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The Process of Internal Migration in England and Wales, 1851-1911: Updating Ravenstein and the Step-Migration Hypothesis*

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Abstract: Since their publication in 1885 and 1889 respectively, Ravenstein's laws of migration – which have since been summarised as eleven broad rules – have achieved something approaching universal acceptance (*Ravenstein* 1885, 1889). While most of these laws have been tested and retested using data drawn from a range of countries and time periods – invariably reconfirming the status of his hypotheses as "laws" – one hypothesis has been resistant to attempts to confirm Ravenstein's interpretation; the so-called step-migration hypothesis. Given the conflicting definitions of step-migration, this article first recounts the historiography of the term and the subsequent reason why this paper has defined step-migration as a means by which *individuals* migrated, rather than a population-level phenomenon in which out-migrants are continually replaced by in-migrants. Recent studies have invariably concluded that while step-migration may have been the predominant means by which migration occurred during periods of industrialisation in the past, it is no longer the process by which movement occurs in modern, post-industrial societies (*Plane et al.* 2005). This article therefore critically re-evaluates the evidence upon which Ravenstein based his laws. The census. Whereas Ravenstein used the published report of the 1881 census; the present study utilises the complete, individual-level manuscript census returns from 1851 to 1911. Through an analysis of approximately 160 million lifetime migration paths, this paper draws two important conclusions. First, that most people's migratory activity tended to be concentrated in a single move – usually upon leaving home – rather than in a series of steps over their lifetimes. This means the census – recording only individuals' birthplace and location on census night – captures most people's full migration histories, amplifying its value as a source for studying migration in the past. By first identifying the age range in which migration occurred, this article argues that the similarity of the age profile of migrants to those leaving home suggests they were one-and-the-same process. By then constructing synthetic cohorts and analysing the distances migrated by the population in each census between the mean ages of key lifecycle

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events – leaving home, leaving service and entering marriage – it is demonstrated that very little migration occurred beyond the first move. This is reiterated in a cohort analysis which shows very little change in the destinations of migrants between censuses. In order to search for evidence of migration post-marriage, mothers' migration paths are reconstructed from those of their co-resident children. This similarly demonstrates that only a minority of mothers migrated during their childbearing years with the majority of migration occurring prior to the birth of their first child. This article therefore shows that while 1851-1911 was not a period without migration, nor was it one of constant movement. Rather, England and Wales urbanised because the majority made a considered choice of destination *once* in their lives. This article therefore demonstrates that migration in steps was the exception rather than the rule and that the individual-level census returns are a valuable source of migration evidence between 1851 and 1911 and deserve far wider use.

Keywords: Step-Migration · Internal Migration · England and Wales · Nineteenth Century · Census

1 Introduction

In 1771, Joseph Shaw migrated 6 km to the village of Dent from his rural home in Garsdale where he was born in 1748. From there he moved to Kendal in 1776, back to Dent in 1777, before moving to Dolphinholme in 1791, to Milnthorpe in 1794 and finally to Preston in 1795 where he remained until his death in 1823. His son Benjamin on the other hand lived in the family home at Dolphinholme where he stayed until he completed his apprenticeship before meeting his future wife in Lancaster while looking for work, before settling in Preston. There is no doubt that although Joseph, who migrated in steps from the countryside to his final – urban – destination, had the more interesting migration history, this paper will argue that it was in fact Benjamin whose experience – though less interesting – was more common (*Crosby* 1991).

Since Ravenstein first suggested the notion that migration proceeds in steps in his seminal 1885 and 1889 papers on migration, the step-migration hypothesis has been widely accepted in the literature. *Ravenstein* (1885) characterised the process as when *"…the inhabitants of the country immediately surrounding a town of rapid growth flock into it; the gaps thus left in the rural population are filled up by migrants from more remote districts, until the attractive force of one of our rapidly growing cities makes its influence felt, step by step, to the most remote corner of the Kingdom."* However, the combined vagueness of Ravenstein's description and the heterogeneity of the data used to test it have resulted in a plethora of competing – and conflicting – definitions. Did Ravenstein mean that individuals migrated up the urban hierarchy throughout their lives or that each "step" – in-migrants filling the gaps left by out-migrants – consisted of distinct groups and that step-migration

was a phenomenon that occurred over generations which could only be observed in the aggregate?

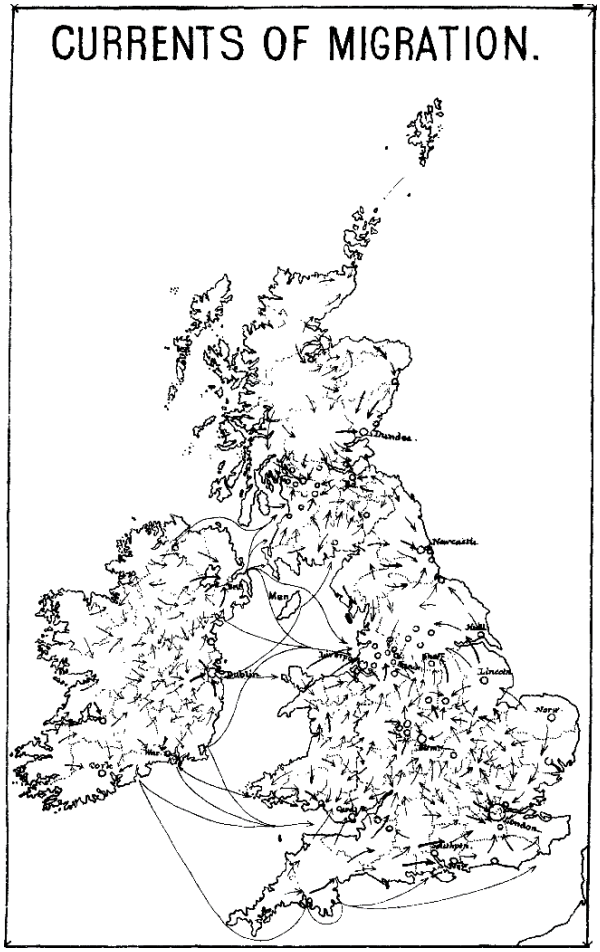
Grigg clearly interpreted step-migration to have been the means by which individuals migrated, describing Ravenstein's hypothesis as one in which "migrants did not proceed directly to their destination but by a series of steps" (*Grigg* 1977). Conversely, others have described the step-migration hypothesis as one that is more akin to chain-migration in which *populations* tended towards towns and cities (*Champion* 2019). But did Ravenstein mean that migrants simply moved *nearer* towns? Or that migrants moved up the urban hierarchy to progressively larger settlements? While the former – spatial stepwise migration – is generally accepted as being Ravenstein's own conception, others have argued that "hierarchical stepwise migration" where each step represents a progression up the urban hierarchy is a more useful way to conceptualise the process. However, as this latter conceptualisation removes the friction of distance inherent to Ravenstein's definition, step-migration now generally refers to moves that are both spatial *and* hierarchical (*Conway* 1980).

This however does not clarify whether the process of step-migration occurs at the level of the individual, within a single generation – intra-generational step-migration – or at a population level between generations – inter-generational step-migration. *Conway* (1980) recognised that the catch-all term of "step-migration" has continued to conflate these two very different processes. In inter-generational step-migration, individuals move from the village to a small town, their children move to larger towns and their children in turn move to cities (*Hägerstrand* 1957; *Pryor* 1969, 1975; *Skeldon* 1977; *Harvey/Riddell* 1975) At each step, the "gaps" which out-migrants left are filled by in-migrants coming from further down the urban hierarchy. Intra-generational step-migration by contrast is the process by which an individual migrates to the city from the countryside through a series of intermediate steps. In this conceptualisation, out-migrants are also replaced by in-migrants from further down the urban hierarchy and therefore, both interpretations could be consistent with Ravenstein's hypothesis as originally described.

Of the two however, inter-generational stepwise migration is the most problematic both conceptually and methodologically. Conceptually, inter-generational stepwise migration has variously been described as "replacement migration", "chain-migration", "hierarchical migration", "complex step migration" and "stage migration", all of which describe a group of out-migrants being replaced by a group of in-migrants. *Conway* (1980) describes this process as a "stage by stage pattern of aggregate-level migration flows through the urban hierarchy or across space towards the major urban centers *[sic]*". *Conway* makes the salient point that such a stage-by-stage progression of aggregate population flows may not be evidence of the population moving "towards" large towns and cities but rather, may simply be an artefact of an economy's spatial structure.

This is best illustrated by briefly examining the currents of migration that Ravenstein had reconstructed from the 1881 census in figure 1 and it does appear that migrants flowed in "waves" towards London for example; from Cornwall to Devon, Devon to Dorset, Dorset to Wiltshire, Wiltshire to Berkshire and Berkshire

Fig. 1: Ravenstein's visualisation of migration flows



Source: *Ravenstein* (1885)

to London. However, while it has been argued that step-migration presents itself as flows of net migration, step-migration is by no means the only – or even the most plausible – interpretation of net migration flows (*Conway* 1980). For example, if – as is conceivable from figure 1 – migrants from rural south Cambridgeshire flocked to the towns of adjacent north Essex while migrants from south Essex went to neighbouring London, this would appear – in county-level flows – as step-migration. However, it is more likely that this simply reflects regional spatial economic structure if the towns of north Essex offered the best prospects to migrants from south Cambridgeshire given the perceived alternatives while London similarly represented the best opportunities to those from south Essex. The consequence is that a random spatial pattern is erroneously interpreted as one that is ordered and

intentional (*Zhao/Hahn* 2014). However, potentially random patterns of net population flows could be distinguished from step-migration using longitudinal data. By record-linking migrants across censuses, the extent to which successive generations tended towards progressively larger towns could be quantified. However, as it would it be a considerable undertaking to produce a large enough sample from record-linking the nineteenth-century censuses of England and Wales to test this, this is not attempted here.

It is therefore most conceptually satisfying to interpret *Ravenstein's* step-migration hypothesis as the "process of human spatial behaviour in which individuals or families embark on a migration path of acculturation which gradually takes them, by way of intermediate steps, from a traditional rural environment to the modern-urban environment" (*Conway* 1980; *Hudson* 1972; *Ravenstein* 1885, 1889). While this article interprets step-migration as a phenomenon which occurs at the individual-level for conceptual and methodological reasons, it is not an intellectual history of the concept. Indeed, it does not intrinsically matter which definition is "correct". What matters is that multiple studies *have* interpreted step-migration as the process by which *individuals* progressively moved from the countryside to the towns and cities throughout their lifetime, and this definition has ramifications for the 1851-1911 censuses as a source of evidence for migration data (*Anderson* 1971; *Gwynne/Sill* 1976; *Holderness* 1970; *Llewellyn-Smith* 1902; *Mageean/Pryce* 1982; *Plane et al.* 2005; *Pooley/D'Cruze* 1994; *Saville* 1957; *Smith* 1951; *Withers/Watson* 1991). Indeed, as the census only recorded birthplace and location on census night, it misses any migratory "steps" that occurred in between. The census would not only then fail to accurately reconstruct individuals' migration paths, but any attempt to identify the determinants of migration between individuals' place of birth and place of residence would be artificial if no such move actually occurred. As the step-migration hypothesis casts doubt on the census as a source for patterns of migration, the hypothesis itself warrants rigorous testing (*Hinde* 2004).

Although previous studies, either employing the aggregated published census reports or small samples drawn from the manuscript census returns have found little evidence of the process, the step-migration hypothesis has remained a touchstone for the analysis of migration in the past (*Anderson* 1971; *Gwynne/Sill* 1976; *Holderness* 1970; *Llewellyn-Smith* 1902; *Mageean/Pryce* 1982; *Plane et al.* 2005; *Pooley/D'Cruze* 1994; *Saville* 1957; *Smith* 1951; *Withers/Watson* 1991). As *Grigg* (1977) noted that "nineteenth-century migration will not be properly understood until the enumerators' schedules for the century have been analysed" the present article utilises the complete, individual-level census returns for the years 1851-1861 and 1881-1911 – the 1871 returns are currently unavailable – to test the "step-by-step" hypothesis thanks to the I-CeM (Integrated Census Microdata) project (*Schürer* 2019).

However, that this paper finds no evidence of intra-generational step-migration has two significant implications. First, it goes against the received wisdom that step-migration was the process by which Britain urbanised in the nineteenth century (*Plane et al.* 2005). Second – and perhaps more significantly – it rebuts the assertion implicit to step-migration that lifetime migration paths taken from the census fails to

record the numerous intermediate moves which the step-migration hypothesis assumes them to have made (*Hinde* 2004). The argument goes that, if migrants moved several times between their place of birth and their enumerated place of residence on census night, any attempt to causally connect the determinants of migrating with the socio-economic context of the two locations would be to incorrectly imply the transfer occurred in a single move. It also assumes that the socio-economic context as reconstructed from the CEBs was an accurate reflection of the circumstances in which the move occurred, even though the move might have occurred years prior to the census being taken (*Hinde* 2004).

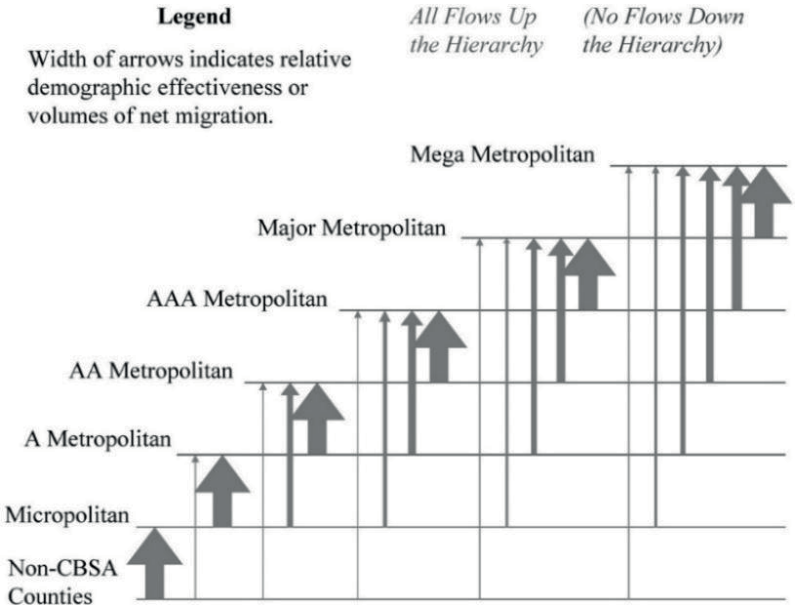
This paper demonstrates that these reservations are misplaced. The majority of the population made only a single major move in their lives upon leaving either the parental home or – in the case of males born where farm service still predominated – upon leaving service. This makes it perfectly plausible to assume that individuals' place of residence on census night is an adequate approximation of their first destination upon leaving the parental home – as proxied by their place of birth – as well as infer a causal relationship between the socio-economic contexts of an individuals' place of birth and place of enumeration on census night. Therefore, by estimating the ages at which migrants both left home and left service, it is possible to estimate the age groups that had likely only left the parental home recently prior to census night. By then analysing the extent to which the destinations of different cohorts changed over time – as well as mothers' whose migration paths are reconstructed from the birthplaces of their co-resident children – this article demonstrates that individuals' place of birth and place of enumeration on census night were most likely connected by a single move, a move which the census captures. Therefore, although this paper leaves room for the possibility that step-migration was a process of population transfers toward towns and cities at the aggregate level, it demonstrates first and foremost that it decidedly was *not* a phenomenon that operated at the individual-level. This paper therefore represents a step towards restoring historians' faith in the nineteenth-century censuses as a source for understanding the determinants of British urbanisation more fully.

