

Employers and self-employed in the censuses 1921-2011 and alignment with BBCE: Entrepreneurs, business numbers and size distribution.

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Comments are welcomed on this paper: please contact the author as above.

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**Employers and self-employed in the censuses 1921-2011 and alignment with BBCE:
Entrepreneurs, business numbers and size distribution.**

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1. Introduction.

This paper discusses how the published census reports from 1921 up to 2011 can be used to derive information on employers and their workforce, self-employed sole proprietors, and the remaining occupied population as workers. It assesses how the content changed over time and it has to be managed to obtain comparability and alignment with the earlier censuses for 1851-1911. The result then allows a continuous series of data for 1851-2011. This paper focuses on issues of census completeness; identification of employers, own account and workers; occupational coding; gender coverage; identification of portfolio businesses; partnerships; and location. For the earlier censuses 1851-1911 a database has been constructed for employers and own account proprietors which is available for all researchers: *The British Business Census of Entrepreneurs* (BBCE) deposited at UK Data Archive (UKDA). For BBCE, the transcripts of the censuses, and coding of individuals, were derived from another UKDA data deposit: *The Integrated Census Microdata* (I-CeM) (Higgs and Schürer, 2014; see also Higgs et al., 2015). This uses transcripts of the original Census Enumerators Books (CEBs) 1851-1901, and the householders' returns for 1911. The BBCE adds to I-CeM: identification and coding of entrepreneurs, data enrichment, and corrections and infills of those missing in I-CeM after consulting the CEBs and using other genealogical sources from S&N, including extension to include entrepreneurs in 1871 not available in I-CeM for England and Wales. The BBCE and I-CeM can be linked through the individual identifiers for each entrepreneur identified in the censuses to provide a complete resource of the census information on entrepreneurs.

A summary of the main outputs and analysis from the BBCE is given in the book-length study by Bennett et al. (2019) *The Age of Entrepreneurship: Business Proprietors, Self-employment and Corporations Since 1851*. This book extends analysis from the 1851-1911 BBCE database to cover the whole period up to 2011. For this it uses the published census tables for 1921-2011, as well as special tabulations for 2011, and links and aligns these with 1851-1911. This working paper gives the foundations for how the 1921-2011 analysis was undertaken.

For the later censuses the individual records are not yet available for 1921-51, but can be downloaded from 1961. Efforts to make the original census records for individual households for 1921-31 available in a similar format to I-CeM are being developed but cannot be currently used. This paper outlines how the published records for the modern censuses from 1921 can be used. Like the BBCE, this Working Paper has been supported by the ESRC project ES/M010953 *Drivers of Entrepreneurship and Small Businesses*, as well as an earlier pilot project support by the Leverhulme Trust. The process of infill to create the complete BBCE database, as well as the corrections needed to the rest of I-CeM, are summarised in Working Papers listed at the end. This current working paper is the counterpart of WPs 2, 3, 4 and 20 for the 1851-1911 census questions that can be used to identify entrepreneurs.

The population census offers 1921-2011 identifies employers and the own account self-employed explicitly, and for some years gives information about the employee numbers of employers' businesses. This resource has been little used for comparisons over time, yet it has considerable potential, if used with care. The population census was not a full business census. As a result, the way in which the census gathered material restricts the sort of employer and self-employment information that can be obtained, how it can be interpreted, and changes over time lead to adjustments being necessary for all years to align them.

This paper reviews the censuses and their alignment for the earlier years 1851-1911, following WPs 2, 3 and 4 for England and Wales, and WP 20 for Scotland. It then outlines (Section 3) how the censuses material over 1921-2011 was collected and the challenges it offers to aligning with the earlier censuses. This covers England and Wales in detail, and then differences in Scotland. Section 4 summarises how estimates of entrepreneur numbers are constructed, how comparability can be achieved in the face of changed definitions over time, how important they are, and how each year can be adjusted. Section 5 extends the discussion

to how comparators over time can be aligned for the population, economically active, etc. Section 6 reviews how adjustments were made in *The Age of Entrepreneurship* (Bennett et al., 2019) to align all the censuses into one time series for the self-employed from 1851 to 2011.

2. Overview the relation of the earlier censuses 1851-1911 to those for 1921-2011

Although there were small differences in detail in the instructions and layout of the census for the censuses of 1851-1911 the main change over this period was a different format of questions 1851-81 to that for 1891-1911. The format used from 1891 is very similar to that for 1921-2011, since it identifies ‘employment status’ directly: whether individuals were employers, own account proprietors employing no-one else, or workers. This makes alignment of modern censuses with earlier censuses fairly direct back to 1891. There is, however, a challenge to take comparisons back from 1881 to 1851. For this a data supplementation method has been developed which builds of the extracted individuals that can be definitely identified as entrepreneurs in the census 1851-81, and adds to those a supplement of others that are estimated to be entrepreneurs in this period (see WPs 9 and 9.2). In addition a separate set of issues arises for the censuses 1891-1911, that there were substantial non-respondents to the census questions on employment status. For 1891 there are also unique problems of mis-attribution bias among census respondents. A method of data weighting at the individual level has been developed to deal with these issues (see WP 11 and download) (see summaries in Bennett et al., 2018, 2020). These methods allow database alignment with modern census definitions to be developed for 1851-1911. However, certain issues in these data are valuable to consider when discussing the later censuses:

1. Trades and manufactures, and farmers, are reasonably consistently covered for their ‘employment status’ over 1851-1881 but for some sectors some employers may have ignored the instructions either to identify themselves as employers, and/or to give their employee numbers. Instead they could have returned themselves under the instructions for other occupational categories. This mainly occurred for four categories: legal profession; medical profession; professors, teachers, writers, authors and scientific men; and persons engaged in commerce (merchants, brokers, agents, clerks, commercial travellers). The data supplementation and weighting methods in BBCE should have overcome these limitations.

From 1921 non-response bias was more fully controlled in the census process and weighting is not generally needed.

2. Female employers appear to have responded to the instructions in the same way as males in the earlier census when using the CEBs and this should also be true from 1921. However, from 1921, as we are relying on published tables, the way in which women were treated in published tabulations requires careful checks.

3. Farmers are consistently defined throughout occupationally, from 1851-1921; however, the female farm workforce participation and also family roles varies in how it was recorded. This is also true for some years after 1921

4. There are constraints on industry identification. The census was seeking information on occupations, not industries or sectors. However, it was noted by the GRO in 1911 that the industrial classification of activities was more closely followed over 1851-71, but from 1881 the occupational classification was more influential. But both personal occupations and industry classifications were deemed in 1911 to not fulfil their objectives completely.¹ Revisions in 1901 led to a stronger emphasis on occupations, and this has continued up to the present, with varied publication and analysis by industry (later to become SIC) codes. As a result careful alignment of industry sectors is needed if disaggregations are sought.

5. The major change instituted over 1891-1911 was to cease collecting employee numbers for employers, and acreages for farmers. Some published data on firm size was again introduced in 1961, but this is limited to two size groups and hence does not allow the richness of the data for 1851-81 to be replicated.

6. No multiple employer details were collected or published after 1891.

7. Instructions to identify as a partner or director remained poor and confused after 1911 as before.

8. Part-time working is not explicitly excluded in the early censuses. However, the de facto guidance in the instructions indicates that it was full-time occupations that were required. The extent of inclusion of part- or full-time becomes progressively more explicit in censuses after 1921, but the tabulations in publications are often confused in their coverage, hence requiring adjustments.

¹ See e.g. General Report, Appendices, 1911 Census, Cd. 8491, p. 97.

9. The scale of those not classified to an occupation changes over time and is generally much higher in the early censuses; 8.4% 1881, but still 9.2% 1921, and not below 1% until the 1960s (Lee, 1971, p.220).

10. The definition of economically occupied, as opposed to unemployed or retired, becomes more explicit from 1891 (though still imperfect), and the treatment continued to vary until 1921, after which it is generally more aligned, though publications vary in how the unemployed and retired were analysed.

3. What is contained in each census 1921-2011

3.1 The 1921 Census

The information for employers and own account *before* 1921 can be interpreted strictly as applying only to ‘trade and industry’, though in practice the BBCE analyses have shown that the CEBs with the benefit of the I-CeM occupation coding give entrepreneurs in a full range of occupations. However, the wording of the census question from 1921 the first time explicitly fully included all sectors of employers (including farmers). This should make 1921 superior to earlier censuses in some respects. A further significant change introduced in 1921 was to require employees to state not only the nature of their employers’ business but also the *name* of the employer. Full-time only occupations were sought through a general instruction for replies by ‘persons principally occupied in working for payment and profit’. Portfolios were excluded by requesting that ‘if more than one paid occupation is followed, state only that by which the living is mainly earned’. Workers in a family business were now fully and explicitly included (if full-time): ‘a member of a the household who is chiefly occupied in giving unpaid help to a business carried on by the head of the household or other relative, state the occupation in Column (k) as though it were a paid occupation. The name of the head of the business should be stated in Column (l) as employer, together with the nature of the business’. Responses were supposed to identify if retired or currently out of work: ‘whether ... at work or not at the time of the census’. This means that those who were unoccupied as unemployed were included but published tables should have excluded them in the currently occupied. It is not clear how many people fully completed information about being ‘chiefly occupied in giving unpaid help to a business carried on by the head of the household’ as there

were no example included in the instructions, and this is not broken out in publications. When the original responses are available this will be an interesting avenue for analysis.

