

Datasets and guide: downloads for reconstructing British census responses 1851-1881 for the BBCE

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Drivers of Entrepreneurship and Small Businesses
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Supplementary material for BBCE data deposit and
WP 9: Bennett, Robert, J., Montebruno, Piero, Smith, Harry, and van Lieshout, Carry (2018)
Reconstructing entrepreneurship and business numbers for censuses 1851-81, and
WP 9.2: Bennett, Robert, J., Montebruno, Piero, Smith, Harry, and van Lieshout, Carry
(2019) *Reconstructing business proprietor responses for censuses 1851-81: a tailored
logit cut-off method*.

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

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**Datasets and guide: downloads for reconstructing British census responses
1851-1881 for the BBCE**

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Working Paper 19: ESRC project ES/M010953: Drivers of Entrepreneurship and Small
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1. Introduction.

This paper introduces the results of the estimation methods used to supplement data where responses to the 1851-1881 censuses were incomplete (in not allowing explicit identification of entrepreneurial status). These are used to reconstruct estimates of the full population of entrepreneurs in England and Wales, and Scotland. The paper provides downloads of the intermediate variables used in the reconstruction, gives their definitions, and provides a detailed guide to understanding and use.

The reconstruction method has been developed to adjust census responses to supplement those individuals who gave explicit responses as to entrepreneur status, with those where entrepreneur status has to be estimated from their characteristics of occupation, demography, etc. These supplemented individuals are used as a reconstructed set of data in the *British Census of Entrepreneurs 1851-1911* (BBCE), deposited at UKDA. This paper derives from the ESRC-supported project ES/M010953 *Drivers of Entrepreneurship and Small Businesses*. The data referred to are derived from the electronic census data made available through the database deposit of the original CEBs at the UKDA: *The Integrated Census Microdata* (I-CeM). The I-CeM version used derives from version 2 of these data.¹ An overview of the project is provided in WP 1, WP 2 defines in detail the different censuses

¹ Higgs, Edward and Schürer, Kevin (University of Essex) (2014) *The Integrated Census Microdata (I-CeM)* UKDA, SN-7481; K. Schürer, E. Higgs, A.M. Reid, E.M Garrett, *Integrated Census Microdata, 1851-1911, version V. 2 (I-CeM.2)*, (2016) [data collection] UK Data Service SN: 7481.
ESRC project ES/M010953: WP 19: Monteburuno, P. *Datasets and guide for reconstructing census responses*, Cambridge University

used for this working paper and the challenges they present for identifying entrepreneurs over 1851-81. WP 9 and WP 9.2 discuss the reconstruction methods in detail. A full list of all Working Papers is given at the end of this paper.

The reconstruction methods are described in WP 9 for England and Wales as an aggregate estimate (NUM) which we term ‘intelligence-led’, and as an alternative using a tailored logit cut-off method (IND) in WP 9.2 which is used for both England and Wales, and Scotland.

Note that the data in I-CeM for England and Wales do not currently contain anything for 1871, and if this is added from the FMP records there will be no occupational codes as this was not transcribed. Hence 1871 cannot be used in the reconstructions. BBCE does contain data on 1871 for those employers and own account identifiable directly in the census (Groups 1-6). This is derived from a different source of transcripts (S&N). But these data do not cover the whole 1871 population and so reconstruction of employment status for non-respondents in the census is not possible.

The proprietors identified by both the intelligence-led and tailored cut-offs are available in the UKDA deposit of BBCE by I-CeM RecID for each individual with the variable names:

- EMPSTATUS_NUM (for the outputs derived from WP 9), for both England and Wales, and Scotland.
- EMPSTATUS_IND (for the outputs derived from this WP 9.2), for England and Wales, and

These reconstruction methods are used to generate an employment status as Worker (W), Employer (E), and Own account (OA). These are defined for each of the economically active individuals in Censuses 1851, 1861, and 1881 for England and Wales, and in Censuses 1851, 1861, 1871 and 1881 for Scotland:

1. Method NUM. This method, used only for England and Wales, is guided with the objective of providing the best possible estimate of the number of Workers (W), Employers (E), and Own account proprietors (OA) in each of occupational categories. This is for a supplemented set of Occodes to those defined in I-CeM which allow finer detail of occupational descriptors to be used to separate W, E, and OA. These are referred to as 882 SubOccodes. Because this method estimates the aggregate numbers of W, E, and OA for each type of the 882 SubOccodes (and not the estimates for

individuals), the individual employment status may result from a random allocation. This method is more exact at an aggregate level but unsatisfactory at an individual level. More detailed discussion of the method is provided in the WP 9.

2. Method IND. This uses the same classical Logit Model as for Method NUM in two stages, one for entrepreneurs, that is W and Entrepreneurs, and subsequently one to separate Entrepreneurs between E and OA. This method differs from Method NUM by calculating a score for each individual using all the available information in the censuses, but with variable logit cut-offs. This has no need to use any kind of random assignment. Hence, this is the preferable estimate for identifying the employment status of each individual in the British censuses. But it is less accurate for estimating aggregate categories. More detailed discussion is provided in WP 9.2, which also compares the outputs from the two methods.

For both reconstruction methods the farm entrepreneurs are treated in a separate way using a farm model. This is possible because the census questions collected additional data for farmers on the acreage they occupied. The farm responses were also more complete in the census, in general, than non-farmers. This allows a more direct method of estimating farm status between W, E and OA without the need for the more general reconstruction methods. The estimates of farmer status are included in the downloads with this paper. Hence, the downloads are complete for all occupational categories, but farmers derive from the separate farm model. The details of the farm model are given in WP 9 and discussed more fully in Montebruno et al. (2019).

The detailed dataset with all the variables and steps for each reconstruction method are given in separate files available for download linked to this WP. The reconstruction method allows an interested researcher to access the full business population of economically active individuals, in particular, it permits access to the entrepreneurial population separated between employers and own account proprietors. This effort creates for the first time a full database on economically active individuals and entrepreneurs using data from I-CeM linked to the BBCE. The paper provides detailed documentation of how the data base was created and can be used as a short tutorial guide on its realisation.

