This is a repository copy of *The Demand for Residential Domestic Service in the London of 1901*.

White Rose Research Online URL for this paper:
http://eprints.whiterose.ac.uk/99036/

Version: Accepted Version

The Demand for Residential Domestic Service in the London of 1901[1]

By QUENTIN OUTRAM

This paper concerns the effect of income and other variables on the demand for residential domestic service in London in 1901 and presents the first estimated model of the demand for residential service known to the author. It uses previously unexploited data consisting of the incomes and household details of some 500 civil servants. An extension of Becker's model of household production is set out and an ordered probit statistical model of servant demand is estimated. The results confirm the importance of income but also show that the demographic composition of the household was of significance. These results are interpreted in terms of age- and gender-related differences in the supply of labour and the demand for market goods. The results are consistent with the view that middle-class Edwardian households should be understood as sites of production as well as consumption. A comparison of the statistical results with contemporary recommendations in manuals of household management suggests that those recommendations were typically over-optimistic. A 'ready reckoner' whereby household income may be estimated from the number of resident servants is presented but caution in its use is urged.

1

This paper estimates and discusses the relationship between the demand for residential domestic service and income, household composition and other variables in London in 1901 using previously unexploited data on a sample of middle class households. Just under 1.7 million girls and women were employed as domestic and other servants in England and Wales in 1901 out of a total female occupied population of 4.2 million. In addition, 124 thousand boys and men were occupied in the industry.[2] Measured by employment, female and male, domestic service was bigger than agriculture in 1901, bigger than coal-mining and bigger even than textiles.[3] However, domestic service has received scant attention from the mainstream literature on the Victorian economy which still follows Clapham in its focus on agriculture, textiles, transport, metals, and engineering.[4] In contrast, historians of the early modern period

---

[2] Census of England and Wales 1901, *General Report* (P. P. 1904, CVIII), tab. 35.
[3] Ibid.
[4] The new edition of Floud et al., *The Cambridge economic history of modern Britain*, marks a welcome change.

have shown a keen awareness of domestic service and domestic production since at least the

publication of Peter Laslett's *The world we have lost*.[5]

De Vries is the most well-known writer to have departed from Clapham's path. His innovative

analysis of consumption emphasises the demand for domestic comfort and domestic service and

notes that during the Victorian period domestic service, far from being a relic of an earlier time,

was 'an object of intensifying demand'.[6] De Vries's work puts economic historians concerned

with structural change and growth into closer contact with those who have been concerned to

estimate the scale of domestic production. Until recently, and somewhat paradoxically, this

literature has looked solely at work by unpaid family members.[7] Now, however, interest in the

'outsourcing hypothesis' shows the potential to bring these fields together. According to this

proposition 'domestic' production has not declined but has been 'outsourced' from the home

to the market: rather than cooking a meal at home one buys a meal at a fast-food outlet or

buys a 'ready-meal' from a supermarket. The women, unpaid and paid, who used to produce

meals at home now work, it is suggested, in fast-food outlets and diners, food factories and

supermarkets in jobs that are frequently still gendered as 'women's work'.[8]

If domestic service was important in itself, it is also a potentially useful indicator of incomes and

wealth. Social historians have assessed household incomes on the basis of the number of

resident household servants employed using contemporary manuals of household management

---

[5] See for example Overton et al., *Production and consumption,* and Whittle and Griffiths, *Consumption and gender*.
[6] De Vries, *Industrious revolution*, pp. 128, 198.
[7] See for example Ramey, 'Time spent'. Cowan, *More work for mother* and Mokyr, 'Why "More work for mother?"', are exceptions. For the literature estimating the scale of un-paid domestic production, often suggesting that it has amounted to the equivalent of a quarter or a third of GDP, see Quah, 'Country studies'.
[8] See for example Kornrich, 'Hiring help'.

as guides. Mrs Beeton's well-known *Book of Household Management* suggested in 1899 that £1,000 a year, for example, was sufficient for four residential servants; one infers therefore that a household known to employ four servants at this time disposed of an annual income of about £1,000.[9] The weakness of this method is evident. There is a danger that we mistake ideal standards and unattainable aspirations for a reality which may have been significantly less glamorous, glittering, and expensive. The estimates reported here enable us to assess the extent of this danger.

<div align="center">

II

</div>

In the last section I indicated the broader historiography that gives a context to studies of servants. The more specialized literature is reviewed here. It belongs to two disciplines: demographic history and social history. The former tends to emphasise pattern and structure, the latter choice and agency. Long-period surveys of the social history note the emergence in the early-modern period of the 'life-cycle' female servant, in service between leaving the natal home and her marriage, the fact that servants were (and are) often migrants, the differentiation of domestic servants from servants in husbandry, apprentices and, later, employees; the decline in the social status of service; the feminization of service from the start of the modern period; the apparent existence of substantial and increasing gender wage gaps over the same period; the decline in domestic service after the First World War and its (limited) resurgence since the 1980s; and speculates that the quality of the relationship between master or mistress and servant has changed from the familial in the early modern period to the contractual at a later

---

[9] Beeton, *Book of household management*, p. 7.

but uncertain date.[10] Demographic historians have been primarily concerned with the role of life-cycle servants in enabling the 'northwest European simple household' system or the 'European marriage pattern' with its late age of marriage; the system supporting the servants themselves before their own, late, marriage and filling gaps in the supply of labour in the 'nuclear' or 'simple' households in which they served, gaps which might otherwise have led to household or familial re-constitutions.[11]

In comparison with these literatures the historiography concerned with the Victorian and Edwardian periods demonstrates more limited concerns and until recently its development has consisted largely of a broadening of its sources. J. A. Banks, dealing with the 1850s, 1860s and 1870s, was the first to present the data available in parliamentary reports and contemporary advice manuals now used as a matter of routine.[12] Lynne Haims, again focusing on the 1851-71 period, was the first to survey a substantial sample of English country houses, the first to analyse the surviving household account books, and the first to make systematic use of the census enumerators' books.[13] Pamela Horn's well-known book is based on similar sources.[14] Haims's approach has also been followed more recently in an impressively scholarly and

---

[10] Anderson, *Family structure*, pp. 84-6; Schwarz, 'English servants'; Cooper, 'From family member'; de Moor and van Zanden, 'Girl power'; Moya, 'Domestic service in global perspective'; Field, 'Domestic service'. Social and demographic historians have not, of course, ignored each other; de Moor and van Zanden exemplify the dialogue between the disciplines. The social-historical emphasis on agency and choice is most clear in some studies of seventeenth and eighteenth century service e.g. Fairchilds, *Domestic enemie*s, and Kent, 'Ubiquitous but invisible'.

[11] Hajnal, 'Two kinds of pre-industrial household'; Laslett, *World we have lost*; Laslett and Wall, *Household and Family*; Laslett, 'Characteristics of the western family'; Wall, 'The household'; Laslett, 'Family and household'; Hinde, 'Household structure'.

[12] Banks, *Prosperity and parenthood*.

[13] Haims, *In their place*.

[14] Horn, *Victorian servant*.

analytical book by Jessica Gerard.[15] Teresa McBride attempted a comparative study of England

and France covering the whole of the 1820-1920 period; none had the courage to follow this

path until Fauve-Chamoux pointed to the current globalization of domestic service and its

historical origins.[16] Mark Ebery and Brian Preston used data on individual households taken

from the 1871 census enumerators' books to present an analysis of a large sample of

households in a number of localities throughout provincial England. They were successful in

demonstrating a contrast in the prevalence of domestic service between the industrial areas of

Bolton, Blackburn, Bradford and Halifax on the one hand and both rural areas and their market

towns on the other. Regrettably, they were unable to demonstrate the spatial variations in

household income that appeared to lie behind this and many of the other contrasts they drew.[17]

Edward Higgs was able to avoid some of the limitations of Ebery and Preston's study by linking

census data to that contained in other local sources. The labour intensitivity of this approach

restricted his work to a single location however, viz., Rochdale during 1851-71, an area where

servant employment was notably rare.[18] Siân Pooley, in one of the most recent contribution,

has, like Higgs, studied a single Lancashire town, Lancaster, utilizing diverse sources including

oral history accounts. Her study, centred on 1891 but clearly informed by the early modern

literature, raises a number of novel issues. Like Rochdale, Lancaster lacked the aristocrats and

the *grand bourgeoisie* who were the most spectacular employers of servants. In Lancaster,

Pooley shows there was a considerable overlap in the social status of the families employing

servants and those supplying servants. She also deploys evidence to suggest that relationships

---

[15] Gerard, *Country house life.*
[16] McBride, *Domestic revolution;* Fauve-Chamoux, *Domestic service.*
[17] Ebery and Preston, *Domestic service.*
[18] Higgs, *Domestic servants and households in Rochdale.*

between mistress and servant were diverse in quality and difficult to place along the path from the familial to the contractual suggested by those who have viewed the history over the long period.[19]

However, Pooley's sample, which is of servants not of households, does not allow her to examine the demand for domestic service in detail. For this we have to return to the work of Haims and Gerard. Each used John Bateman's *Great Landowners of Great Britain and Ireland* or the earlier *Return of Owners of Land* to find rental incomes and other data on owners of estates of 1,000 acres or more in the early 1880s. Haims examined a sample of 40 large landowners with incomes of over £10,000. Despite presenting a table which showed a clear correlation between staff size and rental income she concluded that there was 'no very clear relationship' perhaps because the relationship was less 'tight' than she was expecting.[20] Gerard took a sample of 100 country houses whose owners received rents of at least £1,000 a year plus 'further samples drawn from the peerage, baronetage, and Welsh landowners' (she does not specify her sample more exactly).[21] She, too, noted much variation in the numbers of servants employed within each income class. She concluded after reviewing a number of cases in some detail that a 'family's changing needs [especially those due to the course of the life cycle] and preferences ... determined the types and numbers of servants kept'.[22]

Haims and Gerard each investigated wealthy landowners who ran large establishments. Few servants worked in such contexts however. Much more typical was a middle-class household in

---

[19] Pooley, 'Domestic servants'; Cooper, 'From family member to employee'.
[20] Haims, 'In their place', p. 192.
[21] Gerard, *Country house life*, p. 21.
[22] Ibid., p. 142.

an urban area employing and accommodating only one, two or three servants.[23] Such

households left few records. Yet to estimate the relationship between household income, its

other characteristics, and the employment of residential servants statistically we need a sample

of households for which such data can be established. Such a dataset has now been found. This

enables this article to present the first estimates of the demand for residential domestic service

to allow precise answers to the questions long since posed by Haims, Gerard and their

forerunners.

III

The data concern a group of Edwardian civil servants and their households derived from two

sources. The first is a Parliamentary *Return* demanded by a Liberal M.P. detailing the salaries

paid to thousands of named civil servants who had been appointed without competitive

examination between 1895 and 1905.[24] While the demand for this information was plainly

motivated by political considerations, there was no suggestion that the data were inaccurate or

politically biased.[25] However the implications of the restriction of the sample to civil servants

appointed without competitive examination may require discussion. As is well known, the

Northcote-Trevelyan *Report* of 1853 had called for the abolition of appointment to the Civil

---

[23] Collet, *Report on the money wages of indoor domestic servants* (P. P. 1899, XCII), p. 5.
[24] H.M. Treasury, *Return ... setting forth the name ... of each person appointed without competitive examination ... during the period from the 29th day of June 1895 to the 5th day of December 1905 ...* (P. P. 1912-13, LVI). From this point I refer to this simply as 'the *Return*'.
[25] See the file generated by the PQ: TNA, H.M. Treasury, 'Parliamentary Questions', (T 1/11525).

Service by ministerial patronage and for patronage to be replaced by a system of appointment by competitive examination open to all.[26] However, the implementation of the Northcote-Trevelyan reforms was an exceedingly slow process marked by the definition of a numerous exceptions and exemptions. The scope for appointment without examination was therefore wide and remained so until the First World War and after.[27] In 1914 the MacDonnell Commission on the Civil Service attempted to estimate the numbers of civil servants appointed by various methods. Of the total of 60,000, it thought only about 20,000 had been appointed by open competitive examination or by promotion from situations so obtained.[28] The Commission suggested that recruitment by open competitive examination had been 'most freely applied' to 'Administrative and Clerical posts'; but that 'Professional, Technical and Scientific officers' were usually chosen 'by methods in which competition plays no part'.[29] A system of patronage continued to apply to the appointment of sub-postmasters and sub-postmistresses, all civil servants at this date when the General Post Office was a department of state.[30]

The class of civil servants appointed without competitive examination was thus a large and varied one but it was clearly not a random sample of all civil servants recruited between 1895 and 1905. Nevertheless, it is not clear that the sample will have been biased in any way which will have affected its behaviour when it came to employing servants. In particular, it is not the

---

[26] Northcote and Trevelyan, 'On the organisation of the permanent civil service' (P. P. 1854, XXVII).
[27] Kelsall, *Higher civil servants*; Hanham, 'Political patronage'; Wright, *Treasury control*; Cromwell and Steiner, 'The Foreign Office before 1914'.
[28] R. C. on the Civil Service (P. P. 1914, XVI), pp. 25-6.
[29] Ibid., p. 27.
[30] Hanham, 'Political patronage', p. 80, n. 23 and p. 82.

case that these civil servants were all temporary employees whose precarious position one

would expect to have led to markedly cautious spending on all goods and services, including

domestic service.

The second source consists of the census enumerators' books compiled for the 1901 Census of

England and Wales.[31] The 'books' are in fact multi-page forms completed in manuscript which

list for each of a group of households the names of their members including residential servants,

the relationship of each member to the head of the household, their gender, marital status, age,

occupation, and place of birth. These books are now available online in the form of page

images together with searchable but partial transcriptions. In principle therefore, though there

are difficulties in practice, civil servants named in the *Return* can be found in the 1901

enumerator's books. Hence, the income of a civil servant given by the *Return* can be linked to

the number of residential servants they employed given in the census enumerators' books.[32]

I restricted the sample to heads of household on the grounds that only heads of household

could be assumed to have made decisions on the number of servants to employ. I also

restricted the sample to those civil servants living in London so that we could assume that

every head of household in the sample faced the same rates of servants' wages, other prices

and other conditions and rule these out as sources of variation in their employment of

---

[31] TNA, General Register Office. *1901 Census [of England and Wales] returns* [Enumerators'
schedules of returns made by heads of household], RG13/1 to RG13/5311.
[32] I used the Ancestry.com platform to search the enumerators' books on grounds of cost and
convenience; experiment suggested the platform provided by Findmypast, although it allows for
searches of the occupational terms used in the enumerators' books which Ancestry.com does
not, would have yielded a sample very similar to the one discussed here. (Ancestry Information
Operations Company, *Ancestry*; Findmypast, *Findmypast*).

servants.[33] This restriction does of course mean that our results are only valid for times and places where servants' wage rates, other prices, and other conditions were similar to those obtaining in the London of 1901. These and other restrictions reduced the list of over 3,000 individuals given in the England pages of the *Return* to an initial sample of 507 (details are given in Supplementary Table G.1; supplementary tables can be found in Appendix G). The major part of this reduction is accounted for simply by the fact that somewhat more than half the civil servants named in the *Return* were appointed after census night 1901 and were thus not civil servants at the time of the census. Another part of this reduction, accounting for about a quarter of those remaining, is due to failures to trace the civil servant named in the *Return* in the census enumerators' books. Civil servants with multiple forenames were easier to trace in the census than those more modestly accoutred. I consider whether this could have introduced any bias in the sample in Appendix A and conclude that though there is a bias and it is statistically significant it is too small to be worrisome.

Fifteen of the observations in the initial sample lay outside the bounds of the remaining observations in the sense that the number of servants hired stood far in excess of the numbers normally hired by those living on similar civil service salaries. It is likely that these households disposed of substantial (but now unquantifiable) income in addition to the head's civil service salary. Appendix B discusses this problem in some detail. There is evidence that some households disposed of earnings from co-resident adult children and other family members. This is treated by including the presence of such members in the model determining the

---

[33] London as defined for this paper includes the Administrative County of London, all of Middlesex and Surrey, and metropolitan Kent and Essex. Further details are given in the notes to Supplementary Table G.1 in Appendix G.

number of servants employed. A method based on adding their estimated earnings to the head of household's salary is considered but shown to be inferior on both theoretical and empirical grounds. I go on to suggest that the form of income underlying the most lavish expenditures was property income, typically from inherited wealth. In some cases it was possible to establish directly that the individual concerned had indeed inherited substantial wealth but it also became clear that the usual sources were incapable of explaining a substantial proportion of the aberrant cases. I therefore took a purely statistical approach to the problem using standard techniques to identify outliers and deleting them from the sample. Further details of this procedure are also given in Appendix B. Fifteen outliers were identified; their exclusion left us with a final sample of 492 observations.

The vast majority of the civil servants in this final sample was male, accounting for all but 15 of the total. Of these 15, 12 were sub-postmistresses, the remaining 3 were employed by the Board of Education as sub-inspectors or examiners.   The men were employed right across the civil service from the Admiralty and the Board of Trade to the War Office. The largest single contingent, 102, held posts at the Board of Education. Their incomes (including both men and women) ranged from £100 to £2,000 a year. The median was exactly £300 with an inter-quartile range of precisely £200, from £200 to £400 a year; the mean was £378. This range of incomes was typically of those received by the lower and middle ranges of the British middle classes at the turn of the twentieth century. Their homes were scattered across the whole of London. The most popular areas were Wandsworth in south-west London (81 households), Edmonton, to the north (35); Camberwell, to the south (31); Lewisham in south-east London (28); and Fulham to the west (25). The civil servants' ages in 1901 ranged from 22 to 70 with a mean of 42. They were all heads of household by construction of the sample. The great

majority were married (413 or 84 per cent); 54 were single, 16 were widowers, and 9 were widows.