The census occupation question that identifies entrepreneurs now had two columns under the general title ‘OCCUPATION and EMPLOYMENT’ to be filled in ‘for every person **aged 12 or over** who follows some occupation for payment or profit’. The first column (k) requested information on ‘Personal Occupation’, with the same requirement as 1911 to state the ‘**precise branch of Profession, Trade, Manufacture, Service, etc.**’; and also to state ‘the *particular kind of the work done*’ ... ‘where the occupation is connected with **Trade and Manufacture**’ and ‘where applicable, the *Material* worked in, and the *Article* made or dealt with, if any.’

The second column (l) required a statement of:²

‘Employment.

- (1) If working for an employer state the name and business of present employer (person, firm, company or public body) **or**, if at present out of work, or last employer, adding “**out of work**”.
- (2) **If employing persons** for purposes of business, write “**Employer**”.
- (3) **If working on own account** and not employing persons for purposes of business, write “**Own Account**”.

(*Note.* – *For Domestic Servants and others in private personal service, write “Private”*).

(See Instructions 3 to 8, 11 and Examples.)’

The GRO examples given provided no cases for employers and own account except to advise how to differentiate shopkeepers, retail dealers (if principals) and shop assistants (if assisting). Multiple occupations were no longer collected. The instructions stated ‘mainly earned’, and instructions to Registrars schedule (l) for occupations stated: that ‘from which the person normally earns his living’.³ Controls for multiple work places of the same occupation or employers were attempted through an instruction that:

² Census form, Census of England and Wales, *Householder’s Schedule*, 1921.

³ Instructions to Registrars, Census 1921; TNA RG 27/9, piece 28, p. 3.

‘Where a worker, though usually working in different places, operates from a regular centre such as his employer’s premises, and normally visits those premises in the course of his daily work, the address of such premises should be shown in column (m). (For example, a paperhanger ...). Similarly, if a worker is regularly employed in the vicinity of the employer’s address, as in the case of a farm labourer, the employer’s address should always be stated’.⁴

Collecting the name and business of present employer allowed more accurate census tabulations since the clerks and ‘compliers used local directories’ of the main employers to allocate their employees to the appropriate category of industry.⁵ The name of the employer allowed census clerks to identify an employer-size category for the business, but confidentiality was assured that these were not recorded or available in any publication. The published tables did not report the employer size information, and only gave a classification by employer, employee and own account, but did this separately for male and female, and ‘at home’ (though females have less details in some sectors). The coding instructions read:

‘Before commencing to code a volume the coder must see that he is in possession of the list* of names and businesses of the large employers of labour in the sub-district, and also of any special instructions relating to the locality.

In coding attention must be paid to the name of the employer where necessary, in order that the Industry may be correctly allocated. The employer’s name, in conjunction with the list referred to, will often enable the Industry to be defined more precisely than would be possible for the statement of the employer’s business. ... Reference should also be made to local directories if necessary.

* Detailed lists of the large employers of labour in each area were compiled from information obtained for the local registrars, from directories, and from preliminary scrutiny of the Schedules. Against each firm was marked the code number of the industrial group to which their employees were to be classified. This was determined from the same sources, or in cases of difficulty by reference to the firm in question.’⁶

⁴ Instructions to Registrars, Census 1921; TNA RG 27/9, piece 28, p. 3.

⁵ Census General Report, 1921, p. 86.

⁶ Census General Report, 1921, p. 79.

Considerable effort was made by the GRO to ensure accurate employer information was obtained. Prior to the census printed notices were distributed to employers who were supposed to place these prominently. The Notice stated that:⁷

‘Under the Census Act, 1920, ... all employees are required to state in the Census Schedule, amongst other information, the name and business of present employer.

The return which should be made in **Column (L)** of the Census Schedule in respect of employees in this¹ _____ is as follows : -² _____

³ _____

¹ Factory, Foundry, Yard, etc., as the case may be.

² Enter full business name of the employer (whether a person, firm or company).

³ The precise nature of the employer’s business should be stated, e.g. ...’

This was reinforced by a system of pre-printed pro-forma letters sent to householders where the reply was deemed insufficient. Spaces in the letter were to be filled in, the sheet folded up to form a reply envelope, which was pre-paid OHMS, and pre-addressed. The letter stated:

‘On examination of the Census Schedule in which you are included it has been found that certain particulars required to be stated have been omitted. ... please write in the space opposite **your occupation, the name and business of your employer, and your place of work**’.⁸

For employers outside the enumeration district, Enumerators were instructed to fill up a ‘Transfer Postcard Form in respect of every address given in column (m) in the Schedules collected by him which is situated outside the Registration sub-district of which his Enumeration District forms a part.’ This was then consulted through the Registrar, and the whole set of postcard forms bundled up in batches for subsequent checking.⁹

The 1921 result should be the most accurate identification of employer/own account up to that date. This date is also the usual first point of comparison for official statistics such as

⁷ Notice, 1921 Census; TNA RG 27/9, piece 27.

⁸ Pro-forma letter to householders, Census 1921; TNA RG 27/9, piece 118, p. 1.

⁹ Instructions to Enumerators, Census 1921; TNA RG 27/9, piece 90, p. xiii.

with the Ministry of Labour and Census of Production. However, most Ministry statistics prior to the 1970s do not breakout aggregates below GB, so that England and Wales is less easy to recover. Farmers remained defined occupationally as over 1851-1911. The basic method of asking the question to obtain employer name information used in 1921 was maintained subsequently up to 2011.

Overview of 1921

Own account was consistently defined as those working for themselves and not employing paid assistants. It was more accurately counted from 1921 so that, with some caveats over detail and the capacity of clerks to accurately code all employers by size and differentiate self-employed partners and employers, the self-employment counts 1921-2011 should be consistent. The main concerns are (i) unoccupied entrepreneurs (and others) will be counted and tabulated unless retired; (ii) the census was undertaken in the summer as a result of strike action; as a result it included seasonal workers that would not appear in other censuses, inflating farm employment numbers, and mis-placing geographically many people who were on holiday (attributed as visitors of borders) who cannot be located to their main residence; and (iii) some employers may be included in own account. Partners from 1921 were classified as self-employed (own account) by clerks if they had no employees, and employers if they had employees. However, the extent of the explicit instructions for respondents to identify themselves as partners was variable, with reliance by clerks placed largely on the employer name descriptions. This will be imperfect and will also result in businesses with several partners who had employees being counted as several different employers, or if they have no employees as several different self-employed. The census classified people by occupation/industry, not by the businesses. This is in line with modern *SME Statistics*. The census estimate of employers excluded government activities and nationalised industries. This is also in line with modern *SME Statistics*.

3.2 The 1931 Census

The changes initiated in definitions used in 1921 were generally continued in 1931 and subsequently. The 1931 census adopted an even more detailed approach to gathering information on employers. Occupation and industry now had two columns, with the general

title ‘Occupation and Industry’ to be filled in ‘for every person **aged 14 or over** who follows some occupation for payment or profit’. The first column (K) then requested information on ‘Personal Occupation’, with the same requirement as 1921 for the details of the work or branch of activity. The second column (L) was for a statement of:¹⁰

‘Employer worked for in occupation stated in column K, and Employer’s Business.

State **Name, Business** and **Business Address** of present employer (Person, firm, company or public body) or, if out of work or wholly retired, of last employer.

The nature of the business should be fully described, and the product or kind of service stated, where applicable. Vague and indefinite terms should not be used.

If the employer carries on more than one kind of business, manufacture or service, the business and business address given should be that of the particular works, etc., where the person in question is employed.

But for Domestic Servants and others in *private* service, write only “**Private**”.

For an occupied person who does not work for an employer, but employs others for purposes of his or her own business, write “**Employs Others**”, stating also nature of business unless identical with occupation returned.

For an occupied person who neither works for an employer nor employs others for business purposes, write “**Own Account**”.

These questions were similar to the detailed wording in the earlier census of 1891-1921, and marks the initiation of the modern terminology for ‘self-employed employs others’, and ‘self-employed employs no others’, though own account also continued to be used. There was no additional specialised enquiry for partners or directors. The multiple occupation description may have muddled employee and employer status, and as in 1921 gives no scope of identifying portfolio businesses (only ‘usual’ occupation was requested). Family workers in a business were included as in 1921. Unemployed and retired were included, but asked to state this. A potentially major deficiency was the instruction to return ‘every person aged 14 or over who follows some occupation for payment or profit’. This resulted in part-timers being included for the first time in the census questions and in published tables, though the extent

¹⁰ Census form, Census of England and Wales, *Householder’s Schedule*, 1931.

of increased inclusion compared to previous censuses is uncertain; it is uncertain how householders and enumerators responded to the more open question, and in most cases they probably treated it as fully occupied; but a degree of inclusion of part-timers must have resulted.

A major deficiency of the 1931 published employer counts was to include ‘directors’ and ‘managers’ with employers. Managers of branches, chains or subsidiaries were not classified as employers but as managers, though it is not clear that all these could be accurately identified from the household returns. For farmers, as with other sectors, the published tables include directors and managers with employers; there is also a one-off inconsistency that poultry farmers were reported separately and so have to be added back with other farmers for comparison purposes.