2 Data and methods

By defining step-migration as the process by which *individuals* migrate up the urban hierarchy in short, progressive steps does at least have the advantage of making the process one that is readily identifiable, and which could exhibit itself in one of two ways. Either it will present as an increase in the proportion of the population that become resident in larger and larger settlements over time – the "hierarchical stepwise migration" – as illustrated in figure 2 in which migrants move up the urban hierarchy, with most moving to the next level, or it will present spatially as migrants move *towards* towns and into their commuter belts, if not necessarily into the urban settlements themselves.

Ideally, individuals would be tracked across the censuses for evidence of migration throughout their lifetimes. However, as the Integrated Census Microdata

Fig. 2: A Ravenstein-style migration system



Source: *Plane et al.* (2005)

(I-CeM) on which this paper is based is not record-linked, the population cannot be tracked directly over time (*Schürer* 2019). Substituting for this, three distinct methods with which to measure step-migration are used; age-specific migration paths, cohort analysis and pseudo-longitudinal analysis. Firstly, age-specific migration produces synthetic cohorts in which the age distribution of the population is treated as if it were a single cohort passing through time. This method suggests that most migrants were not making several progressive moves up the urban hierarchy over the life-course but were instead making a single move upon leaving home or – in the male case where farm service still predominated – upon leaving service. Secondly, a cohort analysis that traces the cohort which had just left home in one census across subsequent censuses similarly demonstrates that there was very little change in the proportion that had moved "up" the urban hierarchy beyond the location they had migrated to upon leaving the parental home. Finally, a pseudo-longitudinal analysis was conducted which reconstructs the migration paths of mothers through the birthplaces of their co-resident children. This analysis again corroborates the findings of the first two methods, showing that most migratory activity occurred prior to the birth of the eldest child, rather than continuing throughout the life-course, gradually moving up the urban hierarchy. Using these methods, the intra-generational interpretation of step-migration should no longer be considered a "law". (In addition to the present study see: *Plane et al.* 2005; *Anderson* 1971; *Mills/Schürer* 1996).

In order to analyse migration using census material, both individuals' birthplace and place of residence on census night must be matched to a GIS (Geographical Information System) and the urban hierarchy must be defined. While the methodology adopted to match individuals' place of birth as transcribed to a GIS will be comprehensively detailed in a forthcoming article, it is worth briefly restating the method here. Firstly, birthplace information in the original manuscript census returns was transcribed as text strings in the form PARISH / TOWN | COUNTY | COUNTRY in line with the original census instructions, with each field being completed with as much – or as little – information as originally recorded. Matching these strings to the GIS was complicated by ambiguities in the birthplace strings; chiefly misspellings, non-existent places, e.g. ABBOTS LANGLEY | STAFFORDSHIRE | [BLANK] or strings that could refer to multiple places, e.g. NEWTON | CAMBRIDGESHIRE | [BLANK]. Despite errors and ambiguities, the core principle of the matching process was to believe that the birthplace individuals provided – however ambiguous – was a meaningful one. Consequently, in order to match with a known location, the original birthplace string was changed as little as possible. For example, if an individual gave simply LONDON | [BLANK] | [BLANK] as their place of birth or NEWTON | CAMBRIDGESHIRE | [BLANK] individuals were matched to *all* the parishes to which they may have been referring. In these cases, all the parishes that were considered part of London, and all the parishes in Cambridgeshire which included a settlement called "Newton", respectively.

The algorithm matching birthplace strings to a GIS is designed to find the shortest known place name that matches the most characters in each word in the PARISH / TOWN part of the birthplace string, with the fewest redundant characters. For example, S PANCRAS | LONDON | [BLANK] matches to both Pancras, Devon and St Pancras, London on seven characters, "PANCRAS", with one redundant character, "S". As "Pancras" is shorter than "St Pancras", the first parse of the algorithm matches the string to Pancras, Devon. In pre-processing, all strings were matched to a standardised version of the county as stated in the birthplace string. As the "stated" county for the string S PANCRAS | LONDON | [BLANK] was London, a second parse searches for the best match closer to London than Devon, in both London and counties adjacent to it. The condition of matching to the shortest place name is removed in the second parse, so although S PANCRAS matches both Pancras, Devon and St Pancras, London on seven characters with one redundant character, St Pancras, London is closer to the "stated" county than Pancras, Devon. The second parse therefore reallocates the match to St Pancras, London. Similarly, ABBOTS LANGLEY | STAFFORDSHIRE | [BLANK] is matched to Abbots Langley, Hertfordshire rather than Abbots Bromley, Staffordshire. Even though Abbots Bromley is the best match either in or adjacent to the county stated, it matches just six characters with seven redundant characters compared to Abbots Langley, Hertfordshire which matches on thirteen characters with zero redundant characters. The results of this algorithm is compared to the results of one based on Levenshtein Distances, which match a string to a known place name that requires the fewest "edits" to the string to produce a match (*Schürer et al.* 2015). Where there is a conflict between the places

which the two methods have matched a string to, precedence is given to the place that is closest to the county as stated in the string.

As already outlined, the core principle underlying the matching process is the assumption that all birthplaces were intended to be meaningful. Therefore, individuals are matched to *all* the parishes to which they may have been referring. For example, those whose birthplace string was APPLEDORE | [BLANK] | [BLANK] were matched to Appledore in both Kent and Devon. However, if they were resident in Kent they were unlikely to have been born in Devon. Therefore, rather than being matched to *all* possible birthplaces, individuals were matched to the parish which was the shortest distance from their parish of residence.

In order to identify migration up and down the urban hierarchy, towns and cities were ordered by size and classified into quintiles, grouping together urban settlements which combine to form 20 percent of the urban population of England and Wales outside of London. A GIS of these towns and cities was created from the dataset published by *Smith et al.* (2018) and spatially matched to individuals' parish of birth. London is categorised separately at the top of the urban hierarchy owing to its size. The number of towns and cities in each quintile and the labels used to describe them is summarised in table 1 and follow those in *Plane et al.* (2005). Micropolitans represent the smallest urban settlements and are therefore on the lowest rung of the urban hierarchy while London is at the top with "Major Metropolitans" just below it. The colour codes of each metropolitan area correspond to the colours in the appendix and indicates which urban classification each settlement had been allocated and its population in each census year.

Tab. 1: Number of settlements in each urban classification, England and Wales 1851-1911

Urban classification	1851	1861	1881	1891	1901	1911
Major Metropolitan	3	3	4	4	4	5
AAA Metropolitan	9	10	13	13	14	17
AA Metropolitan	19	22	33	33	37	43
A Metropolitan	39	46	66	70	86	100
Micropolitan	81	90	146	187	224	238
Total towns and cities	150	170	261	306	364	402

Source: Author's calculations using data from *Smith et al.* 2018

As the manuscript census returns are cross-sectional, the following sections analyse migration at key life events; leaving home, leaving service and marriage. Each of the following sections shows that the evidence is not consistent with the step-migration thesis. Firstly, migrants had a similar age profile to those leaving home, suggesting that the two events were part of the same process, with most migratory activity concentrated in early adulthood rather than spread over the lifecycle as migrants moved up the urban hierarchy. Secondly, rural migration to the towns and

cities is analysed and the extent to which servitude represented a migratory "step" migration is examined. Here, whereas rural-born male farm servants only moved to the towns and cities upon leaving service, rural-born females tended to enter urban domestic service. However, rather than using the town in which they worked as stepping-stones to larger, more distant towns, they largely stayed there upon leaving service. Thirdly, the extent to which the urban-born population moved up the urban hierarchy is considered. Here the evidence suggests that migrants moving up the urban hierarchy were outweighed by the number moving down, resulting in no net upward migration amongst the urban-born. The last section conducts a pseudo-longitudinal analysis by tracking mothers' migration paths through the birthplaces of her co-resident children. This shows that the moves which occurred prior to the birth of the eldest co-resident child were the most significant. When combined with the rest of the evidence presented in this article, individuals' migration paths were clearly not stepwise, but rather, were concentrated in their first, major move.

3 Age profile of migrants

Although the theory of step-migration has garnered widespread acceptance, it makes little sense in light of what else is known about the demographic history of late nineteenth- and early twentieth-century England and Wales. Firstly, as *Ravenstein* (1876) first observed and others have replicated, the young and *single* were the most migratory. When this is put into the context of the age at leaving home, leaving service and then marriage, it represents a very small timeframe for step-migration and the several moves towards ever-larger towns and cities to occur. Table 2 shows the ages of leaving home, leaving service and marriage for males and females across England and Wales between 1851 and 1911 (*Day* 2018. See also: *Hajnal* 1953; *Schürer* 1989, 2003).

This table shows that the gap between leaving home and marriage shrank from around 7.5 years to 6.5 years in the period between 1851 and 1911, despite a rising

Tab. 2: Mean ages of key lifecycle transitions, England and Wales, 1851-1911

Year	Age at Leaving Home		Age at Leaving Service		Age at Marriage	
	Male	Female	Male	Female	Male	Female
1851	19.2	17.8	22.5	22.9	26.7	25.7
1861	19.2	17.7	21.9	22.5	26.2	25.3
1871	n/a	n/a	n/a	n/a	n/a	n/a
1881	20.1	18.0	22.2	22.6	26.4	25.2
1891	20.5	18.6	22.7	23.1	26.9	25.8
1901	21.1	19.3	23.1	23.5	27.2	26.2
1911	21.6	19.7	23.8	23.7	27.6	26.3

Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

age at marriage as the age at leaving home increased by approximately two years for females and two and a half years for males, squeezing the mean number of years spent in service by around a year in both the male and female case. Therefore, if – as has already been demonstrated in countless studies – young, unmarried men and women were by far the most migratory, the window of time they had to migrate up the urban hierarchy between leaving home and marriage was relatively limited (*Bowley* 1914; *Hill* 1925; *Hollingsworth* 1970; *Llewellyn-Smith* 1902; *Ravenstein* 1876). In order to demonstrate that migration was indeed compressed into a relatively narrow age window – largely between the ages of 15 and 24 – this article extends the method proposed by *Hinde* (2004) and shows that migratory activity peaked in the 15-24 year-old age group throughout the period between 1851 and 1911 in England and Wales.

Following the logic that *Net Migration* = (*Population*$_{(t+1)}$ − *Population*$_t$) − *Births* − *Deaths*), mortality rates ${}_nM_x$ and survival probabilities ${}_nP_x$ are calculated in order to estimate intercensal age-specific net migration rates (*Newell* 1988; *Hinde* 1998). Intercensal net migration figures were not calculated for the periods 1861-1871 or 1871-1881 as the 1871 mortality figures in the Registrar-General's Decennial Supplements did not distinguish between male and female deaths. The age- and sex-specific mortality rates across approximately 600 registrations districts (RDs) between 1851 and 1911 were then used to estimate the population that survived the intervening decade in each of the approximately 2,000 registration sub-districts (RSDs) into which the RDs were sub-divided. Each parish is a further sub-division of each RSD. Details of the spatial units in which official statistics were collected and their relationship to one another are fully described in *Satchell* (2011). This approach narrows the window in which migration must have occurred to a ten-year period. In order to analyse the age groups in which migratory activity was concentrated, it would be useful to calculate the population turnover. This however requires being able to calculate the number of both in-migrants and out-migrants in each age group in each decade which is not possible from either the published census reports or the manuscript census returns. Therefore, the usual formula for population turnover could not be used (*Dennett/Stillwell* 2008), and a "pseudo" measure of population turnover is used instead. In the formula below, $D_i^{\alpha s}$, $O_i^{\alpha s}$ and $P_i^{\alpha s}$ respectively, represent in-migration, out-migration and population of those in age group α and sex group *s* in area *i*. In this case, each area *i* represents each RSD.

$$TO_i^{as} = \left(\frac{D_i^{as} + O_i^{as}}{P_i^{as}}\right)$$

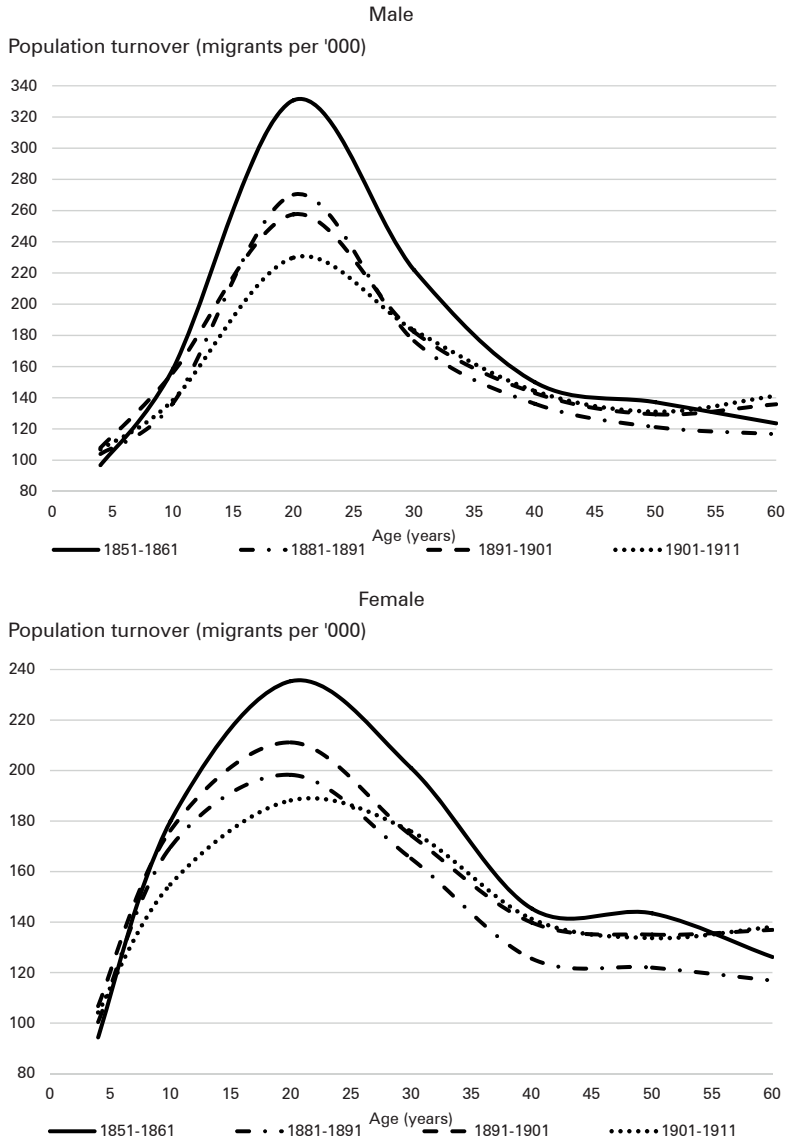
However, as the absolute number of in- and out-migrants in each age group is unknown, the number of *net* in- and out-migrants must substitute. Therefore, for each age group, RSDs were classified according to whether there were net in-migrants or net out-migrants. For each age group in each intercensal period, the total net in- and out-migrants across the RSDs substitute for the absolute number of in- and out-migrants – $D_i^{\alpha s}$ and $O_i^{\alpha s}$ respectively – and are divided by the total population of that age group – $P_i^{\alpha s}$ – in much the same way as the formula above.

