine was paid, because the rental cost of the house to the tenant was going to be greater than the rent received by the owner. To control for this in the statistical estimation an indicator variable was included for these cases of long leases with no apparent fine. Where house prices were given they were converted into implied rentals by using the rate of return on land in the period as a base and adding 1.9% to the land return to account from the higher rate of depreciation on housing.[6] Of the 11,188 observations on rental values, 3,869 were lettings for a year or less, 2,710 were leases for between 2 and 21 years, 765 were leases for more than 21 years, 1,067 were inferred from prices, and the final 2,839 were from general statements of rental values. The numbers of observations in each category of rental value information were as shown in table 2. Poorer housing such as cottages tended to be occupied overwhelmingly on very short tenancies – weekly, monthly or yearly – without formal lease agreements.

With charity holdings questions naturally arise about how representative the properties were of all housing in the country, how diligently the property was managed, and how close to market value prices and rents were. Elsewhere I show that in the case of land charity property yielded a rate of return similar to that for private land, and charity rents are correlated across counties and over time with land rents in general (Clark (1998b), Clark (1999a)). Where charities invested in mortgages the return on these was comparable to the return on private mortgages (Clark (1999b)). With housing there are again plenty of indications that the rents were similar to those on privately owned housing. The 1842 Property Tax returns, for example,

---

[6] The return on land is from Clark (1998b).

combined with information on numbers of houses from the 1841 census reveal significant differences in the average rental value of housing across counties.[7] For the years 1817-37 I can calculate the average house rental by county implied by the charity data. Figure 1 shows for the 36 counties where there are at least 20 observations on the rental values of charity properties in the years 1817-1837 the calculated average house rent by county versus the average house rental inferred from the property tax figures of 1842.[8] As can be seen there is a good association. Indeed if we regress the average calculated charity house rental value, RENTCHAR , on the average calculated property tax rental value of houses, RENTPROP, then the estimated relationship is

$$RENTCHAR \; = \; 1.596 \; + \; 0.921 RENTPROP$$

$$(0.69) \qquad (0.055)$$

$$R^2 \; = \; 0.89, n = 36$$

where the standard errors are shown in parentheses. The charity data clearly picks up differences in average property values in various different parts of England and Wales in 1817-37. In counties where average house rental values were low charities tended to own low renting dwellings, where rental values were high they owned high renting dwellings. It should thus also tell us about the movement of property rental values over time. I show below that a sample of charity housing of constant quality shows the same rental movements as the Feinstein index, based on the Property Tax valuations, for the years after 1840. This again suggests that the charity data is a reasonable indicator of the movement of housing rental values.

---

[7] "Housing" in the Property Tax returns includes commercial properties.
[8] The charity rental values have been calculated controlling for the dwelling type, the garden area, and the parish population density.

Figure 1: House Rental Values by County, Charity Properties versus the Property Tax (£ per house)
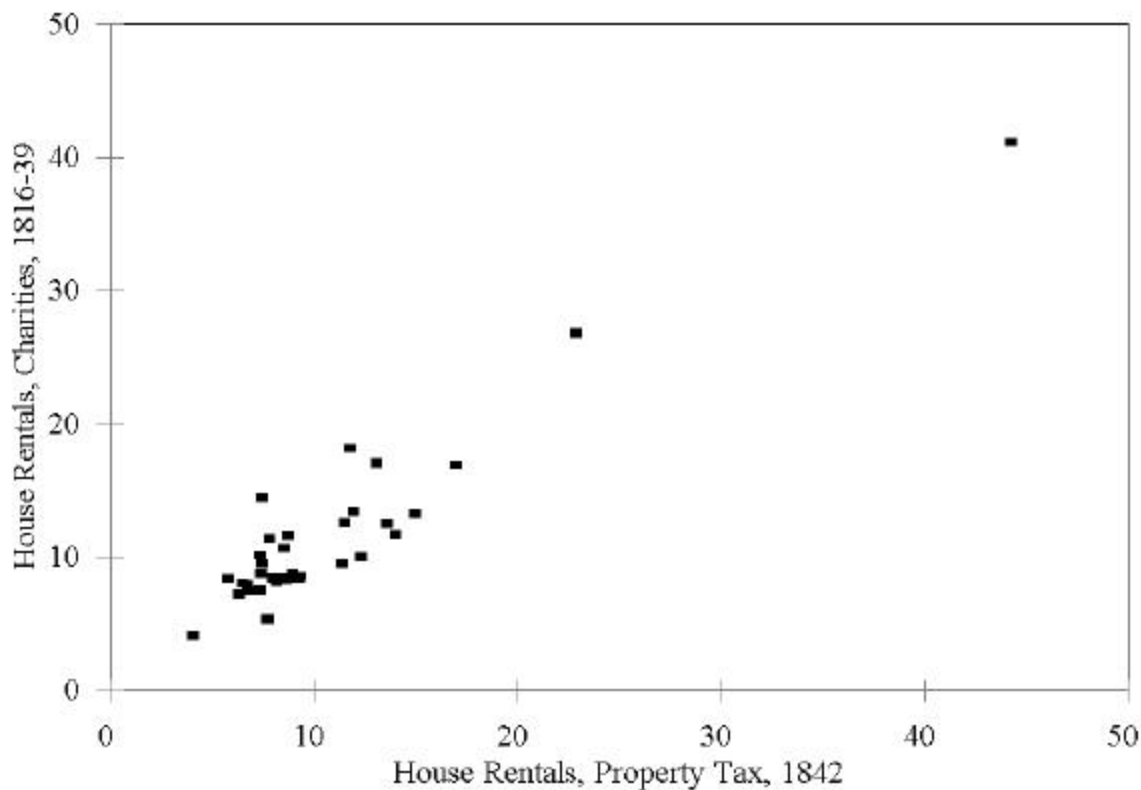
Note: The average house rentals from the property tax in 1842 were calculated by estimating the number of houses rated to the tax in each county from the census. This was taken as the number of houses listed in the 1841 census minus the number of farmers in each county (since farm houses were not rated separately to the property tax).

Sources: Stamp (1920), pp. 54-55.

The distribution of the data across England and Wales before 1800, and from 1800 to 1839 is portrayed in Table 2. By comparison the number of houses listed in the 1841 census for each region is also shown, as well as the rental value of "housing" in the 1842 Property Tax assessments.[9] The charity properties were found less frequently in the North and in Wales than would be expected, but more frequently from London. Thus from 1800 to 1839 23% of the charity observations came from London, while only 9% of houses in 1841 were in London. In contrast 12% of charity observations from 1800 to 1839 were from the North or Wales while 35% of houses were there. Before 1800 the imbalance in favor of London and against the North and Wales was even greater. However, the average rental value of houses in London was so much greater than the rest of the country that while in 1841 London contained only about 9% of houses, accounted for about 30% of the rental value of all "housing," where housing here includes commercial property as well.[10] Thus in forming a national estimate of house rentals I calculate indices separately for London and the rest of the country, and combine them with a weight of 29% for London and 71% for the rest of the country.[11]

---

[9] The property tax includes with housing other commercial buildings such as shops, pubs, hotels and offices.