Employers of domestic staff were not classified as employers, though employers of such staff as a business in boarding houses etc. were. Part-time employees were included in published employment numbers, though unpaid family members were excluded. These definitions resulted in some reclassification of those returning themselves as ‘employers’ to the category ‘working on own account’, though there is no estimate provided of the numbers involved.¹¹ Outworkers generally returned themselves as own account, or were coded to self-employed.¹² The working ‘at home’ question was dropped.

3.3 The 1951 Census

There was no 1941 census. The 1951 question to employers remained similar to 1931 for both column one (labelled P) for personal occupation, and column two (R) for employer’s business (though with some streamlining of text), but a third column (S) was added to separately identify the place of work (which gave the business address, and brought back explicitly the working ‘at home’ category). The rewording of column two for employees and employers/own account had two rows (a) and (b) in each box. The detailed wording was:¹³

¹¹ As stated for 1931 in the Census Report, 1951, Classification of Occupations, pp. ix-xv.

¹² Census, 1951, General Report, p. 127.

¹³ Census form, Census of England and Wales, *Householder’s Schedule*, 1951.

‘State, at (a), **Name of Employer** (person, firm, company or public body), or if out of work or retired, of last employer.

State, at (b), **Business of Employer**. Describe fully and state product or kind of service where applicable. Where the employer carries on more than one kind of business, state the main business carried on at the works or establishment where the persons is employed.

(Note. – For domestic servants and others in private personal service, write only “**Private**”).

‘For an occupied person who is not in the employment of any person or company etc., write (a), “**Employs others**” if he employs one or more persons for the purpose of his business, or “**Own Account**” if he works alone without paid assistance; and state (b) the nature of the business, unless it is the same as the occupation in column P.’

This re-wording had the advantage of better separating employers from employees, but no capture of portfolio businesses. There was no explicit guidance to directors or partners. But instructions to coders suggest that this was handled in the collations: employers were defined as those that employ others for the purpose of their own business, excluding managers, directors, employers of domestic servants (unless as boarding house keeper). Partners were employers if they were proprietors employing others than themselves, but were own account if joint proprietors with no paid employees. Family workers, if full-time, were included in employees, and part-timers were excluded.¹⁴ For the first time part-timers were explicitly identified by asking for this to be stated on the forms for work which ‘normally occupies less than 30 hours per week’ and it was possible for them to be separately assessed and tabled. Age for economically active was for 15 and over from 1951 until 1971.

In published reports, fortunately, unlike 1931, employers and managers were tabulated separately and thus can be disaggregated. This was also true for farmers, with the distinction of poultry farmers introduced in 1931 dropped. However, employers in large organisations were coded as managers and reassigned from their sector to occupational Order XVI (Codes 620-9) ‘Administrators, directors and managers’. There were 25,909 males and 1,722 females in this category, mainly in mining, engineering, textiles, building and other industries; none in farming. These were included in the employer total and introduced an overestimate of

¹⁴ Census Report, 1951, Classification of Occupations, p. xiv.

employer numbers for those that were not employers but managers. They also distort sector comparisons. Where known, a large organisation was defined as 10 or more employees.¹⁵ There was no published tabulation of large and small. However, there was a distinction tabulated for managers in three categories: ‘general, directors, etc.’; ‘of branch or primary departments’; ‘of office or subsidiary departments’. From 1951 published industry tables as well as occupation tables were introduced. These differ mainly in attributing workers to their workplaces rather than residence, which is of significance in the makeup of urban areas and their commuter territories. This was done to recognise the need to compare census and Ministry of Labour statistics. Published tables also provided breakouts by county.

In 1951 it was claimed, quite implausibly, that the distinction between employers and managers ‘increasingly loses significance as the structure of industry becomes more complicated’; and ‘with the growth of joint stock companies the old distinction between “Employer” and “Employee” has lost much its significance’.¹⁶ In 1951 a category was introduced to tabulate ‘the managerial division [which] consists of employers, directors, managers, superintendents and other individuals of like status’.¹⁷ Given that there was no explicit instruction for directors to report themselves in this way, these tabulations are unlikely to be complete. They also create an inconsistency.

3.4 The 1961 Census

The 1961 census developed the employer question considerably to separate self-employed with and without employees, thus dropping the ‘own account’ definition, and businesses were referred to as establishments. The questions were in part II of the form where three sets of columns were provided: R for those in employment; S for those not in employment but intending to work; and T others such as ‘housewife’, ‘home duties’. For the ‘employed’ columns (R), five sub-columns (a-e) were provided:¹⁸

‘a. State the **name and business of the employer** but if self-employed write either “self-employed employs others” or “self-employed without employees”, and also the nature of the business: if a trading name is used give that name as well.

¹⁵ Census Report, 1951, Classification of Occupations, p. ix.

¹⁶ Census, 1951, General Report, pp. 126-7 and p. 109

¹⁷ Ibid. p. 109.

¹⁸ Census form, Census of England and Wales, *Householder’s Schedule*, 1961.

- b. For the employment given in column (a) give at (i) the precise **occupation** ... If applicable write at (ii) “Apprenticed” etc.
- c. State the full postal address of the **place of work**. ... If the work is carried on mainly at home write “at home”.
- d. State at (i) whether this employment is **full-time** or **part-time**. ..
If part-time state at (ii) the number of hours worked ...
- e. **MALES ONLY**. If you have written “part-time” in column (d) give details of the **last full-time employment**, showing at (i) the business of the employer or details of self-employment and at (ii) the occupation.’

Self-employment was defined as:

‘Persons who are working but not employed by any person or company, and persons working in their own home for an employer (out-workers).’

Coding of self-employed was further defined as proprietors, including members of partnerships with no paid employees, and parochial clergy. Outworkers were assigned by coders to the no employee self-employed. Excluded from self-employment were: directors and managers of limited companies, all persons in national and local government and nationalised industries. There was no attempt to assess multiple occupations; the instruction (16) read ‘If the person normally follows more than one employment during the week give details of the main employment only.’ Part-time was now identified as ‘less than the normal hours in employment’ (excluding leave and sickness, etc.); but the 30-hour distinction introduced in 1951 was not explicit.

From 1961 for the first time there were published tabulations of employers by size, but only in three categories for the size of establishment: self-employed no workers; large (‘employing 25 or more persons’); and small (‘others’). Similarly managers and foreman or supervisors were classified into large and small establishments. Unfortunately, employers and managers for large establishments were again coded together and grouped together in published tabulations leading to overestimation of numbers and considerably reducing the utility of the tables. Published tables for farmers, fishermen and foresters were excluded from the size distinctions. From 1961 (until 1991) employer size was only tabled by clerks for a 10% sample of returns. A change was also made in 1961 to the distinction between those ‘out of

employment, sick' and 'out of employment, other'. This produced a lower estimate (-2.6%) of the economically active, which was fed into Ministry of Labour Statistics, which is inconsistent with earlier. The unclassified group was radically reduced by 1961 to only 0.3% of the occupied.

3.5 The 1971 Census

This was the first census in the modern format, where most instructions instead of being in a separate long list, with all the questions on the form that followed, included the instruction with each question followed by a range of tick boxes. This is modern best practice and should have introduced higher accuracy and reduced potential for confused responses. A major change in occupation definitions was used by requesting information on 'job last week' rather than normal or main as in previous censuses; this included all own account, part-time for a few hours, casual, and unpaid family business. An explicit instruction stated 'tick box 1 if the person had a job last week even if it was only part-time or if the person was temporally away from work, on holiday, sick, on strike, or laid off' (Question C4). This then carried across to Columns C5-C7 that requested the information on employers and self-employed. Unfortunately it led to significant inclusion of part-time and casual employment for 1971 that cannot be identified in published tables.

For categories of employer the questions were similar to 1961:¹⁹

'B 17 Was the person an employee of self-employed employing others (see note B 17), or self-employed without employees?

1. An employee.
2. Self-employed employing others (see note).
3. Self-employed without employees ...

Note:

"Self-employed, employing others" means having one or more employees other than "family workers". A "family worker" is one who lives in the same household as the employer and is related to him. Although "family workers" are not counted for the purpose of deciding

¹⁹ Census form, Census of England and Wales, Householder's Schedule, 1971.

whether an employer has employees, they should themselves be recorded as employees.’

Self-employed were interpreted as: ‘those working on their own account with or without employees’. As far as possible all Class II insured persons were included e.g. proprietors of businesses, members of partnerships, parochial clergy and medical practitioners who were principals in the National Health service and in private practice. The self-employed were mainly identified from replies to question B17. **Self-employed without employees** included parochial clergy even if they employed curates. It also included outworkers i.e. people who worked at home but gave the name of an employer other than themselves. Domestic servants and family workers did not count as employees when determining whether or not a self-employed person has employees. All other self-employed persons were classed as **self-employed without employees**.²⁰

The employer size tabulation was now small ‘not more than 25 employees, and large ‘having more than 25 employees’, which differed slightly from 1961 which used ‘25 or more persons’. The 1971 size classification was kept the same for later censuses.

3.6 The 1981 Census

The census employer question remained essentially the same, but for the first time had fuller questions about working full or part-time, including on own account and in family businesses. This was for those 16 and over ‘in a job in the last week’. Part-time was ‘usually 30 hours or less per week’ (Question 10). The detailed question was for ‘main job’ for each person in the household:²¹

‘11. Name of business employer (if self-employed the name and nature of the person’s business)

- a. Please give the name of the person’s employer. Give the trading name if one is used and avoid using abbreviations and initials ...
- b. Please describe clearly what the employer (or the person if self-employed) makes or does.