Between 1881 and 1890, 327 of the 2,110 RSDs made a net gain of 175,807 males aged 20-29 while 1,783 RSDs made a net loss of 450,755 males in the same age bracket of a total population of 2,318,531. The discrepancy between the two figures is largely explained by net emigration (*Baines* 1986). Therefore; $\frac{(175{,}807 + 450{,}755)}{2{,}318{,}531} = 0.27$ or more precisely, 270.2 per thousand. However, as figure 3 underestimates actual population turnover, they must be interpreted as being indicative *only* of migrants' age structure for two reasons. Firstly, as in- and out-migration is calculated from net migration figures, the absolute number of both in- and out-migrants is likely to be higher. Secondly, as only those that moved *between* RSDs are counted as migrants, those that migrated within an RSD are not included in these figures.

Despite these shortcomings, and despite clear differences in the volume of migratory activity between males and females and significant changes over time, figure 3 demonstrates that there was an extremely clear age profile to migratory activity. Although male migration appears to have been concentrated in a far shorter age range compared to the female experience – whose migratory activity was a little more spread out over the age range – for both males and females, the 15-24 age group emerges as the age group in which most migration occurs. When this is compared to the age profile at which the population either leaving the parental home or leaving service, it appears to exhibit an extremely similar age profile which suggests that the process of leaving home and migrating were part of one-and-the-same process.

Figure 4 shows the year-on-year increase in the age-specific proportion of the population that were either no longer in the parental home or no longer in service. In 1881 for example, 48 percent of 21 year-old males had exited home or service compared to 56 percent of 22 year-olds. This is graphed as an 8 percent increase in the proportion leaving home at the age of 22. Like figure 3, there are some noteworthy differences between the male and female experience. The female process of leaving home exhibits a rapid "take-off" from the age of 15 whereas the male process did not. However, what is clear is that the central 50 percent of the population – in all census years – were leaving home or service and becoming independent between the approximate ages of 20 and 29; the same age group in which migratory activity was concentrated. Therefore, although figure 3 shows that migratory activity did not *solely* occur in the 20-29 year age group, figure 4 shows that nor did the leaving home process. Rather, both sets of graphs illustrate that the age profile of the leaving home process was largely coincident with the age profile of migration. Whereas figure 3 might previously have been interpreted as evidence that migration continued throughout the lifecycle – in support of the step-migration hypothesis – when it is combined with figure 4, it is perhaps more convincing to argue that moves later in the lifecycle are evidence of delayed first moves from the parental home rather than multiple moves. This contradicts *Llewellyn-Smith* (1902), who interpreted a higher average age among migrants to London as being consistent with step-migration theory given that migrants would be older at the point of their final migratory step to the city compared to their first migratory step out of the countryside. While this is consistent with what would be expected if migration were indeed stepwise, in light of the evidence presented here, a more convincing interpretation might he that

Fig. 3: Age-specific pseudo population turnover, England and Wales 1851-1911

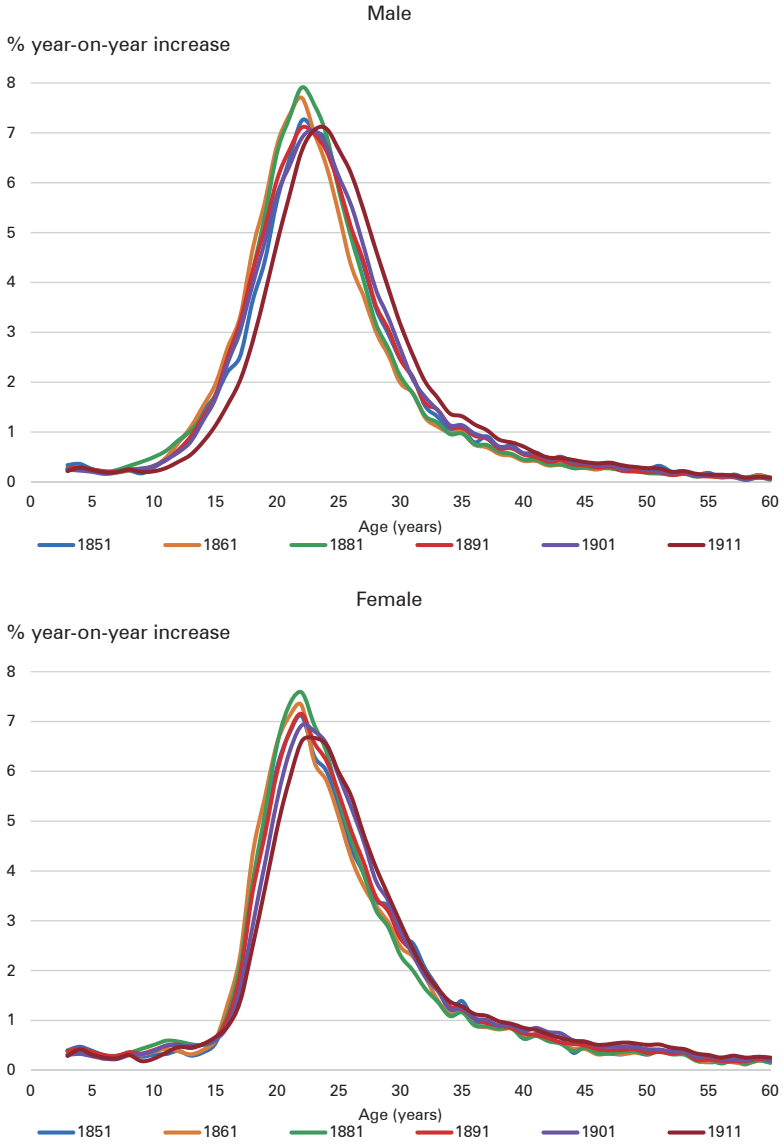


Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

migrants to London were simply delaying a first move and giving themselves more time to save and accumulate the resources necessary for such a move (*Williams/ Baláž* 2012).

This section has argued that if the step-migration hypothesis were true, these multiple steps would need to be completed within a relatively small window, contra-

Fig. 4: Year-on-year increase in % leaving home or service England and Wales, 1851-1911



Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

dicting not only the evidence presented here and elsewhere, but also Ravenstein's "law" of migration that the young and unmarried that were the most migratory (*Ravenstein* 1876). Instead, leaving the parental home appears to have been the principal mechanism by which migration occurred, and that moves later in life are more likely to have been the product of leaving home later, rather than multiple stepwise

moves. In order to clarify this process further, the remaining sections examine the extent to which other key life events; lifecycle service and marriage, represented "steps" in the step-migration hypothesis and whether any moves that were taken subsequent to leaving home were indeed stepwise moves up the urban hierarchy. The next section considers whether entering lifecycle service represented a first migratory "step" up the urban hierarchy for male and female migrants or can instead be better described as "circulating" migration (*Kussmaul* 1981).

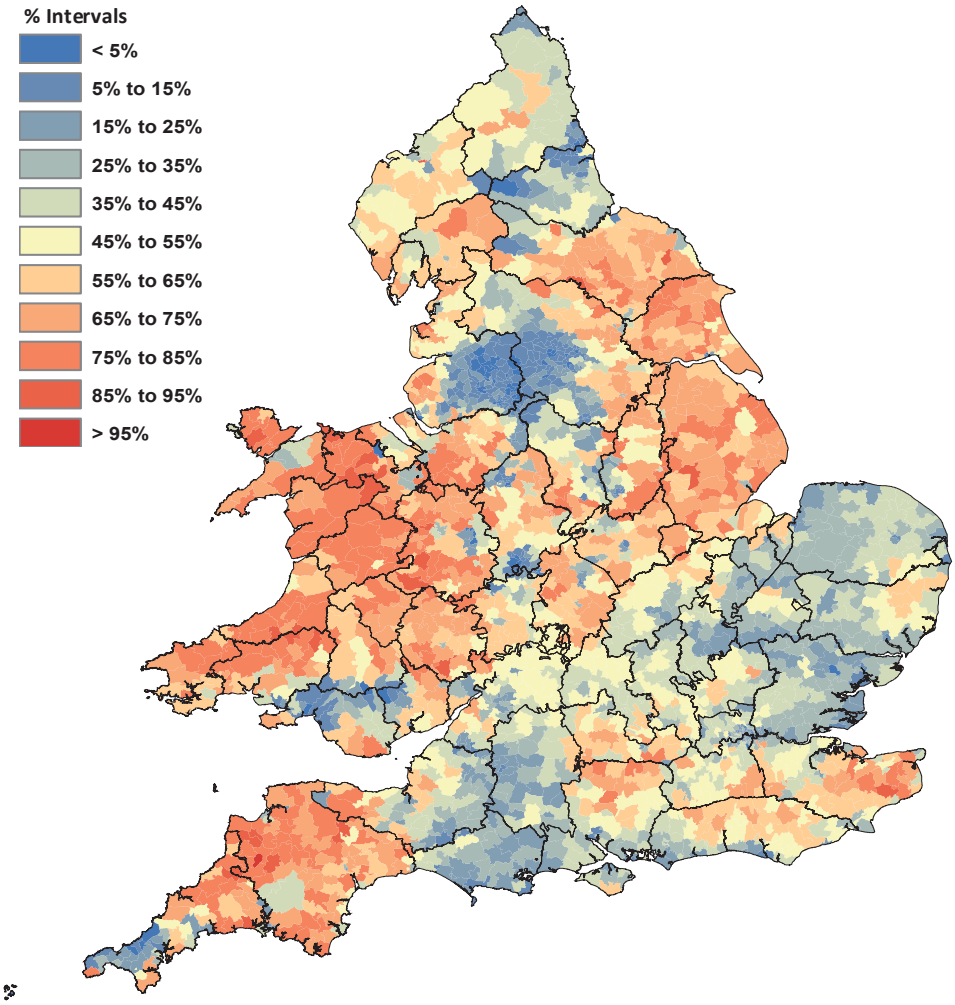
4 Leaving home and entering service: a first "step"?

Before analysing age-specific migration paths, it is useful to acknowledge that in large parts of England and Wales, lifecycle service was an important institution; men predominantly entering farm service while women mainly went into domestic service. Therefore, did entering service represent the first "step" in migrants' journeys up the urban hierarchy? Firstly, it is necessary to identify the population for whom service represented the "modal" experience upon leaving the parental home. Figures 5 and 6 show the proportion of males in 1851 and 1911 that had entered service upon leaving home. This is estimated by first calculating the male and female mean age at leaving home in each RSD in each census year (*Day* 2018). Those that were aged within two years of the mean age at leaving home and were not resident with parents approximate the population that had likely left home shortly before census night. The proportion of this group that were servants therefore serves as an estimate of the likelihood of entering service upon leaving home.

Although it is evident in the male case that the institution of service was in terminal decline throughout the second half of the nineteenth century and had all but disappeared from the south-east by 1911, farm service still played an important – if diminished – role in the rural labour market across Wales, the South West of England, Lincolnshire, the North and East Yorkshire Ridings and Cumberland in 1911. In the female case in figures 7 and 8, service still predominated across England and Wales throughout the period. Despite straw-plaiting and lace-making in the Home Counties providing women with an alternative to domestic service until the industry was killed off by foreign competition, while textile employment in the north-west similarly gave women an alternative to lifecycle service, domestic service remained the principal route out of the parental home in nineteenth-century England and Wales (*You* 2020).

If leaving home was the first step of many, one would expect evidence of additional moves. However, as the dataset used here is not record-linked and it is not possible to reconstruct individuals' migration paths directly, figure 9 shows the average distances migrated by the time individuals had left home, left service or had married. Like figures 5-8, this has been estimated by calculating the mean age at leaving home, leaving service and entering marriage – as in table 2 – for each RSD in each census year. Only those that were aged within two years of the average age of leaving home/service/marriage *and* were not at home or in service were included in the measure. This was so it could be plausibly inferred they had only left home/

Fig. 5: Estimated % of males entering service upon leaving home, England and Wales 1851

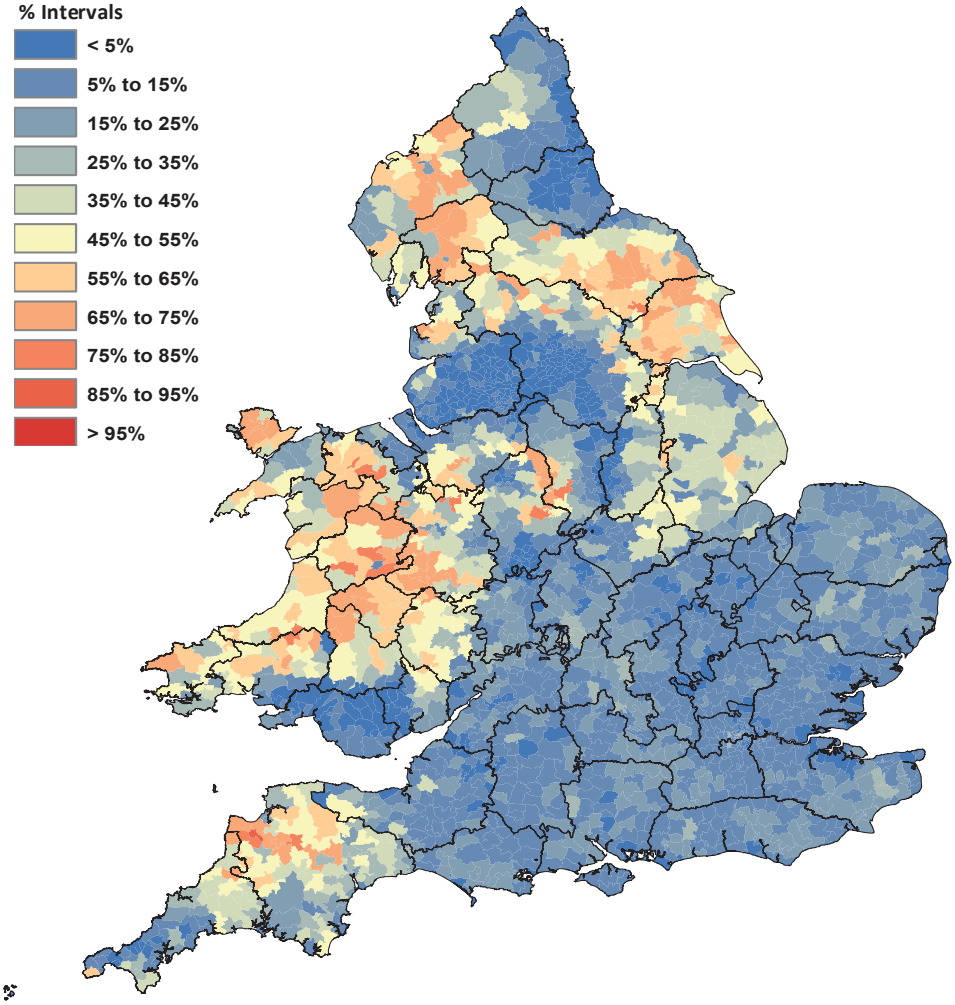


Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

left service/entered marriage recently prior to the census being taken and so were unlikely to have made any intermediate steps between birth and census night. Figure 9 distinguishes between the distances travelled upon leaving home by those that entered service and those that did not.