The demography of the civil servants' households may not have been entirely typical of those found in the British middle-classes as a whole.[34] Most of the households in the final sample (72 per cent) were 'simple family' households to use the categorization introduced by Laslett, that is, they consisted of married couples either living alone or with their children and no other relatives, or widows or widowers living with their children and no other relatives, in each case together with their residential servants and other resident employees where these existed.[35] 'Extended households', that is households consisting of a simple family plus some other relative or relatives, were not unusual accounting for 16 per cent of the final sample; the additional relatives were most commonly widowed or widowered parents and unmarried siblings. 'Multiple households', that is households containing two or more related simple family households, for example a married couple and a son or daughter together with the son's or daughter's spouse, were very rare with just eight examples in the final sample. A full account is given in Supplementary Table G.2. That Table also shows that the number of households without co-resident children was large (152 or 31 per cent), as was the number of households where there were only one or two co-resident children (208 or 42 per cent).[36] On the whole

---

[34] Banks, *Prosperity and parenthood*, p. 5. More generally Szreter, *Fertility, class and gender,* has documented substantial inter-occupational, intra-class variations in Victorian demographic behaviour which suggest that it is dangerous to extrapolate from one middle-class group to another.
[35] Laslett, 'Introduction', pp. 28-32.
[36] These numbers refer to children in the sense of offspring –sons and daughters of the head of household not in the sense of minors; they may be of any age. The relatively low numbers are not due to any great extent to the absence of children at boarding schools. Were this the case we would expect to see fewer boys at home than girls in the relevant age groups. The data do indeed show a small deficit of boys compared with girls at the ages of 11 to 16. However the

therefore these households appear to be relatively 'advanced' in their demographic behaviour compared with the rest of contemporary Britain.[37] This characteristic is likely to have affected their servant hiring behaviour, as we shall see below. These considerations suggest caution in applying the results given here to the British middle classes as a whole.

The servants discussed in this paper were male and female residential indoor domestic servants and, for brevity, such servants are sometimes referred to here simply as 'servants'. Not all domestic servants were residential; in London in 1901 perhaps a fifth of all indoor servants were non-residential, travelling daily to and from their work.[38] Not all domestic servants worked in private houses; a few provided domestic services in institutions such as hospitals, asylums, and boarding schools; some worked in hotels, boarding or lodging houses, eating houses or similar establishments. The converse of indoor service was outdoor service provided by grooms, coachmen, and gardeners. There were also many women and men who provided domestic services but were not usually classed as servants. These ranged from those providing services clearly analogous to those provided by residential servants, for example, laundresses and charwomen, nurses, dress-makers, and cab-drivers to others where the analogy is more distant: painters and decorators, teachers, doctors, and ministers of religion. It appears to have been normal for households to have purchased residential and non-residential domestic service simultaneously, at least from time to time. The household described in the diary of Elizabeth Lee, for example, normally employed an outdoor non-

---

numbers involved, about 20 boys, are small and would have affected at most about 4 per cent of the sample households.
[37] See also Anderson, 'Highly restricted fertility'.
[38] Booth, ed., *Life and labour*, VIII, p. 212.

residential man servant, a residential maid, a residential nurse, and occasionally employed monthly nurses and non-residential washerwomen and charwomen.[39]

The existence of outdoor servants, non-residential indoor servants and other non-residential providers of domestic services and their simultaneous employment by households such as Elizabeth Lee's raises the question of whether it is possible to proceed with the estimation of the demand for residential indoor domestic servants in the absence of any knowledge of the household's purchases of these substitutes. The answer depends on whether or not the substitutes were perfect. If residential and non-residential servants, or indoor and outdoor servants had been perfect substitutes then the distinctions between residential and non-residential, indoor and outdoor service would be merely nominal, our data would fail to show the quantity of service purchased and our attempt to estimate the demand for service would therefore fail. However, outdoor and indoor servants were clearly differentiated by skill and function, and residential and non-residential servants were also regarded differently. Contemporary mistresses explained that they valued the constant attendance provided by residential indoor servants and that they thought non-resident servants provided a lower quality of service. It was also the case that whereas non-residential service could be purchased in small quantities, a day's work or a single task such as preparing a dinner party for example, residential servants expected to be hired on a full-time and continuing basis. Residential indoor domestic service therefore constituted a distinct commodity clearly distinguished from its various partial substitutes in the minds of mistresses and servants alike.

---

[39] Pooley and Pooley, 'Constructing a suburban identity', p. 406, discussing the 1884-92 diary of Elizabeth Lee, transcribed and edited by Pooley, Pooley and Lawton as *The diary of Elizabeth Lee*.

More detailed discussions of the problems arising in the counting of servants, and the issues raised by the varieties of servants and of non-servant household service providers are given in Appendix C.

Table 1 About Here

Table 1 shows that the mean number of servants employed by the sample civil servants was just below one. As one would expect, as income increased the number of servants hired increased from well below one at incomes below £400 annually, to nearly four at incomes above £1,000. Nevertheless, in every income range some households chose to hire no residential servants at all and the association between income and the number of servants hired is by no means as 'tight' as contemporary discussion supposed but is as 'loose' as Haims and Gerard have warned us to expect.

IV

Much contemporary discussion of domestic service proceeded without a firm evidential base but some writers did attempt to set out contemporary middle class household budgets including expenditure on residential servants' wages. Table 2 tabulates the accounts and recommendations of thirteen authors published between 1888 and 1905. The first three (sources (a) to (c)) and the group of five headed by Morrison (source (g)) are presented as actual or typical accounts, the remainder are recommendations. The sources are fairly consistent, suggesting that actually or ideally a household with an income above a minimum set somewhere between £150 and £200 would or should spend between 5 and 10 per cent of its income on residential servants' wages. Ignoring the budgets of those too poor to hire a residential servant, treating each author's mean percentage as one observation, and attributing a

mean of 9 per cent to Davidson (source (f)), the mean percentage over the eleven authors is 7 per cent with a range of 5 to 9 per cent. Authors who discuss a range of incomes tend to suggest that expenditure on servants should or would rise more than proportionately with income. The one aberrant source is the most well-known, Mrs Beeton. Her suggestion that boys or men should be employed at relatively modest incomes and the very large expenditure recommended for those on £500 a year receive no support from her contemporaries.

Table 2 About Here

In the Edwardian period Praga and Wallace (sources (h) and (i)) introduced some differentiation into their recommendations, noting that households on the same income but in different circumstances would need to spend different amounts on servants either because of direct changes in their needs (or 'tastes') for service brought about by children for example, or as a consequence of decisions on other items of expenditure (a more expensive house or flat for example) or because of differences in wage rates between town and country.[40] They thus identify the main substitutes in consumption for residential domestic service: children and accommodation. These sources, reinforced by contemporary documents and investigations, also make it clear that a main substitute for domestic service in production was the labour of the mistress herself and that of other members of the household.[41] Mistresses of servants, were not, except in the wealthiest households, able to live a life of complete idleness.

---

[40] Praga, *How to keep house on £200 a year*, pp. 22-5; Wallace, *Woman's kingdom*, p. 144.
[41] *Cassell's Book of the Household,* I, p. 159; Davidson, *The book of the home*, V, p. 36; Wallace, *Woman's kingdom*, pp. 187-193; and, discussing home dressmaking: Beeton, *Book of household management*, p. 8, Stacpoole, *Handbook of housekeeping*, p. 12 and Praga, *How to keep house*, pp. 24, 148-50. Other documents include the diary discussed by Pooley and Pooley, 'Constructing a suburban identity', pp. 406-7; literary sources include Grossmith and Grossmith, *The diary of a nobody* (entries for 7 June, 14 November and 28 December); contemporary surveys include

V

This section gives a brief account of a model of the household which we have used to inform our quantitative estimates of the demand for servants. The formal model is given in Appendix D. It is an extension of Becker's model of the household designed to include the possibility of hiring servants.[42] In elementary micro-economics the act of consumption is treated as identical to the act of purchasing a bundle of goods and services. Becker's innovation was to treat consumption as an activity distinct from purchase. Indeed, in Becker's model consumption is like production in that it requires the household to combine different inputs purchased from the market according to a defined technology. The outputs of this process Becker called 'basic commodities' and, unlike commodities purchased from the market, they are deemed capable of satisfying wants directly. The objective of the household is to produce the utility maximizing bundle of 'basic commodities' with the resources it has available. Becker specified that the household maximized a single utility function, an assumption consistent with a number of household constitutions from matriarchy or patriarchy, which is what I assume here, to a consensus in which all household members agree on household priorities. It excludes egalitarian individualistic constitutions in which decisions are negotiated because in modelling such households we have to take account of the 'fall-back' positions of the individual members, defined by their utilities on leaving the household, and these Becker ignored. Nothing in the

---

Booth and Argyle, *Life and labour*, pp. 213, 214, 225-6; modern research, even that concerning large establishments, concurs; see Gerard, *Country house life*, p. 152.

[42] Becker, 'A theory of the allocation of time'.

model prevents altruism in a patriarch and I shall assume that the patriarch values the well-being of every household member.

The resources the household has available to it consist of property and the time of its members. Becker assumed that the amount of time available to the household was given by its composition: a two-person household had twice as much time available as a one-person household. Time can be used in two ways. It can be combined with commodities produced by firms to produce basic commodities in the household, for example meat and vegetables can be combined with time to produce a meal. Or time can be sold on the labour market at a fixed wage rate to produce an income which is then used to purchase commodities produced by firms. Some household members, the very young, the decrepit, for example, may be unable to obtain any wage; in these cases the wage is treated as zero. The extended model in the Appendix also allows the household to buy-in time in the form of domestic service at a fixed wage rate. If it is to do so, and it requires residential rather than non-residential domestic service, it will also have to purchase complementary inputs such as space in which the servant can work, eat and sleep, and the servant's food and drink. When all the time available to each member of the household (but not its servants) is valued at the wage rate faced by that member and is summed together we have what Becker called the household's 'full income'. It is the household's full income, not its money income, that constrains its choices. It is also constrained, as in the economist's elementary model of the consumer, by the prices it faces in the market for commodities and, as in the economist's elementary model of the firm, by the wage rates set in the market for domestic service, by the skills it and its servants possess and by the technology it has available for producing basic commodities. The choice it makes from those available depends solely on its tastes.

The main virtue of the model is to demonstrate the complexity of the decisions the head of household has to make and the consequent danger of relying on informal 'stories' to explain variations in the demand for servants. For example, suppose a patriarch marries and his wife joins his household. This increases the 'full income' available to the household. Typically this will increase the patriarch's demand for market goods and services and for domestic service. The marriage will also change the patriarch's tastes; he is not an ogre and marriage leads him to re-evaluate his preferences for day dresses, evening gowns, the services provided by a lady's maid, and the more spacious house that his wife and her maid would require. To purchase additional market goods or additional service together with its complementary inputs he might turn the increase in his household's 'full income' into money by sending his wife out to work. Otherwise he can only afford the dresses, the lady's maid and the higher rents by cutting down on his savings, his whiskey, his cigars, his dinners at his club, and his other little luxuries. But he may reflect that given the low salary his new wife can earn she and he would be happier if she stayed at home and looked after the house. This would enable him to discharge his housekeeper. But then he wonders whether his new wife is likely to be a good manager. What should he do? Will his demand for servants increase or will it fall?

VI

The impact of demographic changes in the household is thus less easy to predict than one might have thought. It is easy to construct plausible stories whether one wants to explain why marriage and other changes lead people to hire more servants or fewer, as we have just seen. It is less easy to substantiate them with systematic evidence. To achieve this I specify and estimate an econometric model. The discussion of the previous section indicates that

variations in the household's demand for servants will depend on the household's 'full income', itself determined by the number of mistresses, masters, and children in the household; the wage rates available to them in the labour market; servants' wage rates; the prices of market goods and services; the household's domestic technology; and the household's tastes. Some of these variables will have no measureable effect on the numbers of servants hired by households in this sample because the variables take the same values in every household; in these I include market prices, all wage rates except for the head of household's civil service salary, and the domestic technology. These factors therefore drop out of the estimated model. This is not a disadvantage; neither market prices nor wage rates nor the domestic technology of 1901 are now easily observable but where we can assume these variables are constant for all observations in the sample we may still proceed to estimate a model which will show us the impact of changes in incomes and other variables. It has been in order to take advantage of this simplification that we have restricted our sample to London households. There is one market price that was plainly not equal across London, however, and that is the rent of domestic accommodation. I handle this by treating domestic rents as if they can be decomposed into two parts: a rent per square foot of space and a premium for location. Space is treated as an input to domestic production and the rental of a house or flat of a given size is treated in the same way as every other input price, that is, as a constant across London. The premium for location is treated as the price of an output. Heads of household choosing to live in more desirable locations are treated as purchasing 'more' location and their purchases to be determined, as any other purchase, by income, prices and their tastes.

The estimating model is therefore:

$$S_i = f\big(Y_i, Tastes_i, M_i, W_i, N_i^B, N_i^b, N_i^G, N_i^g, N_i^k\big) + \epsilon_i \qquad (1)$$

where:

S_i is the demand for residential domestic servants by household *i*;

$f(.)$ is the demand function;

Y_i is the wage rate available to the head of household *i*;

$Tastes_i$ are indicators of the household's tastes over basic commodities;

$M_i, W_i, N_i^B, N_i^b, N_i^G, N_i^g, N_i^k$ describe the demographic composition of household *i* in terms of, respectively, the numbers of adult men, adult women, older boys, younger boys, older girls, younger girls, and youngest children ('kids') comprised in it;

ϵ_i are the estimating errors which are assumed to have a normal distribution.

The S_i can only take on a small number of non-negative integer values which in this sample range over zero to seven. Accordingly, I adopted an ordered probit estimating model. It may be objected that this model assumes only that the dependent variable is measured on an ordinal scale but here the dependent variable is cardinal being a count of the number of servants. It might therefore appear to be more appropriate to estimate this by a model designed for count data such as the Poisson regression model or the negative binomial regression model. However, to do so would be to take the fact that we can count the number of servants too seriously. Servants were not all alike. Supplementary Table G.3 shows that almost every household that employed only one servant employed a 'general' servant; most households that hired two servants hired a cook and a maid, usually a housemaid. It is not obvious that a cook

and a housemaid count as exactly twice one general servant. Hence the decision to implement the more general ordered probit model.

In this model the independent variables of (1) are assumed to determine the value of a real variable, S_i^*, indicating the strength of demand for servants who, we assume, can only be employed in integer quantities, thus:

$$S_i^* = \beta_1 Y_i + \beta_2 Tastes_i + \beta_3 M_i + \beta_4 W_i + \beta_5 N_i^B + \beta_6 N_i^b + \beta_7 N_i^G + \beta_8 N_i^g$$
$$+ \beta_9 N_i^k + \epsilon_i$$
(2a)

where the $\beta_n, n = 1, \ldots, 9$ are parameters to be estimated and the other symbols are as before. If S_i^* takes any value below an initial threshold, the household hires no servants and S_i is zero; if S_i^* takes a value between the initial threshold and another, higher, threshold, the household hires one servant and S_i is one; and so on for higher values of S_i^*. That is:

$$S_i = 0, \quad if \ S_i^* < \ \theta_1$$
$$S_i = 1, \quad if \ \theta_1 \leq S_i^* < \ \theta_2$$
$$S_i = 2, \quad if \ \theta_2 \leq S_i^* < \ \theta_3$$
$$S_i = 3, \quad if \ \theta_3 \leq S_i^* < \ \theta_4$$
$$\vdots$$
$$S_i = J, \quad if \ \theta_J \leq S_i^*$$
(2b)

where the θ_js are the real-valued thresholds, $-\infty < \theta_j < +\infty$, and

$$\theta_1 < \theta_2 < \theta_3 < \cdots < \theta_J$$
(2c)

Once the parameters β_n and the thresholds θ_j have been estimated the model yields a series of probability estimates, one for each of the $J + 1$ outcomes for each combination of the

independent variables.[43] Here, $J = 7$. Writing the sum of the $\beta_n x_n$, where x_n is a typical

variable in (2a), as $\boldsymbol{\beta'x}$ and denoting the cumulative distribution function of the standard

normal distribution as $\Phi(.)$ the probability estimates are:

$$Prob(S = 0) = \Phi(-\boldsymbol{\beta'x}),$$
$$Prob(S = 1) = \Phi(\theta_1 - \boldsymbol{\beta'x}) - \Phi(-\boldsymbol{\beta'x}),$$
$$Prob(S = 2) = \Phi(\theta_2 - \boldsymbol{\beta'x}) - \Phi(\theta_1 - \boldsymbol{\beta'x}),$$
$$Prob(S = 3) = \Phi(\theta_3 - \boldsymbol{\beta'x}) - \Phi(\theta_2 - \boldsymbol{\beta'x}), \qquad\qquad (3)$$
$$\vdots$$
$$Prob(S = 7) = 1 - \Phi(\theta_6 - \boldsymbol{\beta'x})$$

The use of the normal distribution in (3) and the fact that the thresholds θ_j are not in general

equally spaced imply that the estimated relationships between the independent variables and

the predicted number of servants employed is non-linear. This in turn means that the

presentation of these relationships is less straightforward than it is in linear estimating models

such as the ordinary least squares model. For this reason in what follows I focus on examining

---

[43] Estimation of the model requires some additional restrictions to be imposed. Here, the restrictions are that equation (2a) contains no constant term, as shown, and that the variance of the ϵ_i is set to one. This is the approach introduced by McKelvey and Zavoina, 'A statistical model' and implemented by the Stata computer package. An alternative set of restrictions is to set θ_1 equal to zero while setting the variance of the ϵ_i to one, as before; this allows (2a) to include a constant term, β_0. This is the approach taken by Greene, *Econometric analysis*, pp. 672-4. As Greene and Hensher, *Modelling ordered choices*, p. 132 and tab. 5.9, point out, which of these alternatives is implemented makes no difference to the results except for the estimates of the θ_i; in Greene's approach the estimated θ_i, θ_i^G, are equal to $\theta_i^{M\&Z} - \beta_0$ where $\theta_i^{M\&Z}$ denotes the θ_i as estimated with McKelvey and Zavoina's restrictions. As the estimated θ_i are not of interest (and are not usually reported), which set of restrictions is chosen is not a matter of importance.

the model's predictions for various household types of interest rather than the estimated coefficients.

In computing the model I proxied tastes by the head of household's age (together with its square and cube), his or her marital status, and, in an attempt to measure the head of household's revealed taste for location, the per capita rateable value of the London district in which he or she lived. Marital status was coded in a simple binary scheme: 'married' or 'unmarried', the latter referring to both the single or never married and the widowed and widowered, because this scheme produced slightly better econometric results than did a coding into the threefold scheme of 'single', 'married' and 'widowed or widowered'. On the basis of sample evidence concerning the ages when children left home, I defined adult women as females over the age of 22 and adult men as males over the age of 19; older girls as those aged 15, 16, ..., 21, and 22 and older boys as those aged 15, 16, 17, 18, and 19; younger girls and younger boys as those aged 5, 6, ..., 13, and 14; and children (who were not differentiated by gender) as those under 5.[44] Supplementary Table G.4 gives summary statistics for the dependent and independent variables. Further details of the variables are given in Appendix E.