[10] Property tax rental valuations are given separately for London for the first time in 1894. By then London constituted 28% of the estimated rental value of all non-farm buildings in England and Wales. Stamp (1920), pp. 54-5.

[11] In the statistical estimations I tried including separate time trends for Wales, the North, the Midlands and the South West. The rent movements in each of these regions, however, was not statistically different from the general trend outside London.

Table 2: Regional Distribution of Observations

Region	All Houses, 1841	Share of Houses, 1841 (%)	Share of Property Tax Rental Values of "housing" 1842 (%)	Share of Charity House Observations, pre 1800 (%)	Share of Charity House Observations, 1800-39 (%)
London	262,744	8.9	30.5	35.2	22.9
North	833,275	28.3	26.4	5.8	10.4
Midlands	579,352	19.7	13.2	21.0	28.3
South-East	535,720	18.2	15.6	16.0	15.7
South-West	543,187	18.5	12.6	19.3	20.5
Wales	189,667	6.4	1.7	1.4	1.3
All	2,943,945				

Notes: London - All parishes within 10 miles of the City of London. North - Cheshire, Cumberland, Durham, Lancashire, Northumberland, Westmoreland, Yorkshire. Midlands - Bedford, Berkshire, Buckingham, Derby, Huntingdon, Leicester, Lincoln, Northampton, Nottingham, Oxford, Rutland, Stafford, Warwick. South East - Cambridge, Essex, Hampshire, Hertford, Kent, Middlesex, Norfolk, Suffolk, Surrey, Sussex. South West - Cornwall, Devon, Dorset, Gloucester, Hereford, Monmouth, Shropshire, Somerset, Wiltshire, Worcester.

Sources: Stamp (1920), pp. 54-5. Parliamentary Papers (1852-3).

A Quality Controlled Rent Index

To estimate housing rental values controlling for house quality I use the subset of about one sixth of the observations where there are multiple observations on the same house at different times, and there are indications that the quality of the housing has not changed: the houses and gardens occupy the same land area, and there are no indications of any improvements to the structure. Thus a house in Bray, Berkshire, was let first on a 21 year lease in 1814 for £25 per year without any requirement of repairs expenditure by the renter, and then again at the end of this lease for 7 years in 1835 for £25. Presumably little was invested to permanently improve the house in the course of the first 21 year lease since the tenant would lose much of any capital expended on improving the house at the end of the lease.[12]   To get the constant quality index I estimate the expression

$$\ln(RENT_{ij}) = \sum_j a_{0j} DLON_j + \sum_j a_{1j} DOTH_j + b_1 DPRICE + b_2 DSHORT + b_3 DLONG + u_i + e_{ij}$$

where RENT is the rent in £ per dwelling, $DLON_j$ are a set of 31 indicator variables which are 1 for London dwellings for each decade 1640-9 to 1790-9, 1840-1909, and for each quinquennia 1800-1839, 0 otherwise. $DOTH_j$ is an equivalent indicator variable for places outside London. For London there are 388 properties observed more than once, and for the rest of the country 687. DPRICE is an indicator variable for cases where the rental value is estimated from the price of a property. This variable allows for any error in the calculation of the relative earnings of buildings and land. DSHORT is an indicator for cases where the lease is for a year or less. In such cases the landlord generally repaired and also often paid the local rates in later years. Lastly DLONG is an indicator for cases where the lease is longer than 21 years, and no fine was

paid. Often in these cases the long lease was granted in exchange for the tenant performing

substantial repairs on the house. The u_i are fixed effects estimated for each of the properties

observed. By including these in the estimation the regression measures just the average

movement over time of rents on these properties. The logarithmic form for RENT was used

because the level of rents changes so much over time. The logarithmic specification also gives

equal weight to low and high rent properties in determining the regression fit. Table 3 shows the

results of the estimation. The second and third columns of table 3 shows the number of

observations for each period. In the years before 1760 the numbers of observations by decade

are very small, and the estimates are correspondingly imprecise.

Column 4 shows the estimated rental value of dwellings, controlling for quality, for the

each period where 1820-4 is set at 100. This index was constructed as a geometric index of the

index for London and for the rest of the country, with London getting 29% of the weight

throughout. The geometric form was used since it makes it possible to calculate the confidence

intervals for the index caused by sampling error.[13] Columns 5 and 6 show the index separately

for London and for the rest of the country. In the years 1840-1909 rents are estimated to rise by

more than twice as much within London as in the rest of the country. Figure 2 shows the

resulting index and the confidence intervals for the years 1770 to 1909. Since the index is

measured relative to 1820-4 there is no confidence interval for this period. The confidence

intervals are within 10% of the estimated level of the index for the years 1780 to 1839 where the

data is relatively rich.

Also shown in table 3 and in figure 2 for comparison is the series of housing rental values

derived by Feinstein. The level of this series has been adjusted so that the two series are equal

---

[12]If a tenant at the beginning of a 21 year lease makes £100 in permanent improvements to a property then at a 5% discount rate they get to enjoy only £65 of the value of these improvements by the time the lease terminates.

Table 3: Quality Controlled Index of Housing Rents, 1640-1839

Period	Observations London	Observations Outside London	Estimated average Rent (1820-4=100)	Estimated average Rent London (1820-4=100)	Estimated average Rent Outside London (1820-4=100)	Feinstein Rent index
1630-39	-	3	-	-	33	
1640-49	1	5	33	76	23	
1650-59	1	6	39	49	35	
1660-69	3	2	43	32	49	
1670-79	1	1	52	54	51	
1680-89	2	9	49	47	51	
1690-99	1	1	26	30	24	
1700-09	1	7	47	40	50	
1710-19	1	6	37	35	38	
1720-29	-	10	37	-	41	
1730-39	6	12	38	24	46	
1740-49	4	16	26	21	29	
1750-59	4	15	39	40	38	
1760-69	7	23	42	36	45	
1770-79	11	32	50	48	51	44
1780-89	13	47	50	41	55	44
1790-99	45	72	58	66	54	47
1800-04	28	46	75	72	76	53
1805-09	27	81	91	88	92	56
1810-14	38	90	105	105	106	65
1815-19	59	181	101	99	101	64
1820-24	71	264	100	100	100	59
1825-29	51	156	106	112	104	58
1830-34	13	103	107	105	108	66
1835-39	23	73	107	107	107	77
1840-49	36	7	101	105	99	86
1850-59	73	14	91	108	84	94
1860-69	38	49	117	141	108	110
1870-79	93	33	124	150	114	126
1880-89	57	30	133	170	121	135
1890-99	98	60	135	187	118	139
1900-09	28	67	150	186	138	146

Note: For comparison purposes the Feinstein index of constant quality house rentals has been set to be equal to my index on average for the decades 1850-1909.

---

[13] An arithmetic weighting of the London and rest of the country indices produces results which are very similar.