The paper in the next section presents the tutorial guide based on the method NUM reconstruction. Then Section 3 lists the variables of the Reconstruction database for England and Wales (both NUM and IND methods) and for Scotland (IND method).

2. The NUM-method reconstruction: a brief tutorial.

2.1. Revisiting NUM-method reconstruction's outputs.

This tutorial guide shows how to retrieve any wanted data from the NUM-method reconstruction dataset. First, it shows how to “clean” the data to produce tables providing expected reconstruction figures. Take for instance, 1881. Being ReadyTypeE_81 (R) (see below for a comprehensive list of all the variables and their definition in the accompanying database) the final allocation for the employers reconstruction and New Employ Code (N) the last allocation for the overall reconstruction, one should expect that:

1. No workers where ReadyType_81 is different from missing and all the workers missing
2. All the employers in the cell (R=1, N=2) with 0 in (R=0, N=2) and (R=., N=2). (Thus, a column of only zeros but for the cell that represents employers in both variables)
3. Like own accounts but with (R=0, N=3) concentrating all the own accounts and zeros in the two cells below.

But as the following tabulation shows, this is not the case.

```
. tab ReadyTypeE_81 NewEmployCode ,m
```

ReadyTypeE_81	NewEmployCode			Total
	1	2	3	
0	1,301	11,524	902,220	915,045
1	11,887	515,268	37,958	565,113
.	9,503,555	9,060	13,238	9,525,853
Total	9,516,743	535,852	953,416	11,006,011

The first thing that confuses the relationships is the only-workers. In the employer reconstruction some only-worker categories were treated as normal and there were some employers and own accounts allocations that needed to be reallocated to workers at the end.

So if you take out the only worker allocations the first column gets better and become clear as wanted.

```
. tab ReadyTypeE_81 New if Other!=-1,m
```

ReadyTypeE_81	NewEmployCode			Total
	1	2	3	
0	0	11,524	902,220	913,744
1	0	515,268	37,958	553,226
.	5,370,365	9,060	13,238	5,392,663
Total	5,370,365	535,852	953,416	6,859,633

As noted in introduction, the farmers had an independent allocation (see WP 9; Montebruno et al., 2019). This also confuses the allocations. If you take out the farmers (Farmer_sample=0), then the cells (R=0, N=2) and (R=1, N=3) become zero which is a further correction and we are almost with the wanted results.

```
. tab ReadyTypeE_81 New if Farmer_s==0 & Other!=-1,m
```

ReadyTypeE_81	NewEmployCode			Total
	1	2	3	
0	0	0	879,550	879,550
1	0	399,994	0	399,994
.	5,334,506	8,999	13,146	5,356,651
Total	5,334,506	408,993	892,696	6,636,195

Finally, those variables in I-CeM which are assigned a value of U have to be controlled for; these are where data are incomplete (e.g. gender is not given). The Us were allocated according to the proportions of W, E, OA in the sample, which is different from the employers reconstruction. So take out the Us and we are done!

```
. tab ReadyTypeE_81 New if Farmer_s==0 & Us==0 & Other!=-1,m
```

ReadyTypeE_81	NewEmployCode			Total
	1	2	3	
0	0	0	879,550	879,550
1	0	399,994	0	399,994
.	5,267,610	0	0	5,267,610
Total	5,267,610	399,994	879,550	6,547,154

So in a nutshell, different reconstructions techniques for workers-only, farmers, and Us are the cause of the unclear tabulation between the final allocation variable of the employer reconstruction (R) and the final allocation variable of the overall reconstruction (N). So if you want to be safe USE ALWAYS NewEmployCode (N), and if you want to see the details use the final allocation of the employer reconstruction (R) but after removing the workers only, the farmers, and the Us.

A similar argument can explain why the Entrepreneur reconstruction final allocation variable ReadyType81CORREGIDA and the overall final allocation variable do not coincide, but their strict relation becomes apparent if one excludes workers only, farmers, and Us as the following results show.

```
. tab ReadyType81CORREGIDA NewEmployCode ,m
```

ReadyType81CORREGIDA	NewEmployCode			Total
	1	2	3	
0	9,416,207	0	0	9,416,207
1	66,078	534,839	950,632	1,551,549
.	34,458	1,013	2,784	38,255
Total	9,516,743	535,852	953,416	11,006,011

```
. tab ReadyType81CORREGIDA NewEmployCode if Others!=-1,m
```

ReadyType81CORREGIDA	NewEmployCode			Total
	1	2	3	
0	5,303,469	0	0	5,303,469
1	51,320	534,839	950,632	1,536,791
.	15,576	1,013	2,784	19,373
Total	5,370,365	535,852	953,416	6,859,633

```
. tab ReadyType81CORREGIDA NewEmployCode if Farmer_s==0 & Others!=-1,m
```

ReadyType81CORREGIDA	NewEmployCode			Total
	1	2	3	
0	5,267,610	0	0	5,267,610
1	51,320	407,980	889,937	1,349,237
.	15,576	1,013	2,759	19,348
Total	5,334,506	408,993	892,696	6,636,195

```
. tab ReadyType81CORREGIDA NewEmployCode if Farmer_s==0 & Us==0 &
Others!=-1,m
```

ReadyType8 1CORREGIDA	NewEmployCode			Total
	1	2	3	
0	5,267,610	0	0	5,267,610
1	0	399,994	879,550	1,279,544
Total	5,267,610	399,994	879,550	6,547,154

Same for 1861

```
. tab ReadyTypeE_61 NewEmployCode ,m
```

ReadyTypeE _61	NewEmployCode			Total
	1	2	3	
0	19,430	13,158	675,710	708,298
1	61,694	438,440	26,613	526,747
.	6,985,980	3,107	7,030	6,996,117
Total	7,067,104	454,705	709,353	8,231,162

```
. tab ReadyTypeE_61 New if Other!=-1,m
```

ReadyTypeE _61	NewEmployCode			Total
	1	2	3	
0	12,177	13,158	675,710	701,045
1	23,083	438,440	26,613	488,136
.	3,900,150	3,107	7,030	3,910,287
Total	3,935,410	454,705	709,353	5,099,468

```
. tab ReadyTypeE_61 New if Farmer_s==0 & Other!=-1,m
```