For a person employed in domestic service write ‘Domestic Service’.

²⁰ Census Report, 1971, p. xv; emphasis in original.

²¹ Census form, Census of England and Wales, *Householder’s Schedule*, 1981.

An additional occupation question then gathered information on the title of the occupation and work done. A further question (13) on employment status with tick boxes was now somewhat expanded as: apprentices/trainees; employee not supervising other employees; employee supervising other employees; self-employed not employing others; and self-employed employing others. This should give reliable estimates of the employer and employee categories.

3.7 The 1991 Census

The 1991 census question again remained essentially the same, but full-time and part-time were better defined, with separate categories for self-employed and employing others. There were tick boxes for each person as follows:

‘13. Whether working retired, looking after the home etc. last week? ... work for pay or profit but not unpaid work except in a family business.

- Was working for an employer full-time (more than 30 hours a week)
- Was working for an employer part-time (one hour or more a week)
- Was self-employed, employing other people
- Was self-employed, not employing other people’

Additional questions asked how many hours worked last week. There was also a similar form of occupation question. Then the employer’s details were requested:

‘16. Name of business employer (if self-employed give name and nature of the person’s business.

At a, please give the name of the employer. Give trading name if one is used. Do not use abbreviations.

At b, describe clearly what the employer (or person if self-employed) makes or does (or did).

Published tables gave no employer size breakouts (as in 1971).

A subsequent question then asked for the address of the place of work (Q.17). Q.14 asked for number of hours worked per week in order to better assess work patterns.²² No attempt was made to obtain information on multiple occupations. Major efforts were made to align occupational classifications between the census and Department of Employment (leading subsequently to the SOC), though most of the most relevant employer questions were contained in the Economic Activity section of the census published reports. The size of establishments continued to be distinguished between large (25 and more employees) and small, to indicate ‘an indirect, and necessarily rather crude, distinction between greater and lesser responsibility’.²³ This chiefly focused, like all previous censuses, on occupational characteristics rather than entrepreneurship and proprietorship. Employers were again combined with managers, including farmers, for large establishments in some published tables. Moreover, part-time was included in the published totals with full-time which requires adjustment. For males 6.527% of self-employed were part-time for 30 or less hours per week; and for females it was 33.628%. These proportions are not separately reported for self-employed with and without employees and hence without other information have to be treated uniformly.

3.8 *The 2001 Census*

The question remained similar to that in 1991. The question was:²⁴

‘25 Do (did) you work as an employee or are (were) you self-employed?

- Employee
- Self-employed with employees
- Self-employed/freelance without employees’

The number of hours worked changed: requested as a specific average number in the last four weeks allowing separation of full and part-time, as well as finer information on hours worked.

²² Census 1991, General Report, p. 37.

²³ Census 1991, General Report, p. 41.

²⁴ Census form, Census of England and Wales, Householder’s Schedule, 2001.

In published tables the practice continued of combining large employers and managers. Large and small employers were broken out in publications into categories:

‘Large employers and higher managerial occupations
Small employers and own account workers’

However, some tables separated self-employed from managers and these can be used to remove managers. Those used also require part-time to be separated from full-time as in 1991, but actual counts are available from the 10% sample so that a more accurate estimate should be obtainable from published than in 1991.

3.9 The 2011 Census

The 2011 census retained almost the same question structure as 2001. The question was:²⁵

- ‘D. 33 In your main job, are (were) you:
- An employee?
 - Self-employed or freelance without employees?
 - Self-employed with employees?’

Number of hours worked was requested for ‘usually work’, divided into categories: 15 or less; 16-30; 31-48; 49 or more. This was judged broadly comparable with previous. Occupation and other questions remained very similar and comparable to previous. ONS state that the question wording change in D. 33, from 2001 ‘Do (did) you work’ to ‘Main job’, was included to remind respondents to answer for their primary employment, and the reference to ‘employee’ or ‘self-employed’ was removed from the start of the question wording because cognitive testing had showed that including statuses in the question caused problems for some respondents, particularly those who were self-employed. The order of the tick boxes were reversed so that the options were presented in the expected order of

²⁵ Census form, Census of England and Wales, *Householder’s Schedule*, 2011.

frequency. These minor changes of wording were judged by the ONS as leaving the 2001-11 questions fully comparable with each other.²⁶

3.11 Overview 1921-2011

Over this period working on own account was consistently defined as those working for themselves and not employing paid assistants. It was more fully and accurately counted in published tables from 1921 than earlier, so that with some caveats over detail, the self-employment counts 1921-2011 should be relatively consistent. The main concerns are:

(i) A few employers may be included in own account in some years;

(ii) Those working for an employer in their own houses as ‘out-workers’ were classified as own account in 1951 and 1961, resulting in some of own account being more akin to workers ‘in seemingly unlikely occupations’;²⁷ however, this accords with modern free-lance and outworking and thus creates only minor difficulties that can be adjusted;

(iii) Domestic-staff employers were excluded throughout;

(iv) Part-timers were explicitly included in the occupation questions from 1931. However, the treatment in publications varied. The questions in 1931 probably resulted in some being included with full-time; in 1951 they cannot be separated in all tables; in 1961 they were included with full-time and cannot be separated; from 1971 they were separately questioned, though tabulations vary as to how far they were separately treated. The 30-hour distinction between full- and part-time was introduced in 1951 and has continued to the present, though it was not explicitly used in 1961 and 1971 questions which referred to ‘normal’ hours as full-time. These changed definitions resulted in potential for over-estimates of full-time in 1931 (probably small), and in 1971 (probably large) which probably affected data collection as well as the publications. In addition published tabulations vary in how far part- and full-time were included together.

²⁶ <http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-user-guide/comparability-over-time/index.html>

²⁷ Census, 1951, General Report, pp. 127

(v) Managers and foremen were included with employers in tabulations in 1931, and partially in 1951.

(vi) Partners were counted from 1921 as self-employed (own account) by clerks if they had no employees, and employers if they had employees. However, the extent of the explicit instructions for respondents to identify themselves as partners was variable, with reliance by clerks placed largely on the employer name descriptions given. This will be imperfect, probably very imperfect for small businesses. It will also result in a businesses with several partners who had employees being counted as several different employers, or if they have no employees as several different self-employed. The census was classifying people by occupation/industry, not by business.

(vii) For 1921 there were two additional issues: 1. The unoccupied were assigned to their normal occupation in many publications; and 2. The census was undertaken in the summer leading to inclusion of seasonal workers, which can be adjusted fairly readily at an aggregate level; however, the attribution of many people to holiday locations which were not their residential address leads to major spatial biases that are difficult or impossible to adjust.

(viii) The census estimate of employers excluded government activities and nationalised industries. This is in line with modern *SME Statistics*. However, there will be changes over time as industries went in and out of nationalisation. These industries have had large numbers of employees, although the number of businesses is small. This discrepancy is largely irrelevant in the count of business numbers, but has a significant impact on the count of employees in different business sizes. This suggests the need to take a consistent view of which industries are included and adjust employee numbers using the available census information.

(ix) Samples were used for many of the published tabulations relating to occupations and employers/self-employed from 1961: 10% samples were used for most of tables 1961-1991. From 2001 computerisation allowed the tables to use the full population. For the tables over 1961-91 the proportions in different sub-categories have to be grossed up to the total numbers from the full populations where possible. Thus in 1991, for example, the 10% sample giving tabulations for small and large establishments shows considerable discrepancy compared with the full tables for the total numbers of self-employed and employers. The ratios of these

categories between small and large establishments has been taken from the 10% sample, but scaled to the actual total population.

3.12 Scotland

The definitions and instructions for the census with respect to employers were generally identical to those in England and Wales, though the actual tabulations published could be different. The details of how BBCE deals with Scotland for 1851-1911 are summarised in WP 20.

4. Summary of issues of comparability and definition over time

Given the different questions used and other changes between censuses it is impossible to create a perfectly aligned database that is fully comparable over time for 1921-2011, and that is also aligned with 1851-1911. When using the published tables after 1921, adjustments have to be introduced to all years to make data comparable. The following discussion covers the main issues needing attention. The comparability between years is summarised in Table 1 for the actual questions asked by the census; and Table 2 summarises the main published tables that are available. These extend the comparisons given 1851-1911 in WP 2: Tables 2 and 3.

In addition there are two other issues. First, the extent to which occupations were sufficiently fully stated to allow classification which changes the size of the residual non-classified. This was not really fully grasped until 1951 and 1961 which reduced to unclassified below 1%. Second, the treatment of non-responses to questions, which significantly affected the census data collection up to 1911 (see WPs 1, 3 and 4). Although it appears that from 1921 publications that non-responses to occupational status and employment status were eliminated, it is clear from the discussions in the 1961 census that this was not the case since from that census adjustment using weights were applied to census table of occupations (and hence employment status) for the *first time*. It appears most likely that the publications from 1921 just ignored the issue as had been the case in the earlier censuses. Some post-survey adjustments to the published tables of occupational responses were made from 1961, and this would also have improved the tables of employment status. This means that from 1961 the

published tables are probably more accurate than in any previous census. But over 1921-51 non-response adjustments were not made with the result that the number of self-employed is somewhat lower than actually true, with this effect tailing away from 1961 onwards. Because of the improvements in census administration of the employment status, occupation, and industry questions from 1921, it is unlikely that the adjustments required are large enough to have a major effect on trends identified over the period, but they would contribute something to the downturn in total self-employed identified as the period of 'U-shaped' decline that has been widely noted previously. The decline will also appear more significant against the base-line of 1901 and 1911 now established by the BBCE using post-survey adjustments possible from the original e-census responses, as reported in Bennett et al. (2019: Chapters 4 and 5).