The "farm service" and "non-service" districts in figure 9 are defined as those RSDs in which more/less than half of *males* became servants upon leaving home using the same methodology as figures 5-8, as males that entered service were overwhelmingly farm servants and the manuscript census returns rarely identify agricultural servants specifically. The differences are striking. Males that left home

Fig. 6: Estimated % of males entering service upon leaving home, England and Wales 1911

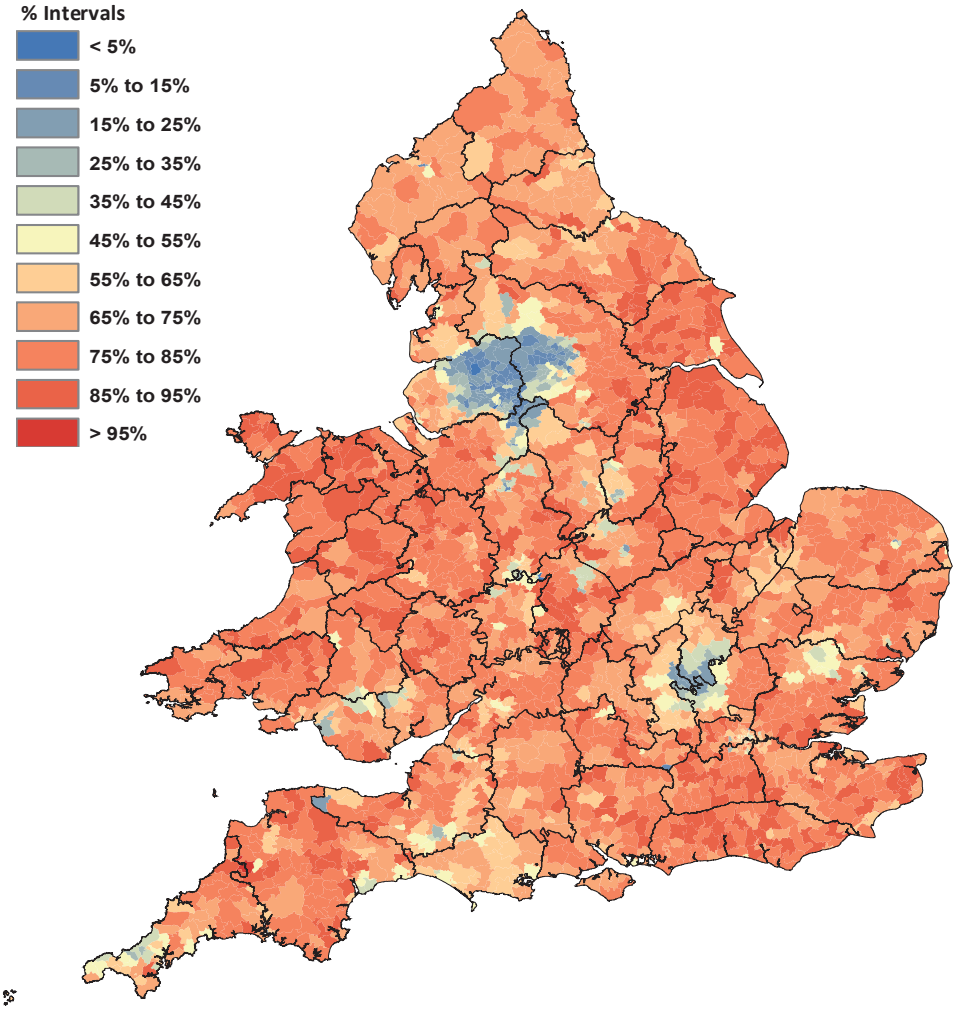


Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

to enter farm service were far and away the least migratory group, moving on average around 15 km from the parental home to enter service which is in stark contrast to the distance migrated by those that did not enter service. Those that left home and did not enter service had migrated – on average – around the same distances as by the age at marriage, implying that the majority of those not entering service did not migrate beyond the move made at leaving home. Once individuals left service however, the distances migrated increased dramatically.

Although the population at the age of leaving service also includes those that had never been in service; as this is not a record-linked dataset it is not possible to

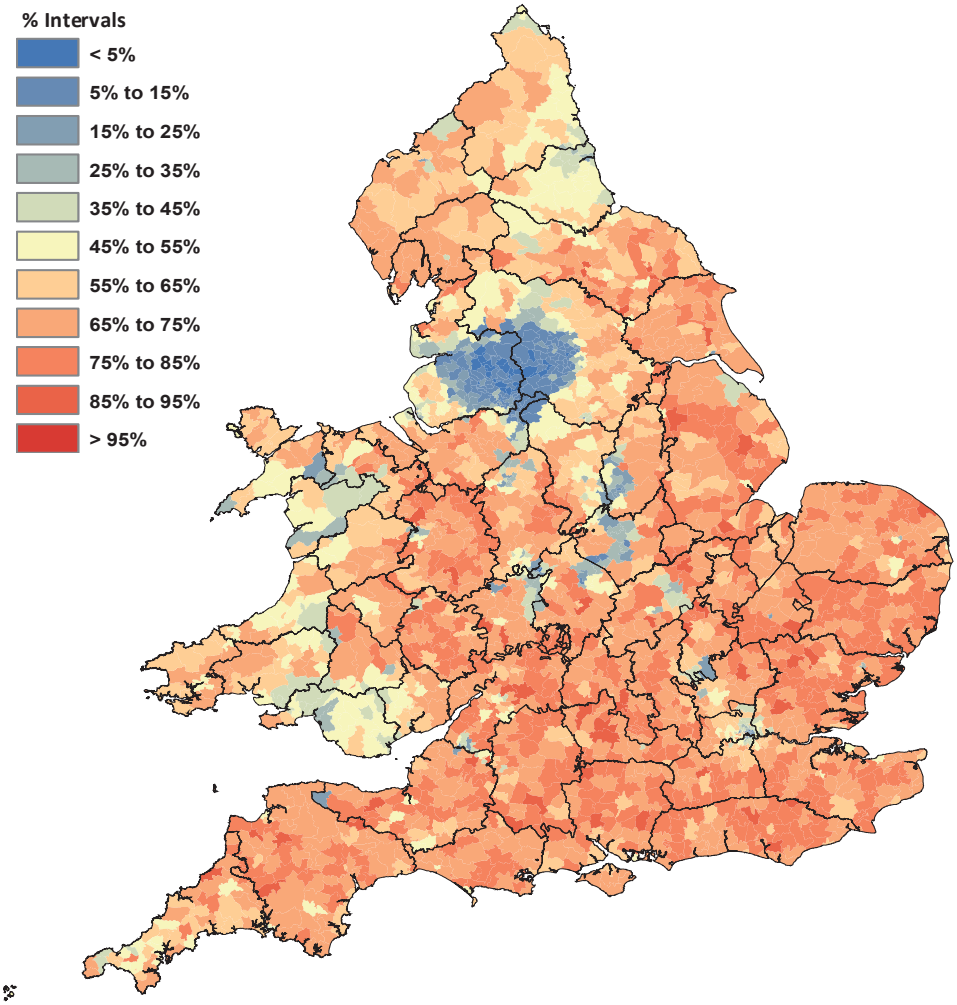
Fig. 7: Estimated % of females entering service upon leaving home, England and Wales 1851



Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

determine whether individuals had ever been servants prior to census night, the implication is clear. Farm service simply delayed the moment in the lifecycle at which migration occurred rather than deterring it completely. Like those that had not entered service however, former farm servants tended not to migrate any further between leaving service and entering marriage, indeed the average distance migrated from individuals' birthplaces actually went down slightly between leaving service and marriage. This suggests that migrants were not moving in steps – making a series of small migratory steps towards ever-larger settlements at each lifecycle stage – but instead that they were making a single move at the point of either leaving

Fig. 8: Estimated % of females entering service upon leaving home, England and Wales 1911



Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

home or leaving service. However, figure 9 also shows that there was at least some movement between leaving home and marriage in the female case. For most males on the other hand, the average distance migrated hardly increased between leaving home and marriage; any difference between the two largely being accounted for by farm service. So, was this extra distance migrated by females between leaving home and marriage evidence of step-migration – a substantial proportion of the population moving a relatively short distance up the urban hierarchy – or evidence of a small number becoming more migratory between lifecycle events? Figure 10, however, shows that it was likely to be the latter. It shows that there was a significant

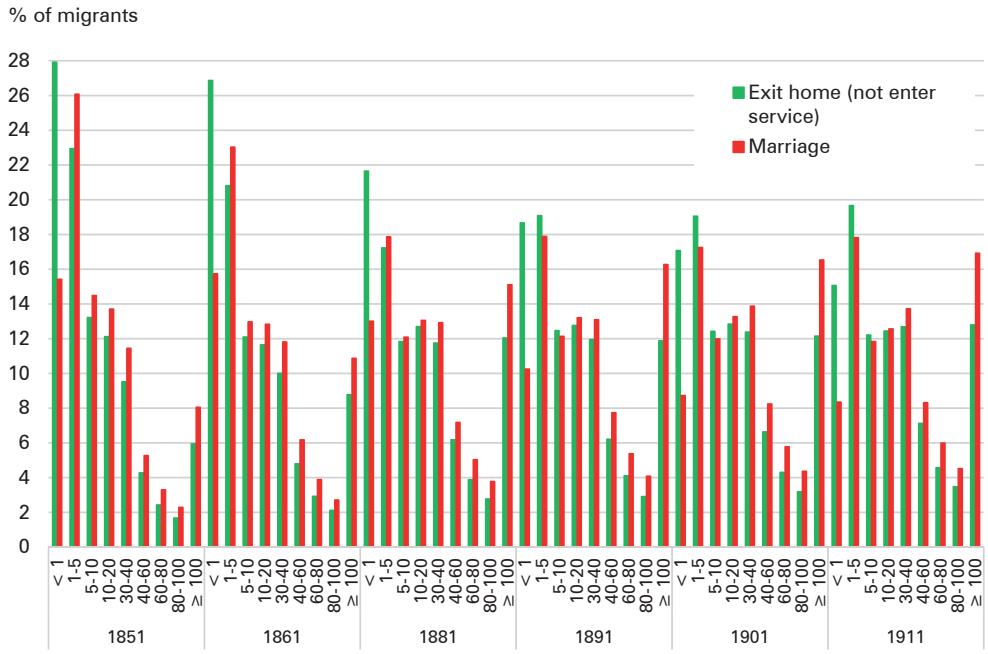
Fig. 9: Mean distance (km) migrated by the rural-born population at each lifecycle stage, England and Wales 1851-1911

Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

decline in the proportion of "non-movers" – those that migrated less than 1 km – between the ages of leaving home and marriage. This suggests that there was not necessarily stepwise migration – which would more likely have expressed itself as drop in the <1 km bracket and a proportional increase in the ≥100 km bracket as migrants moving out of one distance interval were replaced by those moving into it in a "wave-like" motion (*Redford* 1926). Instead, a significant proportion of those that had not moved upon leaving home, suddenly did so upon marriage. Consequently, rather than being evidence of step-migration – moving upon leaving home and then again upon marriage as is implied by figure 9, figure 10 shows that, although the majority moved upon leaving either home or farm service, a minority made no significant move at either of these milestones, instead delaying any migration until they were married. Therefore, rather than being evidence of multiple "stepwise" moves, closer scrutiny suggests the first move was simply delayed.

Whereas figure 10 suggests that figure 9 was evidence of a small proportion migrating between leaving home and marriage rather than evidence of a more widespread secondary move, figure 11 demonstrates that whatever the mechanism, it did not translate into migration up the urban hierarchy. Rather, the type of settlement they were in when they left home was the same type of settlement they were likely to be in upon getting married. Although figure 11 could be masking a significant volume of movement up and down the urban hierarchy between lifecycle events, the

Fig. 10: Distances migrated by rural-born females leaving home (not into service) vs. marriage, England and Wales 1851-1911

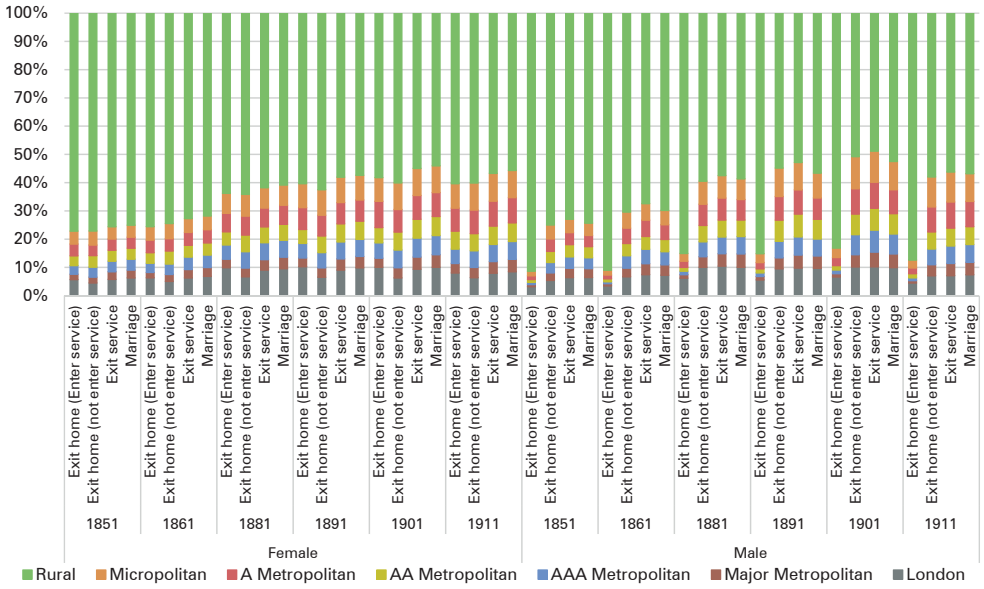


Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

point remains that there is no evidence of step-migration in the aggregate. Indeed, if migrants had moved in a stepwise fashion, one would have expected an ever-larger proportion to be located in ever larger settlements at each successive lifecycle stage. This was evidently not the case; with the exception of males that move to the towns upon leaving service rather than leaving home.