Figure 2: A Constant Quality Index of Nominal Rents, 1770-1909
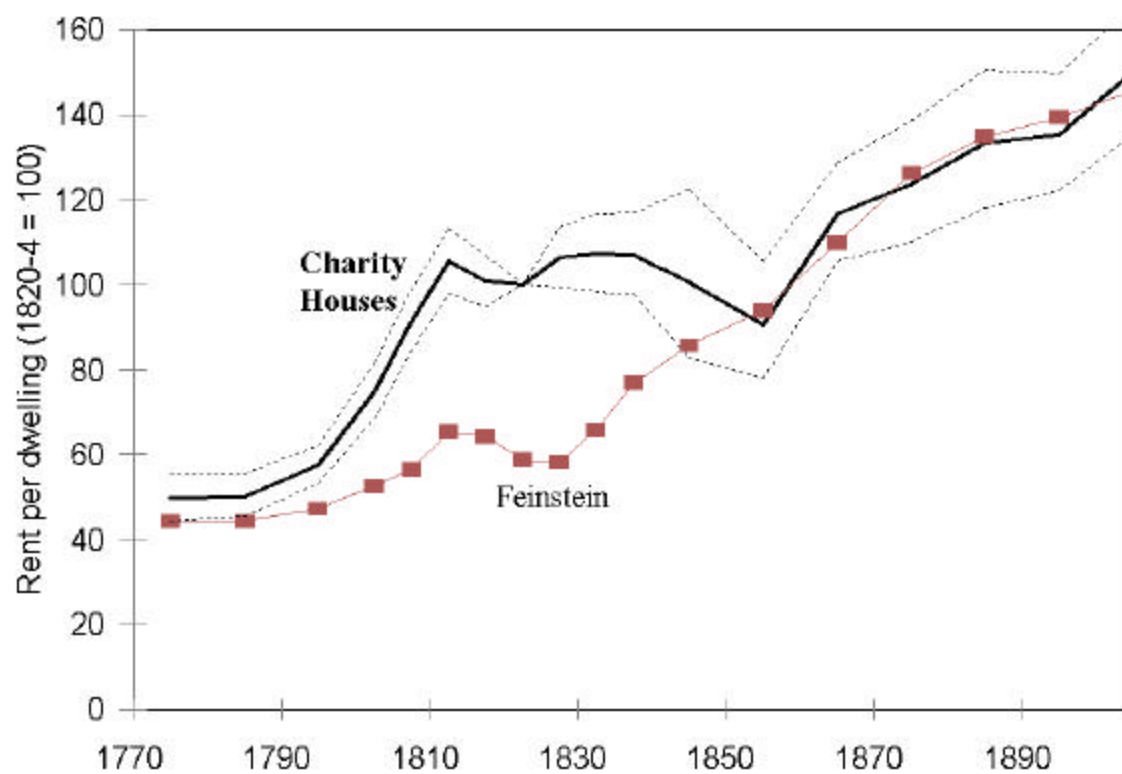
Note: The broken lines indicate the upper and lower 5% confidence limits around the estimate for each period.

on average in the decades 1850-1909 where the Feinstein index is based solely on the Property Tax and Inhabited Houses information. As noted above the Feinstein series for the years 1845 on measures housing of constant quality and thus is the same type of series as this one. For the decades 1850-1909 the two series move in reasonable harmony. Thus rents on the sample of charity properties are moving in these years as would be predicted from the national returns of housing rental values. But for the years before 1840, when Feinstein has to rely mainly on indirect sources, and where there is no control of house quality, the two series diverge sharply. Relative to 1860-1909 they start in the same place in the 1770s. But rents on the charity properties rise much more in the Revolutionary and Napoleonic war period, so that by 1805-9 the charity houses rent for 50% more than Feinstein would predict, and this gap persists until the late 1830s. In the 1820s the rental value of charity housing is 60-70% above that predicted by Feinstein. Thus housing rental values on charity owned properties rose much more in the early Industrial Revolution than Feinstein predicts in his recent paper on living standards, though over the longer period 1770-1860 there is little difference in the series.

Note that this divergence is present even in the quinquennia 1800-4 to 1810-14 when the Feinstein estimate is based most directly on the income tax returns available for six years between 1803 and 1814. If the charity sources are correct then in its first incarnation the income tax must have severely underestimated housing rental values. Though the tax was based on assessing the annual values of property, many houses would be let out on long building leases at low annual rents, or would be owner occupied. We do not know how the assessors dealt with these complications in practice, and this may have led to significant undervaluation.

One reason I am confident that the tax data for 1806-14 must be underreporting house rental values is the implied ratio of house rents to average wages. On Feinstein's series this is

only 69% of the ratio for 1770-9, while on this new series it is 97% of the earlier value. Why

would housing costs fall relative to wages in the Napoleonic War period, where the general

belief has been that if anything government borrowing drove up the interest cost of housing?

Not is there any indication that the construction costs fell relative to average wages in these

years. The tax returns of these years must under-estimate the rental value of housing.[14]

Figure 3 shows the constant housing quality rental index back to 1640 and the associated

confidence intervals of the estimates. Before 1730-9 the confidence intervals become very large

because of the small numbers of observations. But the clear impression of figure 3 is that in the

long period from 1640 to 1769 house rents were roughly constant in nominal terms, before

beginning a sharp increase in the years 1780-1810. In real terms housing rental values for

houses of constant quality were constant from 1640 to 1800 relative to an index of food,

clothing, soap and fuel prices, before beginning a rise in the nineteenth century.

---

[14]Interestingly the same phenomenon appears with the rent of farmland. According to the tax returns average land farmland rental values in 1814 were only 70% of the values of the 1860s. But for charity land rents in 1810-14 were 12% higher than in the 1860s. See Clark (1999a).

Figure 3: A Constant Quality Index of Nominal Rents, 1640-1839
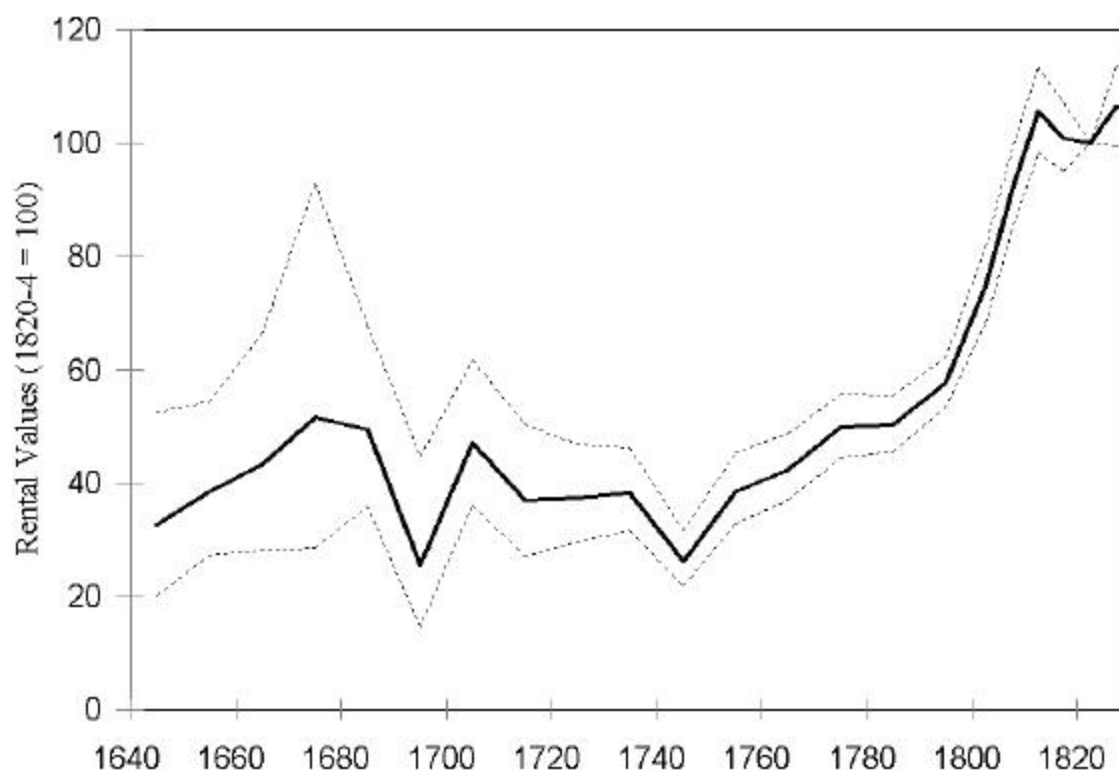
Note: The broken lines indicate the upper and lower 5% confidence limits around the estimate for each period.