Other issues of alignment and comparability are discussed below.

Census year	Employers of others identified	Employee nos. & farm acres collected	Own account explicitly identified	Out-workers included	Sectors covered for employers and own account	Female employers included explicitly	Female employees included	Partners identified explicitly among employers	Company directors explicitly excluded	Portfolios
1851	√ some	√+Sup	Sup	Not explicit	Trade, manufactures, farms; others may be partial	√	√ but may be partial	Partially by instruction and self-election	Partial self-exclusion as non-owners	Main and others in order
1861	√ some	√+Sup	Sup	Not explicit	do.	√	√ do.	do.	do.	do.
1871	√ some	√+Sup	Sup	Not explicit	do.	√	√ do.	do.	do.	do.
1881	√ some	√+Sup	Sup	Not explicit	do.	√	√ do.	do.	do.	do.
1891	√		√	Not explicit	do.	√	√	v. partial	do.	do.
1901	√		√	Not explicit	do.	√	√	v. partial	do.	do.
1911	√		√	Not explicit	do.	√	√	Coded by clerks	Coded by clerks	Only main
1921	√		√	Not explicit	√ all sectors	√	√	do.	do.	do.
1931	√	Size groups*	√	Not explicit	√	√	√	do.	do.	do.
1951	√	do.	√	Not explicit	√	√	√	do.	do.	do.
1961	√	do.	√	In self-emp	√	√	√	do.	do.	do.
1971	√	do.	√	In self-emp	√	√	√	do.	do.	do.
1981	√	do.	√	In self-emp	√	√	√	do.	do.	do.
1991	√	do.	√	In self-emp	√	√	√	do.	do.	do.
2001	√	do.	√	In self-emp	√	√	√	do.	do.	do.
2011	√	do.	√	In self-emp	√	√	√	do.	do.	do.

Table 1. Main information on employers collected by the original census questions in England and Wales. (* householder returns include employer name, but no data on firm size which clerks deduced from the name; Sup = supplemented data)

Census year	Employer nos.	Employer sizes	Nos of Self-employed/ own account	Out-workers tabulated	Part-time excl.	Male & female employers given	Female employees included in occupations	Retired
1851	√	√ wide range		Not explicit	√	Only male stated	√ partly partial	Included in occupied
1861		Some farms		Not explicit	√		√ partly partial	do.
1871		Some farms		Not explicit	√		√ partly partial	do.
1881				Not explicit	√		wife & daughter workers= unoccupied	In unoccupied
1891	√		√*	Not explicit	√	√	√ but partly partial	Separate category
1901	√		√*	Not explicit	√	√	√	do.
1911	√		√+	Not explicit	√	√	√	do.
1921	√		√	Not explicit	√	√	√	do.
1931	√ but includes directors & managers. & excl. unpaid family workers	Only to distinguish own account from employers	√	Not explicit	√?	√	√	do.
1951	√ do. & do.	do.	√	Not explicit	√	√	√	do.
1961	√ do. & do.	Own account & 1-24; ≥25	√	In self-emp	√	√	√	do.
1971	√ do. & do.	Own account & 1-25; >25	√	do.	√	√	√	do.
1981	√ do. & do.	do.	√	do.	√	√	√	do.
1991	√ do. & do.	do.	√	do.	Separately listed	√	√	do.
2001	√ managers separable but unpaid family excl.	do.	√	do.	do.	√	√	do.
2011	do.	do.	√	do.	do.	√	√	do.

Table 2. Main information on employers published in the census Reports in England and Wales (* ‘trade and manufactures’ only until 1901; + ‘trade and industry’ and farming in 1911).

4.1 Definitions of the self-employed

In early censuses the self-employed were those working ‘on their own account’ plus ‘employers’ and/or ‘masters’. Although changed slightly in terminology and expanded in detail to gain more occupational information, the definition remained the same until 2011. From 1961 up to the present the definition was ‘self-employed employs others’ or ‘self-employed without employees’. Hence, the basic definitions can be taken as giving a comparable series over time. However, in detail there were changes to how far some of the self-employed were included: for part-timers, home workers, family workers, and partners. Some of these changes have significant effects on aggregate numbers, and affect some sectors and female self-employed to a greater extent.

From 1901 those ‘working at home’ were enumerated as a separate category, but were included within employers as tabled. In 1911 those ‘working at home’ were classified into employers, employees and own account as for others, but were again included within the general tabled totals. However, from 1911 more extensive instructions were given for this category which resulted in tabulations reallocating some to employee status because ‘a number of trades and industries cannot be carried on by workers in their homes’.²⁸ This was carried forward to the later census, though some published tables differ in what was included.

In 1951 the instructions, which had probably been followed in the same way since 1921, stated that usually the response ‘employer’ and ‘own account’ were taken at face value, but gave clarifications. These indicate that unpaid family workers were excluded, as were directors of companies, partners who were unpaid, professionals with no paid assistants, and piece workers working at home on piece work for an employer.²⁹ The distinction between paid and unpaid family workers was probably imprecise since the census form gathered information only on completely ‘unpaid’, and where qualified by ‘part-time’ they were still classified as ‘unpaid’.³⁰ However, generally full-time family workers were included as employees. An employer had to employ someone else and pay them. Otherwise they were own account. Hence, partners or joint proprietors with no employees were own account; so

²⁸ Census 1911, *Classified List of Occupations*, p. xi.

²⁹ Census 1951, *Classification of Occupations*, p. xiv.

³⁰ Census 1951, *Classification of Occupations*, p. xv.

were professions working for fees (doctors, dentist etc.) with no employees and homeworkers working on piece work for an employer.

The definitions were similar in 1961. The self-employed were those ‘working but are not employed by any person or company, and persons working in their own home for an employer (out-workers)’ and all parochial clergy.³¹ Excluded from the self-employed with no employees were other partners in a partnership and family workers. Hence full-time family workers were now explicitly excluded (q.v. below).

In 1971 it was stated that the self-employed sought to include ‘all Class II insured persons ... e.g. proprietors of businesses, members of partnerships, parochial clergy and medical practitioners who are principals in the National Health Service and in private practice’. ‘Self-employed without employees includes parochial clergy even if they employ curates. ... [and] outworkers i.e. people who work at home but give the name of an employer other than themselves’.³² The same basic definitions continued 1981-2011, though supplementary questions were used from 1981 to sort his out better.

The definitions of family workers continued over 1971-2011. Essentially employees of the self-employed were treated in two categories: family workers and employees other than family workers. ‘A “family worker” is one whom lives in the same household as the employer and is related to him. Although “family workers” are not counted for the purpose of deciding whether and employer has employees, they should themselves be recorded as employees’.³³ However, only family works were treated in this way ‘who were enumerated in the same household’, creating a number of possible inconsistencies. Domestic servants were also excluded from the count of self-employed with employees.

4.2 Measurement of employer size

The only early censuses to gather data on firms sizes were those for 1851-81; and the only censuses to publish detailed categories of employers by the size of their workforce for non-

³¹ Census 1961, Occupations Report, p. ix-x.

³² Census 1971, Economic Activity, p. xv.

³³ Census 1971, Economic Activity, p. xv.

farmers was for 1851. For farmers there were published tables for 1851, and for some selected counties in 1861 and 1871, as well as some further detailed breakouts in Scotland (see van Lieshout et al., 2020; and WP 13). This allows some analysis of detailed firm size distribution (though restricted to ‘trade and industry’, farmers). Strictly these cover ‘men only’ as termed by census tabulations, but in practice van Lieshout et al. (2020; WP 13) show that females were probably mostly included, and that in general what the GRO stated as the tabulated inclusions were not what was actually done. However, from the BBCE now a full analysis of all the data is possible for 1851-81.

No other size information was collected by the censuses until 1951, but there was no published size analysis until 1961, and then this was very limited in two size groups, small and large. However, from 1921 census clerks used Ministry of Labour surveys, local directories, and other data to assign the named employers stated by census respondents to all the classification employer/self-employed. Ministry of Labour surveys and data were from 1961 the primary source for size information. In 1951 a distinction was first made between large organisations (defined as 10 or more employees) and small (1-9 employees), but this was only used in classifying to management categories and was not used in published tables.

From 1961 the census made a distinction in published tables between large and small employers: defined as those 25 or more employees, and those with less than 25 employees. Unfortunately this was changed in 1971 to those with more than 25 employees, and those with 0-25 employees. Since the number of firms of 24 or 25 employees is very large this is an important shift of definition. Ministry of Labour lists were used as the basis of the 1961 distinction. All other establishments were assumed to be under 25 employees, to which were added all managers in ‘inadequately described occupations’.³⁴ In 1961 the Ministry of Labour (later Department of Employment) list of large establishments for the area was used to assign industry sectors, or if not listed, was referred to other directories and the official ‘Central register’, failing which the description by the respondent on the census form was used; if none of these were adequate the response was classified as ‘Industry inadequately described’.³⁵ The distinctions by size have continued to 2011.