ReadyTypeE _61	NewEmployCode			Total
	1	2	3	
0	0	0	661,618	661,618
1	0	307,955	0	307,955
.	3,896,736	2,818	6,639	3,906,193
Total	3,896,736	310,773	668,257	4,875,766


```
. tab ReadyTypeE_61 New if Farmer_s==0 & Us==0 & Other!=-1,m
```

ReadyTypeE_61	NewEmployCode			Total
	1	2	3	
0	0	0	661,618	661,618
1	0	307,955	0	307,955
.	3,853,783	0	0	3,853,783
Total	3,853,783	307,955	661,618	4,823,356

```
. tab RReadyType NewEmployCode ,m
```

ESTE SI ReadyType6_1	NewEmployCode			Total
	1	2	3	
0	6,890,909	0	211	6,891,120
1	81,272	451,913	702,526	1,235,711
.	94,923	2,792	6,616	104,331
Total	7,067,104	454,705	709,353	8,231,162

```
. tab RReadyType NewEmployCode if Others!=-1,m
```

ESTE SI ReadyType6_1	NewEmployCode			Total
	1	2	3	
0	3,856,832	0	211	3,857,043
1	35,384	451,913	702,526	1,189,823
.	43,194	2,792	6,616	52,602
Total	3,935,410	454,705	709,353	5,099,468

```
. tab RReadyType NewEmployCode if Farmer_s==0 & Others!=-1,m
```

ESTE SI ReadyType6_1	NewEmployCode			Total
	1	2	3	
0	3,853,783	0	0	3,853,783
1	124	308,028	661,671	969,823
.	42,829	2,745	6,586	52,160
Total	3,896,736	310,773	668,257	4,875,766

```
. tab RReadyType NewEmployCode if Farmer_s==0 & Us==0 & Others!=-1,m
```

ESTE SI	NewEmployCode			Total
ReadyType6	1	2	3	
0	3,853,783	0	0	3,853,783
1	0	307,955	661,618	969,573
Total	3,853,783	307,955	661,618	4,823,356

And for 1851

```
. tab ReadyTypeE_51 NewEmployCode ,m
```

ReadyTypeE	NewEmployCode			Total
_51	1	2	3	
0	20,602	19,015	642,268	681,885
1	64,045	419,764	28,371	512,180
.	6,336,230	22,154	20,038	6,378,422
Total	6,420,877	460,933	690,677	7,572,487

```
. tab ReadyTypeE_51 New if Other!=-1,m
```

ReadyTypeE	NewEmployCode			Total
_51	1	2	3	
0	15,610	19,015	642,268	676,893
1	21,972	419,763	28,371	470,106
.	3,330,139	22,153	20,038	3,372,330
Total	3,367,721	460,931	690,677	4,519,329

```
. tab ReadyTypeE_51 New if Farmer_s==0 & Other!=-1,m
```

ReadyTypeE	NewEmployCode			Total
_51	1	2	3	
0	4,293	5,697	628,105	638,095
1	0	278,484	0	278,484
.	3,326,557	21,036	17,912	3,365,505
Total	3,330,850	305,217	646,017	4,282,084

```
. tab ReadyTypeE_51 New if Farmer_s==0 & Us==0 & Other!=-1,m
```

ReadyTypeE_51	NewEmployCode			Total
	1	2	3	
0	4,293	5,697	628,105	638,095
1	0	278,484	0	278,484
.	3,268,874	12,486	5,570	3,286,930
Total	3,273,167	296,667	633,675	4,203,509

```
. tab ReadyType51CORREGIDA NewEmployCode ,m
```

ReadyType51CORREGIDA	NewEmployCode			Total
	1	2	3	
0	6,197,789	13,195	7,410	6,218,394
1	89,094	439,922	672,131	1,201,147
.	133,994	7,816	11,136	152,946
Total	6,420,877	460,933	690,677	7,572,487

```
. tab ReadyType51CORREGIDA NewEmployCode if Others!=-1,m
```

ReadyType51CORREGIDA	NewEmployCode			Total
	1	2	3	
0	3,271,995	13,194	7,410	3,292,599
1	42,028	439,921	672,131	1,154,080
.	53,698	7,816	11,136	72,650
Total	3,367,721	460,931	690,677	4,519,329

```
. tab ReadyType51CORREGIDA NewEmployCode if Farmer_s==0 & Others!=-1,m
```

ReadyType51CORREGIDA	NewEmployCode			Total
	1	2	3	
0	3,268,874	12,486	5,570	3,286,930
1	8,739	285,220	629,526	923,485
.	53,237	7,511	10,921	71,669
Total	3,330,850	305,217	646,017	4,282,084

```
. tab ReadyType51CORREGIDA NewEmployCode if Farmer_s==0 & Us==0 &
Others!=-1,m
```

ReadyType5 1CORREGIDA	NewEmployCode			Total
	1	2	3	
0	3,268,874	12,486	5,570	3,286,930
1	4,293	284,181	628,105	916,579
Total	3,273,167	296,667	633,675	4,203,509

=====

And again 1851 after Group replaced Types because of newer extraction

=====

```
. tab ReadyGroupE_51 NewEmployCode ,m
```

ReadyGroup E_51	NewEmployCode			Total
	1	2	3	
0	20,643	12,515	647,838	680,996
1	64,326	442,225	28,371	534,922
.	6,335,908	6,193	14,468	6,356,569
Total	6,420,877	460,933	690,677	7,572,487

```
. tab ReadyGroupE_51 New if Other!=-1,m
```

ReadyGroup E_51	NewEmployCode			Total
	1	2	3	
0	15,660	12,515	647,838	676,013
1	21,972	442,223	28,371	492,566
.	3,330,089	6,193	14,468	3,350,750
Total	3,367,721	460,931	690,677	4,519,329

```
. tab ReadyGroupE_51 New if Farmer_s==0 & Other!=-1,m
```