An Average Rental Values Index, 1540-1909

A rent index which incorporates changes in the average quality of housing is estimated as a two stage process. First average rent movements controlling for the type of housing are estimated by estimating the parameters of the expression

$$\ln(RENT_{ijs}) = \sum_j a_{0j} DLON_j + \sum_j a_{1j} DOTH_j + b_0 FMESS + b_1 FTEN + b_2 FCOT +$$
$$+ b_3 FPUB + b_4 DWELL + b_5 FSHOP + b_6 FBIG + b_7 FSMALL + b_8 AREA + b_9 DNAREA +$$
$$b_{10} DSHORT + b_{11} DPRICE + b_{12} DLONG + b_{13} FCOT1800 + b_{14} FCOT1840 + v_s + e_{ijs}$$

where i indexes properties, j indexes 42 time periods, starting in 1520-29, and s indexes each parish or township. This rent index differs from the previous one that controlled for quality because now I am looking at the movement of rents on all properties in a given parish over time, controlling for differences in parish rent levels. Charities did frequently reconstruct the properties in their possession – by letting land on building leases, by requiring tenants to reconstruct existing dwellings, or by rebuilding them themselves. Dulwich College, for example, granted a 31 year lease of two messuages in Dulwich in 1829 "in consideration of the tenant substantially repairing and improving the old houses."[15] Charities also acquired properties by gift and purchase, and sold or exchanged properties. Thus their portfolio of properties changed over time.

Since the regression allows for parish and township differences in rent levels only properties are included where I have information from at least two properties in a parish or township. Two properties or more are needed because the v_s error term is estimated separately for each parish or township (parishes in the City of London were combined into one super "parish" since these parishes typically covered only a few acres). This reduces the number of

parishes or townships with useable multiple observations to 909 outside London, and 85 within London (counting the entire City of London as one parish).

RENT$_{ijs}$ is the rent per dwelling for property i in period j in parish s. DLON$_j$ is a set of 42 indicator variables for each period for London observations. DOTH$_j$ is a similar set of 42 indicator variables for places outside London. Next the fourteen β variables control for characteristics of the property or the rental value information. FMESS is the fraction of the buildings in the observation which were called "messuages", FTEN is the fraction called "tenements", FCOT the fraction called "cottages" and FPUB the fraction called "public houses". FCOT1800 is the fraction called "cottages" in the years before 1800, FCOT1840 the fraction called cottages in the years after 1839. FCOT1800 and FCOT1840 are included because there is indication that because of the gentrification of the term cottage some properties which would previously have been called "houses" were called "cottages" by the later nineteenth century. Outside London where there were almost no properties called cottages, controlling for parish 25% of buildings were cottages in 1800-39, compared to 42% by 1840-1909. This would imply that the rents of cottages would be higher relative to houses by the late nineteenth century.

DWELL is the number of dwellings per building. FBIG is the fraction of properties which were described as large or good, FSMALL the fraction described as small, FSHOP the number of shops attached per dwelling. Where an area was given for the ground on which the dwellings stood a variable AREA for the average area per building in square yards was included. Since area information was only given for 14% of properties this variable was set to 0 where no information was given and DNAREA was then set to 1 (0 otherwise). The average ground area per dwelling for the years 1820-39 for houses in rural parishes (less than 1 person per acre in

---

[15] 29th Report, Charity Commissioners, p. 913.

1841) was 3,033 square yards, or more than half an acre. The average ground area per dwelling for urban parishes in 1820-39 (more than 20 people per acre) was 798 square yards. DSHORT, DLONG and DPRICE are defined as in the quality controlled rent regression.

The regression is again estimated for the logarithm of rents because the average level of rents changes so much over time, and this allows variables like DCOT to have the same proportionate influence on rental value estimates in all decades. The estimation results are shown in table 4 for the variables controlling for the characteristics of the property and the rental information. The results are all in line with what we would expect. Controlling for the parish public houses are estimated to rent for 122% more than a simple house, cottages for only 42% as much in 1800-39, but 49% as much in 1840-1909. Dwellings described as "big" or "good" rent for 131% more than average dwellings, while those described as "small" rent for 46% less. A shop attached to a dwelling increases its rental value by 48%. Within the same parish dwellings with more land attached rent for more. Finally the rental value of cottages relative to houses is significantly higher in the years after 1840.

Using these controls I estimate average house rents for England and Wales for the years 1540-1839, where rents in 1820-4 are fixed at 100. These estimated rental values are given in table 5 for the whole country, and separately for London and outside London. Again in the years where there are significant amounts of information, as in 1830-34 the estimates are reasonably precise. Thus house rents in 1825-29 are estimated to have been 7% higher than in 1820-24. But sampling error means they might have risen by more or less. We can, however, be 95% confident that they rose between 0% and 14%. As we go further back in time the precision of the estimates declines. Thus in the decade 1700-9 rents are estimated at 41% of their level in 1820-4, but there is one chance in twenty that they were really below 33% of their level or above 52%.

Table 4: Variables Affecting Dwelling Rents

Variable	Mean value of variable	Coefficient Estimate	Standard Error of Estimate	t-statistic
Fraction Messuages*	0.129	-0.057	0.025	-2.26
Fraction Tenements**	0.082	-0.756	0.038	-20.02
Fraction Cottages**	0.200	-0.876	0.034	-25.41
Fraction Cottages pre 1800	0.013	-0.108	0.084	-1.28
Fraction Cottages post 1839**	0.059	0.157	0.057	2.76
Fraction Public Houses**	0.024	0.799	0.038	21.08
Dwellings per Building**	1.019	-0.340	0.029	-11.74
Fraction "big"**	0.003	0.838	0.100	8.36
Fraction "small"**	0.035	-0.615	0.052	-11.84
Shops per Building**	0.023	0.393	0.038	10.33
Area per Building (yds2)**	263	0.0000839	0.0000061	13.67
No Area**	0.850	0.083	0.030	2.81
Short Term Lease**	0.346	-0.238	0.022	-10.67
Long Term Lease**	0.040	-0.156	0.046	-3.42
Rent from Price	0.094	-0.001	0.030	-0.02

Note: Variables labeled ** have coefficient estimates that are statistically significantly different

from 0 at the 1% level. Those labeled * are significantly different from 0 at the 5% level.