---

[44] These ages for leaving home may strike demographic historians as aberrant in two respects: first the ages are low and second the age for sons is lower than that for daughters. Pooley and Turnbull, 'Leaving home', tab. 3, found mean ages of leaving home of 23.9 years for males and 23.4 for females in 1850-89 birth cohorts in Great Britain and of 21.8 and 23.7 years respectively in the 1890-1930 cohorts. The low ages are at least partly accounted for by the fact that we are looking here for a 'normal minimum' rather than a mean and daughters in particular often left home at ages greater than the youngest age of a normal departure. The earlier departure of daughters (that it is later in the 1890-1930 cohort is unusual) is typically explained by demographic historians in terms of the lower mean age of marriage for girls and women than for boys and men. This suggests that, in the middle class households studied here, sons may have left for work-related reasons rather than for marriage; however this itself is in contrast to the data by occupational group presented by Pooley and Turnbull.

VII

Table 3 gives the results for the estimation of Equation (2a).[45] The equation as a whole performs moderately well with the Wald statistic showing that it out-performs a null-equation. The pseudo-R^2 appears to be relatively high at 0.23, although its interpretation is not straightforward; the R^2 of the equivalent linear regression, which does have a straightforward interpretation, was high at 0.56. However, the coefficients on a number of variables (age and the square of age, the number of adult women in the household, the number of older boys and younger girls and the number of children under five) failed to reach significance levels of even 10 per cent.

Table 3 About Here

Following informally the 'general to specific' modelling procedure introduced by David Hendry and his colleagues, I therefore deleted apparently insignificant variables in order of the associated probabilities *P>|z|*.[46] Deletions are normally warranted in this procedure if they do not bring about a material change in the pseudo-R^2 or the estimated coefficients on the remaining variables. The deletion of the number of adult women, W_i, brought about a major increase in the coefficient on marital status however, a consequence of the fact that each of these two variables is a close proxy of the other and the sample is too small to yield a precise estimate of each. I chose to retain the marital status variable since its interpretation is more

---

[45] All results were computed with StataCorp, *Stata statistical software: release 11*.
[46] Hendry, *Econometrics*.

obvious. The deletion of Age resulted in large changes in the coefficient on the square and cube of age but as these are simple functions of the same underlying variable I accepted these changes. After this no more deletions were warranted. This produced a model containing: income, the square and cube of age, marital status, rateable value per head, the number of men, the number of older girls, and the number of younger boys. Table 4 gives the results for this more parsimonious model.

Table 4 About Here

All the estimated coefficients are significant at 5 per cent except for the coefficient on the rateable value per head which is significant at 10 per cent. The equation confirms the importance of income. That the tastes of the head of the household and the demographic composition of the household are also of importance goes some way to explaining the somewhat loose fit between income and the demand for service noted above (Table 1). Tastes, as indicated by the revealed preference for location (rateable value) and by the age of the head of household had a detectable effect on the number of servants hired. Those living in a more desirable part of London hired fewer servants, other things constant. A little arithmetic shows that the net contribution of age to S_i^* starts at about +0.4 at age 21, rises rapidly to +0.8 at age 35 when its rate of increase slows and reaches a peak of almost 1.0 at age 47. It then declines slowly, reaching 0.9 at age 55, and then more rapidly, reaching 0.0 at about age 70. By age 80 it is strongly negative at about -1.2.

The estimated equation suggests that the impact of marriage was to increase the demand for servants. Conversely the loss of a spouse, usually of course towards the end of the life-span, reduced the demand for servants, an effect compounded by the age of the widow or widower

should they be in their late forties or older. Some of the other demographic variables had

effects that may be more surprising. The more men and younger boys the household

contained, the lower was the demand for servants; similarly the more older girls in the

household, the lower the demand for servants. The net effect of the deleted demographic

variables, the number of women, older boys, younger girls and of children under five, was

indistinguishable from zero.

That a number of demographic variables had no detectable impact on the demand for domestic

service is somewhat surprising and suggests a deeper consideration of the results is necessary.

The usual interpretation of deleted variables is that, despite prior expectations to the contrary,

the deleted variables do not matter, or, sometimes, that what were hoped to be close proxies

turned out not to be such. Here, however, I would suggest that it is more likely to be the case

that the coefficients on the deleted demographic variables were found to be indistinguishable

from zero because the coefficients show net effects composed of positive effects on the

demand for servants approximately balanced by negative effects. In short, these are true

zeroes. More formally, the model of the demand for servants suggests that any increase in

household size has two separate impacts on the demand for servants, one operating through

the increase in household 'full income', the other operating through changes in tastes. In turn,

each of these may be separated into two. The increase in household 'full income' might be

taken in the form of time, enabling greater domestic production by household members, or

money, enabling greater consumption of market goods and services. The change in tastes may

be towards market goods and services or towards domestic service. On some of these

changes the historical evidence in the shape of contemporary household management texts

allows us to specify strong prior beliefs. Using these priors and the estimated effects as given in Table 4 allows us to make the inferences shown in Table 5.

Table 5 About Here

Table 5 tabulates a series of assumptions and inferences. Columns (1) and (2) give our assumptions for each demographic group about the manner in which an increase in full income is utilized. Thus if the household is augmented by an adult male we expect that he will contribute to household full income by working in the external labour market and contributing money. This tends to increase the demand for domestic service. If the household is augmented by an adult woman we expect in contrast that she will contribute to household full income by working at home and contributing time. This tends to decrease the demand for hired-in domestic service. Older boys we expect to have effects similar to men; older girls effects similar to women; younger boys and girls and children under five we expect to neither go out to work nor to contribute to domestic labour. Column (3) shows the net effect on the demand for servants of the assumption tabulated in columns (1) and (2). Column (4) shows the implied effect on the demand for servants arising out of changes in tastes. The entries in column (4) are inferred from the condition that the net effect of changes in full income (column (3)) and the changes in tastes (column (4)) must yield the statistically estimated net effect in column (5). For example, the assumed negative effect on the demand for servants of an extra adult woman in the household arising from her effect on household full income must be balanced by a positive effect arising from changes in tastes to yield the statistically estimated net effect of approximately zero. In the case of an extra adult man, the effects of changes in tastes must be strongly negative to offset the assumed positive effect of his addition to full income to yield the statistically estimated negative effect. These strongly negative taste effects imply that

an extra adult man affects tastes by shifting them towards basic commodities in which servants are *not* used relatively intensively: for example away from clean carpets and towards nights at the opera. The augmentation of the household by older and younger boys has taste effects similar to, though less marked than, adult men. Extra older and younger girls and extra children under five have no effects on the demand for servants arising through changes in tastes.

The inferences shown in column (4) seem plausible. Heavy demands for market goods by adult males, but not females, are routinely noted in the contemporary household management literature. They were for tobacco, beer, wines, and spirits; cultural products such as newspapers, entertainments, and club and society membership fees; travel to work expenses and the expense of lunch at work; life and other forms of insurance; and savings. These expenditures were mimicked, but at lower levels, by older boys and young men, few of whom would have purchased insurance, for example, normally treated as a responsibility of married life. None of these items were normally purchased by middle-class women. Women's expenditure on clothes was expected to be greater than men's at higher income levels, but the felt necessity for even lower-middle-class men to appear cleanly and smartly dressed at work and in public meant that the disparity here was not as great as might be imagined and might even favour the man.[47] Stacpoole suggested that where the household income was £200 a year then a 'respectable appearance' could be maintained on a clothing expenditure of £20 per annum for a gentleman and £15 for a lady.[48] Wallace suggested that on an income of £250 a year both husband and wife could expect to spend £20 a year on clothes.[49]

---

[47] Banks, *Prosperity and parenthood*, p. 124.
[48] *Handbook of housekeeping for small incomes*, p. 11.
[49] *Woman's kingdom*, p. 140. Collet, 'Expenditure', confirms the realism of these comments.

The major difference between younger boys and girls in these middle class homes was that boys went to school but girls stayed at home and learned their lessons from mama. Mrs Willoughby Wallace was insistent that a mistress in a household with £250 or £350 a year must educate her daughters at home until they were 14 or 15 years old, a process to which she was recommended to devote the hours between 10 and 12 daily. The boys should be sent to school.[50] School fees were highly variable. A witness speaking for the Private Schools Association before the 1894-5 Royal Commission on Secondary Education and basing his remarks on returns received by the Association from its members stated that tuition fees varied from £4 10s to 30 guineas a year. Boarding fees varied from 30 to 100 guineas with a few even higher.[51] That a household might need to economize on domestic service if it aimed to send its sons to a well-regarded or prestigious school is therefore easy to understand.

Our quantitative results should not, therefore, be interpreted as claims that increases in household size had no effect on the demand for servants unless the additional members were adult men, older girls, or younger boys. Rather they should be interpreted as claims that the effects of increases in household size on the demand for servants were often offset by concomitant changes in household full incomes and tastes. We also claim that the different effects across the genders on the demand for domestic service had its roots not only in the specialization of older boys and men in market work and of women and girls in domestic labour but also in the widely different expenditure patterns of, or on behalf of, older boys and girls, of adult men and women, and in the discrimination against girls in the purchase of education.

---

[50] *Woman's kingdom*, pp. 187-193.
[51] Royal Commission on Secondary Education, *Minutes of evidence ...*, III (P. P. 1895, XLV), QQ. 9,274-94.

VIII

Table 6 gives some predictions of the model for a household in Wandsworth where the head was married and aged 40 and where the household included a married couple, one older girl and one younger boy. As we have seen, Wandsworth was the most popular single residential district in this sample. Most heads of household (413 out of 492) were married and 40 is near to the mean age of the sample heads of household. Because of the zero estimates for some of the demographic coefficients the predictions for this household are the same as those for similar households containing additional older boys, younger girls and children under five. These predictions therefore cover a wide variety of household types.

Table 6 About Here

The Table shows the variation in the demand for servants arising from variations in the head of household's salary. Probabilities sum to one in each row. Thus, reading across the rows, Table 6 shows that the estimated probability of a civil servant from this sample on £100 a year employing no residential servants is 0.13, of employing one is 0.63, and two is 0.21. The employment of larger numbers is of negligible probability. At £300 a year it is still more than likely that a household such as this will hire only one servant; at £400 a year two or more is the most probable outcome. At £700, the income at which a number of contemporary commentators suggested a householder should be able to afford three servants (Table 2), we find it more than likely that the household hires only one or two. Again, at £1,000, where Mrs Beeton recommended four servants, the most likely number in this type of household in this sample was three. At incomes of £1,200 and higher the Table shows the estimated probabilities starting to pile up at the right-hand side of the Table, an effect caused by the small

numbers in the sample at these incomes and the corresponding absence of households in the sample with staffs of eight, nine, or more. Supplementary Tables G.5 and G.6 which give predictions for households of different characteristics also show the likely number of servants to be fewer than suggested by contemporary recommendations. Thus, it would indeed appear that contemporary advice manuals were over-optimistic in their recommendations. Their recommendations exceeded actual practice among this sample by about one servant at any given level of income between £300 and £1,000. The converse of this is that if we judge the likely income of a householder on the basis of the number of servants he or she employed as shown by the 1901 census enumerator's books we shall under-estimate the household's income if we let contemporary advice manuals be our guide. That this is so has been suspected for a very long time –it is implicit in every warning of the danger of relying on contemporary manuals of household management—but this is the first time it has been confirmed empirically and the scale of the under-estimation quantified.

Appendix F gives ready reckoners for assessing likely household income given the number of residential servants employed for the civil servants treated here. Those ready reckoners give probability estimates of various levels of income. These typically show a substantial degree of uncertainty, a result reflecting the 'loose' fit between household income and servant employment on which we have repeatedly remarked.

Table 7 gives predictions for households in different locations. It shows that the taste for location had very little effect on the demand for servants. The maximum likelihood number of servants hired in these households where the head is earning a salary of £300 a year is one, whether the household has chosen to live in West Ham, Wandsworth or Kensington. The

probability-weighted predicted number of servants also shows very little variation: it falls from 1.50 servants in West Ham to 1.47 in Wandsworth and 1.38 in Kensington.

Table 7 About Here

Table 8 shows the effect of increasing age. The ages chosen give ten-year steps up to and beyond the age of 47 where the effect of age is at its maximum. At each age the maximum-likelihood prediction remains at one servant. The probability-weighted point estimate rises by about 0.25 of a servant up to the age of 47 and then falls by about 0.40 of a servant over the next twenty years as old age approaches.

Table 8 About Here

How important was household composition in comparison with income? Table 9 answers this question. It gives the estimated number of servants hired for various household types at various levels of income, viz., the mean income which was about £380, the mean plus one standard deviation (about £700), and the mean plus two standard deviations (about £1,050). The Table shows that the estimated number of servants varies significantly according to household structure. At the mean income, the estimated number of servants varies from 1.29 to 2.06 (a difference of 0.77) over the household types shown; at £700 it varies from 1.97 to 3.18 (a difference of 1.21) and at £1,050 from 3.16 to 4.51 (1.35).

Table 9 About Here

We conclude that household demographics were of an importance second only to income.

In sum, our results help to explain the 'loose fit' between income and staff size noted by Haims and Gerard. Some is due to detectable differences in tastes between household heads but

34

most, as Haims and Gerard suspected, in these middle-class households in the London of 1901 as well as on the landed estates of an earlier generation, was due to the demographic differences between households.

IX

We began by calling attention to our ignorance of the Victorian and Edwardian domestic service sector despite the fact that it was a major part of the British economy and a major part of the broader domestic production industry otherwise staffed by unpaid family workers. As a contribution to the study of this sector we employed a previously unexploited dataset concerning the incomes of a group of civil servants linked together with their household details as documented by the 1901 census enumerators to estimate their demand for residential domestic service. We reminded the reader that British civil servants have been known for some time to have been in the vanguard of demographic change and this is likely to have put them in a vanguard of servant employing behaviour as well. The results presented here can only be applied to other members of the British middle-classes with caution therefore.

These results confirmed that income was the major driver of demand but also demonstrated that the demographic structure of the household and, to a lesser extent, the tastes of the head of household as indicated by his or her age and where he or she chose to live and were also of importance. These variables were capable of explaining part of the 'looseness' in the relationship between income and the demand for residential service found in previous studies. The results for the demographic variables suggested the complexity of the effects of the life-

cycle on the demand for resident service. Marriage raised the demand for servants. The presence of young children did not although it may have led some households to employ a nurse instead of a maid. As boys grew to reach school age their presence reduced the demand for servants, a result we interpreted as due to the heavy demand for market goods and services on their behalf but not required by their sisters, specifically private school fees. As boys and girls grew older they became capable of adding to household 'full income'. Girls appear usually to have added to the supply of household labour, thus reducing the demand for domestic servants, whereas boys appear usually to have added to household money income and thus did not have a depressing effect on the demand for servants. Similarly the presence of adult men and women in the household (usually spouses but also including other relations) had contrasting effects for similar reasons and we drew attention to the major differences in the pattern of household expenditures made for adult men and women in the London middle classes. More broadly and in accord with the recent literature on household production reviewed in section I we concluded that the demand for domestic service was determined ultimately not only by incomes and the conventional gender and generational divisions of labour but also by the conventional gender differences in the consumption of market goods and services, including education, both by children and by adults. More broadly still our analysis shows that the demand for domestic service in the market for residential servants cannot be separated from the household's own supply of labour available for domestic production. Market and non-market means of producing domestic outputs were therefore closely connected. In an early modern context this would be an obvious point but it is one which appears to have been forgotten in much of the historiography of Victorian and Edwardian domestic service, possibly because of its fascination with large country house estates. Consequently and obviously, counts

of the number of domestic servants do not adequately convey the scale of domestic production. Less obviously, it would seem, measures of the scale of domestic output in Victorian and Edwardian Britain which include only the output of unpaid work by family members and ignore the output of paid work by resident (and non-resident) servants are incomplete.

We showed that the variation in the number of servants employed by sample households of given incomes and demographic structures implied that the information regarding incomes contained in the number of servants employed was not as great as might have been assumed. Nevertheless, our analysis does suggest that contemporary manuals of household management tended to exaggerate the numbers of servants that could be employed in London, possibly by about one servant in households earning between £300 and £1,000 a year where the employment of one, two or three servants was normal. Conversely, London households employing one, two or three servants are likely to have been better off than a comparison with contemporary household manuals would suggest.

The University of Leeds

Footnote References

Ancestry Information Operations Company, *Ancestry* (2015) http://www.ancestry.co.uk (accessed 2010-15).

Anderson, M., *Family structure in nineteenth century Lancashire* (Cambridge, 1971).

Anderson, M., 'Highly restricted fertility: very small families in the British fertility decline',
Population Studies, 52 (1998), pp. 177-99.

Banks, J. A., *Prosperity and parenthood: a study of family planning among the Victorian middle classes*
(1954).

Bateman, J., *The great landowners of Great Britain and Ireland* (Leicester, 4th edn. 1971).

Becker, G. S., 'A theory of the allocation of time', *Economic Journal*, 75 (1965), pp. 493-517.

Beeton, I., *The book of household management* (c. 1899).

Booth, C., *Life and labour of the people in London*, 9 vols. (1892-7), V-VIII: *Population classified by
trades* (1895-6).

Booth, C., and Argyle, J., 'Household service, &c.' in C. Booth, ed., *Life and labour of the people in
London*, 9 vols. (1892-7), VIII, pp. 211-51.

Bunting, M. H. L., 'Mistress and maid', *Contemporary Review*, 97 (1910), pp. 595-602.

Cassell, *Cassell's book of the household: a work of reference on domestic economy*, 4 vols. in 2 (1889-
90).

Collet, C. E., 'The expenditure of middle class working women', *Economic Journal*, 8 (1898), pp.
543-53.

Cooper, S. M., 'From family member to employee: aspects of continuity and discontinuity in
English domestic service, 1600-2000', in A. Fauve-Chamoux, ed., *Domestic service and the
formation of European identity: understanding the globalization of domestic work, 16th-21st centuries*
(Bern, 2004), pp. 277-96.

Cowan, R. S., *More work for mother: the ironies of household technology from the open hearth to the microwave* (New York, 1983).

Cromwell, V. and Steiner, Z. S., 'The Foreign Office before 1914: a study in resistance', in G. Sutherland, ed., *Studies in the growth of nineteenth-century government* (1972), pp. 167-94.

Davidson, H. C., *The book of the home: a practical guide to household management*, 8 vols. (1900-01).

de Salis, H. A., *The housewife's referee: a treatise on culinary and household subjects* (2nd edn c. 1898).