ReadyGroup E_51	NewEmployCode			Total
	1	2	3	
0	4,343	0	633,675	638,018
1	0	299,839	0	299,839
.	3,326,507	5,378	12,342	3,344,227
Total	3,330,850	305,217	646,017	4,282,084

```
. tab ReadyGroupE_51 New if Farmer_s==0 & Us==0 & Other!=-1,m
```

ReadyGroup E_51	NewEmployCode			Total
	1	2	3	
0	4,343	0	633,675	638,018
1	0	296,667	0	296,667
.	3,268,824	0	0	3,268,824
Total	3,273,167	296,667	633,675	4,203,509

```
. tab ReadyGroup51CORREGIDA NewEmployCode ,m
```

ReadyGroup 51CORREGID A	NewEmployCode			Total
	1	2	3	
0	6,197,207	483	1,748	6,199,438
1	89,765	455,760	678,473	1,223,998
.	133,905	4,690	10,456	149,051
Total	6,420,877	460,933	690,677	7,572,487

```
. tab ReadyGroup51CORREGIDA NewEmployCode if Others!=-1,m
```

ReadyGroup 51CORREGID A	NewEmployCode			Total
	1	2	3	
0	3,271,945	483	1,748	3,274,176
1	42,132	455,758	678,473	1,176,363
.	53,644	4,690	10,456	68,790
Total	3,367,721	460,931	690,677	4,519,329

```
. tab ReadyGroup51CORREGIDA NewEmployCode if Farmer_s==0 & Others!=-1,m
```

ReadyGroup 51CORREGID A	NewEmployCode			Total
	1	2	3	
0	3,268,824	0	0	3,268,824
1	8,843	300,748	635,753	945,344
.	53,183	4,469	10,264	67,916
Total	3,330,850	305,217	646,017	4,282,084

```
. tab ReadyGroup51CORREGIDA NewEmployCode if Farmer_s==0 & Us==0 &
Others!=-1,m
```

ReadyGroup 51CORREGID A	NewEmployCode			Total
	1	2	3	
0	3,268,824	0	0	3,268,824
1	4,343	296,667	633,675	934,685
Total	3,273,167	296,667	633,675	4,203,509

Notice that there are 4,343 misplaced observations, which is explained by the recoding from OAs to Ws compensating for the addition of 4,878 Type 3s (OAs). These observations are kept with their coding to individualise them.

2.2. Final NUM-method reconstruction results.

The following are the final aggregate figures for the critical variable NewEmployCode. That is, the following tables give the number of Workers (1), Employers (2), and Own-account (3) for each of the Censuses years 1851, 1861, and 1881.

FINAL NEWEMPLOYCODE TABULATIONS

1851

NewEmployCo de	Freq.	Percent	Cum.
1	6,420,877	84.79	84.79
2	460,933	6.09	90.88
3	690,677	9.12	100.00
Total	7,572,487	100.00	

1861

NewEmployCo de	Freq.	Percent	Cum.
1	7,067,104	85.86	85.86
2	454,705	5.52	91.38
3	709,353	8.62	100.00
Total	8,231,162	100.00	

1881

NewEmployCo de	Freq.	Percent	Cum.
1	9,516,743	86.47	86.47
2	535,852	4.87	91.34
3	953,416	8.66	100.00
Total	11,006,011	100.00	

2.3. Examples of decisions

The following are two examples of decisions to illustrate how the final employment status is reached and how it is recorded at each step towards the decisions for the NUM-method of reconstruction (the IND-method process is analogous and is also fully recorded in the respective files of the dataset; see later below):

2.3.1. 1851 newRecID of "32". This individual is coded as Ent because of 1901 rounded regression ("Entrepreneur51_01_pr_rou" has value "1", "short" has value "2", and "Decisions" has value "4" or "Use 1901 rounded type extrapolation". A valid annotation here is that some of the recording is redundant to check for consistency and accuracy: here "short" equal to "2" is a redundancy test, also the "Decisions" equal to "4" only repeats that we are using the 1901 rounded regression as a classification tool). In any case, this individual will also be counted as an Ent just because having a "1" in "ReadyType51CORREGIDA", that is before Types where recoded with the new extraction Groups and in "ReadyGroup51CORREGIDA", that is after Groups replaced Types. Thus, our first conclusion is that the individual is an Ent from two independent sources, one of them including extrapolating and predicting for 1851 from a Logistic Regression of 1901 rounded regression. Rounded means that each individual in the SubOcode has the probability rounded and added together and this aggregate rounded probability is what is being chosen. Then it is time to decide if it is an E or an OA among the Ent status. The answer comes, again, from a 1901 Logistic Regression (notice that this a different regression from the Ent one, which has as dependent variable E not Ent this time): "1" or a E (redundancy "shortE" equal to "2"). But this is not the end of the story. The decision is "5" ("Use 1891 ratio

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extrapolation") and that means, in this case, that in the aggregate there are too many E in this SubOccode (872), thus the NUM-method, which prioritises the aggregate guess, reallocates the excess of E into OA: calculated as an aggregate figure as individual allocation was by random reassignment of employment status for this SubOccode to match the "1891 ratio extrapolation". This swap in the entrepreneurial code from E to OA is recorded under the variable "RandAllEnt51" which has a "1" meaning that in this case the individual was subject to a random allocation from/to E and OA, and the complementary value "1" in the variable "RandAllEtoOA51", which establishes that the direction of the random allocation is from E to OA in census 1851. Finally, the variable "Employer_sample" which includes all Ent, i.e. E + OA, is also a redundancy and confirms this individual is an Ent. For all the previous analysis, it is not a surprise that the value in the most important variable of the dataset, "NewEmployCode", is "3" or an OA and, in this case, this is the same outcome of the other complementary last values:

"OLD_NewEmployCode", "ALMOSTFINALNewEmployCode", and "RECONSTRUCTION_NewEmployCode", which does not add much additional information to this case.