Table 5: Average Rents by Decade and Quinquennia

Period	Estimated Average Rent (1820-4 = 100)	Estimated Average Rent: London (1820-4=100)	Estimated Average Rent: outside London (1820-4=100)	Estimated Average Rent – Adjusting for composition changes (1820-4 = 100)	Implied Housing Quality (1820-4 = 100)
1520-29	-	-	8	-	
1540-49	3	12	2	3	
1550-59	10	7	11	10	
1560-69	8	3	11	8	
1570-79	13	11	15	14	
1580-89	20	13	23	20	
1590-99	17	11	21	17	
1600-09	15	17	14	15	
1610-09	25	22	27	26	
1620-29	26	36	23	27	
1630-39	27	32	25	27	
1640-49	30	42	26	30	93
1650-59	35	36	35	36	93
1660-69	48	36	54	49	113
1670-79	30	22	34	30	59
1680-89	45	49	43	45	92
1690-99	41	28	47	41	161
1700-09	42	34	45	42	89
1710-19	40	16	59	41	110
1720-29	38	26	45	39	103
1730-39	44	50	42	45	117
1740-49	32	30	33	33	125
1750-59	48	41	51	49	126
1760-69	42	34	45	42	100
1770-79	63	64	62	64	128
1780-89	51	43	55	52	103
1790-99	56	57	55	56	98
1800-04	83	82	83	83	111
1805-09	87	86	87	87	95
1810-14	102	96	104	102	96
1815-19	102	105	101	102	102
1820-24	100	100	100	100	100
1825-29	107	114	104	107	101
1830-34	106	102	107	106	99
1835-39	103	90	108	103	96
1840-49	100	125	91	98	97
1850-59	109	135	100	107	118
1860-69	153	161	150	150	129
1870-79	141	210	119	138	112
1880-89	175	206	163	171	129
1890-99	194	225	183	190	141
1900-09	229	273	213	224	149

The rent indexes reported in the first three columns of table 5 hold constant the types of properties owned by charities. In fact, controlling for the parishes the observations were drawn from, the distribution of charity dwellings between those described as "houses", "messuages", "tenements" and "cottages" changed over time. Table 6 shows the proportion of properties owned by charities in each of the periods 1520-1799, 1800-39, and 1840-1909 for London and outside London. The proportion of properties called "messuages" declines sharply in each area over time. But as the regression estimate suggests the rent of houses and messuages was very similar correcting for this has little effect on the movement of rents over time. In the areas outside London there is also a rise in the proportion of properties in the traditionally low renting category of "cottage" or "tenement." Column 5 of table 5 thus shows a rent index for the country that allows for the effect on rents of these changes in the proportion of dwellings described as being in these different categories. This correction has little effect on the overall rent index. The last column of table 5 gives a measure of the implied quality of charity owned housing in each period relative to 1820-4, which is just the index of average house rents divided by the quality adjusted index.

Figure 4 shows average rents for the decades 1840-9 to 1900-9 implied by the charity data compared to that implied by the Property Tax. The Property Tax included under houses commercial properties, but so do the charity "houses." For comparison the level is adjusted to be equal on average to that of column 5 for these years. The two indexes clearly show the same overall upward trend. Thus again the rent trends on charity owned housing echo national trends after 1840.

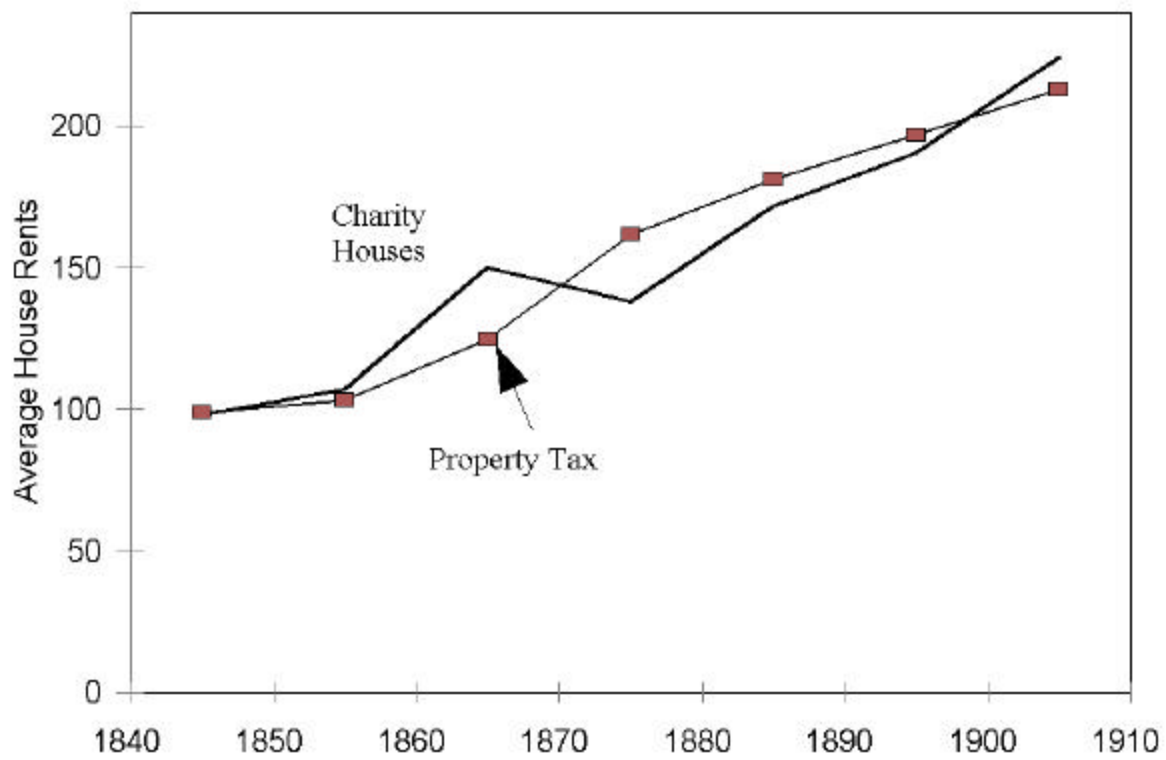**Figure 4: Charity Rents compared to Property Tax Implied Rents**

Table 6: The Composition of the Charity Housing Stock

Period	Houses	Cottages	Messuages	Tenements
London				
1540-1799	.643	.012	.258	.040
1800-39	.818	.017	.111	.012
1840-1909	.925	.013	.034	.005
Outside London				
1520-1799	.381	.162	.275	.101
1800-39	.496	.246	.141	.076
1840-1909	.576	.423	.000	.014

Notes: Because of the way the fractions are estimated independently for each period the sums can be more or less than 1 across each row.