De Vries, J., *The industrious revolution: consumer behavior and the household economy, 1650 to the present* (Cambridge, 2008).

Ebery, M. and Preston, B., *Domestic service in late Victorian and Edwardian England, 1871-1914* (Reading, 1976).

Fairchilds, C., *Domestic enemies: servants and their masters in old regime France* (Baltimore, 1984).

'A Family Man' [i.e. H. M. A. Strachey], 'A family budget', *National Review*, 23 (1894), pp. 98-109.

Fauve-Chamoux, A., ed., *Domestic service and the formation of European identity: understanding the globalization of domestic work, 16th-21st centuries* (Bern, 2004).

'Felicitas', 'Another family budget', *National Review*, 23 (1894), pp. 403-8.

Field, J. F., 'Domestic service, gender, and wages in rural England, c. 1700-1860', *Economic History Review*, 66 (2013), pp. 249-72.

Findmypast, *Findmypast* (2015) http://www.findmypast.co.uk (accessed Aug. 2015).

Floud, R., Humphries, J., and Johnson, P., eds., *The Cambridge economic history of modern Britain*, 2 vols. (Cambridge, 2014).

Gerard, J., *Country house life: family and servants, 1815-1914* (Oxford, 1994).

Greene, W. H., *Econometric analysis* (New York, 2nd edn. 1993).

Greene, W. H. and Hensher, D. A., *Modelling ordered choices: a primer* (Cambridge, 2010).

Grossmith, G. and Grossmith, W., *The diary of a nobody*, ed. K. Flint (Oxford, 1995).

Haims, L., 'In their place: domestic servants in English country houses, 1850-1870' (unpub. Ph.D. thesis, Johns Hopkins Univ., 1981).

Hajnal, J., 'Two kinds of preindustrial household formation system', *Population and Development Review*, 8 (1982), pp. 449-94.

Hanham, H. J., 'Political patronage at the Treasury, 1870-1912'*, Historical Journal*, 3 (1960), pp. 75-84.

Hendry, D. F., *Econometrics: alchemy or science? Essays in econometric methodology* (Oxford, new edn. 2000).

Higgs, E., *Domestic servants and households in Rochdale, 1851-1871* (New York, 1986).

Hinde, P. R. A., 'Household structure, marriage and the institution of service in nineteenth-century rural England', *Local Population Studies*, 35 (1985), pp. 43-51.

Horn, P., *The rise and fall of the Victorian servant* (Dublin, 1975).

Kelsall, R. K., *Higher civil servants in Britain: from 1870 to the present day* (1955).

Kent, D. A., 'Ubiquitous but invisible: female domestic servants in mid-eighteenth century London', *History Workshop Journal*, 28 (1989), pp. 111-28.

Kornrich, S., 'Hiring help for the home: household services in the twentieth century', *Journal of Family History*, 37 (2012), pp. 197-212.

Laslett, P., *The world we have lost* (2nd edn. 1971).

Laslett, P., 'Introduction', in P. Laslett and R. Wall, *Household and family in past time: comparative studies in the size and structure of the domestic group over the last three centuries in England, France, Serbia, Japan and colonial north America, with further materials from western Europe* (Cambridge, 2nd impression, 1974), pp. 1-89.

Laslett, P., 'Characteristics of the western family considered over time', *Journal of Family History*, 2 (1977), pp. 89-115.

Laslett, P., 'Family and household as work group and kin group: areas of traditional Europe compared', in R. Wall, J. Robin and P. Laslett, eds., *Family forms in historic Europe* (Cambridge, 1983), pp. 513-63.

Laslett, P. and Wall, R., *Household and family in past time: comparative studies in the size and structure of the domestic group over the last three centuries in England, France, Serbia, Japan and colonial north America, with further materials from western Europe* (Cambridge, 2nd impression, 1974).

Leyard, G. S., 'How to live on £700 a year', *Nineteenth Century*, 23 (1888), pp. 239-44.

McBride, T., *The domestic revolution: the modernisation of household service in England and France, 1820-1920* (1976).

McKelvey, R. D. and Zavoina, W., 'A statistical model for the analysis of ordinal level dependent variables', *Journal of Mathematical Sociology*, 4 (1975), pp. 103-20.

Mokyr, J., 'Why "more work for mother?" Knowledge and household behaviour, 1870-1945', *Journal of Economic History*, 60 (2000), pp. 1-41.

de Moor, T., and van Zanden, J. L., 'Girl power: the European marriage pattern and labour markets in the North Sea region in the late medieval and early modern period', *Economic History Review*, 63 (2010), pp. 1-33.

Morrison, A., Leyard, G. S., Colmore, G., Earle, Mrs, and Agnew, Lady, 'Family budgets: I. A workman's budget', 'II. A lower-middle-class budget', 'III. Eight hundred a year', 'IV. Eighteen hundred a year', [and] 'V. Ten thousand a year', *Cornhill Magazine*, 10 (1901), pp. 446-56, 656-66, 790-800; 11 (1901), pp. 48-61, 184-91.

Moya, J. C., 'Domestic service in global perspective: gender, migration, and ethnic niches', *Journal of Ethnic and Migration Studies*, 33 (2007), pp. 559-79.

Overton, M., Whittle, J., Dean, D., and Hann, A., *Production and consumption in English households, 1600-1750* (2004).

Pooley, C. G. and Pooley, S., 'Constructing a suburban identity: youth, femininity and modernity in late-Victorian Merseyside', *Journal of Historical Geography*, 36 (2010), pp. 402-10.

Pooley, C. G., Pooley, S., and Lawton, R., eds., *The diary of Elizabeth Lee: growing up on Merseyside in the late-nineteenth century* (Liverpool, 2010).

Pooley, C. G. and Turnbull, J., 'Leaving home: the experience of migration from the parental home in Britain since c. 1770', *Journal of Family History*, 22 (1997), pp. 390-424.

Pooley, S., 'Domestic servants and their urban employers: a case study of Lancaster, 1880-1914', *Economic History Review*, 62 (2009), pp. 405-429.

Praga, Mrs A., *How to keep house on £200 a year* (1904).

Quah, E., 'Country studies and the value of household production', *Applied Economics*, 21 (1989), pp. 1631-46.

Ramey, V. A., 'Time spent in home production in the twentieth-century United States: new estimates from old data', *Journal of Economic History*, 69 (2009), pp. 1-47.

Schwarz, L., 'English servants and their employers during the eighteenth and nineteenth centuries', *Economic History Review*, LII (1999), pp. 236-56.

Stacpoole, F., *Handbook of housekeeping for small incomes* (c. 1898).

StataCorp, *Stata statistical software: release 11* (College Station, TX, 2011).

Szreter, S., *Fertility, class and gender in Britain, 1860-1940* (Cambridge, 1996).

Wall, R., 'The household: demographic and economic change in England, 1650-1970', in R. Wall, J. Robin, and P. Laslett, eds., *Family forms in historic Europe* (Cambridge, 1983), pp. 493-512.

Wallace, Mrs [A.] W., *Woman's kingdom: containing suggestions as to furnishing, decorating and economically managing the home for people of limited means* (1905).

Whittle, J. and Griffiths, E., *Consumption and gender in the early seventeenth-century household: the world of Alice Le Strange* (Oxford, 2012).

Wright, M., *Treasury control of the civil service, 1854-1874* (Oxford, 1969).

Official Publications

Northcote, S. H. and Trevelyan, C. E., 'On the organisation of the permanent civil service', in *Committees of inquiry into public offices and papers connected therewith* (P. P. 1854, XXVII), pp. 333-55.

Local Government Board, *Return of owners of land, 1873* (P. P. 1874, LXXII).

Royal Commission on Secondary Education, *Minutes of evidence taken before the Royal Commission on Secondary Education*, III (P. P. 1895, XLV).

Collet, C., *Report on the money wages of indoor domestic servants* (Board of Trade Labour Department) (P. P. 1899, XCII).

Local Government Board, *Local taxation returns, (England) [for 1901]* (P. P. 1902, LXXXVII).

Census of England and Wales 1901: General Report with Appendices (P. P. 1904, CVIII).

H. M. Treasury, *Return to an order of the Honourable the House of Commons, dated 28 February 1912; ---for, Return "Setting forth the name, age, date of appointment, salary, address at time of appointment, and occupation for the five years preceding the appointment, of each person appointed without competitive examination to any position in the public service during the period from the 29th day of June 1895 to the 5th day of December 1905, with an annual salary of 100l. and upwards, specifying separately the appointments for England, Wales, Scotland, and Ireland."* (P. P. 1912-13, LVI).

Royal Commission on the Civil Service, *Fourth report of the Commissioners* (P. P. 1914, XVI).

The Demand for Residential Domestic Service in

the London of 1901

By QUENTIN OUTRAM

Appendices A to G

Appendix A. A Bias Arising from Selective Tracing Failures.

An attempt was made to trace all those civil servants listed in the England pages of the *Return* (except those in the excluded departments) appointed before 31 March 1901 in the 1901 census enumerators' books. Of these 1,321 individuals, 326 (24.7 per cent) could not be found. The possibility therefore arises that one or more biases were introduced into the final sample by selectivities in the tracing failures. To check for this we compared the characteristics of the traced and untraced individuals. The median date of their appointment was 1898 in both the traced and untraced groups. They held posts in a similar range of departments; in both groups the major employers were the Board of Education (21 per cent of both groups) and the General Post Office (31 per cent in the untraced group and 27 per cent in the traced group). The mean age at appointment was 35.8 years in the untraced group and 37.3 in the traced group (this difference is statistically significant at 5%). (The mean age of the heads of household in the final sample was higher because this age was measured in 1901, not at the date of appointment, and because civil servants who were heads of household were typically older than civil servants who were not.) The mean annual salary in 1901 was £284 in the untraced group and £324 in the traced group (the difference was statistically significant at 1%; the median salaries were much closer together at £243 and £250 respectively.) These differences in the mean ages and incomes of the two groups are not problematic since the estimating model includes both age and income as explanatory variables; were they not, omitted variables biases would arise.

One other difference between the traced and untraced groups became apparent during the tracing process. The primary search method used to trace civil servants in the census enumerators' books was by the civil servant's name and the main source of tracing failures was the difficulty of distinguishing between large numbers of individuals appearing in the books with exactly or approximately the same name. These large numbers arose where surnames and forenames were common and forenames were few. If one believes the folk economics of British male forename allocation, in which male forenames are allocated like scarce goods in which property rights exist and prices are charged, multiple forenames are, on the assumption that names are normal, not inferior, goods, an indicator of wealthy parents.

Hence, a bias in the distribution of tracing successes towards multiply-forenamed individuals in a sample like this one composed predominantly of men would introduce a bias towards those from wealthy backgrounds; this, in turn, could introduce a bias in the sample, possibly towards individuals who were habituated to the presence of servants during their childhood and youth. The folk economics is widely believed in the UK[52] but there appears to have been little research on the question. Wilson cites research on the issue largely concerned with continental Europe but concurs with the view that in England multiple naming began with the aristocracy and spread downward with double forenames becoming 'common' in the later nineteenth century.[53] The phenomenon is almost unknown in the USA, the location of most socio-psychological and economic research on naming, where the forename-initial-surname format ('John D. Rockefeller', 'George W. Bush') has been and continues to be of overwhelming popularity.

To test for the presence of this bias I compared the numbers of forenames and initials in the traced and untraced groups. The results are given in Table A.1. The Table confirms that civil servants with one forename only were harder to trace than those with two (31 per cent of tracing attempts failed instead of 22 per cent) though, surprisingly, those with three or four names were harder to trace than those with two; this may have arisen because of the illegibility of names squeezed into the limited space provided by the fixed layout of the enumerators' books. Moreover, the differences in the distributions of the traced and untraced are statistically significant at 1 per cent. However, they are not quantitatively large; had we succeeded in tracing singly-forenamed individuals as well as doubly-forenamed individuals we would have traced 305 of them instead of the 267 actually found. These additional 38 observations would have increased the size of the traced group of 995 by less than 4 per cent. Unless the impact of parental background on the demand for servants was gross, a bias in the sample of this extent can only have a negligible effect.

Table A.1. *Tracing successes and failures by number of forenames*

Civil servants sample, London, 1901

Number of forenames and/or initials	Traced		Not Traced		All		
	Number	%	Number	%	Number	%	%
1	267	68.6	122	31.4	389	100.0	29.4
2	644	78.5	176	21.5	820	100.0	62.1
3	82	75.9	26	24.1	108	100.0	8.2
4	2	50.0	2	50.0	4	100.0	0.3
All	995	75.3	326	24.7	1321	100.0	100.0

Note: Names and initials as given in the *Return*; census enumerators sometimes gave fewer names and/or initials.
Sources: General Register Office, *1901 Census [of England and Wales] returns*; H.M. Treasury, *Return*.

---

[52] See for example, Hall, 'The sociologue', and its reception by Frayn, 'Miscellany', *Guardian* [London], 4 July 1960.
[53] *The means of naming*, pp. 215-21.

Appendix B. Other Incomes and Outliers

The sample households may have had other, unknown, sources of income apart from the head of household's civil service salary. This Appendix considers the likely sources and the available data on supplementary incomes to assess the character and scale of this problem. A small number of households in the initial sample of 507 plainly had substantial additional incomes creating a number of outliers from the sample. The problem caused by supplementary incomes was treated by detecting and removing such outliers from the sample and this Appendix also details the procedure used to detect outliers and identifies the outliers found.

Possible supplementary sources of income

A. Additional labour income

(i) Earned by the civil servant himself or herself

From 1890 Civil Service regulations required full-time attendance to duties.   Men clerks appointed after May 1889 had been required to attend their offices for seven hours; in 1890 this requirement was extended throughout the Service. Also in 1890 it was provided for the first time that 'No clerk shall be allowed to accept any part in the management of any Society, or any ... Company ... which would require the attendance of such clerk at any time between the hours of ten a.m. and six p.m.'.[54] (The regulation appears not to have applied to sub-postmasters and postmistresses.) I have therefore assumed that in 1901 no civil servant was able to earn a significant second salary.

Sub-postmasters and mistresses

There are 32 sub-postmasters and mistresses in the initial sample. Census descriptions of the occupations of family members make it clear that the postmaster or mistress often ran a second business as a stationer or as some other kind of shop-keeper. I experimented by deleting these observations from the sample. This made very little difference to the results and these observations were consequently retained.

(ii) Spousal labour earnings

Of the civil service heads of household, 15 were women; all of them were single or widowed and therefore had no spousal earnings. The remaining 477 were men; 413 of these were married and a potential existed therefore for the household income to be augmented by spousal earnings. However, very few indeed of these wives (nine, or 1.8 per cent) worked outside the home, at least as far as we can tell from the census enumerators' books. Although one has to remember the documented failure of the census enumerators to record the occupations of many married women[55] it remains the case that there is no evidence that spousal earnings were of any significance in this group of civil servants.

---

[54] Order in Council of 21 March 1890, *London Gazette*, 25 March 1890, pp. 1786-8, clause 11; Order in Council of 15 August 1890, *London Gazette*, 19 August 1890, pp. 4497-9, clause 11.
[55] Higgs, 'Women, occupations and work' pp. 63-4, 68-9; Roberts, *Women's work*, p. 9.

(iii) Labour earnings of adult children and other household members

If working wives appear to have been very rare in this sample, households in which at least one member other than the head of household worked outside the home were relatively common. There were 113 of them in the sample (23 per cent) containing 186 workers in addition to the head of household. The majority (62 per cent) were male. Nearly half were youths, usually sons or daughters. The types of work varied. The largest single category for men, women, boys and girls was clerical work. This accounted for 22 out of 64 working adult men, 35 out of 51 working older boys, 7 out of the 39 working adult women and 8 out of the 32 working older girls. Other occupations in the sample include young daughters employed as pupil teachers for the London School Board, in semi-skilled manual work such as book-folding, fancy cardboard box-making, and in more skilled work such as dress-making. Young sons and other relatives also worked as pupil teachers, as shop assistants and in a few cases they undertook manual work, for example as a steam engine fitter. Adult women worked as telegraphists for the G.P.O. and as school mistresses. Among the adult men there was a draper's assistant, a hosier's assistant, warehousemen, an insurance agent, a schoolteacher, a journalist, and an analytical chemist. It is striking that none of these occupations were notoriously well-paid; the absence of professional occupations is also noticeable. One speculates that where family members did meet with success in their careers they moved out and established their own household. If so, the contributions to household incomes from those who stayed would have been less than might have been expected. The number of servants in these households was noticeably below average, very markedly so in the households in which girls or women had been sent out to work.

The incomes that these additional workers were able to earn will have varied substantially by age and gender. Little data is available but Table B.1 sets out some plausible estimates based on information about clerks, shop assistants and elementary school teachers from various sources.

Table B.1. *Supposed annual wage rates available to various household members*

Civil servants sample, London, 1901

	Males	*Females*
Youths	£20	£15
Adults	£80	£50

Notes: Youths are boys and girls of 15 years of age and over, up to and including the ages of 19 for males and 22 for females; adults are males over 19 and females over 22.
Sources: See text.

The fullest source of information is the *Report* by Edwin Cannan, A. L. Bowley, et al. to the British Association in 1910.[56] This was concerned to contribute to estimates of the national income, then based largely on income tax data, by estimating the aggregate income earned by people with incomes under the income tax limit which then stood at £160 per annum. This involved estimating the numbers in various occupational groups receiving less than £160 and then estimating their average earnings. Where all, or nearly all, of those following the occupation were paid less than £160 this is equivalent to

---

[56] Cannan et al., 'The amount and distribution of income'.

an estimate of the average earnings of the occupation as a whole. Relevant occupations where this condition obtained included male teachers in public elementary schools (£100 per annum); male railway clerks (£82); shop assistants male and female (£65); female clerks in the Post Office (£57); female clerks in local government service in London (£80); female teachers in public elementary schools (£76); other female teachers (£60); female commercial and industrial clerks (£45); and telephonists (not G.P.O.) (£50). These estimates were based on information pertaining to 1909 or 1910. Feinstein's index of average earnings shows a rise of 7.9 per cent overall between 1901 and 1910 but with increases of 9.0 per cent for distribution and 26.7 per cent for government.[57] We should perhaps therefore reduce Bowley's estimates by about 10 per cent to get back to 1901 values.