Clearly then, a cross-sectional analysis of the data suggests that migrants tended to make a single move between leaving home and marriage. While males that entered farm service delayed their move to the towns and cities, those that did not made their primary move upon leaving home, and did not migrate again. Similarly, a large proportion of females that did not enter service upon leaving home appear to have delayed migrating until marriage – figure 10 indicates that 20-30 percent between 1851 and 1911 had migrated less than 1 km from their birthplace upon leaving home, but dropped to half this by the time they married. While the evidence presented shows no evidence of step-migration, a cross-sectional study assumes that different cohorts had comparable experiences. It is useful therefore to try and follow the destinations of each cohort through the censuses in figure 12. Figure 12 removes the effect of urbanisation inflating the number of rural-urban migrants over time, towns and cities are defined by their boundaries as they existed in 1911 throughout the period 1851-1911. Figure 12 therefore includes only those that were neither in service nor co-resident with their parents and who were aged within two years of the mean age at leaving service for their RSD of birth. For example, if the

Fig. 11: Destinations of the rural-born at each lifecycle stage, England and Wales, 1851-1911



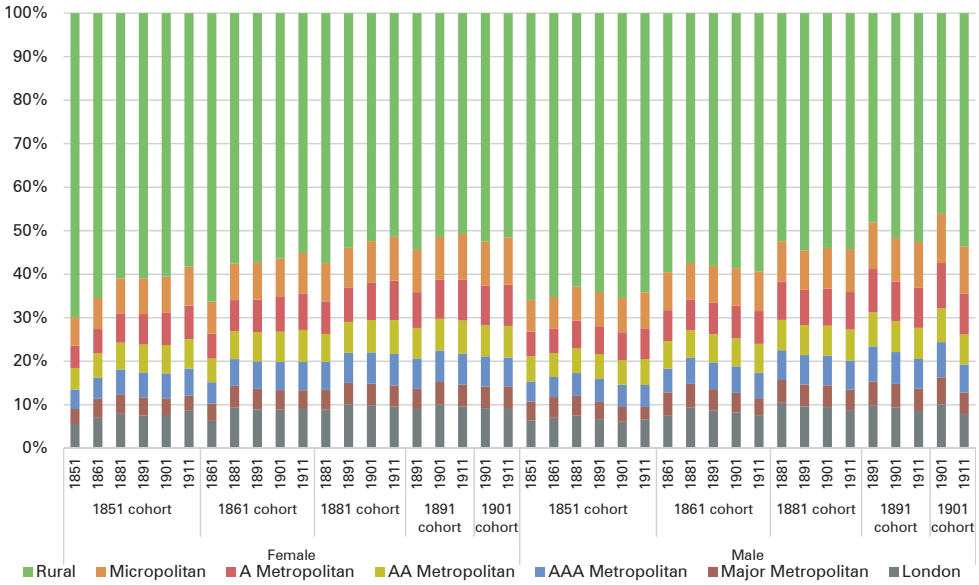
Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

mean age of males leaving service in 1851 was 23, those that were neither at home nor in service between the ages of 21 and 25 in 1851 are included and form the same cohort as those aged 31 to 35 in 1861 that were similarly neither at home nor in service.

Broadly, the picture in figure 12 is one of notable similarity with that shown in figure 11. Overall, there was very little change between the proportions of each cohort found in each settlement type between censuses which suggests a remarkable level of stability, confirming the impression made in figures 9-11 that individuals tended to migrate only once in their lifetime. However, although a relatively minor increase; the proportion of the 1851 and 1861 female cohort migrating to a town or city increases from 30.0 percent to 41.7 percent between 1851 and 1911 and from 33.7 percent to 44.9 percent between 1861 and 1911 respectively. While most other changes in the period can be reasonably attributed to random fluctuations, these increases necessitate a little explication.

Firstly, it is worth noting that no one type of urban settlement appears to have grown at the expense of another, but rather towns and cities from across the urban hierarchy attracted an ever-larger proportion of migrants from the countryside. If individuals' migration paths were stepwise, one would expect larger towns to grow disproportionately faster than towns lower down the urban hierarchy. However, even if this pattern were a function of step-migration – migrants from the countryside relocating to a micropolitan and then those they displaced migrating further up the urban hierarchy and so on – an increase from 30 percent to 40 percent of the

Fig. 12: Destinations of the rural-born population by cohorts upon leaving service in each census year, England and Wales 1851-1911 (Extent of towns/cities held constant throughout period at 1911 boundaries)



Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

rural-born population migrating to towns represents only a quarter of all rural-urban migrants. The remaining three-quarters likely having not migrated beyond the moment they left home.

Secondly, around half of each cohort were still resident with their parents when aged at the "mean" age of leaving home. Fast-forward ten years to the next census and around 85 percent had left home. Although unavoidable in the absence of record-linked data, this age group now includes many that were not included in the first cohort. If the two groups of "early" and "late" leavers had differing propensities to migrate to towns and cities, one would expect it would present itself in the manner shown in figure 12. However, as this dataset is not record-linked, it is not possible to identify the early and late leavers and their characteristics individually; otherwise the theory that rural-born females were more likely to migrate to towns and cities the later they left the parental home, could be tested. For the moment then, it does seem a plausible deduction, especially as it accords with the evidence presented in figures 3-4 which shows a remarkable congruence between the age profiles of migration with those of leaving home. This suggested that migration in later life was not necessarily evidence of step-migration, but perhaps a delayed exit from home instead.

This section has argued that rural migrants – except males entering farm service – tended to go to towns and cities upon leaving home and that most migrants remained in the same town or city that they first migrated to (*Gritt* 2000). In addition,

no group appears to have migrated up the urban hierarchy beyond their first move. So, if rural-born migrants did not tend to migrate in steps, were the urban-born population more likely to continue moving "up" the urban hierarchy throughout their lifetime?

5 Urban-born migrants

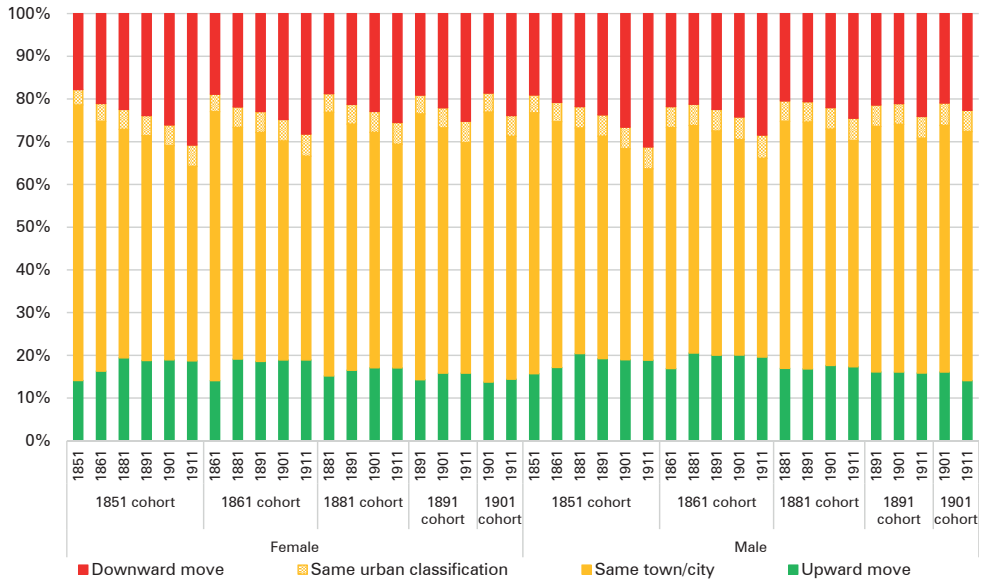
The methodology used to identify the cohort in figure 12 is repeated in figure 13, which shows the proportion of the urban-born population that had either stayed in their hometown, moved to a town or city in the same urban classification or had moved "up" or "down" the urban hierarchy. London-born migrants are excluded as they were at the top of the urban hierarchy and could therefore not move either "up" or "across". It is striking that the pattern in in figure 13 mirrors that of figure 12. Like the increase in the proportion of the 1851 and 1861 cohorts of migrating to towns and cities shown in figure 12 – a probable consequence of differing propensities between early and late leavers to migrate to towns and cities – the 1851 and 1861 urban-born cohorts similarly became marginally more likely to have moved up the urban hierarchy by 1881; from around 11 percent to 17 percent of the total.

However, this should not distract from the principal observation that the modal experience was to stay in the same settlement in which one was born. It is also of note that each cohort became increasingly likely to move down the urban hierarchy over time. From 1851-1911 the urban-born population moving down the urban hierarchy increased from 22 percent to 32 percent of the total. Although a relatively modest increase, it means that in the aggregate, the number migrating down the urban hierarchy always exceeded those migrating up. In terms of stepwise migration then, it appears that it was neither spatial – transferring individuals between settlements – nor hierarchically pushing the population up the urban hierarchy.

Given that figure 13 shows very little migration between census years in each cohort, the move migrants made upon leaving home must have been the most significant move which individuals made in their lifetime. Figure 14 clarifies this and shows very little change in the proportion of the population that had migrated up or down the urban hierarchy between the mean ages of the key lifecycle events; leaving home, leaving service and entering marriage, implying that the overwhelming majority of the moves that did occur, occurred upon leaving home. Like figure 13, figure 14 shows remarkable stability in the proportions of the population found in each settlement type across the three lifecycle stages, suggesting that for the majority, leaving the parental home was their sole migratory move. However, the observations made in both figures 13 and 14 which require greater exposition is the number of moves *down* the urban hierarchy, consistently outnumbering those moving up. Of these downward moves, around 60 percent of them were to rural parishes and the distances travelled by these migrants tended to be shorter than the distances travelled by the upwardly mobile as is shown in figure 15.

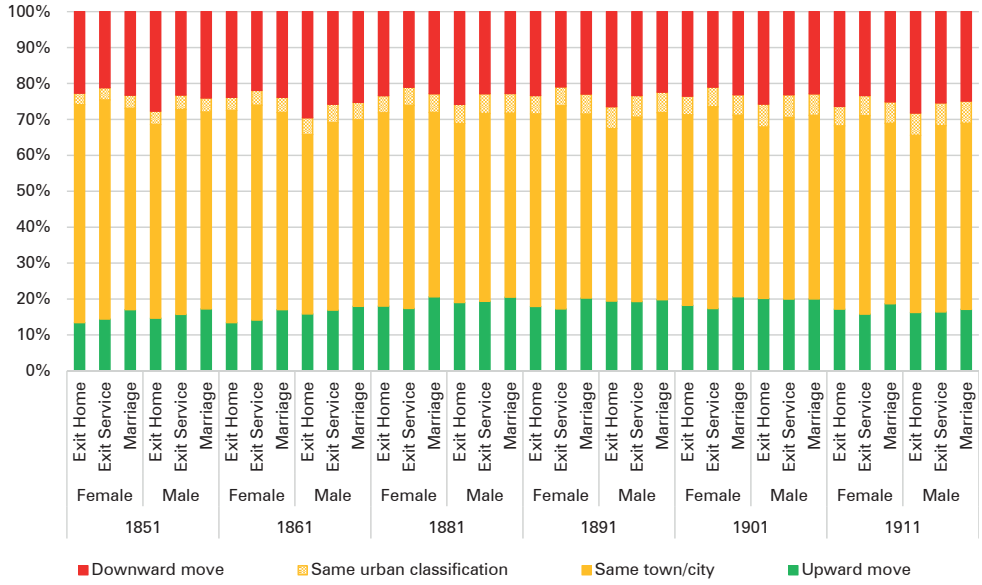
Although the differences between distances travelled by upward and downwardly mobile migrants narrowed between 1851 and 1911 as urbanisation shrank

Fig. 13: Proportion of the urban-born population migrating across the urban hierarchy by cohorts upon leaving service in each census year, England and Wales 1851-1911 (Extent of towns/cities held constant throughout period at 1911 boundaries)



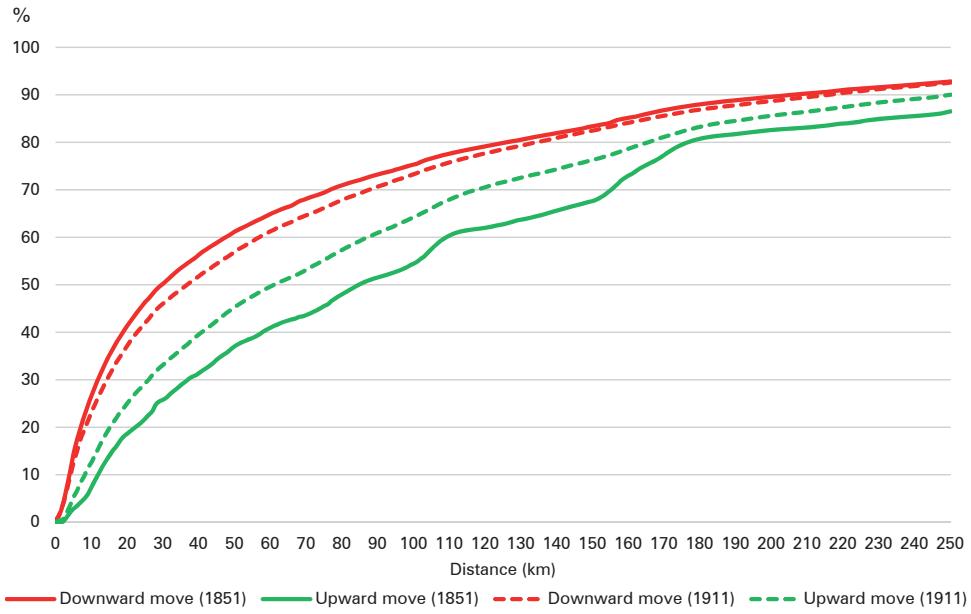
Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

Fig. 14: Proportion of the urban-born population migrating across the urban hierarchy by lifecycle stage, England and Wales 1851-1911



Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

Fig. 15: Cumulative distance (km) migrated by urban-born migrants moving up/down the urban hierarchy, England and Wales 1851-1911

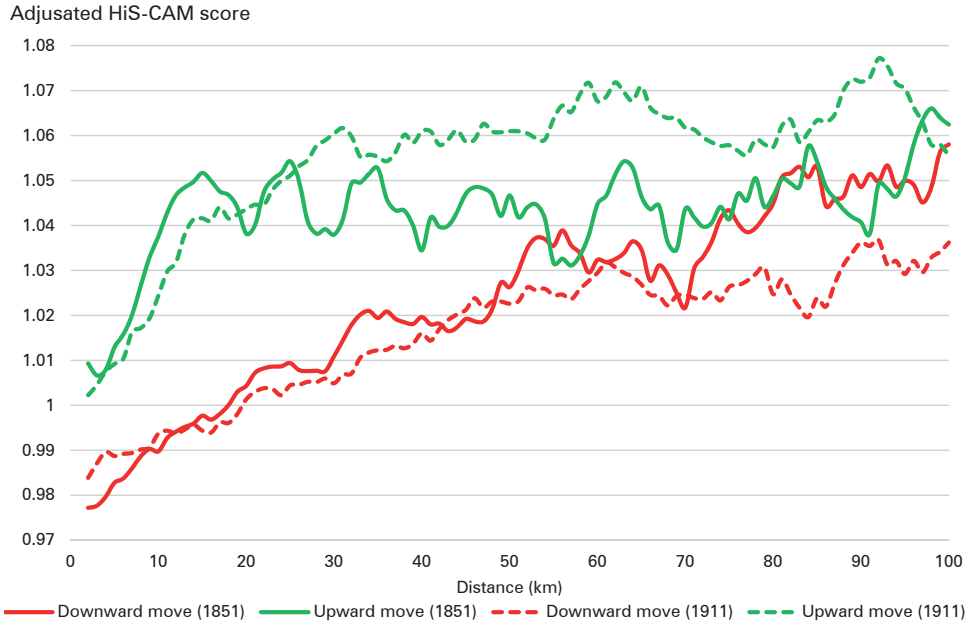


Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

the distances necessary to travel to towns and cities, half of the urban-born migrating down the urban hierarchy travelled less than 30 km in 1851, the median distance travelled by those moving up being 90 km. In a step-migration model, moves up the urban hierarchy are interpreted as upward social mobility in the absence of record-linked data. However, were migrants being positively or negatively selected (*Long* 2005) depending on whether they moved up or down the urban hierarchy? If highly skilled migrants were moving down the urban hierarchy to escape urban disamenities or take a promotion – clergymen migrating to the countryside to become parish priests for example – it would be disingenuous to describe them as downwardly mobile, as it would have represented a gainful move. Figure 16 however, demonstrates that this was not the case, by comparing HiS-CAM scores of individuals migrating both up and down the urban hierarchy by the distance migrated. HiS-CAM scores measure social interaction and as such, are used as a means to stratify occupations from the highest to the lowest social class.