³⁴ Census 1971, Economic Activity, p. xvi.

³⁵ Census 1971, Economic Activity, p. xv.

The size classification was applied consistently to establishments for employers, self-employed and employee tables. However, farmers, fishermen and foresters were excluded from this distinction in each case, and all were placed in the small establishment category.³⁶ This introduced some errors, though they will be small because there are few farms with 25 employees and over, and none with very large employment. The effect on both the total number count of businesses, and the employees in different size classes, will be small. It is important to report the farm and non-farm groups separately.

4.3 Partnerships

No published information on partner numbers is recorded in any census. However, they are partially identifiable from the CEBs. The way they were dealt with in instructions and coding also influence counts of business numbers (see WP 18).

Identifiable partnerships. Over 1851-81 partnership details should have been returned by the senior or one partner. The other partners should have given only their occupational information: e.g. the other partners in a haberdashery where one partner had given the requested information on employee numbers should have only stated ‘haberdasher’. However, the instruction was ambiguous and partners also returned themselves as partners, and some of these also gave employee numbers. Also many partners made no response at all that identifies their partner status.³⁷ The CEBs are useful in allowing some partners in partnerships to be identified, and also their family or other relationships extracted. After 1881 a large numbers of partners can be identified from CEBs, and especially for 1911 for householders’ returns, though this is still incomplete. None are listed separately in the published tables from 1921, which introduces some inconsistencies, though this is proportionately very small.

Business numbers. For business number calculation using the CEBs over 1851-1911 there is a level of duplication that has to be managed. From 1921 to the present partners were classified as self-employed (own account) by clerks if they had no employees, and employers if they had employees. However, this will be imperfect because clerks relied largely on the

³⁶ Census 1961, Occupations Report, p. x.

³⁷ Bennett, 2016, pp. xxx.

employer name descriptions. It is not clear how accurate that would be, especially for small partnerships, and those of a quasi-partnership character. It will probably be reliable for larger businesses (over 25 employees). The census from 1921 in all cases will duplicate entries of each partner.

In modern estimates of *Business Population Estimates* (BPE) (see DBEIS, 2017) and earlier *SME Statistics* this feature is controlled by re-scaling the partnership businesses to reduce the estimated employer numbers by a factor allowing for the mean partnership size. The re-scaling was to divide by 2.2 over 1981-7 (the average partnership size believed to exist at the time). The method was modified in the subsequent BPE Statistics by using improved estimates of the average size and the actual number of partnerships from HMRC and LFS data; e. g. the scaling for average size was modified in the BPE (2010) to 2.234, and BPE (2012) to 2.175. From 2014 separate partner average numbers for VAT-registered, and unregistered businesses were used (these were respectively 2.12 and 2.31 in 2014).³⁸ The re-scaling reduces the estimates of the number of partnership businesses and increases the number of self-employed. Similar adjustment could be applied to the census data, but there are major uncertainties because the number of partnerships included is unknown. In Bennett et al. (2019) and other publications no adjustments are made because the emphasis is on entrepreneur numbers and not business numbers. But the distinction is very important to bear in mind.

4.4 Companies

No attempt was made by the census to identify the relationships between directors of limited companies and their company. This has relevance for identifying business proprietors and the count of business numbers.

Identifying business proprietors. Over 1851-1901 there was no instruction explicitly referring to companies and their directors (the only reference to firms was to partners). In the CEBs a few individuals do write in their relationships, but the proportion is very small. For 1911 the new instructions to identify employers by name applied explicitly only to public bodies: ‘If employed in a public body (Government, Municipal, &c.), state what body’. In the

³⁸ Bannock (1989), BPE (2017).

CEBs a few individuals may have included the names of limited companies, but the numbers will be very small. For 1921 the first attempt at a more general instruction should have identified all companies: ‘If working for an employer state the name and business of present employer (person, firm, company or public body)’. This instruction in various forms was continued up to the present. In 1961 the instruction was refined to request the name of the employer and the trading name; this was extended in 1981 and subsequently to a request to avoid using abbreviations and initials. These expansions of the instructions illustrate that there deficiencies were recognised by the census administrators for some employer names prior to 1961/81. The only way to identify the relationship directly is through using other sources of company directors and then identifying those individuals in the census records. This process of data enrichment has been undertaken in the BBCE using the DoD as a source 1881-1911, to separate company proprietors from others in the same occupational categories.

For studies of entrepreneurs as individuals, however, many directors over 1881-1911 gave their statuses as employer, self-employed or worker under the questions asked, so that they are included in BBCE even where they cannot be explicitly identified or did not give an explicit statement. In effect, this also applies to the later censuses so that census published tables should be broadly comparable over time when counting proprietors.

Business numbers. For business number calculations prior to 1921 companies can be enumerated from other records. The census will contain almost none or only a tiny proportion of these companies in any identifiable form. For business counts, therefore, the census count for self-employed and employers should exclude all (or almost all) companies provided that those who are directors are *excluded*. From 1921 company proprietors will be included with other employers in the census. It is clear that in processing for census publications some of these were mixed with managers. In 1931 this was explicit: it was claimed that ‘with the growth of joint stock companies the old distinction between “Employer” and “Employee” has lost much its significance’.³⁹ Hence ‘the managerial division consists of employers, directors, managers, superintendents and other individuals of like status’.⁴⁰ The published census tables from 1931 frequently combine proprietors with employers and managers, though generally it is possible to remove managers using other tables that list them separately. It is unclear how far census processors included directors with managers or as employers for 1921-31. From

³⁹ Census, 1951, General Report, pp. 126-7 and p. 109

⁴⁰ Ibid. p. 109.

1951 it is explicit that employers excluded managers and directors. It is probable that this also applied to 1921 and 1931, though for small businesses (identified from the employer name) this was probably imperfect until 1951. Over 1921-31 there is probably some level of duplicated counting (though likely to be much less than for partners). It may be appropriate to try to exclude that proportion included as small employers in census publications that were directors, and add back total company numbers, to get a more accurate count of business numbers including companies if that is desired. However, this is very uncertain as a method. From 1951 this issue should not arise.

The difficulties of moving from proprietor numbers to business numbers is similar to that for partnerships. Whilst in principle it may be possible to make adjustments to the census data to get to estimated business numbers, this is very uncertain. For this reason, in Bennett et al. (2019) and other publications, no adjustments are made for directors or partnerships by making the focus on entrepreneur numbers and not business numbers. This is an important distinction.

4.5 Multiples, branches and separate premises.

No attempt was made in the census to take account of business with multiple locations until 1931, though multiple shops were separately enumerated from 1901. Over 1851-81 it was (implicitly) assumed that if a business had multiple locations that the employees would be aggregated into the single employer's return (or the senior partner). Over 1891-1911 the count of employers would similarly aggregate employer status over all locations of the business, although the workers themselves would be returned wherever they lived. However, multiple activities or statuses, such as having several businesses, or being in several statuses (as employer and own account and worker), were not identified in the census, so that it is uncertain for those cases where information is given whether they refer to as all statuses of employer as a single or multiple business (and case studies shows that this varied between people), and how they dealt with multiple statuses even for a 'main' occupation. From 1921 the name of the employer's businesses would locate an employer to a single location and a single business to the 'main' occupation.

The issues of attribution of multiples and branches were handled in the same way in census after 1921 and therefore should prevent inconsistent counting occurring. However, the number of multiple businesses considerably increased over time, and in publications, the census from 1931 began to explicitly include managers of branches, chains or subsidiaries, as employers in some tables. For 1951 there was a distinction tabulated for managers in three categories: ‘general, directors, etc.’; ‘of branch or primary departments’; ‘of office or subsidiary departments’. Where tables include managers this will inflate the number of businesses identified not only in total, but also for some locations. Comparisons using published tables must therefore adjust for the changing inclusion of managers as far as possible.

4.6 Other changed definitions

- How part-time was treated. From 1991 part-time and full-time (over 30 hours per week) were collected and tabulated separately and should be the most accurate.
- Censuses exclude employers of domestic staff from employers for all years but treats a wife and family workers differently.
- Censuses include retired for 1851-71 who were instructed to include their former occupation which were then added into tables; e.g. in 1851 ‘persons of advanced age who have retired from business to be entered thus – “Retired Silk Merchant”, “Retired Watchmaker”, &c.’ However, in 1881 these were entered under the general category ‘Persons following no profession, trade or calling’ (category 23 in 1871-81). But, this was very incomplete as many older people had blank entries, or were recorded as ‘annuitants’, ‘living on own means’, ‘on savings’ etc. In 1891 retired was taken into the header of general instructions (no. 3). In 1901 there was a specific instruction (20), and in 1911 additional wording requested that ‘RETIRED OR PENSIONED ... the present occupation, if any, of pensioners should also be stated in all cases, as “Army Pensioner, Bank Porter”, etc.’. It was estimated by census administrators that the exclusion of the retired from the occupied for 1881, would have resulted in

an increase in the total occupied of about 2% compared to 1871 and earlier.⁴¹ From 1991 the retired were excluded but the age range for economically active in published tables was extended up to 74 so that many retired but also occupied may be included, and published tables are not always consistent with earlier censuses.