The remaining data are very miscellaneous. The Supply Estimates tell us that the minimum salary for second division clerks in 1901, who were predominantly if not universally male at this point, was £70 per annum; assistant clerks started at £55 which was also the minimum for women clerks.[58] Boy clerks were paid between 14s. and 18s. a week or between about £35 and £45 a year.[59] Charles Booth gave a figure for the average earnings of drapers' assistants of £59 in 1894; raising this to 1901 values using Feinstein's estimates of earnings growth in distribution over the period (12.9 per cent) gives £67. (Feinstein thought it reasonable to take these figures for drapers' assistants as representative of all shop assistants.[60]) Clara Collet's report to the Royal Commission on Labour made in 1892 quoted one witness who gave data on female shop assistants' salaries which varied from £16 to £27 plus food and accommodation; others suggested a starting salary of £12 rising to a maximum of £30 or £40.[61] Feinstein's index suggest these salaries should be raised by 11.5 per cent to reach the values of 1901. There is very little separate data for youths. Anderson gave data on the salary careers of clerks at the Sea Insurance Company in Liverpool over the 1890-1914 period which suggested a starting salary, paid to boys at the ages of 16 or 17, of £20 per annum, unchanged over the 1890-1900 period.[62] The figure of £15 for girls in Table B.1 was chosen on the basis that it should be below the figure for boys but having regard to the wages paid to servants in London which Collet estimated as £7.2 for girls aged under 15 years and £11.9 for girls of 15 up to 20 in 1891.[63]

I did not seek to treat the households with working members additional to the head differently from those without additional workers in the estimating model. The reason is that any household that contains, say, an adult daughter, has, in the terms of the model, additional 'full income' (time which can be converted to money via the external labour market). Some households will choose to 'spend' this full income on market goods and services (by sending the daughter out to work and using her wages to purchase goods and services), some will choose to spend it on household production (by setting her to work in the home on housework) and some on leisure (by allowing her to remain at home without requiring her to undertake housework) but all have additional full income. To distinguish those households which sent their daughters or other members out to work would be to make a distinction without a valid reason. Ideally we *would* want to distinguish those households where the actual or potential earnings of subordinate members were higher from those where they were lower. However, the information on occupations summarized above suggests that there was little variation in this between the households (unlike the earnings potential of the civil service heads of household which

---

[57] Feinstein, 'New estimates of average earnings', tab. 4.
[58] *Estimates for Civil Services for the year ending 31 March 1901* (P.P. 1900, LII), p. 351 which gives these data for the Board of Education.
[59] Ibid.
[60] Booth, ed., *Life and labour,* VII, pp. 83-6; Feinstein, 'New estimates of average earnings', p. 626, n. 104.
[61] Royal Commission on Labour, 'Report by Miss Clara E. Collet' (P.P. 1893-4, XXXVII), tabs. I and II.
[62] Anderson, *Victorian clerks*, p. 25.
[63] Labour Department, Board of Trade, *Report by Miss Collet* (P.P. 1899, XCII), p. 3.

varied greatly, from £100 to £2,000 per annum). I conclude therefore that the absence of individual earnings data from subordinate members of the households is not a significant problem.

However, this is a theoretical argument. To check this empirically I entered additional variables into the estimating equation, w^M, w^F, w^B and w^G to represent the wage rates obtained by subordinate members of the household and given values in accordance with Table B.1. The wage rate w^M was entered with a value of £80 for any household that accommodated an adult male beside the head of household who had an occupation entered against their name. Where there were two such men the variable was given the value £160 and so on. If there was no occupation against the name of an adult male or there was no adult male apart from the head in the household this variable took the value zero. The wage rates w^F, w^B and w^G were entered similarly.

The results confirmed the theoretical argument given above. The estimated coefficients on w^M, and w^F were not significantly different from zero (P>|z| was 0.870 and 0.761, respectively). The coefficients on w^B and w^G were each statistically significant at 5 per cent (P>|z| was 0.040 and 0.003, respectively) but the coefficients were *negative*, apparently showing that the higher were wage rates for older boys and girls the *lower* was the household demand for servants (the coefficient on the head of household's salary remained positive, to add to the puzzle). This is inconsistent with any conceivable theoretical explanation of the demand for servants (unless servants are supposed to provide services which are *inferior* in demand, a possibility which I think few could be brought to believe) and these estimates therefore have to be rejected.

How have they arisen? The statistical answer is because households in which older boys and particularly older girls went out to work hired noticeably few residential servants, so the household incomes contributed by older boys and girls are correlated with low demands for servants. The theoretical answer is easy if we use the concept of 'full income'. These households also tended to have relatively low salaries contributed by the head of household. Households with low full incomes because the head had only a low salary but which included one or more older boys or girls chose to demand few of the basic commodities in which servants specialized and so hired few servants, and chose to demand relatively large quantities of market goods and services; to acquire these latter they had to turn a lot of the full income of the household into money and this meant sending their more youthful members out to work. The low demand for residential servants and the high supply of labour to the market are both expressions of low full incomes. Hence the correlation and the negative coefficients.

I therefore conclude that it is not only legitimate but necessary to exclude measures of wage rates earned by subordinate members of the household where the model includes, as it does, counts of the numbers of such members.

B. Rental incomes

The census enumerators' books indicate that in 21 of the 492 sample households (4 per cent) one or more boarders or lodgers were present and presumably contributed to household income. Because the fraction of the sample households which enjoyed such incomes was so small I have ignored this source of income. However, the census enumerators' books will not tell us if the household owned house property elsewhere. This brings us to the general problem of property incomes.

C. Property incomes

(i) Illustrations and problems with some potential solutions

It became obvious at an early stage of this investigation that a few civil servants were living a long way beyond their apparent means. The visually obvious outlier was Major William Clive Hussey who obtained a post in July 1897 as Assistant Bailiff of the Royal Parks in the Office of Works at a salary of £300 a year rising by annual £10 increments to a maximum of £400. Assuming that he started at the bottom of this scale he would have reached a salary of £330 in March 1901. According to Mrs Beeton, writing a few years earlier, this was sufficient for one general servant. Instead Major Hussey employed nine, the largest number in the initial sample, including a housekeeper, a butler and a footman, types of servant usually only employed by the wealthy. The salary cost of this retinue would have been well over £200 a year. Not only this but he had a residence in Cadogan Square, in one of the plushest areas of London. How did Major Hussey manage? The clue to the solution would appear to be in the Major's middle name. Consultation of the standard sources showed him to be descended through his mother from Robert Clive, 'Clive of India', the plunderer of the riches of India. So, too, was his wife, a second cousin; she was also descended from the immensely wealthy Sir Tatton Sykes, 4th Bart. In 1873, Major Hussey received a legacy of £7,000 (about £0.5 million in the values of 2010) from his aunt. He left £21,557 in 1929 (just over £1m in 2010 values).[64] It would appear that Major Hussey had substantial 'private means' in addition to his modest civil service salary.

The only direct aids to the detection such additional incomes are the details of the wealth at death of the head of household and other household members given by the National Probate Calendar. However, the difficulties of making valid inferences from such data are great. They are illustrated by the case of John Swanwick Bradbury (1872-1950). In 1901 he was a second class clerk in H.M. Treasury earning £260 a year and employing two servants, a relatively large number for his income group. His father had been an oil merchant (at this date usually meaning a dealer in animal and vegetable oils) and, in 1881 when John was eight, employed a governess and two servants for his household. Despite these modest, though not penurious, origins he left £39,891 in 1950, over 150 times his 1901 income from the civil service. The solution to this puzzle is given by *Who Was Who*. This shows that after 1901 Bradbury enjoyed a prominent and probably lucrative career. He became Joint Permanent Head of the Treasury (1913-19) and was the government's principal delegate to the Reparations Commission (1919-25). He was ennobled as Baron Bradbury of Winsford in 1925. He then appears to have become a banker, serving as President of the British Banker's Association in 1929-30 and 1935-6 and Prime Warden of the Goldsmiths' Company in 1938-9. In the light of these details his wealth at death seems unsurprising and need not imply that he was in possession of substantial private means in 1901. Examples such as this suggest that information on wealth at death cannot be used to distinguish validly and reliably between those who had and those who did not have substantial private means in 1901.

(ii) The identification of outliers

I therefore took a purely statistical approach to this problem based on the detection of outliers and the deletion of them from the sample. The method adopted was as follows. The first step was to divide the sample into quintiles by income. The rest of the method is based on the assumption that the distributions with which we are concerned are approximately normal. This is not the case here. In each income quintile the number of servants is skewed markedly towards zero. We therefore transformed this distribution by the logarithm function applied to the number of servants plus one, the unit addition being to avoid attempts to take the logarithm of zero. This transformation reduced the divergence

---

[64] 'Wills and bequests', *Sheffield and Rotherham Independent Supplement*, 28 July 1873, p. 4; *National Probate Calendar*.

between our distributions and the normal. In each quintile we computed the mean of the logarithms of the number of servants plus one, added two standard deviations and defined an outlier as any observation lying beyond the limit given by this number. We found 15 outliers by this method. Because this procedure relies on measures of the mean and variance which are affected by the outliers themselves, it is usually repeated after each round of deletions until no further outliers are found. However, had we done so we would have excluded a tranche of households in the second income quintile hiring two servants but where the heads usually left very modest amounts at death. This seemed unjustified and we therefore did not take the procedure into a second round.

The heads of the households deleted from the sample as outliers are detailed in Table B.2.

I would consider a wealth at death of more than 20 times the 1901 annual salary as improbable if the civil servant did not have additional sources of income. This may seem a high multiplier but we have to remember cases such as that of John Bradbury detailed above. The table shows that on this assessment 10 members of the initial sample (Little, Middleton, Trezise, Holland, Strahan, Grant, Hussey, Morant, Keate, and Schloss) are likely to have had additional income sources. The case of Peel is of a different kind. The Index to the Marriage Registers shows that shortly after the date of the census Peel, a widower, married Mary Jane Hagger, one of the two women in his household noted as a 'servant' by the census enumerators; in this case it would seem that one of his two 'servants' was not in fact a servant. The cases of Maywood, Hamerton, Wood and Murray have no obvious explanation.

Deletion of these 15 cases from our initial sample reduced it from 507 to the 492 observations in the final sample.

Table B.2. *Outliers deleted from the initial sample*

Civil service income quintile	Name, birth and death, appointment, and area of residence	Civil service income	Number of residential servants	Wealth at death
1	Percy Charles Maywood (c. 1871-1956) Statistical Assistant, Board of Trade. Brentford, Middlesex.	£115	2	Untraced
1	D'arcy Hunter Little (c. 1874-1947) Third Class Clerk, Land Registry. Chertsey, Surrey.	£120	2	£15,374
1	Alexander E. N. Middleton (1875-1907) 3rd Class Clerk, Principal Registry, Probate Division, Supreme Court. Belgrave, London.	£120	3	£5,899
1	Henry William Peel (c. 1846-1920) Sub-postmaster, GPO. Mile End Old Town, London.	£128	2	£10
2	John M. G. Trezise (1867-1944) Second Class Engineer, General Post Office. Putney, London.	£180	4	£11,514
2	Spencer Langton Holland (c. 1856-1936) Associate, Clerks of Assize. Kensington, London.	£200	3	£85,887
3	Arthur H. Wood (1871-?) Junior Examiner, Board of Education. Kensington, London.	£270	4	Untraced
3	Aubrey Strahan (c. 1853-1928) Geologist, Board of Education. Kensington, London.	£315	3	£7,682

Civil servants sample, London, 1901

Civil service income quintile	Name, birth and death, appointment, and area of residence	Civil service income	Number of residential servants	Wealth at death
3	James A. Grant (1867-1932) Registrar, Royal College of Art. Belgrave, London.	£325	5	£51,599
4	Major William C. Hussey (1858-1929) Assistant Bailiff of the Royal Parks, Office of Works. Mayfair & Knightsbridge, London.	£330	9	£21,557
4	Robert Laurie Morant (c. 1864-1920) Assistant Director of Special Inquiries, Board of Education. Kensington, London.	£350	4	£14,459
4	Robert Keate (c. 1851-1933) Sub-Inspector, First Class, Board of Education. Kensington, London.	£365	5	£32,082
4	George Albert Hamerton (c. 1853-1920) Medical Officer, Inland Revenue. Strand, London.	£400	4	£1,765
4	David Frederick Schloss (c. 1851-1912) Investigator, Board of Trade. Kingston, Surrey.	£400	5	£55,034
5	Sir George Herbert Murray (c. 1850-1936) Secretary, Post Office. St George Hanover Square, London.	£2000	8	£27,992

Sources: General Register Office, *1901 Census [of England and Wales] returns*; H.M. Treasury, *Return*; *National Probate Calendar*.

Appendix C. Counts of Servants

There are a number of problems, or apparent problems, in using the census enumerators' books to count the number of servants employed or 'demanded' by a household. They are: residential servants who were away from their mistress's home on census night; the existence of 'unfilled vacancies' for residential domestic servants; the existence of 'outdoor' servants; and the existence of non-residential domestic servants and others providing non-residential domestic service such as charwomen and laundresses.   I treat these topics in turn.

A. Absences of residential servants
Some servants normally resident in their mistress's household will have been away from their mistress's house on census night because they had been allowed a night off or were on holiday. As census night (31 March 1901) was a Sunday, the most likely night for mistresses to consent to a night away, absences for the night cannot be completely discounted. However, the contemporary literature is replete with comments about the unwillingness of mistresses to grant the 'evenings out' that residential servants desired and these were indeed 'evenings', where servants were expected to be back in their mistress's home by, typically, 10 p.m. at the latest, not 'nights', where the servant slept away from her mistress's home and would therefore be enumerated away from her mistress.[65] Holidays and days off were few; a general maid could expect a fortnight's holiday a year 'if she was lucky', usually in the summer.[66]

Moreover, if servants were temporarily away from their mistress's home we would expect to find 'broken' staff formations, for example a cook only, not the usual cook and maid, for a household employing two servants. But these are rare: among the 181 households with one resident servant enumerated, only nine employed a cook only, suggesting a maid might be away or non-resident; among the 57 households with two resident servants enumerated only three had a maid but no cook, suggesting a cook might be away or non-resident.

Absences arising from nights off and holidays therefore seem likely to have been rare enough to ignore.

B. 'Unfilled vacancies'
Households may have had a demand for residential domestic service but have been unable to hire a servant, so that the actual employment of servants was below desired employment. The model in the text is a model of desired, not actual, employment. Again the rarity of 'broken' staff formations suggests that unfilled vacancies were rare. The contemporary literature alleges high rates of staff turnover among servants which might be assumed to imply large numbers of unfilled vacancies.[67] However, the

---

[65] Black, 'The dislike to domestic service', p. 455; McLaughlin, 'The problem of domestic service', p. 217; Millin, 'London servants: high and low', p. 947; Butler, *Domestic Service*, pp. 16-22.

[66] Ebery and Preston, *Domestic service,* p. 90 citing Thompson, *Lark Rise to Candleford*, p. 155; 'in the summer': ibid., p. 98, citing Horn, 'Domestic service in Northamptonshire', p. 272; Labour Department, Board of Trade, *Report by Miss Collet* (P.P. 1899, XCII), p. 30.

[67] See for example, Jeune, 'The servant question', who refers to servants as 'nomads' and Moulder, 'The general servant problem', speaking mainly of servants in seaside resorts, who accuses servants of 'changing their places about once a fortnight' (p. 224). Contemporary diaries and memoranda offer contrasting views. The diary of Marion Sambourne living in London in the late 1880s, as interpreted by Nicholson, *A Victorian household*, pp. 65-8, supports the picture painted in the periodical press. The memoranda of Mrs Collier of Essex and Oxfordshire, 1911-15, given by Horn, *Victorian servant*, pp. 199-200, present a picture of some stability. Millin, 'London servants: high and low', reported the view of the 'managing secretary' of the Ladies' League, an employment agency for the 'better class' of domestics, that 'Any girl leaving one or two situations after holding them for only a short time ... invariably drops

same literature emphasises the necessity for replacement staff to be found quickly[68] suggesting that high staff turnover was matched by the rapid recruitment of replacement staff, leading to the rarity of unfilled vacancies on any one day suggested by the rarity of broken staff formations.

Unfilled vacancies therefore also seem likely to have been rare enough to ignore.

C.   Outdoor servants
'Indoor servants' were those who normally worked indoors, cooks, maids, et al.; 'outdoor servants' were those who normally worked in stables or outdoors: grooms, coachmen, gardeners and, on country estates, game-keepers.
Neither indoor nor outdoor servants were necessarily residential. Outdoor servants often lived in separate accommodation from their masters', e.g. in cottages, gate houses, or above mews stables. In the census enumerators' books such accommodation is usually treated as forming a separate household from the masters' and there is usually no indication of which cottage, mews, or gate house is connected with the master's house. *Faute de mieux*, outdoor servants are therefore omitted from counts of employed servants. Because they formed a separate class of servants and were not perfect substitutes for indoor servants this does not give rise to an estimation problem, as explained below.

D.   Non-residential indoor domestic servants, charwomen and laundresses
(i) The scale of non-residential domestic service
Not all employees providing domestic service were normally resident in their mistress's house; some lived at home and travelled daily to work. One would expect this to be a rare practice in country house establishments where servants' families were often far away but a frequent practice in London where servants' families would often live in the same borough, if not in the next street. Pooley notes a case in her study of Lancaster in which the servant's natal family lived only 100 metres away from her mistress's house and her demonstration of the short social class distances often separating mistresses and servants' families tends to support the same conclusion.[69]

The published analyses of the 1901 Census are not very helpful on this point as they fail to distinguish between residential and non-residential 'domestic indoor servants'. However, they do give separate enumerations of laundresses and charwomen. There were 234 thousand female domestic servants in the County of London in 1901, 47 thousand laundresses, and 26 thousand charwomen. Some in these latter two groups would have worked for hotels, lodging houses, public houses, hospitals or workhouses but the relatively small numbers of servants enumerated in 'Hospital and Institution Service' and as 'Cooks (not Domestic)' suggests that this cannot account for the majority of laundresses and charwomen. Consequently, it seems highly likely that laundresses and chars who lived outside the employer's own home provided a substantial quantity of domestic service to private households.