2.3.2. 1851 newRecID of "16231412". This individual is in the "Farmer_sample" so all the information in the Ent and E/OA variables is irrelevant as the farm model has been used to employment estimate status. Only the farmer's variables are of interest. The "Type" and the updated "Group" are both "5", i.e. is a farmer OA (who gives acres but not total employees). The farmer's model suggests a random reallocation from "5", OA, to "1", E ("TypeLogit_025" and "FarmerModel5to1025" have value "1") is because the acreages of this farmer are big enough to suggest that the farmer indeed hires labourers but that this information is missing from the census according to the cut-off calculated for this continuous parish in the farmer's model. In this case the final variables are indeed informative. "RECONSTRUCTION_NewEmployCode" has a "3", i.e. the general reconstruction model decision is OA, but as said this individual is a farmer so the farmer's model prevails. Thus, the final allocation is "2" E, the outcome of the farmer's model, and not "3" or OA, the independent outcome of the general reconstruction model. This is confirmed by the variable "NewEmployCode" which has value "2" or E.

3. Variables in the Reconstruction Database.

The following is a comprehensive list of each of the reconstruction variables found in the accompanying “Disaggregated reconstruction database for the British Censuses” (Montebruno, 2019) with a short description of them. The reconstruction process is thus documented in its full realisation with each of the steps clearly named and with each decision recorded in the accompanying database (Montebruno, 2019).

3.1. NUM-method reconstruction variables:

3.1.1. 1851

3.1.1.1. ENT 51

newRecID

Rec ID for 1851

Ent_corr51_91_pr_rou

prediction of being an entrepreneur (0=worker / 1=entrepreneur) by 1891 rounded regression

Entrepreneur51_01_pr_rou

prediction of being an entrepreneur (0=worker / 1=entrepreneur) by 1901 rounded regression

short

Supply of entrepreneurs by 1 (1891 rounded regressions) or 2 (1901 rounded regressions)

RandAllEnt51

If newRecID has been randomly allocated from/to entrepreneur or worker

RandAllWtoEnt51

If newRecID has been randomly allocated from worker to entrepreneur

RandAllEnttoW51

If newRecID has been randomly allocated from entrepreneur to worker

Decisions

Which extrapolation has been decided: 1.Use 1891 unrounded type extrapolation 2.Use 1891 rounded type extrapolation 3.Use 1901 unrounded type extrapolation 4.Use 1901 rounded type extrapolation 5.Use 1891 ratio extrapolation

TypeAlloc51

If newRecID recoded from worker (0) to entrepreneur (1) by imposition of Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers)

ReadyType51CORREGIDA

Final entrepreneur code (before Types where recoded with the new extraction Groups)

Type

Type as extracted from I-CeM

GroupAlloc51

If newRecID recoded from worker (0) to entrepreneur (1) by imposition of Group (Groups 1,3,5 for non-farmers and Groups 1,2,5 for farmers)

ReadyGroup51CORREGIDA

Final entrepreneur code (after Groups replaced Types)

Group

Type as the final extraction from I-CeM (Type=First, Group=Last)

SubOccode

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3.1.1.2. E 51

newRecID

Rec ID for 1851

E_corr51_91_pr_rou

prediction of being an employer (0=own account / 1=employer) by 1891 rounded regression

E_51_01_pr_rou

prediction of being an employer (0=own account / 1=employer) by 1901 rounded regression

shortE

Supply of employers by 1 (1891 rounded regressions) or 2 (1901 rounded regressions)

RandAllEnt51

If newRecID has been randomly allocated from/to employer or own account

RandAlloAtoE51

If newRecID has been randomly allocated from own account to employer

RandAllEtoOA51

If newRecID has been randomly allocated from employer to own account

Decision

Which extrapolation has been decided: 1.Use 1891 unrounded type extrapolation 2.Use 1891 rounded type extrapolation 3.Use 1901 unrounded type extrapolation 4.Use 1901 rounded type extrapolation 5.Use 1891 ratio extrapolation

TypeAllocE_51

If newRecID recoded from own account (0) to employer (1) by imposition of Type (Type 1 means employer)

ReadyTypeE_51

Final employer code (before Type was replaced by the newer extraction Group)

GroupAllocE_51

If newRecID recoded from own account (0) to employer (1) by imposition of Group (Group 1 means employer) (After Groups replaced Types, newer extraction from I-CeM)

ReadyGroupE_51

Final employer code (after Group replaced Type)

SubOccode

882 Sub-Occodes of economic activities

3.1.1.3. FARMERS 51

newRecID

Rec ID for 1851

Type_Farmers

Types of Farmers (slight changes from previous allocation, cfr Type)

TypeLogit_025

Type after the farming model with a probability of 0.25 (odds ratio of 3)

TypeLogit_025NPort4_CAXTON

Type after New Portfolio and NewMarket, Linton, Holywell and Caxton and Cambridge new extractions.

ReadyTypeLogit_025_4to5

Type after the farming model reallocation types 4 to 5

ReadyTypeLogit_025_5to1

Type after the farming model reallocation types 5 to 1

ReadyTypeLogit_025_4to1

Type after the farming model reallocation types 4 to 1

ReadyTypeLogitFinal

Final allocation after new evidence on limited reallocations (marginal adjustments)

FarmerModel5to1025

If farmer model predicted a reallocation from own account to employer (5 to 1) with a probability of 0.25 (odds ratio of 3)

RandAll4to5

If farmers is randomly allocated from types 4 to 5 (to match overall numbers)

RandAll5to1

If farmers is randomly allocated from types 5 to 1 (to match overall numbers)

RandAll4to1

If farmers is randomly allocated from types 4 to 1 (to match overall numbers)

3.1.1.4.

OLD_NewEmployCode Variable New Employ Code before adding the 50,000 newly extracted group.

ALMOSTFINALNewEmployCode Variable New Employ Code before adding 4,800 Type 3 (OAs) and recoding a similar amount from OAs to Ws.