- Changes in school leaving age over time influence those recorded as occupied (see below).
- There were changes of female inclusion in occupations over time. From 1851 until 1881 women were included reasonably fully following in the CEBs and hence in the e-census following the instruction ‘the occupations of women who are regularly employed from home, or at home, *in any but domestic duties*, to be distinctly recorded’. In 1891 ‘the occupations of women and children, if any, are to be stated as well as those of men’; but in 1901 there was no explicit instruction on women’s’ occupations at all.⁴² Over 1851-71 in published tabulations there was a strong tendency to relate occupations to that of the husband or head of household (Higgs, 2005, 156). However, from 1881 more women were removed from the published tables, and a large ‘unoccupied’ category introduced which absorbed many. Even with the improvement in instructions, there is doubt about how inclusively women’s work was recorded. The instruction to return ‘regularly employed’ is believed to have been interpreted as excluding part-time, seasonal work, and those not receiving formal pay.⁴³ Whilst it is uncertain how this was treated in practice it probably resulted in many female occupations being under-recorded.⁴⁴ Similarly the instruction that if a wife or daughter of a farmer was working on the farm they be recorded as ‘farmer’s wife’ or ‘farmer’s daughter’ resulted in systematic under-recording in this sector, and it is believed that the same method was carried over into female workers in domestic businesses such as shops and lodging houses, and this varies by year. In other cases the enumerator applied the same occupation to wives and all other members of the household which may have over-recorded the extent of female contribution.⁴⁵

⁴¹ Bellamy, 1953, p. 307; Woollard, 2002, p. 443

⁴² Higgs, 2005, p. 101-2.

⁴³ Higgs, 2005, p. 101.

⁴⁴ e.g. Roberts, 1988; Anderson, 1999.

⁴⁵ Higgs, 1987, p. 68.

(For this reason the analysis in Bennett et al., 2019) excluded these groups of ‘xxx wife’, ‘xxx son’, etc.). In many areas it is believed that enumerators systematically omitted the occupations of married women, leaving them blank or just recoding ‘wife’. This seems to particularly affect home manufacturers, farm and field worker, and domestic service. On the other hand, where the occupations are recorded it is unclear whether they were supports to the family or were directly employed in the market-facing part of the household’s trade. This is particularly unclear for domestic servants, where the large number on farms or employed in shops may indicate they doubled as both domestic and business employees, whether kin or non-kin.⁴⁶ For single women there appears to be more recording of occupations, particularly factory work, but domestic, farm and field work was probably also frequently omitted. Higgs demonstrates these features and infers that variations in recording were systematic between enumerators, though probably relatively consistent within any one enumerator’s returns, with errors reaching 50% of the women returned as blank in some CEBs.⁴⁷ From 1911 the census becomes a more reliable count of employers and the occupied, and for women,⁴⁸ so that comparability over time should be reasonably good. The exclusion of ‘xxx wife’ etc. in the analysis of BBCE should make the data comparable over the whole period 1851-2011.

- For 1851-71 the census included workers at home and on the farm as full employees if they were full-time; but were excluded if part-time. However, in 1881 housewives and daughters were assigned to ‘unoccupied’ in tabulations, even when full-time in a business or farm. More information is often available in the CEBs, but the instructions to householders would have reduced the numbers of wives and daughters returned. The change for housewives was made because it was believed that there was some double counting of housewives and daughters as both in home work and as domestics. The change makes the published domestic and unoccupied sector non-comparable with earlier censuses, especially for married female occupational participation.⁴⁹ Some the CEBs do record most of the married women’s occupations, and the

⁴⁶ Higgs, 1987, p. 70-1.

⁴⁷ Higgs, 1987, p. 63-8.

⁴⁸ Hatton and Bailey, 2001, p. 105.

⁴⁹ Bellamy, 1953, p. 306; Hakim, 1980, p. 557.

remarks by the census administrators acknowledge that home work for a husband's or other businesses was being reasonably fully recorded.

4.7 Geographical coverage

Employer locations in the census are all based on the place of residence of the employer (or where they made their return, which could be in a second home or as a visitor elsewhere). This would not be the same as the business location unless the employer lived on the business premises. However, for almost all small businesses and the self-employed own account this distinction will be unimportant. For larger businesses this will lead to a level of misallocation of where the business operates. This will be a significant problem for the larger towns and cities, especially London and for some sectors; e.g. mining, which had mainly absentee owners. For London in particular it will lead to a misattribution to location of a business that could be in any other part of the country. It suggests that care must be taken in interpreting location information, particularly for the larger businesses. For directors the data enrichment tends to give residential address (though this is imperfect: see WP 14), and linking this to the company will attribute the business to the personal address. From 1921 the place of employment is used for the employer's address.

For census publications the census tabulations generally give Great Britain as including England and Wales, Scotland, and *'The Islands'* (Channel Islands and Isle of Man). However, most tabulations were published separately for each country so that the modern Great Britain can be given by removing the Islands. The tabulations developed include England and Wales, Scotland, and Britain (England and Wales plus Scotland). Within England and Wales, and within Scotland, some published returns give regional and local breakdowns of employer structure for some years, but this varies by year.

4.8 Sectors (see also Farmers, 4.9 below)

The sector structure of the census was divided into a series of 24 'orders' and 'sub-orders', referred to as 'classes' 1851 - 1871. The sector definitions were significantly changed in detail between 1881 and 1891 by amalgamating many previous subcategories. The 1901 classification is similar to 1891. In 1901 a major change was made to the occupational classification, chiefly by attempting to separate 'makers' and 'dealers'.

From 1921 a new sector classification was introduced in accordance with the British Empire Statistical Conference of 1920 (Cmd. 648). This sought to separate occupational and industrial categories, recognising that the returns had confused peoples' occupational activity with the employer's general activity. Occupations might be similar in differing industries, whilst referring to the employer's activity would result in significant occupational errors. As a result separate industry and occupation tables were published.⁵⁰

The most important change in 1921 from the point of view of business proprietors, however, was the expansion of the sectors tabulated to include all businesses for employer status reporting. This allows the census for the first time to be used as a complete business coverage. The sector structure was based on 22 sectors. Farmers were now listed as sector II in the full sector lists, and the professions and other previously excluded categories were now listed as separate sectors under commerce and finance (XVII; which included retailers), professions (XIX), entertainment and sport (XX).

The classification of occupations was subsequently changed several further times (not reviewed here). The current Standard Occupational Classification (SOC) was introduced in its earliest form in 1991, and has been modified in detail many times. The Standard Industrial Classification (SIC) used for 'Industry' tables has also been modified many times. Relationships between different census occupations in 1851-1911, later censuses, and SOC and SIC are given in WP 5.

At the detailed level, the employers and the self-employed are assigned to their occupational category: 'as most self-employed persons control or operate only small enterprises, all persons in the self-employed category are excluded from ... Administrators and Managers and assigned to appropriate [occupational] groups elsewhere'.⁵¹ This is helpful as it generally attributes them to the appropriate sector/ occupation. However, for some small and most large businesses the published tables sometimes include employers with managers from 1931, though the tables differ between years in the extent to which they are separated. The published tables have to have managers subtracted (if their numbers are tabled), or be re-scaled.

⁵⁰ Census, 1921, Occupations definitions, pp. 85-89.

⁵¹ Census 1971, Economic Activity, p. xi.

4.9 Farmers

Consistent definition of farming/agriculture. The early censuses gave separate published detail exclusively for farmers (which included graziers) and it is these that can generally be best tracked over time. Other agricultural groups were not always shown in the same way. Similarly, census employer information for farmers excluded any reference to the rest of agriculture, which would have followed other instructions for other sectors. As a result, the data for farmers is probably more accurate than for agriculture as a whole until 1921. Modern censuses generally aggregate farmers with a range of other occupations on the land to give a general SIC category of agriculture. This latter may be more valuable for some comparisons over time since most of these other occupations overlap or interrelate with farming, however various difficulties of comparisons over time in publications result. Those included in most tables after 1931 are variously termed: horticulture; fruit, flower and seed growing; market gardening; nurserymen; agricultural machine operators; as well many sub-categories. It is most reliable to use separate tables for farmers and for all agriculture.

In the published tables some adjustments are necessary as follows:

1. For 1931 poultry farmers were separated from other farmers and have to be added back.
2. From 1931 farm managers are usually included with farmers. They are not numerous, but need to be excluded from the published tables to focus on proprietors using separate published lists of managers. However, a uniform comparison could include farm managers for earlier censuses.
3. There are some minor inconsistencies between modern censuses in what can be abstracted from published tables. For censuses up to 1991 forestry can be excluded, but for 2001 the published material for the self-employed includes forestry with agriculture, though the numbers are very small. For 2011 this is excluded.

4.10 Comparability with other sources used by the census

The main external source used by the census to check their own returns, and used especially for employers, was Ministry of Labour surveys. It is potentially possible to use the same information for checks on both the CEBs and published tables. The comparability of the

census with Ministry of Labour surveys is discussed at some length in 1961.⁵² This shows that the economically active in the census excluded those in the Ministry of Labour statistics for the armed forces who were away, and merchant seamen who were away. There is also a large discrepancy of 769,000, since the Ministry of Labour statistics included as active all those with NI cards recently used, while the census excludes them if they are students (244,000), seasonal or irregular workers not in work at the time of the census (about 200,000), those with part-time jobs who did not declare them in the census (mainly married women) (about 230,000), and self-employed also holding NI cards (not estimated, but likely to be significant because this was a means for the self-employed to ensure entitlement to pension and unemployment benefits). The differences overall were largest for women.