As HiS-CAM is measured on a continuous scale, it is a useful means to quickly identify the relationship between skilled/unskilled occupations and migration. The original scales were constructed from the social interactions derived from marriage registers in Belgium, Britain, Canada, France, Germany, the Netherlands, and Sweden; the "distance" between occupations being estimated from the number of butchers that married the daughters of bakers, for example. These distances were transformed and standardised onto a hierarchical scale between 0 and 100 where

Fig. 16: Age-standardised HiS-CAM scores of male migrants moving up vs. down the urban hierarchy relative to non-migrants, England and Wales 1851-1911

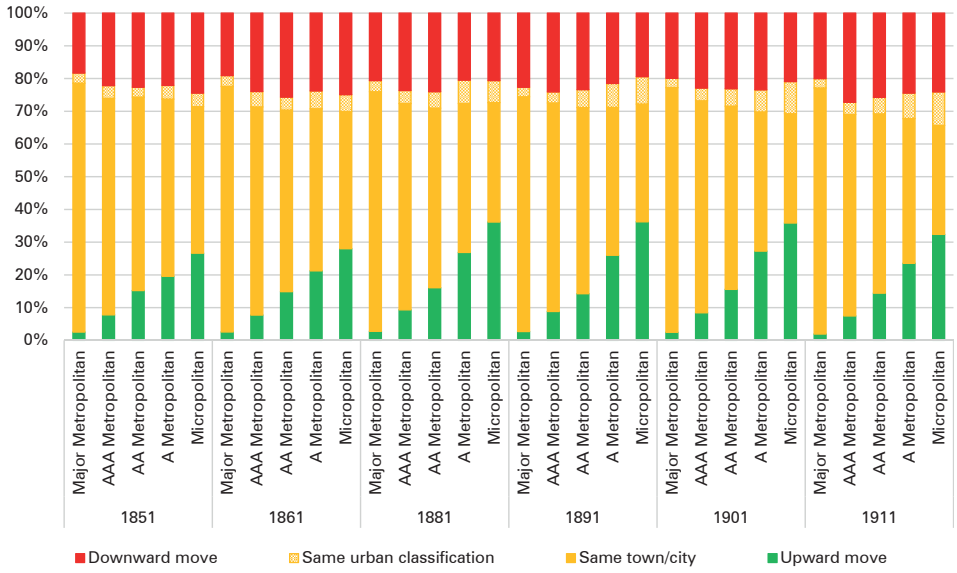


Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019); HIS-CAM for Early Period, 1800 – c.1890 (used for 1851 census data) and HIS-CAM for Late Period, c. 1890 – c.1938 (used for 1911 census data). Version 1.3.1.E/L [http://www.camsis.stir.ac.uk/hiscam, November 2019]

50 was the mean. The scales used on the 1851 and 1911 census data in figure 16 are the "early" and "late" series respectively, as when these scales are applied to individuals' occupations, it produced a normal distribution around a mean of 50, indicating that the occupational stratification in England and Wales in this period is captured by these scales (*Lambert et al.* 2013; *Prandy/Bottero* 2000; *Prandy/Lambert* 2003; *Stewart et al.* 1973, 1980; *van Leeuwen et al.* 2002). The HiS-CAM scores were adjusted further, and figure 16 shows the HiS-CAM scores of migrants as a proportion of the HiS-CAM score of those that stayed in their place of birth. Therefore, scores above/below 1 show migrants were more/less skilled than average in their RSD of birth. However, as the age profile of migrants has been shown to be very different to the population at large, HiS-CAM scores were age-standardised to remove the distorting effect of age.

Figure 16 shows that migrants moving up the urban hierarchy in both 1851 and 1911 made immediate gains compared to those that remained in their hometown. Those that had moved to a larger town or city just 5 km away had higher HiS-CAM scores than their counterparts who stayed. For men in both 1851 and 1911, migrating 25 km from their place of birth produced a HiS-CAM score that was around 5 percent higher than those still in their hometown. By contrast, men that moved

Fig. 17: Proportion of the urban-born population migrating across the urban hierarchy upon leaving service, England and Wales 1851-1911



Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

less than 20 km down the urban hierarchy had lower HiS-CAM scores than their counterparts that did not leave their place of birth. This suggests that while migrants that moved even a short distance to a larger town or city were more skilled, those that moved a short distance down the urban hierarchy – likely to outlying districts of the conurbation – did not primarily consist of skilled professionals looking to escape urban disamenities, but were instead the less skilled (*Williamson* 1981). After 20 km, migrants travelling down the urban hierarchy made gains relative to the stayers, although these gains were less than those made by migrants going up the urban hierarchy.

Whereas step-migration implies that migration continuously moves individuals up the urban hierarchy given the opportunities in ever-larger towns, figure 16 demonstrates that individuals migrated wherever there were opportunities, leading to what may have appeared to *Anderson* (1971) to have been "random" moves. What is clear however is that urbanisation was not a consequence of both rural- and urban-born migrants flowing up the urban hierarchy like "a cistern of water after the tap has been turned on" as *Ravenstein* (1889) put it, but a function of the rural-born alone migrating to towns and cities in their first – and often only – move.

Although at the national-level, urban-born migrants were making a net move *down* the urban hierarchy rather than up it, figure 17 shows that the propensity to move down was not uniform across the whole of the urban hierarchy. Despite migrants from towns such as Bury St Edmunds having a greater capacity to move up the urban hierarchy compared to migrants from "major metropolitans" such as Manchester – who could only migrate up the urban hierarchy by travelling to Lon-

don – it is telling that migrants from Bury St Edmunds were still more likely to move down the urban hierarchy rather than up it. Only those from the smallest urban "micropolitan" settlements were more likely to move up the urban hierarchy – 35 percent – rather than down – 20 percent. However, if a net move of 15 percent up the urban hierarchy by those that accounted for just 20 percent of the urban population is evidence of step migration, it is scant evidence indeed.

This paper has so far utilised age-specific and cohort analyses to identify evidence of step-migration up to the point of marriage. Therefore, in the final part of this paper, section six reconstructs mothers' migration paths from the birthplaces of their co-resident children to create a pseudo-longitudinal study to search for evidence of step-migration beyond the moment of marriage.

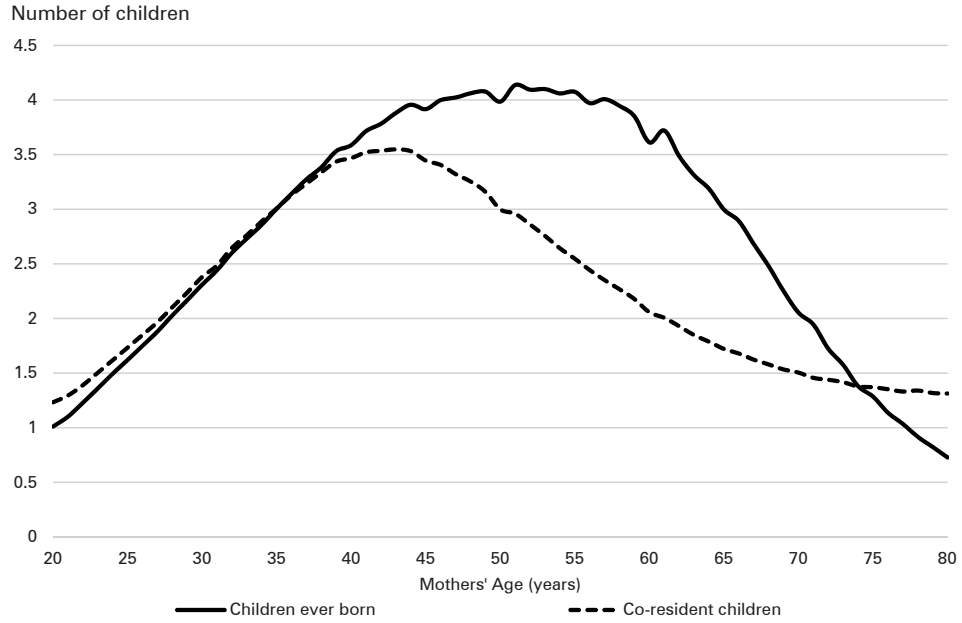
6 Mother's migration paths

As it is not possible to match mothers to children that had left home, it would be misleading to analyse mothers' migration paths using the birthplaces of her co-resident children if several had already left. It is therefore necessary to identify the cohort most likely to have been co-resident with all her surviving children. Using the 1911 – so-called "fertility" – census (*Garrett et al.* 2001), figure 18 compares the number of co-resident children with the number of children ever born. This shows that the number of children born and the number of children co-resident began to diverge – as children left the parental home – when mothers reached around the age of 41. Therefore, this paper will assume that mothers were still co-resident with all their children when they were aged between 36 and 45 as these ages are within half a standard deviation either side of the peak family size at the mothers' age of 41. Given that the census is decennial, it also makes sense to select a ten-year age cohort. However, it is necessary to confirm that this age group is also appropriate for the 1851-1901 censuses.

Using the 1851-1901 censuses in figure 19 confirms that each census year followed an almost identical pattern. The mean number of co-resident children peaks at around 3.75 when mothers were 41 years old in all census years. The 36-45 age group is therefore the most appropriate to identify those mothers most likely to be co-resident with all her children. Figure 20 meanwhile visualises the number of children co-resident with their mother between 1851 and 1911. This shows that the modal number between 1851 and 1891 was three or four, declining to two by 1901. Given that the modal number of children resident with mothers aged 36-45 was three across the period and the mean was 3.9, this paper will only consider the 1,143,013 ever-married mothers aged 36-45 between 1851 and 1911 that were co-resident with three children.

First then, table 3 outlines the average distances migrated by mothers in this age group from their own birthplace through the subsequent births of each of their three children through to their place of residence on census night. While the average distance migrated went up over time, individuals' first move was clearly the most significant. From the 1851 census, individuals' first move placed them on average

Fig. 18: Number of children born to/co-resident with mothers, England and Wales 1911



Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

Tab. 3: Mean distance (km) migrated between mothers' place of birth and place of residence on census night by way of the birthplaces of her co-resident children, England and Wales 1851-1911

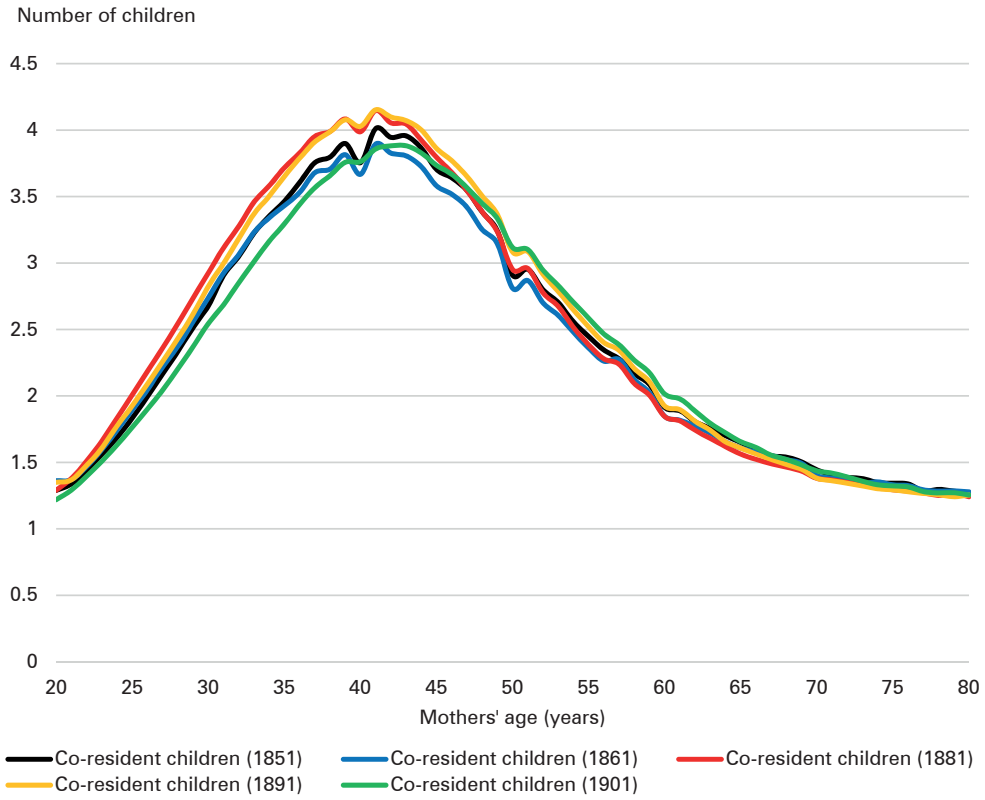
Move	Av. distance (km) between moves						Av. distance (km) from mothers' birthplace					
	1851	1861	1881	1891	1901	1911	1851	1861	1881	1891	1901	1911
1	25.8	28.8	34.0	37.5	38.1	38.9	25.8	28.8	34.0	37.5	38.1	38.9
2	7.5	9.3	11.3	11.0	9.8	10.6	27.4	30.8	36.5	39.6	40.0	40.8
3	6.2	7.6	9.4	9.0	8.4	9.7	28.4	32.1	38.2	41.1	41.5	42.4
4	6.9	9.0	10.2	10.5	10.5	11.7	29.3	32.6	39.5	42.5	43.3	43.7

Note: See text for explanation of the sample. Move 1 refers to the move made between a mothers' own place of birth and the birthplace of her eldest (first) co-resident child. Move 2 is the move between the first and second child and move 3 the move between her second and third child. Move 4 refers to the move that mothers made from the birthplace of her third child to her place of residence as reported on census night.

Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

25.8 km from their birthplace, rising to 38.9 km using data from the 1911 census. Subsequent moves were only around a quarter of the distance travelled in the first move and when analysed in conjunction with the distances which these moved placed migrants from their origin, these moves could have been circulating ones,

Fig. 19: Number of children co-resident with mothers, England and Wales 1851-1901



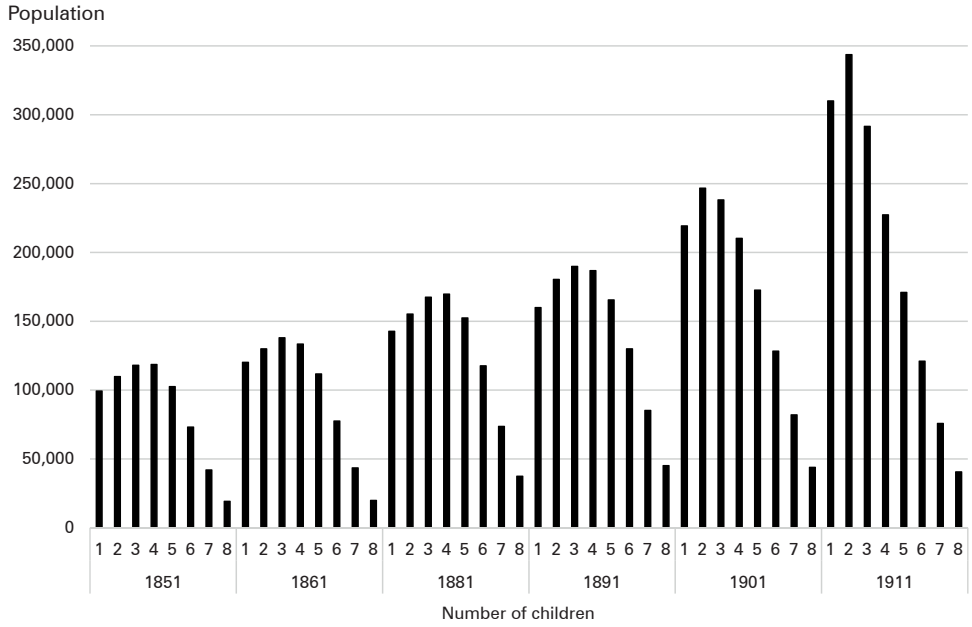
Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

moving individuals within a locale rather than towards larger and larger settlements in a stepwise fashion (*Kussmaul* 1981).