Average Housing Quality and Living Standards

The average quality of charity owned housing in each period will just be the rental value of properties in the uncontrolled index divided by the rental value on the constant quality index. Figure 5 shows the rent index not controlling for quality from 1640 to 1909 and its associated 5% confidence limits. Also shown is the constant quality index. From 1640 to 1849 the rent indices adjusting and not adjusting for quality track each other for housing owned by charities. After 1840-9 average rentals on charity owned housing move up much more rapidly for all properties than for properties identified as unchanging. The implication is that from 1640 to 1849 the average quality of the housing stock owned by charities remained constant. Only after 1840-9 is there sign that houses owned by charities were increasing in quality. Figure 6 shows for the years 1640 to 1909 the implied average quality of charity housing. Since quality is measured as the ratio of two series both measured with considerable error it will itself be an even noisier measure in the early years. Thus in figure 6 for the years before 1800 I measure quality only as the averages of the years 1640-99, 1700-49 and 1750-99. Thereafter quality is measured by ten year intervals. By 1890-1909 the average quality of housing is estimated to be 45% greater than in 1820-24. But as figure 6 shows from 1640-99 the average quality of housing is by implication 96% of 1820-4, from 1700-49 it is 107%, and from 1750-99 110%.

We have to be careful here what we mean by the quality of the housing stock. Our index of the rents of housing of constant quality controls for changes in housing quality coming from factors such as increases in housing size, increases in garden sizes, better plumbing, better sanitary facilities. But things that influence housing quality that are **external** to the property in question will not be controlled for. This includes how much pollution is in the air, how pure the water supply of the town is, how congested the streets of the town are, and what amenities such

Figure 5: Average Housing Rents in England and Wales, 1640-1909
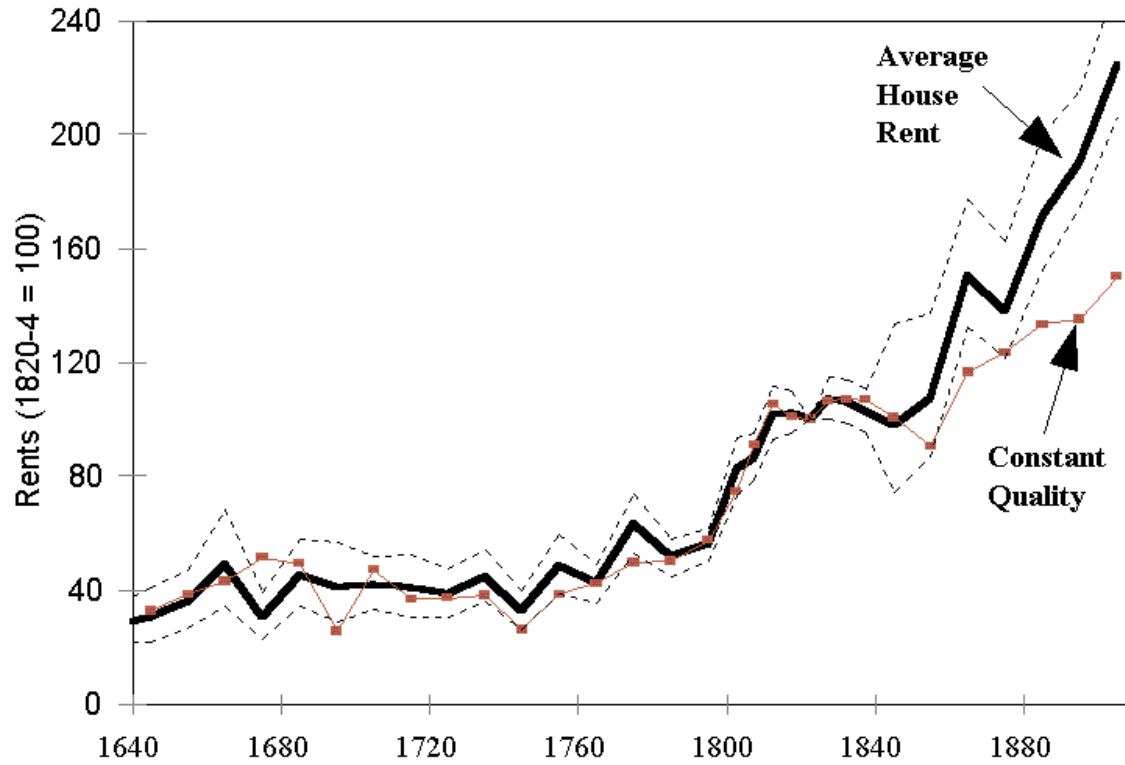
Note: The broken lines show the upper and lower 5% confidence interval for the "average house rent" index.

Figure 6: Estimated Housing Quality by Period
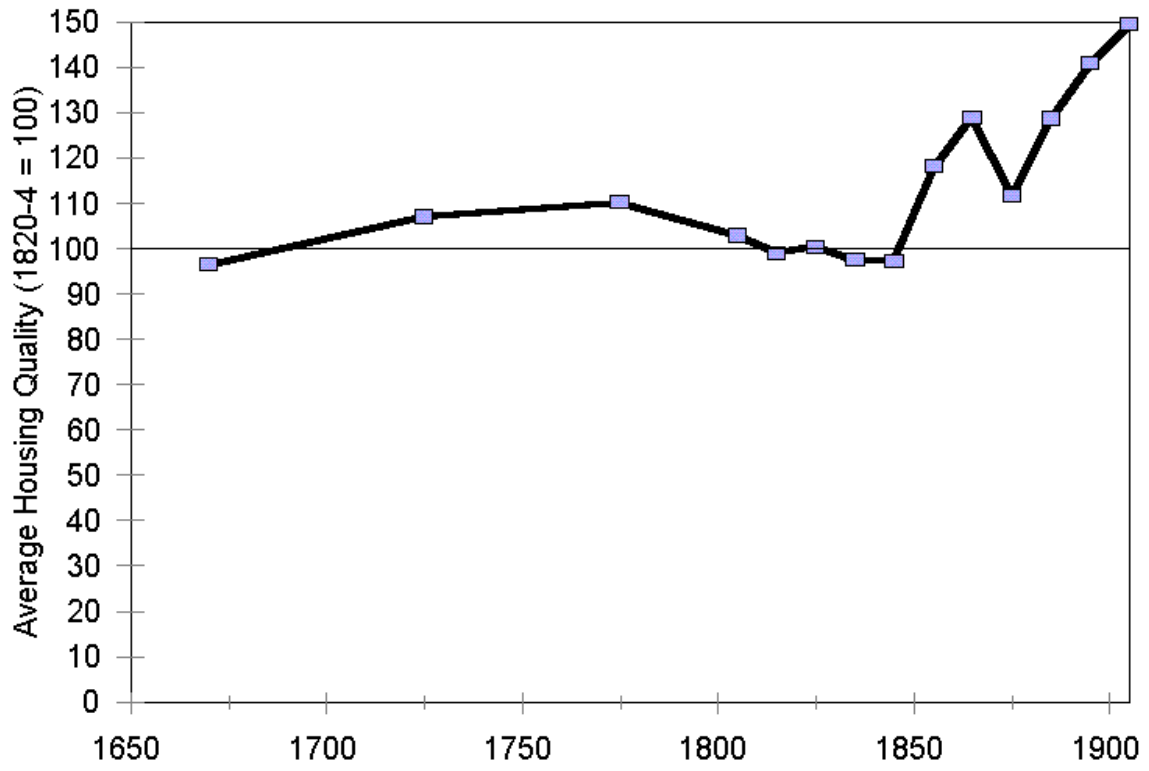
as parks the town offers. What we can say is that with regard to dimensions of housing quality which are under the control of the lot owner – the square footage, the ceiling heights, the area of windows, the number of toilets, the garden size – there is no sign of any improvement before 1850.