RECONSTRUCTION_NewEmployCode variable New Employ Code using farmer reconstruction (non-optimised farmers' model)

3.1.2. 1861

3.1.2.1. ENT 61

newRecID

Rec ID for 1861

Ent_corr61_91_pr_rou

prediction of being an entrepreneur (0=worker / 1=entrepreneur) by 1891 rounded regression

Entrepreneur61_01_pr_rou

prediction of being an entrepreneur (0=worker / 1=entrepreneur) by 1901 rounded regression

short

Supply of entrepreneurs by 1 (1891 rounded regressions) or 2 (1901 rounded regressions)

RandAllEnt61

If newRecID has been randomly allocated from/to entrepreneur or worker

RandAllWtoEnt61

If newRecID has been randomly allocated from worker to entrepreneur

RandAllEnttoW61

If newRecID has been randomly allocated from entrepreneur to worker

DecisionB_H

Which extrapolation has been decided: 1.Use 1891 unrounded type extrapolation 2.Use 1891 rounded type extrapolation 3.Use 1901 unrounded type extrapolation 4.Use 1901 rounded type extrapolation 5.Use 1891 ratio extrapolation

TypeAlloc61

If newRecID recoded from worker (0) to entrepreneur (1) by imposition of Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers)

RReadyType

Final entrepreneur code

Type
 Type as extracted from I-CeM
 SubOcode
 882 Sub-Occodes of economic activities

3.1.2.2. E 61

newRecID
 Rec ID for 1861

E_corr61_91_pr_rou
 prediction of being an employer (0=own account / 1=employer) by 1891 rounded regression

E_61_01_pr_rou
 prediction of being an employer (0=own account / 1=employer) by 1901 rounded regression

shortE
 Supply of employers by 1 (1891 rounded regressions) or 2 (1901 rounded regressions)

RandAllEnt61
 If newRecID has been randomly allocated from/to employer or own account

RandAllOAtoE61
 If newRecID has been randomly allocated from own account to employer

RandAllEtoOA61
 If newRecID has been randomly allocated from employer to own account

decision_afternewdecision
 Which extrapolation has been decided: 1.Use 1891 unrounded type extrapolation 2.Use 1891 rounded type extrapolation 3.Use 1901 unrounded type extrapolation 4.Use 1901 rounded type extrapolation 5.Use 1891 ratio extrapolation

TypeAllocE_61
 If newRecID recoded from own account (0) to employer (1) by imposition of Type (Type 1 means employer)

ReadyTypeE_61
 Final employer code

TypeE_61
 Type as extracted from I-CeM

SubOcode
 882 Sub-Occodes of economic activities

3.1.2.3. FARMER 61

TypeLogit_025NPort4

Final allocation of types for farmers after applying a reallocation of 5s to 1s with a logit farming model using a probability of 0.25 (odds ratio of 3)

3.1.2.4.

RECONSTRUCTION_NewEmployCodE variable New Employ Code using farmer reconstruction (non-optimised farmers' model)

3.1.3. 1881

3.1.3.1. ENT 81

newRecID

Rec ID for 1881

Ent_corr81_91_pr_rou

prediction of being an entrepreneur (0=worker / 1=entrepreneur) by 1891 rounded regression

Entrepreneur81_01_pr_rou

prediction of being an entrepreneur (0=worker / 1=entrepreneur) by 1901 rounded regression

short

Supply of entrepreneurs by 1 (1891 rounded regressions) or 2 (1901 rounded regressions)

RandAllEnt81

If newRecID has been randomly allocated from/to entrepreneur or worker

RandAllWtoEnt81

If newRecID has been randomly allocated from worker to entrepreneur

RandAllEnttoW81

If newRecID has been randomly allocated from entrepreneur to worker

DecisionFinal

Which extrapolation has been decided:

- 1 - use unrounded 1891 regression extrapolation
- 2 - use rounded 1891 regression extrapolation
- 3 - use unrounded 1901 regression extrapolation
- 4 - use rounded 1901 regression extrapolation
- 5 - use 1891 ratio extrapolation
- 6 - use 1901 ratio extrapolation
- 7 - use 1881 actual

TypeAlloc81

If newRecID recoded from worker (0) to entrepreneur (1) by imposition of Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers)

RReadyType
Final entrepreneur code

Type
Type as extracted from I-CeM

SubOcode
882 Sub-Occodes of economic activities

3.1.3.2. E 81

newRecID
Rec ID for 1881

E_corr81_91_pr_rou
prediction of being an employer (0=own account / 1=employer) by 1891 rounded regression

E_81_01_pr_rou
prediction of being an employer (0=own account / 1=employer) by 1901 rounded regression

shortE
Supply of employers by 1 (1891 rounded regressions) or 2 (1901 rounded regressions)

RandAllEnt81
If newRecID has been randomly allocated from/to employer or own account

RandAlloAtoE81
If newRecID has been randomly allocated from own account to employer

RandAlletOA81
If newRecID has been randomly allocated from employer to own account

decision
Which extrapolation has been decided: 1.Use 1891 unrounded type extrapolation 2.Use 1891 rounded type extrapolation 3.Use 1901 unrounded type extrapolation 4.Use 1901 rounded type extrapolation 5.Use 1891 ratio extrapolation

TypeAllocE_81
If newRecID recoded from own account (0) to employer (1) by imposition of Type (Type 1 means employer)

ReadyTypeE_81
Final employer code

TypeE_81
Type as extracted from I-CeM

SubOcode
882 Sub-Occodes of economic activities

3.1.3.3. FARMER 81

TypeLogit_025

Final allocation of types for farmers after applying a reallocation of 5s to 1s with a logit farming model using a probability of 0.25 (odds ratio of 3)

3.1.3.4.

RECONSTRUCTION_NewEmployCodE variable New Employ Code using farmer reconstruction (non-optimised farmers' model)

3.1.4.