For example, in 1891, mothers' fourth move placed them just 5 km further from their parental home than they were at the birth of their first child, even though between the birth of their first, second and third child they moved 11.0, 9.0 and 10.5 km respectively. This observation could have been the consequence of one of two phenomena, neither of which suggests step-migration. Either a large number made short-distance moves reminiscent of "circulating" migration (*Kussmaul* 1981), or there were a few long-distance migrants.

Figure 21 shows it to have been the latter by illustrating the proportion of urban- and rural-born mothers that moved up and down the urban hierarchy. This shows that migratory activity was concentrated prior to the birth of a first child. As this paper is primarily concerned with step-migration and the extent to which migrants continued to move up the urban hierarchy, mothers are deemed to move up/down the urban hierarchy etc. *relative to her previous location* rather than relative to her birthplace as in previous charts. For example, if a mother was born in a rural settle-

Fig. 20: Number of children co-resident with an ever-married mother aged 36-45, England and Wales 1851-1911

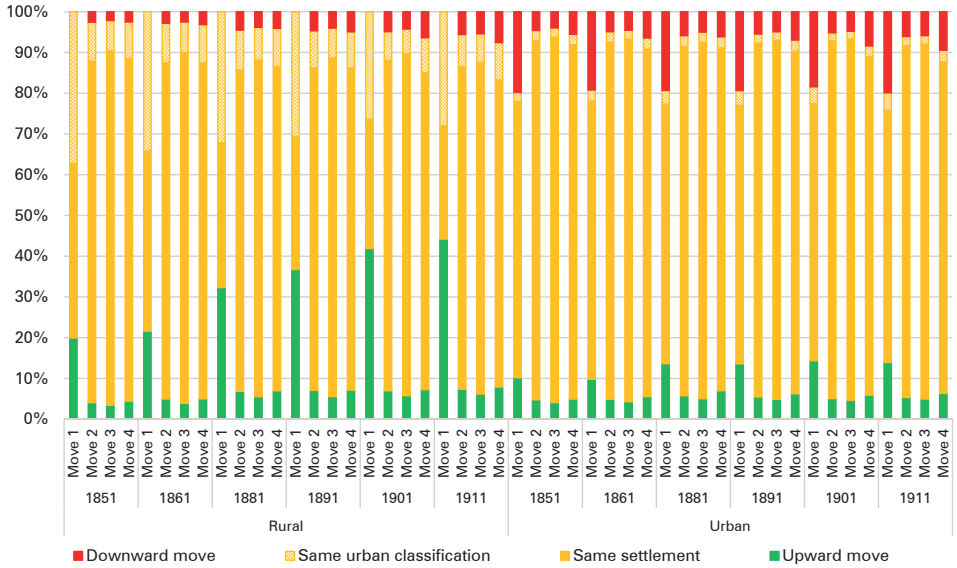


Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

ment, gives birth to her first child in London and her second child in Watford, this will be interpreted as an upward first move followed by a downward second move.

Overwhelmingly, both urban- and rural-born mothers were most likely to move up the urban hierarchy in their first move. By 1911, 44.2 percent of rural-born mothers had moved up the urban hierarchy to a town or city while just 7.3 percent did so in their so-called second "move" between the births of their first and second child. Although the urban-born were generally less likely to move up the urban hierarchy, those that did, did so in the first move; 13.9 percent of urban-born mothers moved up the urban hierarchy in their first move in 1911 compared to just 5.3 percent doing so in their second. This compares to 79.2 percent that had not moved settlements between the births of their first and second child. Evidently, the first move that both rural- and urban-born mothers made was the most significant, as it appears to have placed them in their "final" settlement or at least the settlement in which they were resident on census night. In order to demonstrate this more fully, figure 22 shows the proportion of mothers in the sample whose place of residence on census night was either the same as their place of birth or was the result of their first, second, third or fourth move. If a migrants' path was for example; Hemel Hempstead – Watford – London – Watford – Watford, the "final" move to Watford would be deemed to have occurred in the third move rather than in the first move given the intervening move to London.

Fig. 21: Proportion of mothers migrating across the urban hierarchy between the birthplaces of each co-resident child, England and Wales 1851-1911



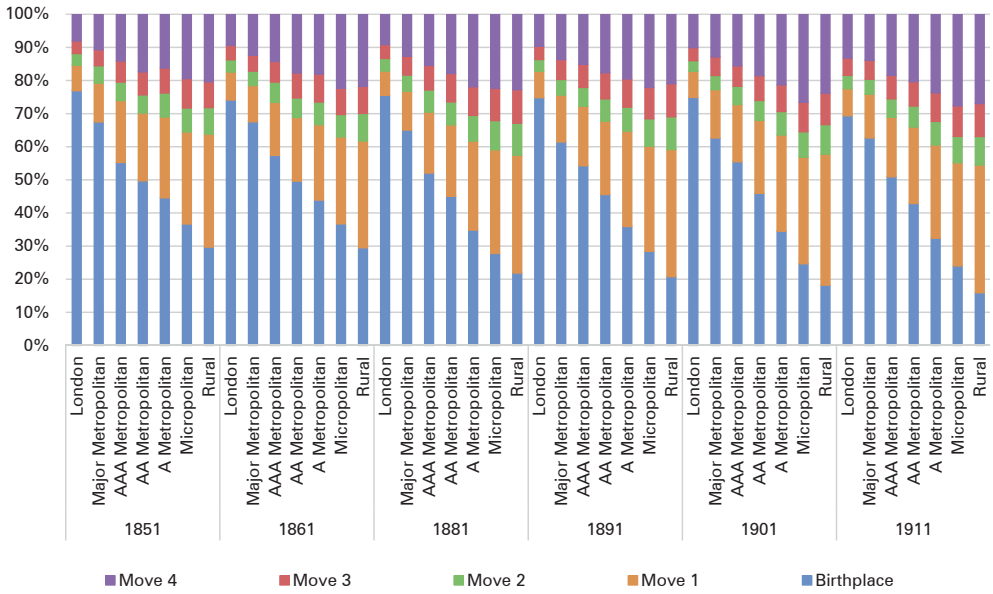
Note: See text for explanation of the sample

Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

Figure 22 reinforces the interpretation of figure 21, demonstrating that two-thirds of all mothers were in their place of residence on census night either because they were either born there or had made that move *prior to the birth of her first child*. Although there were some variations in the magnitude of this phenomenon by settlement type, for those that did move, the first move was the most significant across the urban hierarchy. From the 1851 census, 34.1 percent of rural-born mothers made the move to their final destination in their first move compared to the 1911 census, in which 38.5 percent had done so. Although the fourth move also appears to have been important– certainly more so than the second or third move – this may at least in part have been a function of return migration. Even so, it was a less significant determinant of where mothers were resident on census night than the first move. Indeed, the significance of the first move can be further emphasised in figure 23, which measures the proportion of mothers within *x* km of their final destination by the birth of their first child.

Figure 23 shows that the distances that the population were from their "final" destination by the time they had moved to their first destination – the broken lines – had shrunk considerably relative to the distance from their birthplace – the unbroken lines. In 1881 for example, half of mothers were born 8 km or less from their "final" destination. By the birth of their first child however, half of mothers were within 1 km of where they were resident on census night. Similarly, three-quarters of all mothers in the sample were born 43 km or less from where they were enumerated when the census was taken in 1881, but this had shrunk to just 8 km by

Fig. 22: Move in which mothers – sorted by birthplace type – migrated to the settlement in which she was resident in census night, England and Wales 1851-1911



Note: See text for explanation of the sample

Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

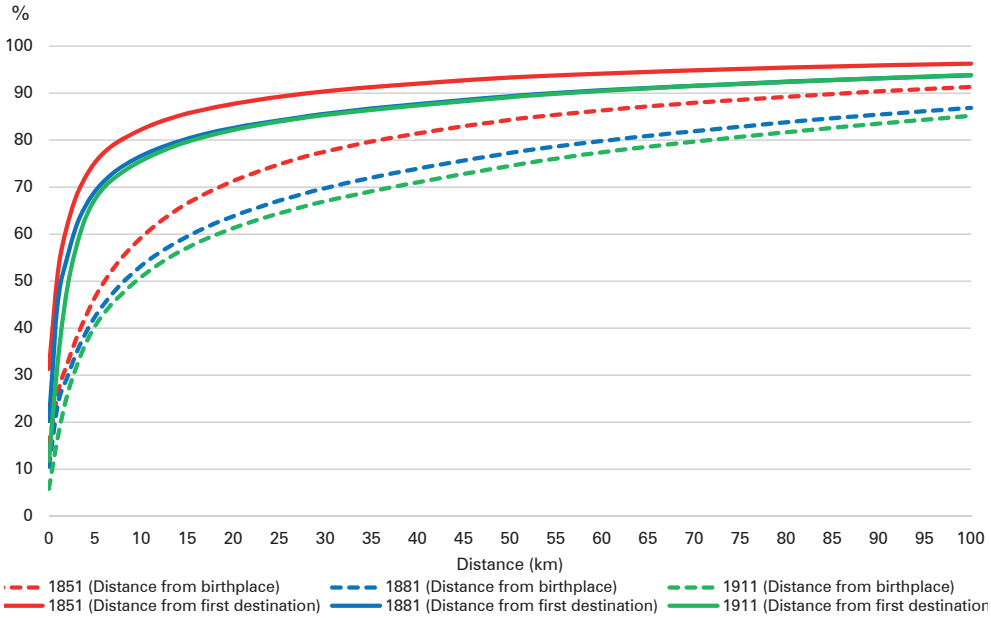
the time mothers had given birth to their first child. It is therefore evident that on any measure, migrants' first move was by far the most significant and that further moves were the exception rather than the rule.

Having demonstrated that there was little movement post-marriage and that instead the majority of migratory was concentrated in the period prior to the birth of a first child, it seems to be an inescapable conclusion that migration was not stepwise at all, but should instead be characterised as having largely been the product of a single move. The final section summarises these findings.

7 Conclusion

This article has attempted to comprehensively demonstrate that step-migration was not the process by which England and Wales urbanised, but instead, migration predominantly occurred in a single step; most commonly at the point of leaving the parental home, but occasionally delayed until leaving service or entering marriage. This finding demonstrates that the census is a more valuable source for the analysis of migration than previously thought, as the moves which historians supposed individuals made between their place of birth and place of residence on census night, did not occur in the majority of cases (*Hinde* 2004). Returning to the migra-

Fig. 23: Mothers' distance (km) on census night between a) their own birthplace and b) the birthplace of their eldest co-resident child, England and Wales 1851-1911



Note: See text for explanation of the sample

Source: Author's analysis based on data from UK Data Service SN 7481 (*Schürer* 2019)

tion history of Joseph Shaw, whose dramatic life inspired his son Benjamin to write the family history, does not in hindsight appear to have been more typical – despite having been more interesting – than that of Benjamin, who left home at 21, moved from Dolphinholme to Preston about 30 km south, and after finding a wife and a job, remained there until his death (*Crosby* 1991). While such autobiographies, diaries and memoirs should not be ignored, as they are valuable sources which remind us of the daily struggles that the nineteenth-century "precariat" endured, and the decisions required to piece together an existence, the overemphasis on them distorts what the historian perceives to have been the typical experience (*Humphries* 2010).

Instead, Benjamin Shaw, who left home at an average age, migrated an average distance to an average-sized town and remained in an average job until his death at an average age is just as worthy of our attention. While migration may have been a complex web of interdependent moves for some, this article has argued that while the *decision* to move may have been complex, requiring individuals to balance a host of competing interests, the decision itself was predominantly expressed as a *single* transfer, rather than several. For both rural and urban migrants, the majority moved upon leaving home, while those that went into farm service tended to migrate only a very short distance from the parental home initially, delaying their long-distance move until they had left service, at which point many migrated to the towns and cities. Although a minority of females delayed migrating until the point of

marriage, evidence from moves made by mothers – as reconstructed from the birthplaces of their co-resident children – has shown that as migration did not continue beyond marriage, individuals' moves at the point of marriage did not represent the first "step" of many.

The absence of comprehensive, longitudinal historical data, combined with the appeal of qualitative evidence such as diaries and autobiographies from which migration paths have been reconstructed, (*Pooley/D'Cruze* 1994) has meant that the typical experience in the historical record is often at odds with the typical experience of the historical actors. In light of this, Ravenstein's stepwise hypothesis made sense. Indeed, limited quantitative evidence allowed *Grigg* (1977) to point out that the hypothesis would remain untested until the manuscript census returns were analysed. The census has – perhaps rightly – been treated with caution by historians of migration, suspicious that it missed the intermediate moves between individuals' place of birth and their place of residence on census night, which individuals were hypothesised to have made. Although some individuals clearly did move in steps, it does not seem to have been either widespread, or one that was assiduously pursued as a strategy to move up the urban hierarchy. Rather, by demonstrating that on the whole, individuals did not migrate in steps, this article has shown that the step-migration hypothesis should yield to the single-step hypothesis in which the majority of migrants make a single move in their lifetime. It is hoped that this finding restores the faith of migration historians in the value of the manuscript census returns for reconstructing complete migration paths, without the need for laborious and time-consuming record-linkage.