For us to infer anything about the average quality of housing it also has to be the case that the quality of housing owned by charities at least bore a constant relation to average housing quality in England and Wales. There is ample grounds to accept this association on both theoretical and empirical grounds. I have already shown above how charity rents echo the cross section pattern of rents from the Property Tax returns of 1842, and how the rent indices derived for the years after 1842 echo those derived from the Property Tax. The theoretical ground for believing that charity properties will echo national trends is that for charity property in any given location at any time there will be a profit maximizing housing quality which will depend on the neighborhood. A charity property in the center of London will generate much more profit built up as a substantial townhouse than kept as a primitive cottage and garden. A charity cottage in a remote rural village with declining population will generally not repay the investment of transforming it into a substantial house. Thus if the managers of charity properties are just modestly sensitive to the profit potential of their properties these properties will tend to reflect the characteristics of other properties in their neighborhoods. Since charity properties were scattered all across the country, their quality will thus tend to echo the national average housing stock quality.

These quality estimates have implications for the debate about standards of living in the Industrial Revolution era. If housing owned by charities was typical of housing in general then table 5 and figure 4 imply that the average person in England was living in housing of unchanged

quality all the way through a 200 year span from the 1640s to the 1840s. If the price of housing had remained constant relative to prices of other consumables in this period then it would imply flat real incomes also within this period. The rental cost of housing relative to other goods – food, clothing, and fuel – was roughly constant in the long run between 1640 and 1810, but thereafter housing rents rose relative to other goods. By implication then, real living standards seem to have changed little in England and Wales over the long period 1640 to 1810. After 1810 housing costs rose relative to other elements in the cost of living, so the apparent failure of house quality to rise before the 1850s could also be the result of people at higher income substituting away from housing to textiles and other cheaper consumption goods. The implication from house rental values that there was no upward trend in real incomes over the years 1640 to 1810 is consistent with my own work on real wages in English agriculture. Real wages change little over the years 1650-1810, before experiencing a 20-30% increase in the years 1815-24 (Clark (1999c)).

Rental Income and Housing Services, 1640-1869

There has been a long debate about the living standards of wage earners in the Industrial Revolution period. Feinstein has recently argued that the assessment of Peter Lindert and Jeffrey Williamson of substantial real wage gains is too optimistic. He finds more modest gains of about 30% in real from the 1770s to the 1840s (Lindert and Williamson (1983, 1985), Feinstein (1998)).   I similarly find that real farm wages increased by only 33% from the 1770s to the 1840s (Clark (1999c)). The casual assumption for the Industrial Revolution period has been that if real wage earners gained, then overall income per capita must have increased by as much or more. In fact, however, the information from charity holdings on house and farmland rental

values suggests that real property income per capita may have fallen in the Industrial Revolution period, and that consequently the overall gains in income per capita was likely less than the gains in real wages.

Table 7 shows estimates of population, and of implied farmland and house rental values for various periods from 1640 to 1869. Remember that "houses" here include commercial buildings as in the Property Tax returns, since the data for 1840-1869 is drawn from the Property Tax. But we saw in the years 1842-1909 that the trends in property values was the same for houses as for this wider definition of houses and commercial properties. The earlier data is inferred from the movement of rents on charity owned farmland and housing, the farmland rental values being drawn from Clark (1999a). The total rental value of housing is inferred as the rental value per dwelling from table 5 above, multiplied by the estimated stock of non-farm houses. [16] Since farm houses were included in the rental value of land throughout I assumed, based on the number of farmers in the 1851 census, that there were 160,000 farm houses. Notice the huge change in the relative importance of land and houses in total rental income from 1700 to 1860. Circa 1700 land rental values are almost four times house rental value. By 1860 land rental values are only about 75% of house rental values.

Column 6 of table 7 shows the implied real rental income per capita (where the deflator used is from Clark (1999c) for the years before 1840, and from Feinstein (1998) for the years after this.[17] Land and house rental income per capita declines by about 20% from circa 1700 to 1860-9. This happens because real rental income from housing increases little per head in this

---

[16] In the early nineteenth century the population censuses suggest a relatively stable average number of occupants per house. From 1801 to 1851 the number varies in a narrow range from 5.41 to 5.75, with an average across censuses of 5.59. We can thus estimate the total rental value of all housing back to the seventeenth century using the figure on population derived by Wrigley, Davies, Oeppen and Schofield (1997).

[17] These are not the best deflators for this purpose but a more general one is not available.

Table 7: Property Income 1640-1849 as Implied by Charity Holdings, England and Wales

Period	Population	Land and Farmhouse rental values	"House" rental values	Rental Income per Capita	Real Rental Income per Capita	All Wage and Rental Income	Real Housing Services per person
	(millions)	(£. m)	(£. m)	(£.)	(1860-9 = 100)	(1860-9 = 100)	(1760-99 = 100)
1640-99	5.5	15.4	4.1	3.5	117	84	73
1700-59	5.8	16.9	4.7	3.7	130	96	88
1760-79	6.8	21.5	7.3	4.2	126	89	88
1780-99	8.0	25.6	8.8	4.3	114	87	78
1800-09	9.2	39.0	16.0	6.0	110	84	76
1810-19	10.4	49.8	22.2	6.9	115	91	73
1820-29	12.1	43.5	26.1	5.7	124	102	73
1830-39	14.0	41.3	31.6	5.2	117	105	73
1840-49	16.7	42.3	37.0	4.7	102	99	75
1850-59	18.8	41.9	43.4	4.5	98	99	90
1860-69	21.1	46.3	60.2	5.0	100	100	100

Notes: The total implied rental of land and houses circa 1700 of £20 m. is about double the

assessment of land and house rents under the land tax in 1698. But the land tax can be shown to

have under-assessed charity farmland rents by 19% in the south east, by 33% in the Midlands, by

44% in the south west and by 69% in the north. Overall true farmland rental values should have

been about 70% greater than the land tax assessment. For houses the degree of underassessment

is unknown.