'Daily' as a noun referring to a servant was not a term in frequent use until the First World War and did not become common until 1919 at the beginning of the post-War servant crisis.[70] Adjectival uses of 'daily' or other words of similar meaning in terms like 'daily maid', 'day girls', 'morning girl', 'day servant' and 'daily servants' were known by 1916 if not before, however, and the fact, if not the term 'daily', is

---

into the class of jobbing servants, and cannot regain a footing of permanency' (p. 941) suggesting powerful disincentives to the early resignation of posts.
[68] E.g. Bunting, 'Mistress and maid', p. 595.
[69] Pooley, 'Domestic servants', p. 423.
[70] This comment is based on a search of *The Times Digital Archive*, 1785-1985 for the phrase 'daily help'. This yields no results until 1861 and it remains a rare phrase until about 1909.

clear.[71] There were also women who worked on an occasional basis, to assist with a dinner party for instance, the latter sometimes known as 'job cooks',[72] and there were children's and sick nurses who worked by the month as the child or invalid required. The numbers providing daily service appear to have been substantial. Charles Booth gave an estimate for 1891 based on 'Special information ... obtained by Miss Mary Paul' that of the 255,500 indoor domestic servants of London 'about 50,000 [(20 per cent)] were ... either in daily service or out of place [unemployed], and so for census purposes formed no part of the "servant-keeping" households'.[73] A normal unemployment rate of 5 or 10 percent of the total workforce of 255,500 would account for up to half of this 50,000, leaving perhaps 25,000 to 37,000 in the class of daily servants in employment.

To summarize, the 234 thousand female domestic servants in the County of London in 1901 included, on the assumption of little change since 1891, perhaps 30 thousand who provided daily, i.e. non-residential, service. In addition, there were according to census estimates some 47 thousand laundresses and 26 thousand charwomen. Very broadly, perhaps 200 thousand girls and women provided residential domestic service in London in 1901 while perhaps 100 thousand girls and women provided services as daily servants, laundresses, and chars. The likely under-recording of women's occupations in the census implies that the latter figure may be a substantial underestimate.

(ii) Econometric issues arising
The econometric issues arising from this conclusion turn on whether or not residential and non-residential servants were perfect substitutes for each other. If they were, then residential and non-residential domestic servants were essentially the same commodity, our counts of domestic servants are incomplete and any estimate of the demand for domestic servants based upon those counts will be flawed, possibly, if non-residential domestic service was extensive, catastrophically. If they were not perfect substitutes, then the existence of non-residential domestic servants poses no greater problem for the estimation of the demand for residential service than does the existence of pears for the estimation of the demand for apples. Such an estimation would typically proceed by treating the *price* of pears as a control variable. Here we have argued that the restriction of our sample to London renders it valid to assume that all households face the same market prices. Any such control variable would therefore cease to explain any variation in the demand for residential servants across households and may be dropped from the estimating equation without affecting the estimation of the effects of the remaining variables. I now argue that at least some mistresses cared about whether their servants were resident or not, implying that residential and non-residential domestic servants were not perfect substitutes.

(iii) Differences between resident and non-resident servants

There were three differences between resident and non-resident domestic servants as far as contemporary mistresses and masters were concerned which rendered them imperfect substitutes. One was the absence of constant attendance should the servant leave after supper and not return until the next morning.   The second was that daily servants provided, it was thought, a lower quality service. The third was that non-residential domestic service could be purchased in small quantities of a day's or a morning's work or for single tasks. Residential service was purchased on a full-time basis and for periods which the normal practice of quarterly payments suggests were expected to be of at least three months' duration.

---

[71] Butler, *Domestic service,* p. 130; General Register Office, *1911 Census, Vol. X. Appendix* (P.P. 1914-16, LXXXI), p. 37.
[72] Butler, *Domestic service,* p. 63.
[73] Booth, ed., *Life and labour*, VIII, p. 212.

The desire for constant attendance was often expressed as an unwillingness to allow definite times off-duty in which the servant could attend to her own business, leave the house, or simply be assured that she would not have her sleep disturbed. A study by the Women's Industrial Council based on a survey of servants' and mistresses' opinions noted that while some mistresses stated that they gave their servants definite times off duty, others concurred with one who wrote 'it is hardly possible in a small house where there are children'.[74] In an appendix to the report, Lady Willoughby de Broke remarked, admittedly of 'large households' that

> It is unreasonable to expect servants to stay up till 12 or 1 a.m. in order to turn out the lights and then to be down early next morning. The plan of keeping the maid up to unfasten her lady's gown on her return from parties and balls, possibly several times a week in the London season, is thoughtless and selfish.[75]

Her comments clearly imply that, although 'thoughtless and selfish', such a plan was often implemented.

The converse of this requirement for constant attendance were the complaints about it which emerge frequently from the contemporary literature discussing the reasons why so many girls and young women were unwilling to enter service. Butler's research was part of this literature. She emphasised widespread complaints of the loss of liberty involved in the job:

> there is the feeling of being under orders all day, of never being 'off duty', which is repeated wearily by many servants ... . It is to shake off this feeling that the demand for a recognized time of freedom daily, be it half an hour or two or three hours, is growing. This would be the chief justification of widespread daily service ... . A number of overwrought servants, especially cooks and parlourmaids, have written to say what a relief they find it now to have daily work only, so that they get a complete change of thought at night, tiring though the walk home may be.[76]

Butler reviewed the possible remedies for the problem, coming finally to the proposition 'by a very modern school' that

> the problem could be partly, at least, solved by the organization of (efficient) servants, living at [their] home, or in special hostels, and coming for a few hours a day at so much per hour, to their employer's house. This would not be favoured at present by the majority, either of employers or maids. The daily servant of the present is apt to be the least efficient of her class, and her position offers obvious difficulties with regard to cleanliness and in temptation to small forms of dishonesty, as well as other [moral?] dangers. ... [This solution is already being pursued] on a small scale on behalf of London flat-dwellers.[77]

---

[74] Butler, *Domestic service*, p. 51. Although published in 1916 this was based on enquiries made before 1914. While it documented peace-time conditions therefore it examined a period in which non-resident service was possibly more prevalent than in 1901.

[75] Ibid., p. 105.

[76] Ibid., p. 14.

[77] Ibid., p. 56. Butler refers to the practical difficulties of theft by residential servants who had nowhere to hide things that could not be searched by a mistress or master looking for a missing purse or a bottle of whiskey. 'Other dangers' may have referred to the danger of molestation suffered by women walking home late at night or to the absence of the supervision of a girl's behaviour provided by mistresses of residential servants.

Butler here takes for granted the second difference between residential and non-residential servants noted above. Similar views on the quality of daily servants had been expressed by Martha Major some years earlier.[78]

That non-residential domestic service could be purchased in small quantities of a day's work or of single tasks is clear from the contemporary literature but was not a feature that gave rise to much comment and that limits my comments here, too.

This all suggests that residential and daily servants were not regarded as identical (which would imply that any count of servants should include both) and indeed not as good substitutes in the eyes of mistresses as one might imagine. In particular, many mistresses appeared to value the continuous attendance that resident domestic service provided, hence their unwillingness to countenance nights away or indeed any definite time off-duty; some took a servant offering daily service to be signalling inefficiency, dirtiness, dishonesty and possibly immorality; but it was also true that mistresses wanting less service than a full-time residential servant would provide and would demand payment for might well prefer a 'daily'.

I conclude therefore that resident and non-residential service can be legitimately differentiated and that it is proper to speak of the demand for *residential* domestic service. It is also *useful* to differentiate these two classes of domestic servant. Not only were the demand conditions different, so too were the supply conditions with residential servants often valuing the board and lodging provided with the job and non-residential servants valuing their liberty and independence. The social relationship between mistress and servant implied by co-residence was also distinct.

In sum, because daily service was not a perfect substitute for residential service, counts of residential domestic servants do not have to include non-residential servants. They provided different services. Similarly with laundresses and charwomen: these provided different services. And daily service and charring were on a continuum with many other services from dress-making and boot-repairing to schooling and medical services, the existence of which is treated only implicitly in the econometric model as some among the large number of different services and goods which London householders could buy from the market in 1901.

---

[78] Major, 'The domestic problem', p. 280.

Appendix D. The Formal Model

This Appendix presents a model of domestic production which is an extension of Becker's model of the household.[79] Becker assumed a household which produced 'basic commodities', Z_j, by combining goods and services purchased from the market with time provided by the household itself. In Becker's model 'the household' is undifferentiated both in that it has a single utility function and that the time it allocates to production within the household is not differentiated between that of masters, mistresses, children or servants. Here, I retain Becker's undifferentiated utility function but introduce a differentiation between household members. Household utility is a function of the quantities of basic commodities, Z_j, consumed by the household:

$$U = U(Z_1, \dots, Z_n) \tag{D.1}$$

I assume that basic commodities may be produced by masters, mistresses, servants, and children. The labour provided by each of these groups need not therefore be an exact substitute for that provided by any other. For this reason we may find households which to maximize utility simultaneously sell time on the external labour market and purchase domestic labour time. In view of highly gendered and age-related divisions of labour characteristic of the time we shall find it necessary to distinguish between girls and boys and the labour of 'big' and 'little' or 'older' and 'younger' boys and girls. Although I shall usually speak of 'the master' and 'the mistress' in the singular there is no reason why there should not be several masters and mistresses. The household production functions are:

$$Z_j = f_j\left(\boldsymbol{x}_j, W_j, M_j, S_j, N_j^B, N_j^b, N_j^G, N_j^g\right). \tag{D.2}$$

where the $\boldsymbol{x}_j$ are vectors of the k market goods and services required in the production of each basic commodity j, a typical element of which is x_{jk}; W_j and M_j are the inputs of the mistress's and the master's ('Woman's' and 'Man's') time in the production of each basic commodity; the S_j are the inputs of servants' time; and N_j^B and N_j^b, N_j^G, and N_j^g denote the inputs of big and little boys' and girls' time. It is assumed that very young children do not contribute to household production so their number, N_j^k, does not appear in the equations at (D.2).

The master's and mistress's time may be spent on domestic production or may be sold on the external labour market or each may do both so the total hours of time available to the mistress, W, and master, M, is allocated so that:

$$W = W_w + \sum W_j \tag{D.3a}$$

and

$$M = M_w + \sum M_j \tag{D.3b}$$

[79] Becker, 'A theory of the allocation of time'.

where W_w and M_w are the amounts of time sold for wages by the mistress and master respectively and $\sum W_j$ and $\sum M_j$ are the amounts of time she and he devote to domestic production. The simple addition over the j production processes given in (D.3a) and (D.3b) implies that there is no joint production. Becker assumed, as shall I, that there is no pure leisure. It is assumed that the composition of the household is fixed so that W and M are also fixed.

Servants do not work outside the home for the household so that the total servant-time hired, S, is simply the sum of their time inputs to the j domestic production processes:

$$S = \sum S_j \qquad (D.3c)$$

Again, we assume away joint production. Children are different from servants in that they can also work outside the home at a wage rate v^B, v^b, v^G or v^g the income from which I assume they pay over to the mistress. The total time each child has available is fixed. We have:

$$N^B = N_v^B + \sum N_j^B$$

$$N^b = N_v^b + \sum N_j^b$$

$$N^G = N_v^G + \sum N_j^G \qquad (D.3d)$$

$$N^g = N_v^g + \sum N_j^g$$

where N^B is the total time of the 'big boys', N_v^B is the amount of big boys' time sold outside the household, $\sum N_j^B$ is the amount of time used on the j domestic tasks, and the other notation is defined similarly.

So far, children are costless. Were this the case then, because they produce utility for the mistress in the home and may be sent out to work for a wage for the mistress, the demand for children would be unconstrained. Two alternative simple forms of constraint could be specified. One is to treat children similarly to servants and to write down an expression for the 'board and lodging' cost of a child at a flat rate per unit time, exactly like a wage cost for a servant. Children and servants would then differ only in that children did not receive a money wage for their domestic work and in that children and servants had different 'skills' in domestic production (servants, we may presume, were better at producing meals and cleaning carpets; children at producing amusement, enabling the parental contemplation of innocence and at generating 'dynastic longevity'.) The other approach, which is the approach I shall pursue, is to assume that a child, or rather a child's time, is 'produced' in the same way as any other 'basic commodity', so that:

$$N_j^B = f_j^B\left(x_j, W_j, M_j, S_j, \ldots\right)$$

$$N_j^b = f_j^b\left(x_j, W_j, M_j, S_j, \ldots\right) \qquad (D.4)$$

and similarly for older and younger girls. Substituting these expression for the N_j^B, N_j^b, N_j^G, and N_j^g in equation (D.2) means only that its interpretation changes to include the production of some 'basic commodities' indirectly via the production of children's time.

There are at first sight two sets of constraints that must be observed by this household (among others): one given by its money income and another set by time. The household is constrained by its money income thus:

$$W_w w^W + M_w w^m + \sum_c N^c v^c \geq \sum p_j x_j + \sum S_j u \tag{D.5}$$

where $W_w w^W$ are the mistress's earnings given by the product of the number of hours sold, W_w, and the wage rate w^W ; $M_w w^m$ are the master's earnings given by a similar product; $\sum_c$ indicates the sum over all children, and $\sum_c N^c v^c$, $c = B, b, G, g$, is the total money income provided by the children, the $p_j x_j$ is the cost of purchases of all goods and services (except servants' services) from outside the home including the market commodities purchased in order to produce children's time; and $\sum S_j u$ is the wage cost of the servants. I assume the household enjoys no unearned income.

The time constraints are set by the total time available to each of the household's members which must cover the amount of time spent working outside the household and the time spent working in the household:

$$W \geq W_w + \sum W_j$$

$$M \geq M_w + \sum M_j$$

$$N^B \geq N_v^B + \sum N_j^B$$

$$N^b \geq N_v^b + \sum N_j^b \tag{D.6}$$

$$N^G \geq N_v^G + \sum N_j^G$$

$$N^g \geq N_v^g + \sum N_j^g$$

Fundamentally, however, as Becker pointed out, there is only one constraint, since the existence of an external labour market for all household members means that time can always be converted into money. The money income yielded by converting all the household's time into money income Becker termed the household's 'full income'. The household can 'spend' its 'full income' either on market goods and services or on domestic goods and services by 'spending' time on household production. Accordingly, the household's full budget constraint is now:

$$W w^W + M w^m + \sum_c N^c v^c \geq \sum p_j x_j + \sum W_j w^W + \sum M_j w^m + \sum S_j u + \sum_c N_j^c v^c \tag{D.7}$$

where the terms on the left hand side indicate the money value of the whole time available to household members valued at the relevant wage rate; $\sum p_j x_j$ is the money cost of purchases of goods and services from outside the household, as before, and the succeeding terms on the right hand side give the money

equivalent of the time spent by each household member and each servant on domestic production using the relevant market wage rate to value the time in each case.

This analysis gives us, in principle, the determinants of the demand for servants. They are the household's 'full income' as given in (D.7), itself determined by the number of mistresses, masters, and children in the household and the wage rates w^w, w^m, and the v^c; the price vectors $\boldsymbol{p_j}$, the servants' wage rate u, the household's set of j production functions and the household's tastes for 'basic commodities', as given by (D.1).

If mistresses and masters were all equally efficient in domestic work and so, too, were children and servants then households equally situated with regard to composition, incomes and tastes and facing the same set of prices and wages, would all pick the same utility maximising W_j, M_j, N_j^c, and S_j, and all enjoy the same Z_j. However, some mistresses may have been more efficient than others either in the work they undertook themselves or in their management of servants or children or in several of these areas. Empirical investigations of present-day managerial efficiency outside the home have uncovered remarkable variations and there is no reason to expect variations in household managerial efficiency in earlier times to have been any less.[80] Contemporary commentators were unanimous in emphasising the importance of wifely efficiency which also suggests it could not be taken for granted. The more satirical declared that only a man on £10,000 a year could afford the luxury of an incompetent wife and marry for love.[81] We would expect more efficient mistresses to hire fewer servants, although the income effect of greater efficiency renders this uncertain. In the interests of simplicity I shall ignore variations in the efficiency of mistresses. I am also going to assume that servants were equally efficient. Again, contemporary commentators were almost unanimously of the opinion that this was not the case, that servant quality could not be detected before employment, and was not adequately reflected in individual differences in the wages servants sought or obtained. All these complications I ignore.

Becker assumed that all household production was consumed within the household. At first sight this is a natural assumption for our context. There was, however, an external market for domestic production, viz., the rented accommodation market. However, because the fraction of the households in our sample which engaged in this market was small (see Appendix B) and for the sake of simplicity, I shall also ignore this feature of the Victorian and Edwardian household economy.

---

[80] For a brief survey see the introduction to Bloom et al., 'Does management matter?'
[81] Anstruther, 'That tyrant income'; for similar but more serious comments see The Economic Club, *Family budgets.*

Appendix E. Variables: Definitions, Notes, and Sources

Number of Servants, S_i

Definition: The number of resident domestic servants shown in the civil servant's household as given in the census enumerators' books compiled for the 1901 Census of England and Wales.

Notes: A servant is counted as such if his or her 'relation to head of family' is given in the enumerator's book as 'domestic servant' or similarly; any entry given under 'profession or occupation' is ignored. Outdoor domestic servants living in separate accommodation belonging to their employers and non-resident domestic servants are excluded.

Source: TNA, General Register Office. *1901 Census [of England and Wales] returns* (Enumerators' schedules of returns made by heads of household) (RG13/1 to RG13/5311).

Income, Y_i

Definition: The civil service salary earned by the head of household as given in the *Return*.

Notes: Where an incremental salary range is given in the *Return* it has been assumed that the civil servant started at the bottom of the scale on appointment and achieved annual increments from the year of appointment until 1901.

Source: H.M. Treasury, *Return.*

Age, A_i

Definition: The age of the head of household in integer numbers of years on census night 1901 as implied by the *Return*.

Notes: the age given in the *Return* is the age *at appointment* in integer numbers of years, a point confirmed by TNA, H.M. Treasury, 'Parliamentary Questions. [A. Bonar Law M.P. 22 February and 31 October, 1912; et al.]', (T 1/11525), and also by the ages given in the census enumerators' books. The *Return* also gives the date of appointment, enabling the computation of the civil servant's age on census night. It is not clear whether the age given in the *Return* is the age as given by the civil servant or whether it is based on contemporary documentary sources such as a birth certificate. Nor is it quite clear whether the age given in the *Return* is the age next or last birthday although the latter was the usual official and popular practice at this time.

Source: derived from H.M. Treasury, *Return.*

Marital Status, C_i

Definition: A binary variable taking the value 1 where the civil servant was listed in the census enumerators' books as 'unmarried', 'single', a 'widow' or a 'widower' and taking the value 2 if he or she was listed as 'married'.