FINAL IMPORTANT VARIABLES (ALL YEARS = 51, 61, 81)

NewEmployCode (or variable NewEmployCode_Recon_NUM)

FINAL ALLOCATION OF THE RECONSTRUCTION = 1 worker, = 2 employer, = 3 own account

Employer_sample

0 = workers / 1 = Entrepreneurs: employer+own accounts

Farmer_sample

0 = non farmers/ 1 = Farmers

3.1.5. Others

-1 workers only

8 query? (too small to deal with)

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9 non-economic

3.2. IND-method reconstruction variables (England and Wales).

(ALL YEARS = 51, 61, 81)

NewEmployCode_Recon_NUM

"FINAL ALLOCATION OF THE OTHER RECONSTRUCTION NUM = 1 worker, = 2 employer, = 3 own account"

SubOccode

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coll_Ent

Average prediction of being an entrepreneur by SubOccode

sel_Ent

"If an individual is in a SubOccode with only workers (0), only entrepreneurs (1, non-observations) or a mix (2) before imposing the Types according to the 1891 logit regression"

pred_Ent
prediction of being an entrepreneur (0=worker / 1=entrepreneur) by 1891 logit regression

Worker_STRING
If an individual has been identified as a worker using his/her occupation string

Workers_only_SubOcode
If an individual belongs to a Worker-only SubOcode according to expert advice

Type
Type as extracted from I-CeM

Ent_rou_01
If an individual predicted probability of being an entrepreneur is higher than 0.1

Ent_rou_015
If an individual predicted probability of being an entrepreneur is higher than 0.15

Ent_rou_02
If an individual predicted probability of being an entrepreneur is higher than 0.2

Ent_rou_025
If an individual predicted probability of being an entrepreneur is higher than 0.25

Ent_rou_03
If an individual predicted probability of being an entrepreneur is higher than 0.3

Ent_rou_035
If an individual predicted probability of being an entrepreneur is higher than 0.35

Ent_rou_04
If an individual predicted probability of being an entrepreneur is higher than 0.4

Ent_rou_045
If an individual predicted probability of being an entrepreneur is higher than 0.45

Ent_rou_05
If an individual predicted probability of being an entrepreneur is higher than 0.5

Ent_rou_06
If an individual predicted probability of being an entrepreneur is higher than 0.6

Ent_rou_07
If an individual predicted probability of being an entrepreneur is higher than 0.7

Ent_rou_08
If an individual predicted probability of being an entrepreneur is higher than 0.8

Ent_r01aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.1 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r015aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.15 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r02aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.2 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r025aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.25 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r03aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.3 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r035aE_Wo If an individual predicted probability of being an entrepreneur is higher than 0.35 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r04aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.4 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r045aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.45 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r05aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.5 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r06aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.6 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r07aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.7 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r08aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.8 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Decision

Which of the cut-offs has been decided by expert advice from the aggregate numbers of entrepreneurs and workers in each SubOcode

Ent_Decision

Whether the final allocation of an individual after the decision is an entrepreneur (1) or an worker (0)

coll_E

Average prediction of being an employer by SubOcode

sel_E_EW

"If individual is in a SubOcode with only own-accounts (0), only employers (1) or a mix (2) before imposing the Types according to the 1891 logit regression"

pred_E

prediction of being an employer (0=own account / 1=employer) by 1891 logit regression

E_rou_01

If an individual predicted probability of being an employer is higher than 0.1

E_rou_015

If an individual predicted probability of being an employer is higher than 0.15

E_rou_02

If an individual predicted probability of being an employer is higher than 0.2

E_rou_025

If an individual predicted probability of being an employer is higher than 0.25

E_rou_03

If an individual predicted probability of being an employer is higher than 0.3

E_rou_035

If an individual predicted probability of being an employer is higher than 0.35

E_rou_04

If an individual predicted probability of being an employer is higher than 0.4

E_rou_045

If an individual predicted probability of being an employer is higher than 0.45

E_rou_05

If an individual predicted probability of being an employer is higher than 0.5

E_rou_06

If an individual predicted probability of being an employer is higher than 0.6

E_rou_07

If an individual predicted probability of being an employer is higher than 0.7

E_rou_08

If an individual predicted probability of being an employer is higher than 0.8

E_r01aE

If an individual predicted probability of being an employer is higher than 0.1

OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r015aE

If an individual predicted probability of being an employer is higher than 0.15 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r02aE

If an individual predicted probability of being an employer is higher than 0.2 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r025aE

If an individual predicted probability of being an employer is higher than 0.25 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r03aE

If an individual predicted probability of being an employer is higher than 0.3 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r035aE

If an individual predicted probability of being an employer is higher than 0.35 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r04aE

If an individual predicted probability of being an employer is higher than 0.4 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r045aE

If an individual predicted probability of being an employer is higher than 0.45 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r05aE

If an individual predicted probability of being an employer is higher than 0.5 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r06aE

If an individual predicted probability of being an employer is higher than 0.6 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r07aE If an individual predicted probability of being an employer is higher than 0.7 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r08aE

If an individual predicted probability of being an employer is higher than 0.8 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

Decision_E

Which of the cut-offs has been decided by expert advice from the aggregate numbers of employers and own accounts in each SubOcode

E_Decision

Whether the final allocation of an individual after the decision is an employer (1) or an own account (0)

NewEmployCode_includingFarmers

Final allocation of the reconstruction IND before imposing the farm model (i.e. with the farm reconstruction IND of the general model)

NewEmployCode_Recon_IND

FINAL ALLOCATION OF THE RECONSTRUCTION IND = 1 worker, = 2 employer, = 3 own account"
comparison Whether the first reconstruction outcome is equal to (1) or different (0) from the reconstruction IND outcome

3.3. IND-method reconstruction variables (Scotland). (ALL YEARS = 1851, 1861, 1871, 1881)

SubOcode

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Ocode

797 Occodes of economic activities

Ec_Ac

Economically active (=1 Worker or =10 Unknown Employ Code (W, E, or OA))

coll_Ent

Average prediction of being an entrepreneur by SubOcode

sel

If an individual is in a SubOcode with only workers (0), only entrepreneurs (1, non-observations) or a mix (2) before imposing the Types according to the 1891 logit regression

pred_Ent

prediction of being an entrepreneur (0=worker / 1=entrepreneur) by 1891 logit regression

ENT_afterExtracted_WorkersONLY

Entrepreneurs after extracted Workers only (only for 1881 census)

Type

Type as extracted from I-CeM

Ent_rou_01

If an individual predicted probability of being an entrepreneur is higher than 0.1

Ent_rou_015

If an individual predicted probability of being an entrepreneur is higher than 0.15

Ent_rou_02

If an individual predicted probability of being an entrepreneur is higher than 0.2