Sources: Land Rents and Housing Rents, 1842-1869 from Stamp (1920). Total wage bill in

1860-9 from Deane and Cole (1967). Population from Wrigley et al (1997). Average land rents

1640-1842 and farm wages 1640-1869 from Clark (1999a).

period, while real rental income from land declines considerably since the number of people per acre triples between 1700 and 1850 while real land rents per acre less than double. This decline in implied rental income is strong enough so that if we add it to an approximate measure of total wage income from 1640 to 1869 then the total of wage and property income per capita increases by only about 10% all the way from circa 1700 to 1860-9. Now this is not a complete picture of national income, and earnings from profits and entrepreneurial returns may have risen enough from 1700 to 1860 to restore a picture of at least moderate gains in real incomes in the Industrial Revolution.[18] But the charity land rent and house rent information does supply at least a prima facie case for perhaps even more pessimistic interpretations of the effects of the Industrial Revolution than even an announced pessimist such as Feinstein would hazard. The absence of any sign of quality improvement in housing before 1850-9, and the decline in the implied real rental incomes per capita from farmland and housing are both consistent with very flat real living standards all the way from 1700 to 1850.

Finally we can use the information on housing quality and on the total stock of housing to estimate the total of housing services in the economy from 1640 to1869. Nick Crafts and others have had to estimate these in their estimates of the growth of national income in the Industrial Revolution period (Crafts (1985), pp. 34-37, Deane and Cole (1967), pp. 78, 166). The last column of table 7 shows the real housing services per capita implied by the charity properties, assuming a constant number of people per house from 1640 to 1800. Housing services per person are flat from 1640 to 1849, rising only in the 1850s and 1860s.

---

[18] As Lindert (1986) reports private wealth also included a lot of personal and government debt. The stock of government debt increased greatly between 1690 and 1820, and by the 1820s the debt service was more than 7% of national income. However the taxes to pay this debt service were mainly taxes on land and house rental values, so that it seems best to treat government debt service income as a wash in calculating real income per capita.

Sources

1. Charity Commission Reports

Charity Commission (Broughton Commission):

Thirty two reports, found in order as the following volumes of the British Parliamentary Papers. 1819, X-A, X-B. 1820, IV, V. 1821, XII. 1822, IX, X. 1823, VIII, IX. 1824, XIII, XIV. 1825, X, XI. 1826, XII, XIII. 1826-7, IX, X. 1828, X, XI. 1829, VII, VIII. 1830, XII, XIII. 1831, XI. 1833, XVIII, XIX. 1834, XXI, XXII. 1835, XXI. 1837, XXIII. 1837-8, XXIV, XXV, XXVI, XXVII. 1839, XIV, XV. 1840, XIX.

1862-76 Digests of Charities

Parliamentary Papers: 1867-8, LII; 1868-9, XLV; 1870, LIV; 1871, LV; 1873, LI; 1875, LVII; 1876, LVIII.

Charity Commission (later inquiries)

Parliamentary Papers. 1884. <u>City of London Livery Companies Commission</u>. XXXIX.

Series of reports on counties in the following volumes: 1890-1, LX; 1893-4, LXVII; 1894, LXIII, LXIV; 1895, LXXIV, LXXV; 1896, LXIII; 1897, LXVI, LXVII; 1898, LXV, LXVI, LXVII, LXVIII; 1899, LXVII, LXVIII, LXIX, LXX, LXXI, LXXII, LXXIII; 1900, LIX, LX, LXI, LXII, LXIII; 1901, LI, LII, LIII, LIV; 1902, LXXV, LXXVI, LXXVII; 1903, XLVIII, XLIX, L; 1904, LXVIII, LXIX, LXX, LXXI, LXXII, LXXIII, LXXIV; 1905, C, CI; 1906, LXXXII, LXXXIII, LXXXIV; 1907, LX, LXI; 1908, LXXVII, LXXVIII, LXXIX, LXXX, LXXXI; 1909, LXV, LXVI; 1910, LXIX, LXX; 1911, LVII; 1912-3, LXIII; 1913, XLIX.

2. Other

Burnett, John. 1986. <u>A Social History of Housing, 1815-1985</u>. <u>2 nd. Edition</u>. London: Methuen.

Clark, Gregory. 1998a. "The Charity Commissioners as a Source in English Economic History" <u>Research in Economic History</u>**,** <u>18</u>, 1-52.

Clark, Gregory. 1998b. "Land Hunger: Land as a Commodity and as a Status Good in England, 1500-1910," <u>Explorations in Economic History</u>, <u>35</u>(1) (Jan.), 59-82.

Clark, Gregory. 1999a. "Farmland Rental Values and Agrarian History: England and Wales, 1500-1912." Working Paper, UC-Davis, August. (Available at http://www.econ.ucdavis.edu/~gclark/)

Clark, Gregory. 1999b. "Debt, Deficits, and Crowding Out: England, 1727-1840." Working Paper, UC-Davis. (Available at http://www.econ.ucdavis.edu/~gclark/)

Clark, Gregory. 1999c. "The Long March of History: Farm Laborers' Real Wages in England, 1208-1850." Working Paper, UC-Davis. (Available at http://www.econ.ucdavis.edu/~gclark/)

Crafts, Nick. 1985. <u>British Economic Growth During the Industrial Revolution</u>. Oxford: Oxford University Press.

Deane, Phyllis, and W. A. Cole. 1967. <u>British Economic Growth, 1688-1959</u>. 2d ed. Cambridge: Cambridge University Press.

Feinstein, Charles. 1988. "Annex A: Indices of Rent." In <u>Studies in Capital Formation in the United Kingdom, 1750-1920</u>, ed. Charles Feinstein and Sidney Pollard, pp. 405-410. Oxford, Clarendon Press.

Feinstein, Charles. 1995. "Changes in Nominal Wages, the Cost of Living and Real Wages in the United Kingdom over Two Centuries." in P Scholliers and V. Zamagni (eds.), Labour's Reward: Real Wages and Economic Change in 19th- and 20th-Century Europe. Aldershot, Hants: Edward Elgar.

Feinstein, Charles. 1998. "Pessimism Perpetuated: Real Wages and the Standard of Living in Britain During and After the Industrial Revolution." Journal of Economic History, 58 (3) (Sept.), 625-658.

Lindert, Peter. 1986. "Unequal English Wealth since 1670." Journal of Political Economy, 94 (6): 1127-1162.

Lindert, Peter and J. G. Williamson. 1983. "English Workers' Living Standards during the Industrial Revolution: A New Look." Economic History Review, 36 (1): 1-25.

Lindert, Peter and J. G. Williamson. 1985. "English Workers' Real Wages: A Reply to Crafts." Journal of Economic History, 45 (1): 145-53.

Margo, Robert A. 1996. "The Rental Price of Housing in New York City, 1830-1860." Journal of Economic History, 56 (3): 605-625.

Parliamentary Papers. 1852-3. Number of Inhabitants, 1801-51. Volume 1 with Census Report. Vol. LXXXV.

Singer, H. W. 1941. "An Index of Urban Land Rents and House Rents in England and Wales, 1845-1913." Econometrica, 9, 223-   .

Stamp, Josiah. 1920. British Incomes and Property. London: King and Son.

Wrigley, E.A., R.S. Davies, J.E. Oeppen, and R.S. Schofield. 1997. English Population History From Family Reconstitution, 1580-1837. Cambridge: Cambridge University Press.