Notes: No civil servant was listed as 'divorced' or 'separated'. The heads of three households where the head was listed as 'married' but where the wife was found to be living separately (in each case in a hospital or asylum) were treated as widowers. In seven other cases where the husband was listed as 'married' but the wife was absent in a relative's household or in a boarding house, the household was reconstituted to include her and any children and servants accompanying her and the husband was treated as 'married'.

Source: TNA, General Register Office. *1901 Census [of England and Wales] returns* (Enumerators' schedules of returns made by heads of household) (RG13/1 to RG13/5311).

Rateable Value per Head, V_i

Definition: The rateable value in force in 1901 per head of population, in £ per annum, of the Poor Law Union in which the civil servant resided.

Notes: The data are given in Table E.1. The rateable values given in the source are of aggregate amounts and pertain to 'Buildings and Other Hereditaments not being Agricultural Land' excluding the 'Annual value of non-rateable Government property upon which contributions in lieu of rates were received'. Population counts of Poor Law Unions based on the 1901 Census are given in the same source; they are counts of the total population, not of rate-payers, nor of all adults. Civil servants were linked to the Poor Law Unions in which they resided through the Registration District given for their address in the census enumerators' books. Poor Law Unions were, with trivial qualifications, identical to Registration Districts in 1901. The value for the City of London at £173.39 is extreme and almost certainly reflects the high value of commercial rather than residential property in the district. Only one civil servant lived in the City of London but experiments showed that this one observation exerted a large influence on the econometric results. I therefore reset the value for this variable for this observation to £48.89, the value for The Strand, where several other civil servants lived, the value of the next highest observations.

Sources: TNA, General Register Office. *1901 Census [of England and Wales] returns* (Enumerators' schedules of returns made by heads of household) (RG13/1 to RG13/5311); Local Government Board, *Local taxation returns* (P. P. 1902, LXXXVII), pt. I, tab. II.

Table E.1. *Populations and per capita rateable values. Poor law unions in London and surrounding areas, 1901*

Areas and unions	Popul-ation (000s)	RV per head (£) (a)	Areas and unions	Popul-ation (000s)	RV per head (£) (a)
CENTRAL LONDON		**18.86**	SOUTH WEST LONDON		**6.27**
City of London	28	173.39	Wandsworth	401	6.27
Holborn (b)	129	10.53			
Paddington	144	10.02	SOUTH EAST LONDON and KENT		**5.70**
St Pancras	235	7.62	Kent Dartford	96	4.76
The Strand	22	48.89	London Greenwich	185	5.53
			London Lewisham	135	6.61
WEST END of LONDON		**16.86**			
Kensington	177	12.41	SOUTH LONDON		**5.69**
St Marylebone	133	12.56	Camberwell	259	4.83
St Giles	31	17.95	Lambeth	302	6.15
St George Hanover Sq.	128	23.28	St Saviour Southwark (c)	206	6.08
Westminster	33	32.07			
			MIDDLESEX		**5.42**
WEST LONDON		**7.41**	Barnet	59	5.85
Chelsea	74	10.71	Brentford	179	5.84
Fulham	137	5.64	Edmonton	332	4.91
			Hendon	52	6.88
SURREY and Bromley		**7.07**	Staines	34	5.39
Kent Bromley	86	7.76	Uxbridge	39	5.25
Surrey Chertsey	41	6.86			
Surrey Croydon	194	6.52	EAST LONDON and ESSEX		**4.71**
Surrey Epsom	62	6.27	Essex Epping	30	5.06
Surrey Godstone	28	4.68	Essex Romford	95	5.09
Surrey Guildford	62	5.50	Essex West Ham	580	4.05
Surrey Hambledon	22	5.08	London Hackney	270	5.54
Surrey Kingston	138	8.13	London Mile End Old Town	113	3.72
Surrey Reigate	43	7.84	London Poplar	168	4.62
Surrey Richmond	40	10.41	London Stepney	58	5.48
			London Shoreditch	119	6.47
NORTH LONDON		**6.79**	London Woolwich	131	4.56
Hampstead	82	11.44			
Islington	335	5.66			

Notes: (a) Figures in bold font are averages for the areas there following, weighted by population.
(b) Including the parishes of Lincoln's Inn and Gray's Inn which lay wholly within Holborn but were deemed to be separate poor law unions.
(c) The name of this Union was changed from 'St Saviour's' to 'Southwark' as from 26 March 1901.
Source: Local Government Board, *Local taxation returns* (P. P. 1902, LXXXVII), Pt I, tab. II.

Demographic Variables, M_i, W_i, N_i^B, N_i^b, N_i^G, N_i^g, N_i^k

Definitions: In all these definitions, boarders, lodgers, visitors, and unrelated resident employees are excluded;

M_i, the number of adult men, that is men over the age of 19, resident in the household, including the head of household where the head was a man, and including *inter alia* the heads' sons where they were over the age of 19;

W_i, the number of adult women, that is women over the age of 22, resident in the household, including the head of household where the head was a woman, the wife of the head of the household where the head was a man (regardless of her age), and including *inter alia* the head's daughters where they were over the age of 22;

N_i^B, the number of boys and young men in the household from the age of 15 to 19 inclusive including not only sons but also other relatives;

N_i^b, the number of boys resident in the household from the age of 5 up to but not including 15, including not only sons but also other relatives of the head of household;

N_i^G, the number of girls and young women in the household from the age of 15 to 22 inclusive including not only daughters but also other relatives;

N_i^g, the number of girls in the household from the age of 5 up to but not including 15, again including not only daughters but also other relatives of the head of household;

N_i^k, the number of children of either gender in the household under the age of 5, including not only sons and daughters but also other relatives of the head of household.

Notes and Comments:

Except for the head, these counts are based on the ages given by heads of household to the census authorities. Householders were asked to give ages at the last birthday and this appears to have been by far the most widespread practice actually followed both officially and popularly in 1901. The ages of new-born children in years are thus given as zero not one. Nevertheless, some householders may not have followed this practice, some giving ages next birthday and some failing to give accurate information on any convention.[82]

---

[82] See Higgs, *Making sense of the census*, pp. 67-70.

I have sought to define the age at which younger boys and girls become older boys and girls as the ages at which boys and girls were thought to become capable of work either inside or outside of the household. There is little evidence on what these ages were in middle-class families. Frequent changes in the minimum school leaving age in the late nineteenth and early twentieth century suggest that ideas on this question changed rapidly at this time. The minimum school leaving age was raised to 12 by an 1899 amendment of the 1893 Elementary Education (School Attendance) Act. Although this Act was of limited relevance to middle-class households it sets a floor to any reasonable estimate. I have assumed here that the age at which a capability of work arose for both boys and girls was at about the earliest age at which working class girls first went into service, i.e. at about 14 or a little later. Younger boys and girls are therefore defined to be those under 15 years.

I have sought to define the age at which older boys and girls became adult as the ages at which boys and girls could have left home in normal circumstances. Table E.2 shows the children of a sub-sample of 25 households from the sample of civil servants in which the head was married and the wife was 45 or over in 1901 implying that the family's children would include those who were relatively old. These households were 'reconstituted' by tracing all children known to have been born to the parents from census and civil registration records, including those who had left the household or died by 1901. This process was facilitated by the preserved household schedules completed by heads of household for the 1911 Census of England and Wales which, for the first time, asked not only for details of currently co-resident children but also how many children in total had been born to the then current marriage, how many had died, and how many had survived. In the cases of 20 households it was possible to trace the mother in the 1911 Census and the 1901 location of all the children born to the marriage or to confirm that their birth was after 1901 or that their death was before 1901. In the five cases where the mother could not be traced in the 1911 Census (three had died, two could not be found), there is no confirmation of the total number of children born to the marriage and there consequently remains some uncertainty over whether all the children of the household have been successfully traced. However seventeen children of these five mothers were traced which, remembering the low fertility of these households, suggests that the numbers of untraced children is very small, perhaps two, three or four.

The exercise yielded a sample of 76 children born to the 25 mothers varying in age from 0 to 39 in 1901. It was then possible to assess the age at which children were thought capable of leaving home. They were classified by gender, age, and then into those who were still at home in 1901 and those who had left; children found at boarding schools (four boys and one girl) or visiting relatives were classed as being still at home. The sub-sample showed highly consistent behaviour within each gender. Of the 32 daughters, none had left home before the age of 22; of those aged 22 or over, almost half had left home. Of the 44 sons, none had left home before the age of 19; of those aged 20 and over, all but one had left home. Hence we can conclude that the boys in this sample tended to leave home about three years earlier than girls and that boys over the age of 19 and girls over the age of 22 can be treated as 'adults' on the grounds that children over these ages in the full final sample of civil servants had real opportunities to leave home. As noted in the main text these ages may not have been typical of the period or of the middle class in general.

Source: TNA, General Register Office. *1901 Census [of England and Wales] returns* (Enumerators' schedules of returns made by heads of household) (RG13/1 to RG13/5311).

Table E.2. *The distribution of sons and daughters living in and out of the parental home*

A sub-sample of civil servants, London, 1901

	Sons			Daughters		
Age	At Home	Left		Age	At Home	Left
0-18	28	0		0-18	13	0
19	2	1		19	3	0
				20	0	0
				21	3	0
20-39	1	12		22-35	7	6
All	31	13			26	6

Note: For the construction of the sample see the text.
Sources: General Register Office, *1901 Census [of England and Wales] returns*; General Register Office, *1911 Census [of England and Wales] schedules*; H.M. Treasury, *Return*.

Appendix F. Three Ready Reckoners

I noted in discussing Table 1 of the main text and thereafter that at any given income the civil servants in the sample hired a very variable number of servants and that this put in doubt the project of estimating a ready reckoner by which household incomes could be estimated from the number of residential servants. In Tables 6, Supplementary G.5 and Supplementary G.6 the series of column probabilities describe the equivalent econometric result. Fig. F.1 graphs the data given in Table 6. The graphs usually show a single peaked curve with a very flat top. In other words, they show that the same number of servants was hired by households over a wide range of income.

Fig. F.1. *Probability of employing given numbers of residential domestic servants by annual income. London civil servants, 1901*

Households with one married couple, one older girl and one younger boy; the head of household aged 40; living in Wandsworth (a)
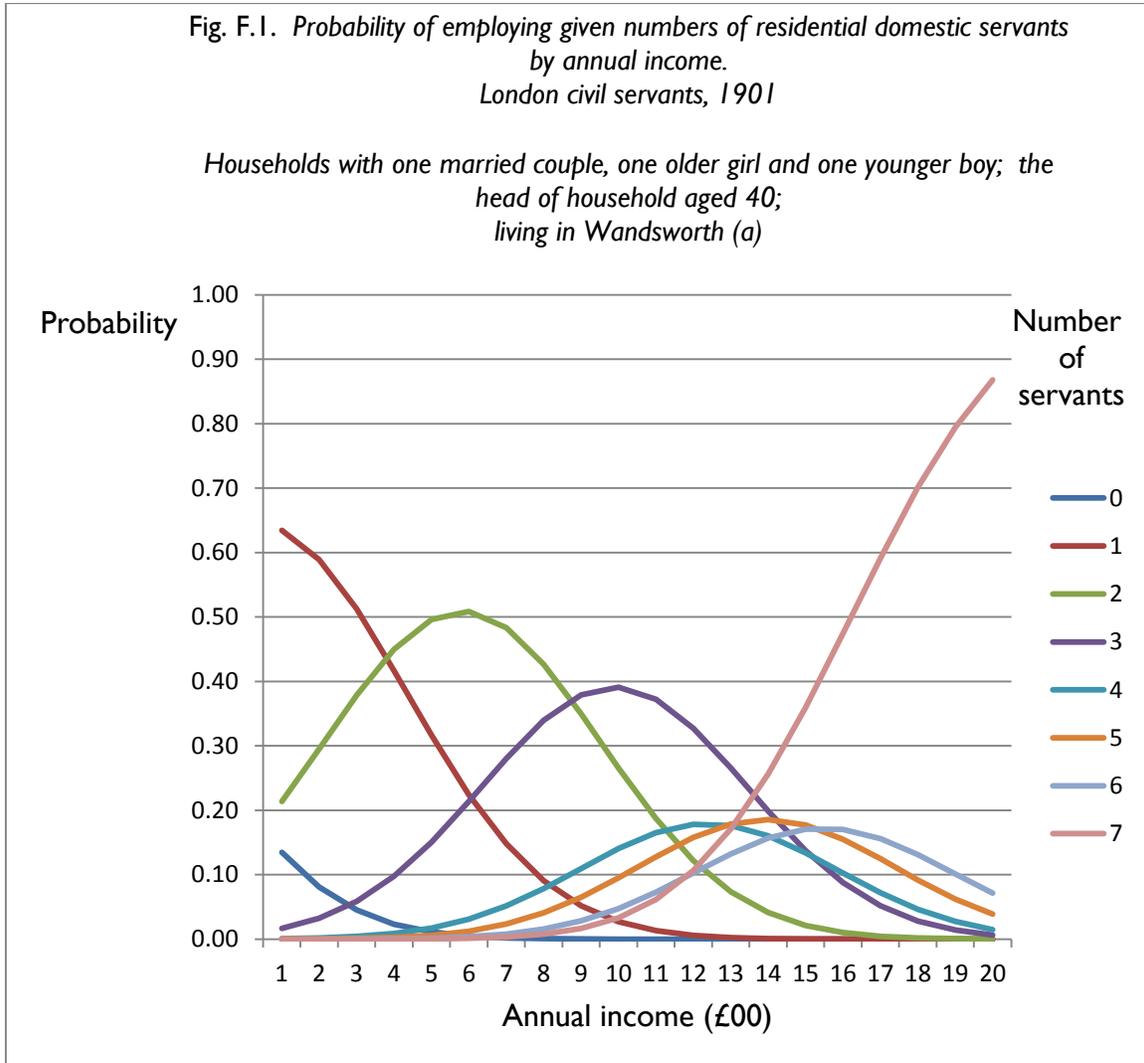
(a) Probabilities are no different for households otherwise the same as the household specified here but which accommodate additional adult women, older boys, younger girls, and/or children under five.

The most extreme example concerns three servants. Table 6 shows that three servants were hired with non-zero probabilities by households over the entire income range and with a probability of 0.10 or more over a very wide range of income from £400-£1,500, or, if we turn to the household treated in Supplementary Table G.5, £300-£1,400 or in the case considered in Supplementary Table G.6, £600-£1,700. This again immediately suggests that the project to use the number of servants hired by a household head to estimate his or her level of income will not yield very precise estimates.

Nevertheless, Tables F.1, F.2, and F.3 give three 'ready reckoners', one for each of three different household types. These result from applying Bayes' theorem to our estimates and show the estimated probabilities of finding each of the various incomes given the number of residential domestic servants observed for each of the three types of household.[83] The ready reckoners are given in graphical form in Fig. F.2. The convergence of the graphs in Fig. F.2 at high level incomes is an effect of the 'piling up' of probabilities due to small sub-sample sizes at the higher incomes which we noted earlier.

Table F.1. *Predicted income levels at given numbers of residential domestic servants*

Households accommodating one married couple, one older girl and one younger boy;
head of household 40 years old; living in Wandsworth (a)

Civil servants sample, London, 1901

Predicted income range (b)	Given number of residential domestic servants:							
	0	1	2	3	4	5	6	7
£125	**0.40***	**0.24**	**0.12**	0.04	0.01			
£200	**0.29**	**0.25**	**0.17**	0.08	0.02	0.01		
£300	**0.22**	**0.29***	**0.29***	**0.18**	0.06	0.02	0.01	
£400	0.08	**0.17**	**0.25**	**0.23***	**0.10**	0.04	0.01	
£600	0.01	0.04	**0.12**	**0.20**	**0.15**	0.07	0.03	0.01
£875		0.01	0.04	**0.18**	**0.25**	**0.18**	**0.10**	0.03
£1,500				0.08	**0.41***	**0.68***	**0.85***	**0.96***
Probability weighted estimated income:								
	£211	£264	£351	£575	£984	£1,242	£1,391	£1,474

Notes: Maximum likelihoods are indicated by * and all likelihoods of 0.10 or more by bold fonts; blank spaces represent likelihoods of zero to two decimal places.
(a) Estimates are no different for households otherwise the same as the household specified here but which accommodate additional adult women, older boys, younger girls, and/or children under five.
(b) The row headings give the midpoints of the income ranges. The ranges are: £100-£150, £151-£250, £251-£350, £351-£450, £451-£750, £751-£1,000, and £1,001-£2,000.

---

[83] For this exercise the unconditional probabilities of observing given levels of income and given numbers of servants are required. These were taken to be equal to the relevant relative frequencies in the sample. However, grouping household incomes into 20 classes, corresponding to the 20 levels of income we have been using so far in this paper, caused the number of observations to fall to very small numbers in some classes. This resulted in probability series that failed to behave smoothly. Therefore the data were grouped into the smaller number of income classes shown here.

Table F.2. *Predicted income levels at given numbers of residential domestic servants*

Households accommodating one married couple and no children;
head of household 30 years old; living in Wandsworth (a)

Civil servants sample, London, 1901

Predicted income range (b)	Given number of residential domestic servants:							
	0	1	2	3	4	5	6	7
£125	**0.42***	**0.27**	**0.14**	0.06	0.02	0.01		
£200	**0.30**	**0.26**	**0.19**	**0.10**	0.04	0.01		
£300	**0.20**	**0.28***	**0.30***	**0.22**	**0.10**	0.04	0.01	
£400	0.07	**0.16**	**0.24**	**0.25***	**0.15**	0.07	0.03	
£600	0.01	0.03	**0.10**	**0.19**	**0.19**	**0.12**	0.05	0.01
£875			0.03	**0.14**	**0.25***	**0.23**	**0.15**	0.04
£1,500				0.04	**0.25***	**0.52***	**0.76***	**0.94***
Probability weighted estimated income:								
	£205	£254	£328	£490	£806	£1,091	£1,310	£1,458

Notes: Maximum likelihoods are indicated by * and all likelihoods of 0.10 or more by bold fonts; blank spaces indicate likelihoods of zero to two decimal places.
(a) Estimates are no different for households otherwise the same as the household specified here but which accommodate additional adult women, older boys, younger girls, and/or children under five.
(b) The row headings give the midpoints of the income ranges. The ranges are: £100-£150, £151-£250, £251-£350, £351-£450, £451-£750, £751-£1,000, and £1,001-£2,000.