Ent_rou_025

If an individual predicted probability of being an entrepreneur is higher than 0.25

Ent_rou_03

If an individual predicted probability of being an entrepreneur is higher than 0.3

Ent_rou_035

If an individual predicted probability of being an entrepreneur is higher than 0.35

Ent_rou_04

If an individual predicted probability of being an entrepreneur is higher than 0.4

Ent_rou_045

If an individual predicted probability of being an entrepreneur is higher than 0.45

Ent_rou_05

If an individual predicted probability of being an entrepreneur is higher than 0.5

Ent_rou_06

If an individual predicted probability of being an entrepreneur is higher than 0.6

Ent_rou_07

If an individual predicted probability of being an entrepreneur is higher than 0.7

Ent_rou_08

If an individual predicted probability of being an entrepreneur is higher than 0.8

Ent_r01aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.1 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r015aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.15 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r02aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.2 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r025aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.25 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r03aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.3 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r035aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.35 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r04aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.4 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r045aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.45 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r05aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.5 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r06aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.6 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r07aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.7 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Ent_r08aE_Wo

If an individual predicted probability of being an entrepreneur is higher than 0.8 OR Type (Types 1,3,5 for non-farmers and Types 1,2,5 for farmers means Entrepreneurs or 1) and Worker only (0) has been imposed

Decision

Which of the cut-offs has been decided by expert advice from the aggregate numbers of entrepreneurs and workers in each SubOcode

Ent_Decision

Whether the final allocation of an individual after the decision is an entrepreneur (1) or a worker (0)

coll_E_mean

Average prediction of being an employer by SubOcode

sel_E

If individual is in a SubOcode with only own-accounts (0), only employers (1) or a mix (2) before imposing the Types according to the 1891 logit regression

pred_E

prediction of being an employer (0=own account / 1=employer) by 1891 logit regression

E_rou_01

If an individual predicted probability of being an employer is higher than 0.1

E_rou_015

If an individual predicted probability of being an employer is higher than 0.15

E_rou_02

If an individual predicted probability of being an employer is higher than 0.2

E_rou_025

If an individual predicted probability of being an employer is higher than 0.25

E_rou_03

If an individual predicted probability of being an employer is higher than 0.3

E_rou_035

If an individual predicted probability of being an employer is higher than 0.35

E_rou_04

If an individual predicted probability of being an employer is higher than 0.4

E_rou_045

If an individual predicted probability of being an employer is higher than 0.45

E_rou_05

If an individual predicted probability of being an employer is higher than 0.5

E_rou_06

If an individual predicted probability of being an employer is higher than 0.6

E_rou_07

If an individual predicted probability of being an employer is higher than 0.7

E_rou_08

If an individual predicted probability of being an employer is higher than 0.8

E_r01aE

If an individual predicted probability of being an employer is higher than 0.1 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r015aE

If an individual predicted probability of being an employer is higher than 0.15 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r02aE

If an individual predicted probability of being an employer is higher than 0.2 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r025aE

If an individual predicted probability of being an employer is higher than 0.25 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r03aE

If an individual predicted probability of being an employer is higher than 0.3 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r035aE

If an individual predicted probability of being an employer is higher than 0.35 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r04aE

If an individual predicted probability of being an employer is higher than 0.4 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r045aE

If an individual predicted probability of being an employer is higher than 0.45 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r05aE

If an individual predicted probability of being an employer is higher than 0.5 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r06aE

If an individual predicted probability of being an employer is higher than 0.6 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r07aE

If an individual predicted probability of being an employer is higher than 0.7 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

E_r08aE

If an individual predicted probability of being an employer is higher than 0.8 OR Type (Types 1,3 for non-farmers and Types 1,2 for farmers means employer or 1) has been imposed

Decision_E

Which of the cut-offs has been decided by expert advice from the aggregate numbers of employers and own accounts in each SubOcode

E_Decision

Whether the final allocation of an individual after the decision is an employer (1) or an own account (0)

NewEmployCode_before_FarmingM

FINAL ALLOCATION OF THE RECONSTRUCTION BEFORE FARMING MODEL = 1 worker, = 2 employer, = 3 own account

ACREAGE

Acreage of the farm

TOTAL

Total employees

Ees

If a farmer has non-zero employees (1) or does not have employees at all (0)

EPortfolio
Portfolio

Type5
If an farmer is Type 5 (1) or not (0)

TypeLogit_025
FINAL ALLOCATION OF TYPES AFTER FARM MODEL (1-6)

Farmer_sample
(1) A FARMER OR (0) NOT A FARMER

NewEmployCode (or variable NewEmployCode_Recon_IND)
FINAL ALLOCATION OF THE SCOTTISH RECONSTRUCTION = 1 worker, = 2
employer, = 3 own account

3.3.1. **(Only 1851)**

TypeLogit_025MA
FINAL ALLOCATION OF TYPES AFTER FARM MODEL (1-6) and Professor Mike
Anderson deletion of duplicates and New ParID allocations

4. Conclusion

This paper gives the details of the reconstruction method that estimates the employment status of the full population of economically active individuals as worker, employer and own account for Censuses 1851, 1861, and 1881 (England and Wales) and 1851, 1861, 1871, and 1881 (Scotland). The main scope of the paper is to give worked examples to explain practically how the reconstruction is performed and how to dig into its most technical details. At the same time, it provides a comprehensive list of all the variables available in the accompanying reconstruction database that records each of the decisions taken during the reconstruction process. This is not a theoretical discussion but a series of worked examples and useful definitions to show how the reconstruction process is implemented.

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The database used for 1891 and 1901-11 derives from K. Schürer, E. Higgs, A.M. Reid, E.M Garrett, *Integrated Census Microdata, 1851-1911, version V. 2 (I-CeM.2)*, (2016) [data collection]. UK Data Service, SN: 7481, <http://dx.doi.org/10.5255/UKDA-SN-7481-1>; enhanced; E. Higgs, C. Jones, K. Schürer and A. Wilkinson, *Integrated Census Microdata (I-CeM) Guide, 2nd ed.* (Colchester: Department of History, University of Essex, 2015).

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