The economically active in Ministry of Labour statistics for employers and self-employed were derived from the censuses. Thus the differences were eliminated after the census count. This brings the total counts used here into line with other official statistics from 1921, though the quality of both Ministry of Labour and the census itself improved over time, so will be better for modern periods, mainly from 1961.

5. Comparators

To gain a reliable indication of the significance of employer status and self-employment over time it essential to have an aligned comparative basis. Four comparisons are discussed here: (1) the total population; (2) the economically active; (3) the population over school-leaving age; and (4) the working population excluding domestic servants. These different measures allow comparisons against different bases that permit the significant changes to be controlled for in the demographic makeup of the population, gender participation in different forms of employment status, and progressive increases in the school leaving age.

5.1 Population

The total population is the simplest comparator that allows the proportion of small firms to be scaled, but gives only a gross entrepreneurship rate and takes no account of how many people

⁵² General Report, pp. xxiv-xxx.

were actually engaged in economic activity which was a significantly changing proportion over time.

5.2 Economically active.

The economically active is a measure of all employed, self-employed and employers. In economics it is also often defined as including the unemployed (which is not considered further here). Using the economically active as a comparator allows tracking of the relative proportion of the labour force formed by the self-employed and employers, and also allows some indication of employees within different types of firms.

To estimate activity rates that allow employers per sector, or entrepreneurship rates for businesses per head, we need measures of the economically active population. Whilst the census was good at counting total population, its approach to defining occupations and those that were occupied varied considerably over time, especially in the nineteenth century. Comparisons of the economically active were first attempted in a systematic way by Booth for the 1851-81 censuses.⁵³ Hakim summarises many of the limitations of making comparisons over time. For employers the constraints centre on (i) the recording of women's work in general, (ii) the variable recording of housewives and other domestic contributions, (iii) how the unoccupied were defined, which has an important interaction but not entirely overlapping with the recording of women's activity, (iv) correctly identifying the retired, (v) when the starting age of work should be recognised, and (vi) whether domestic service should be measured as an 'employer', which is important until the 1950s when so many households were 'employers' of domestic staff.⁵⁴

There was considerable instability between censuses about how the economically active were measured. This was influenced by both the way in which the unemployed, students and retired were tabulated, and also by the treatment of the domestic categories of married women: 'the domestic class in one census includes the large part of the population, and in the next is reduced by more than half; 350,000 persons in England alone (consisting of the wives and other relatives of farmers, etc.) are taken from the agricultural class of one census and

⁵³ Booth, 1886.

⁵⁴ Hakim, 1980.

placed in the unoccupied of another; the partially occupied wives are in no two successive censuses classed alike – and generally there is a want of fixity of principle and method'.⁵⁵

The census measure of economically active generally includes those 'intending to get work'; i.e. unemployed and involuntarily inactive.⁵⁶ These were referred to as 'occupied' in earlier Censuses. Until 1931 these were included with those in work, and only separated in 1931, 'because of the numbers of unemployed'. In 1851 the tables included the unemployed and retired and cannot be separately identified.⁵⁷ For farmers this continued over 1851-71, with unemployed and inactive only separately identified in 1881, although they were estimated to be very minor (about 2% across all occupations in 1871).⁵⁸ However, separate tables are given for 1891-1931 for the unoccupied who can be removed to produce tables for the economically active that measure only the employed, self-employed and employees, which can be made reasonably comparable with later years.

For later years the unemployed, those 'on government schemes', and students are also included in most census tables among the economically active. These are listed separately and can be removed if required.

5.3 Population of working age

The progressive increases in the school leaving age, or in early censuses the population in 'occupations' and not listed as children, developed as follows, with the tabulations of employers and occupations in the census differing following the same ages:

1851-1911	- 10 and over
1921	- 12 and over
1931	- 14 and over
1951-71	- 15 and over
1981-2011	- 16 and over

The published census tables excluded students and others in education whatever their age. As far as possible it is desirable to standardise to avoid different size population cohorts being used as comparators.

⁵⁵ Booth, 1886, p. 318

⁵⁶ Census 1961, Occupations volume, p. ix.

⁵⁷ Census 1851, General Report, p. lxxviii-lxxxix

⁵⁸ Census 1881, Occupations Report, p. 36.

6. Adjustments used in *The Age of Entrepreneurship*

A full alignment of all the censuses into one series for estimation of self-employment numbers will only be possible using all the individual census records, and hence is not possible until 1921-51 are fully encoded, and with extensive manipulation of all the other years up to 2011. For 1851-1911 these manipulations have been undertaken whilst seeking to align the adjustments as far as possible with modern definitions. The objective here is to outline more basic adjustments that can be applied to the censuses 1921-2011 using the published tables so that they give a continuous aggregate series from 1851 to 2011. It is this approach that has been used in the figures and tables in Bennett (2019) *The Age of Entrepreneurship*.

For the later period from 1921 there were published tables covering all sectors, with explicit tables for own account self-employed with no employees, and self-employed who employed others. However, unfortunately the published tables were often aggregated, and the aggregations were made in different ways for each census. Hence, the published tabulations require adjustments as noted in the earlier sections of this WP. Not all adjustments are important, particularly for the aggregate of all entrepreneurs, and where major disaggregation by sectors is not required, but detailed sector comparisons require considerable adjustment and are often not possible on a consistent basis.

The main adjustments made in Bennett et al (2019) are summarised in Table 3. Using these adjustments a continuous series can be constructed for the development of entrepreneurship for the whole period 1851-2011. However, it is important to be aware that, given the changes in census processes over time, exact comparability cannot be achieved: the results must be treated as approximations or estimates. Most potentially contentious is the alignment of the censuses to full-time activity. We cannot be sure that part-time activity was excluded from the 1851-1911 censuses, nor that the adjustments made remove part-time from the later censuses: undoubtedly some remains included. The difficulties with part-time are also reduced by recognising that for many entrepreneurs the earnings-equivalent for part-time activity could be achieved to that of many full-time waged employees, especially for company directors, and could also include an earnings-equivalent for some 'marginal' or female occupations such as lodgings, refreshments and home manufactures (cf. Davidoff,

1995). The inclusion of those that were inactive through retirement is controlled by using only those aged 65 and under.

Year	Adjustment to employers and own account	Adjustment to economically active	Primary method used to adjust
1921	Own account adjusted for June census date for seasonal work; employer visitors not adjusted	Exclude June seasonal workers & fruit pickers not recorded in other censuses, and exclude out of work	Reassign estimated June excess lodgings & innkeepers own account to worker; reassign farm to non-farm excess agric. labs., & pea & fruit pickers; both mainly female
1931	Exclude managers included with employers	Exclude out of work and part-time	Rescale employers, part-time & unemployed using ratios in Chapman and Knight (1953: Table 18), with extra adjustments from 1921
1951		Exclude out of work and part-time	All exclusions derived from published tables
1961	Exclude managers from employers; exclude market gardeners from farming where using detailed sectors	Exclude out of work and part-time	Market gardens, part-time and unemployed from published; managers rescaled using 1951 ratios
1971	Adjust agriculture from GB for E&W		Published tables for GB used to rescale E&W farming
1981	Exclude farm managers; adjust from GB for E&W		Ratios from managers in GB used to rescale E&W
1991	Exclude part-time; adjust agriculture from GB for E&W	Exclude students and part-time	Students in published; part-time rescaled using 2001 ratios; farming scaled using 1981 E&W
2001	Adjust agriculture from GB for E&W		Farming scaled from mean ratios 1991-2011 for E&W
2011	Exclude part-time	Exclude part-time	Special tabulations from ONS

Table 3. Adjustments to census estimates of employers, own account and all economically active, 1921-2011. Note the 1921 adjustments are required because of the postponement of census day to June that year; these adjust aggregates, but geographical allocations will still be incorrect.

The adjustments shown in Table 3 are valid at aggregate level, and will apply to a separation of farm and non-farm because farming was consistently defined over all the censuses (once it is separated from the rest of agriculture). The main challenge for future researchers in using

the censuses to make more detailed comparisons is aligning the data for more disaggregate sectors, and for each sector by gender. This has not been attempted in Bennett et al. (2019), but is part of future planned developments. Some further information on alignment of sector definitions between the historical occupational coding 1851-1911, and later censuses 1921-2011 is given on the BBCE website (www.bbce.uk). This should allow researchers on modern patterns to develop sector disaggregations backwards to the earlier census period.

7. Conclusion

This paper has examined how the censuses over 1921-2011 identifies employers and the self-employed, how they can be aligned with each other, and how they can be aligned with the censuses for 1851-1911 included in the BBCE. This provides information for the modern censuses equivalent to that reviewed in WP 2. The alignments used in Bennett et al. (2019) *The Age of Entrepreneurship* are also summarised. Other Working Papers examine how other decisions were made in the construction of the BBCE.

As noted at the outset, the population census was not a business census, with the result that the way in which the information was gathered constrains the detail of business information that can be obtained. However, the census offers great potential as a source for analysis of employers and the self-employed, with this paper demonstrating how an aligned times series can be developed for the long sweep from 1851 to 2011.

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