Table F.3. *Predicted income levels at given numbers of residential domestic servants*

Households accommodating one married couple, two older girls and two younger boys;
head of household 50 years old; living in Wandsworth (a)

Civil Servants Sample, London, 1901

| Predicted income range (b)	Given number of residential domestic servants is:							
	0	1	2	3	4	5	6	7
£125	**0.36***	**0.21**	0.09	0.02				
£200	**0.29**	**0.23**	**0.14**	0.04	0.01			
£300	**0.24**	**0.30***	**0.26***	**0.11**	0.02	0.01		
£400	**0.10**	**0.20**	**0.26***	**0.16**	0.04	0.01		
£600	0.01	0.05	**0.15**	**0.19**	0.07	0.03	0.01	
£875		0.01	0.08	**0.24**	**0.18**	**0.10**	0.05	0.01
£1,500			0.01	**0.25***	**0.69***	**0.86***	**0.94***	**0.98***
Probability weighted estimated income:								
	£222	£283	£404	£794	£1,250	£1,396	£1,459	£1,489

Notes: Maximum likelihoods are indicated by * and all likelihoods of 0.10 or more by bold fonts; blank spaces indicate likelihoods of zero to two decimal places.
(a) Estimates are no different for households otherwise the same as the household specified here but which accommodate additional adult women, older boys, younger girls, and/or children under five.
(b) The row headings give the midpoints of the income ranges. The ranges are: £100-£150, £151-£250, £251-£350, £351-£450, £451-£750, £751-£1,000, and £1,001-£2,000.

Table F.1. shows that in this sample (in which no household income is below £100) a household with no residential domestic servants is most likely to be in the lowest income class with an income of between £100 and £150 a year (p = 0.40) but the probability that it is in either of the next two higher income classes (£151-£250 and £251-£350) is substantial at 0.29 and 0.22. Tables F.2 and F.3 tell a similar story. These income ranges are wide indeed; a civil servant on £125 a year would have struggled to maintain a veneer of middle-class respectability while one on £350 a year many would have thought 'comfortable'. The maximum likelihood incomes tell a similar story.

Fig. F.2. *Estimated mean income of the head of household given the number of residential domestic servants*
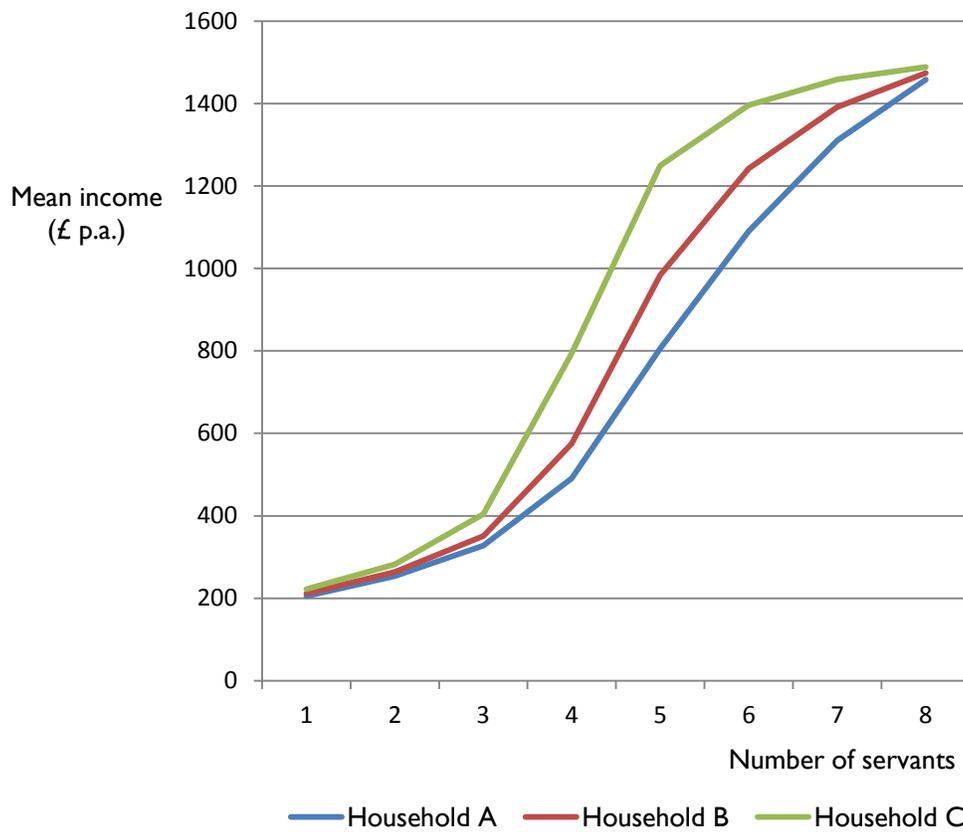
Household A:	Head of household aged 50; one married couple, two older girls and two younger boys. Living in Wandsworth.
Household B:	Head of household aged 40; one married couple, one older girl and one younger boy. Living in Wandsworth.
Household C:	Head of household aged 30; one married couple, no older girls and no younger boys. Living in Wandsworth.

Estimates are no different for households otherwise the same as Households A, B, and C but which accommodate additional adult women, older boys, younger girls, and/or children under five.

Appendix G. Supplementary Tables

Supplementary Table G.1. *Numbers of individuals in the* Return *who were excluded from the final sample.*

	Number	Number
Individuals listed in the England pages of the *Return* (a):		3,169
From which were excluded:		
those in extra-London departments (b):	194	
those appointed after 31 March 1901 (c):	1,732	
Leaving (d):		1,321
Of which 1,321:		
traced in the 1901 census enumerators' books:		995
Of which 995:		
(i) still in post in 1901:	861	
(ii) heads of households:	757	
(iii) resident in London (e):	733	
(i), (ii), and (iii) were all true, constituting the *Initial Sample*:		507
From which 507 were excluded:		
outliers:	15	
Leaving a *Final Sample* of:		492

Supplementary Table G.2. *The Laslett classification of the sample households and a classification of the sample households by number of co-resident children (a) (b)*

Civil servants sample, London, 1901

| Category and class | Number of households | | % |
	Class	Category	
1. Solitaries, of whom:		34	7
(i) Widower or widower, alone	*4*		
(ii) Single person, alone	*30*		
2. Other non-conjugal households, of which		19	4
(i) Co-resident siblings	*16*		
(ii) Other co-resident relations	*2*		
(iii) Persons not evidently related	*1*		
3. Simple family households, of which		353	72
(i) Married couples, alone	*83*		
(ii) Married couples and their children, only	*256*		
(iii) Widowers with their children, only	*7*		
(iv) Widows with their children, only	*7*		
4. Extended family households (c), of which		78	16
(i) Extended upwards, only	*28*		
(ii) Extended downwards, only	*14*		
(iii) Extended laterally, only	*28*		
(iv) Extended in several directions	*8*		
5. Multiple family households (d)		8	2
All Households	492	492	100

Supplementary Table G.3. *Staffs of residential domestic servants by number of residential domestic servants (a)*

Civil servants sample, London, 1901

	Households	
	Number	*%*
Households with no servants	228	45
Households with one servant	180	37
A general servant (b)	*157*	
A cook	*9*	
A housekeeper	*8*	
Others	*6*	
Households with two servants	55	11
Two general servants (b)	*9*	
A cook and a maid (c)	*42*	
A housekeeper (d) and a maid (c)	*2*	
Others	*2*	
Households with three or more servants	29	6
A cook and two or more maids (c)	*23*	
Others	*6*	
All Households	492	100

Notes: (a) The table refers to residential domestic servants only. Nurses, including sick nurses, 'monthly nurses', nurse and nursery maids, and governesses are excluded from the counts in this table.
(b) Including servants described only as 'servants' or 'helps'.
(c) Housemaids, house-parlour maids, parlour maids, between maids, lady's maids, lady's helps, kitchen maids, a laundry maid, and maids described only as such.
(d) Housekeepers including a 'boarding house manageress' in a household containing four boarders.
Sources: General Register Office, *1901 Census [of England and Wales] returns*; H.M. Treasury, *Return*.

Supplementary Table G.4. *Summary statistics for the dependent and independent variables*

Civil servants sample, London, 1901

Variable	N	Mean	Std. dev.	Min.	Max.
Number of residential domestic servants, S_i	492	0.92	1.26	0	7
Income of head of household (£ / p.a.), Y_i	492	378	330	100	2,000
Age of head of household (years), A_i	492	42.2	9.01	22	70
Square of age of head of household (years) / 1,000, $A_i^2/1,000$	492	1.86	0.810	0.484	4.90
Cube of age of head of household (years) / 10,000, $A_i^3/10,000$	492	8.59	5.75	1.06	34.3
Rateable value per head (£), V_i	492	7.49	4.89	4.05	48.9
Number of men in the household (>19), M_i	492	1.13	0.478	0	4
Number of women in the household (>22), W_i	492	1.17	0.655	0	4
Number of older boys, 15 to 19, N_i^B	492	0.16	0.432	0	2
Number of younger boys, 5 to 14, N_i^b	492	0.42	0.774	0	4
Number of older girls, 15 to 22, N_i^G	492	0.22	0.503	0	3
Number of younger girls, 5 to 14, N_i^g	492	0.45	0.735	0	3
Number of children, <5, N_i^k	492	0.33	0.603	0	3

Marital status, C_i: n = 492; 54 were single (i.e. never married), 9 were widows, and 16 were widowers all of whom had their marital status coded to 1; the remaining 413 were married and their status was coded to 2.

Sources: General Register Office, *1901 Census [of England and Wales] returns*; H.M. Treasury, *Return*; Appendix E, Table E.1, above.

Supplementary Table G.5. *Estimated probabilities of demand for specified numbers of residential domestic servants by annual income*

Households accommodating one married couple and no children; head of household 30 years old; living in Wandsworth (a)

Civil servants sample, London,1901

	Probabilities of demand for specified numbers of residential domestic servants							
Annual income	*None*	*One*	*Two*	*Three*	*Four*	*Five*	*Six*	*Seven*
£100	0.08	**0.59***	**0.29**	0.03				
£200	0.05	**0.52***	**0.38**	0.06				
£300	0.02	**0.42**	**0.45***	**0.10**	0.01			
£400	0.01	**0.32**	**0.50***	**0.15**	0.02	0.01		
£500	0.01	**0.23**	**0.51***	**0.21**	0.03	0.01		
£600		**0.15**	**0.48***	**0.28**	0.05	0.02	0.01	
£700		0.09	**0.43***	**0.34**	0.08	0.04	0.02	0.01
£800		0.05	**0.35**	**0.38***	**0.11**	0.06	0.03	0.02
£900		0.03	**0.27**	**0.39***	**0.14**	0.09	0.05	0.03
£1,000		0.01	**0.19**	**0.37***	**0.16**	**0.13**	0.07	0.06
£1,100		0.01	**0.12**	**0.33***	**0.18**	**0.16**	**0.10**	**0.10**
£1,200			0.07	**0.27***	**0.18**	**0.18**	**0.13**	**0.17**
£1,300			0.04	**0.20**	**0.16**	**0.19**	**0.16**	**0.25***
£1,400			0.02	**0.14**	**0.13**	**0.18**	**0.17**	**0.36***
£1,500			0.01	0.09	**0.10**	**0.16**	**0.17**	**0.47***
£1,600				0.05	0.07	**0.13**	**0.16**	**0.59***
£1,700				0.03	0.05	0.09	**0.13**	**0.70***
£1,800				0.01	0.03	0.06	**0.10**	**0.79***
£1,900				0.01	0.02	0.04	0.07	**0.87***
£2,000					0.01	0.02	0.05	**0.92***

Notes: Maximum probabilities are indicated by * and all probabilities of 0.10 or more by bold fonts; blank spaces indicate probabilities of zero to two decimal places.

(a) Estimates are no different for households otherwise the same as the household specified here but which accommodate additional adult women, older boys, younger girls, and/or children under five.

Supplementary Table G.6. *Estimated probabilities of demand for specified numbers of residential domestic servants by annual income*

Households accommodating one married couple, two older girls and two younger boys; head of household 50 years old; living in Wandsworth (a)

Civil servants sample, London, 1901

Annual income	Probabilities of demand for specified numbers of residential domestic servants							
	None	One	Two	Three	Four	Five	Six	Seven
£100	**0.27**	**0.62***	**0.11**					
£200	**0.18**	**0.64***	**0.17**	0.01				
£300	**0.11**	**0.62***	**0.24**	0.02				
£400	0.07	**0.56***	**0.33**	0.04				
£500	0.04	**0.48***	**0.41**	0.07	0.01			
£600	0.02	**0.38**	**0.47***	**0.12**	0.01			
£700	0.01	**0.28**	**0.51***	**0.17**	0.02	0.01		
£800		**0.19**	**0.50***	**0.24**	0.04	0.02		
£900		**0.12**	**0.46***	**0.30**	0.06	0.03	0.01	
£1,000		0.07	**0.40***	**0.36**	0.09	0.05	0.02	0.01
£1,100		0.04	**0.32**	**0.39***	**0.12**	0.08	0.03	0.02
£1,200		0.02	**0.23**	**0.39***	**0.15**	**0.11**	0.06	0.04
£1,300		0.01	**0.16**	**0.36***	**0.17**	**0.14**	0.08	0.08
£1,400			**0.10**	**0.30***	**0.18**	**0.17**	**0.11**	**0.13**
£1,500			0.06	**0.24***	**0.17**	**0.18**	**0.14**	**0.20**
£1,600			0.03	**0.17**	**0.15**	**0.18**	**0.16**	**0.29***
£1,700			0.02	**0.12**	**0.12**	**0.17**	**0.17**	**0.40***
£1,800			0.01	0.07	0.09	**0.14**	**0.17**	**0.52***
£1,900				0.04	0.06	**0.11**	**0.15**	**0.64***
£2,000				0.02	0.04	0.08	**0.12**	**0.74***

Notes: Maximum probabilities are indicated by * and all probabilities of 0.10 or more by bold fonts; blank spaces indicate probabilities of zero to two decimal places.
(a) Estimates are no different for households otherwise the same as the household specified here but which accommodate additional adult women, older boys, younger girls, and/or children under five.

Footnote References

Anderson, G., *Victorian clerks* (Manchester, 1976).

Anstruther, E., 'That tyrant income', *Cornhill Magazine*, 11 (1901), pp. 355-64.

Becker, G. S., 'A theory of the allocation of time', *Economic Journal*, 75 (1965), pp. 493-517.

Black, C., 'The dislike to domestic service', *Nineteenth Century* (1893), pp. 454-6.

Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., and Roberts, J., 'Does management matter? Evidence from India', *Quarterly Journal of Economics*, 128 (2013), pp. 1-51.

Booth, C., *Life and labour of the people in London*, 9 vols. (1892-7) V-VIII: *Population classified by trades* (1895-6).

Bunting, M. H. L., 'Mistress and maid', *Contemporary Review*, 97 (1910), pp. 595-602.

Butler, C. V., *Domestic service: an enquiry by the Women's Industrial Council* (1916).

Cannan, E., Bowley, A. L., Edgeworth, F. Y., Lees Smith, H. B., and Scott, W. R., 'The amount and distribution of income (other than wages) below the income-tax exemption limit in the United Kingdom', in British Association for the Advancement of Science, *Report of the eightieth meeting: Sheffield, 1910* (1911), pp. 170-99.

Ebery, M. and Preston, B., *Domestic service in late Victorian and Edwardian England, 1871-1914* (Reading, 1976).

The Economic Club, *Family budgets: being the income and expenses of twenty-eight British households* (1896).

Feinstein, C., 'New estimates of average earnings in the United Kingdom, 1880-1913', *Economic History Review*, 2nd ser., XLIII (1990), pp. 595-632.

Hall, R., 'The sociologue or the initial advantage', *Crossbow: A Quarterly Journal of Politics*, 3 (1960), pp. 46-9.

Higgs, E., 'Women, occupations and work in the in the nineteenth century censuses', *History Workshop Journal*, 23 (1987), pp. 59-80.

Higgs, E., *Making sense of the census: the manuscript returns for England and Wales, 1801-1901* (1989).

Horn, P., 'Domestic service in Northamptonshire, 1830-1914', *Journal of the Northamptonshire Record Society,* V (1975), pp. 267-75.

Horn, P., *The rise and fall of the Victorian servant* (Dublin, 1975).

Jeune, M., 'The servant question', *Fortnightly Review*, 52 (1892), pp. 65-73.

McLaughlin, F., 'The problem of domestic service', *National Review* (1891), pp. 214-27.

Major, M., 'The domestic problem', *Macmillan's Magazine* (1900), pp. 276-81.

'A Member of the Aristocracy', *The management of servants* (4th edn. 1890).

Millin, G. F., 'London servants: high and low', *English Illustrated Magazine* (1894), pp. 939-47.

Moulder, P. E., 'The general servant problem', *Westminster Review*, 160 (1903), pp. 222-5.

Nicholson, S., *A Victorian household* (Stroud, 1998).

Pooley, S., 'Domestic servants and their urban employers: a case study of Lancaster, 1880-1914', *Economic History Review*, 62 (2009), pp. 405-429.

Roberts, E., *Women's work, 1840-1940* (1988).

Thompson, F., *Lark Rise to Candleford* (Harmondsworth, 1973).

Wilson, S., *The means of naming: a social and cultural history of personal naming in western Europe* (1998).

Wright, M., *Treasury control of the civil service, 1854-1874* (Oxford, 1969).

Official Publications

Royal Commission on Labour, 'Report by Miss Clara E. Collet ... on the conditions of work in London', in idem, 'The employment of women' (P.P. 1893-4, XXXVII).

Labour Department, Board of Trade, *Report by Miss Collet, on the money wages of indoor domestic servants* (P.P. 1899, XCII).

Accounts and Papers (P.P. 1900, LII), Estimates for civil services for the year ending 31 March 1901.

Commissioners of H.M. Inland Revenue, *Forty-fifth report* (P. P. 1902, XXII).

Local Government Board, *Local Taxation Returns, (England) [for 1901]* (P. P. 1902, LXXXVII).

General Register Office, *Census of England and Wales, 1911. Vol. X. Appendix. Classified and alphabetical lists of occupations and rules adopted for classification* (P.P. 1914-16, LXXXI).

H. M. Treasury, *Return to an order of the Honourable the House of Commons, dated 28 February 1912; ---for, Return "Setting forth the name, age, date of appointment, salary, address at time of appointment, and occupation for the five years preceding the appointment, of each person appointed without competitive examination to any position in the public service during the period from the 29th day of June 1895 to the 5th day of December 1905, with an annual salary of 100l. and upwards, specifying separately the appointments for England, Wales, Scotland, and Ireland."* (P.P. 1912-13, LVI).

END