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Appendix

Urban Settlement	1851	1861	1881	1891	1901	1911
Abercarn				14364	12607	16445
Aberdare	14999	32299	35533	40917	43365	50830
Abersychan			19906	22653	17768	24656
Accrington	20063	30142	48491	57769	63777	67631
Aldershot		16720	20155	16620	30974	35175
Alfreton		11549	13885	15355	17505	19046
Altrincham			16050	20807	30040	33298
Annfield Plain					11456	15007
Arnold						11146
Ashford			9693	13962	16410	13668
Ashington					13956	24583
Ashton-in-Makerfield				13379	18687	21543
Ashton-under-Lyne	50808	53683	66732	64116	77180	84395
Atherton			12602	15833	16211	18982
Aylesbury						11048
Bacup		24413	28261	26217	22505	22318
Banbury		10154	12127	12823	12968	13523
Bangor					11269	11236
Barnet						11108
Barnsley	14913	17890	29790	35427	41086	50614
Barnstaple	8667	9990	11521	13613	13688	14485
Barrow-in-Furness			47259	51712	57586	63770
Barry				13272	27030	33763
Basingstoke						11540
Bath	60286	58667	60888	64462	67918	70893
Batley		14173	27505	28719	36425	36389
Bedford	11693	13413	22965	33237	39837	44532
Bedlington			14564	16996	18766	25440
Bedwellty						22547
Beeston						11336
Belper	10082			10420	10934	11640
Berwick	14867	13265	14599	13377	13437	13075
Beverley			11455	12595	13183	13704
Bexhill					12213	15330
Bexley				10605	12918	15895
Bilston	23527	24364	22730	23453	24034	25681
Bingley				19284	15382	15801
Birmingham & Smethwick	258920	356572	570002	663864	813861	911097
Bishop Auckland			12246	15400	15477	20746
Blackburn	50552	73300	106910	125193	131328	133052
Blackpool			12711	24637	48608	60138
Blaenavon				8499	10869	12010
Blaydon			9073	11178	20148	31015

Appendix: Continuation

Urban Settlement	1851	1861	1881	1891	1901	1911
Blyth			12834	16710	23351	28280
Bolsover						11214
Bolton	71000	83024	116431	142005	168215	180851
Boston	16662	14712	14937	17593	15667	16673
Bournemouth & Poole			28635	61512	59451	87611
Bradford	125584	129922	215556	223604	260863	267769
Brandon & Byshottles					15573	17667
Bridgwater	10960	12107	12704	13341	15209	16802
Bridlington					12482	14868
Brierley Hill		34257	35767	36411	12042	12263
Brighouse			20699	27125	21735	20460
Brighton & Hove	69673	87317	132295	148768	167222	179864
Bristol	149913	169245	262501	296786	352514	373012
Brownhills			2040	6525	12386	12921
Burnley	27042	37984	63777	86480	97439	109364
Burslem	19725	22327	28249	32767	47048	49361
Burton-on-Trent		14351	39407	46212	50386	48266
Bury	25077	23554	51219	62320	58029	58648
Bury St Edmunds	13900	13318	16111	16630	16255	16785
Buxton					13150	14138
Caernarvon			11995			
Caerphilly					15835	32844
Camberley						13673
Camborne	12887	14056	13601	14700	14726	15829
Cambridge	30631	28743	40896	44358	51738	57007
Cannock			17125	20613	23974	28586
Canterbury	18142	20457	21413	22301	24505	24809
Cardiff	18777	39539	85914	133416	170110	191401
Carlisle	25142	30632	39328	42035	49477	50767
Carlton					10041	15581
Carmarthen	10171		10514	10338	10025	10221
Castleford			10530	14143	17386	23090
Caterham						10841
Chelmsford				11008	14888	18008
Cheltenham	40374	45659	51423	50464	53245	53437
Chertsey				11397	12762	13816
Cheshunt					12292	12954
Chester	26787	32391	40839	42666	45952	48369
Chesterfield	11426	15845	24764	34275	27185	47647
Chester-le-Street					11753	14712
Chichester				11357	12244	12591
Chorley	12684	15013	19478	23087	26852	30315
Cleator Moor			10420			

Appendix: Continuation

Urban Settlement	1851	1861	1881	1891	1901	1911
Cleckheaton			10653	11826	12524	12866
Clitheroe			10192	10828	11414	12500
Coalville				10613	15281	18285
Colchester	19323	23697	28261	34392	38373	43452
Colne			10313	14023	23000	25689
Colwyn Bay						12630
Congleton	10520	12344	11116	10744	10707	11309
Conisbrough					11219	16119
Consett			12180	13330	17151	19562
Coseley			36574	36860	38170	22834
Coventry	44018	49076	52843	61801	75492	115084
Cowes				14704	11848	14294
Crewe			27264	32926	42074	46230
Crompton				12901	13427	14750
Crook			11096	11430	11471	12308
Dalton-in-Furness			13339	13300	13020	10763
Darlaston	10590	12884	13563	14422	15395	17107
Darlington	11650	15848	36311	39108	44511	55702
Dartford			14510	11962	18644	23609
Darwen	11702	16492	27626	31680	38212	40332
Dawley		11013				
Deal		10806	12809	13456	15829	16642
Denton			12711	13993	14934	16877
Derby	42884	51049	83431	99313	113060	123410
Dewsbury	19108	24386	40032	50067	49601	53351
Doncaster	12052	17020	24868	31998	39293	48455
Dover	22073	25617	30836	33918	43958	43645
Dudley	37962	44951	46233	45724	48733	51079
Durham	15249	20290	18221	15003	16094	19596
East Barnet					10094	10780
East Retford				11010	12340	13385
Eastbourne			21595	34278	43344	51554
Eastleigh						15247
Ebbw Vale			18672	3325	17401	27250
Eccles			25994	35826	34369	41944
Eckington, Mosborough & Renishaw			11094	12357	12895	12164
Egham				10187	11895	12551
Elland					10412	10676
Ellesmere Port						10253
Enfield		12424	19104	31803	42738	56338
Epsom					10915	19156
Erith				13414	25296	27750
Eston			14011	19823	20844	29559

Appendix: Continuation

Urban Settlement	1851	1861	1881	1891	1901	1911
Exeter	42011	39851	48391	52094	54704	59611
Exmouth					10485	11962
Falmouth			12131	14076	11789	13132
Farnborough					11500	14199
Farnham					6124	11321
Farnworth	10625	13723	27961	31751	35143	37800
Faversham				10660	11646	10806
Featherstone					9817	11543
Fenton			14136	17325	22742	25626
Ferryhill						11822
Fleetwood					12082	15875
Folkestone		9674	19297	30293	39764	43446
Friern Barnet					11566	14924
Frome	11916	11200	11181	11464	11057	10901
Gainsborough			10979	14594	17660	20587
Gelligaer					17242	35521
Glossop	13414	14785	23550	24557	21526	21688
Gloucester	24490	26175	37464	41689	47955	50035
Goole			11187	15735	16576	20684
Grantham	10870	11116	16210	17062	18313	20070
Gravesend	21782	24626	32092	36094	40102	43534
Grays, Thurrock				12219	13834	15998
Great Harwood					12015	13815
Great Yarmouth	30879	34810	46159	48734	50704	55905
Grimsby		11067	42963	56364	75716	96076
Guildford			11645	18155	20400	23820
Halifax	54682	59860	87130	101823	104936	101553
Hanley	10573	33009	54285	62147	61599	66255
Harrogate			11826	14691	28423	35666
Harrow					16121	28997
Hartlepool	13511	25876	45256	62532	82270	84567
Harwich					10070	13622
Haslingden		10109	14298	16030	18543	18719
Hastings	16753	23375	44858	56225	65528	61145
Heanor					12418	15289
Hebburn & Jarrow			37719	50858	20901	21763
Heckmondwike	11514	14520	22039	23377	23439	23674
Hemel Hempstead					11264	12888
Hemsworth						10173
Hereford	11285	14065	17173	20122	21382	22568
Hertford						10383
Hetton-le-Hole			11000	12757	13673	15678
Heywood	13526	17248	22582	21037	25458	26697

Appendix: Continuation

Urban Settlement	1851	1861	1881	1891	1901	1911
High Wycombe			8320	16409	15542	20387
Hinckley					11304	12837
Hindley			14715	18973	23504	24100
Hitchin					10788	12871
Holyhead					10079	10636
Horsham					9446	11314
Horwich				12850	15084	16285
Hounslow	11968	15533	22727	26273	30863	43313
Hoylake & West Kirby					11210	14029
Hoyland Nether				11006	12464	14638
Hucknall			10023	13094	15250	15870
Huddersfield	64013	72250	99369	111194	111187	121055
Hyde	24038	24811	29737	31682	32766	33437
Ilkeston			14122	19744	25384	31657
Ipswich	31869	36991	49360	56012	64898	73932
Jarrow					34295	33726
Keighley	18259	18819	30395	36176	41564	43487
Kendal	11829	12029	14280	14896	14183	14451
Kettering			11095	19454	28653	29972
Kidderminster	20852	13979	22299	28922	27745	27336
King's Lynn	19355	16701	18539	18360	20288	20201
Kingston-upon-Hull	85742	99196	164051	205187	239886	279245
Kingston-upon-Thames	12290	20721	35724	47217	58350	68018
Kirkby-in-Ashfield					10318	15378
Lancaster	15964	15880	23501	31038	40329	41410
Langley Park						10175
Leeds	167459	192044	289641	359092	430431	448655
Leek		11047	13003	14284	15484	16663
Leicester	60612	68056	134323	169365	211579	227222
Leigh	13707	16007	21734	28708	40001	44103
Lewes			10815	10850	11238	11066
Lincoln	17533	21090	37088	41448	49450	57285
Littleborough			7891	8384	11166	11697
Liverpool & Birkenhead	430287	541431	773109	838905	980475	1092549
Llandudno						10469
Llanelli		15470	23933	28169	25617	32071
Long Eaton					13045	19207
Longton	15149	16690	32112	35453	35815	37479
Loughborough	11210	10830	14746	18357	21508	22990
Louth	10748	10560	10691	10040		
Lowestoft		10736	19696	23398	33135	37886
Luton	10648	15329	26140	32401	36404	52220
Lye				10165	10976	11684

Appendix: Continuation

Urban Settlement	1851	1861	1881	1891	1901	1911
Macclesfield	41189	21493	39270	37758	34624	34797
Maesteg					15012	24977
Maidenhead				9781	12980	15219
Maidstone	20740	23016	29623	33673	33516	35475
Malden						12137
Malvern				13391	13484	13324
Manchester & Salford	434525	518573	699396	799844	922278	1018640
Mansfield	10667	10225	13653	15925	21445	36888
Mansfield Woodhouse						11015
Margate	10099	10019	18226	21367	27141	30623
Maryport				13667	11897	11418
Medway Towns	45787	55541	70839	88295	111679	126941
Merthyr Tydfil	46378	49794	48861	58080	69228	80990
Mexborough					10430	14401
Middlesbrough		19416	63141	83709	101201	109230
Middleton	12548	14482	17600	19793	25178	27980
Millom					10426	
Mirfield			15872	16841	11341	11712
Morecambe					11798	12131
Morley			18482	18725	21623	25774
Mossley			2112	7278	13452	13205
Mountain Ash			18652	15795	30777	41881
Nantyglo & Blaina					13489	15395
Nantyglo, Blaina & Abertillery				25913	21945	35415
Neath			10347	11060	13720	17586
Nelson			16725	31339	32816	39479
Newark	11517	11676	14238	14571	14992	16408
Newburn					10437	10781
Newbury			10609	12957	11061	12107
Newcastle & Gateshead	125817	153567	240250	308979	365841	422995
Newcastle-under-Lyme	10290	12638	17493	18425	19914	20044
Newmarket					10688	10482
Newport (Isle of Wight)				12173		
Newport (Monmouthshire)	19323	24756	40456	55858	67270	83691
Newton Abbot				10951	12451	13646
Newton-le-Willows			10580	12861	16699	18451
Normanton				10234	12352	15032
Northampton	26657	32813	59042	76921	87021	86780
Northwich		8979	13886	18129	19575	20500
Norwich	68195	74440	85684	100970	116162	123844
Nottingham	94463	105372	186267	216756	246761	259904
Nuneaton				11580	24996	37073
Oakengates				7389	10906	11744

Appendix: Continuation

Urban Settlement	1851	1861	1881	1891	1901	1911
Ogmore					19907	16217
Oldbury	11640	15703	18306	22697	25191	32232
Oldham	59008	79819	136154	163975	165759	175782
Ossett			10957	10984	12903	14078
Oxford	28887	30992	46289	52994	57750	62424
Padiham				9923	12205	13635
Paignton						11241
Panteg						9103
Pembroke	10522	15071	13526	13925	15853	15673
Penarth				11259	14228	15488
Pendlebury			31947	35448	29949	33502
Penzance	14622	9414	15146	16639	18098	19492
Peterborough		12008	21964	26463	32315	38362
Plymouth	102184	128262	140281	158197	193184	211671
Pontefract					13136	15649
Pontypridd			13368	39557	32316	43211
Poole			12310	15438	27558	38885
Port Talbot			10389	12360	16567	25218
Portland			10061		15199	17011
Portsmouth	89034	117481	149603	184730	217017	270334
Preston	69542	85298	97445	111589	117291	123666
Pudsey	11603	12912	15459	17037	14907	14023
Purley						11389
Radcliffe			16267	34286	25368	25692
Ramsbottom			13460	15740	15920	15146
Ramsgate	14853	15152	23073	25150	27733	29603
Rawmarsh				11983	14587	17185
Rawtenstall			9891	10594	31053	30516
Reading	21456	25045	47957	63238	77721	87884
Redcar						10508
Redditch				10396	12835	15463
Redruth	10571	11504		10324	10451	10814
Reigate			18662	22641	25993	28502
Rhondda			45052	69685	113735	152781
Rhymney						11138
Ripley					10111	11848
Risca						14149
Rochdale	32260	41678	77760	80317	82623	91428
Romford				10722	13656	16970
Rotherham	13277	19000	36111	40663	54349	62483
Rowley Regis	14249	19785	27385	30791	34670	37000
Royal Leamington Spa	15724	18768	25141	26103	26888	26984
Royal Tunbridge Wells	10360	13601	24810	31292	31549	33888

Appendix: Continuation

Urban Settlement	1851	1861	1881	1891	1901	1911
Royton			10582	12568	14881	17069
Rugby				11262	20339	26946
Runcorn		10063	16251	21605	17729	18647
Rushden					12453	13354
Ryde			17160	16885	11043	10608
Ryhope						11185
Saddleworth			10461	13065	12320	12603
Sale			11241	13878	17651	22278
Salisbury	11360	12065	14297	17621	20871	21217
Scarborough	12915	18377	30504	33776	38161	37201
Scunthorpe					9023	15243
Seaham Harbour					10163	15757
Sedgley						16527
Sheerness		15964	15658	16111	18179	17487
Sheffield	132759	193555	303151	357807	425105	468830
Shildon					11759	13488
Shipley			28468	30505	25573	27706
Shirebrook						11116
Shotton						12561
Shrewsbury	21930	24569	27775	26967	29053	29432
Sittingbourne			12075	13515	16029	15855
Skipton				10376	11986	12977
Slough					11453	14982
South Elmsall						11445
South Shields	28974	35239	56875	78391	102416	108647
Southall					13200	26323
Southampton	41426	53996	81014	102672	122829	129270
Southend-on-Sea				13242	33312	69035
Southport			42468	55413	62280	69643
Sowerby Bridge				9172	11477	11350
Spalding						10308
Spennymoor			13772	13948	15067	14294
St Albans			10876	12707	17802	18133
St Helens	28042	37961	56872	68628	84410	96551
Stafford	10839	14358	20322	21423	22749	27783
Staleybridge	11053	27907	37038	38211	27673	26513
Stanley				15576		13586
Stapleford						11106
Staveley					11420	12018
Stockport	55235	59984	71359	88131	102295	137420
Stockton-on-Tees	11931	16613	52514	65342	72064	76866
Stoke-on-Trent		11118	17272	21621	30458	36218
Stourbridge	12284	13573	15374	14891	16302	17312

Appendix: Continuation

Urban Settlement	1851	1861	1881	1891	1901	1911
Stroud	11006	11255	13871	15020	14695	14678
Sunderland	68753	87879	127751	141745	158623	168056
Sutton			10334	13977	17223	21270
Sutton Coldfield					14264	20132
Sutton-in-Ashfield				10562	14862	21708
Swansea	35233	45039	83395	98592	102702	136210
Swindon			19904	36233	48373	54440
Swinton					12217	13654
Taunton	15745	14750	18351	18026	21087	22561
Teddington				15874	14037	17847
Tipton	24872	28870	30013	29314	30543	31756
Tiverton	11144	10447	10462	10892	10382	10205
Todmorden	17265	20287	23213	24103	25418	25404
Tonbridge				17734	12736	14796
Torquay	11474	19650	30737	32383	33625	38771
Tredegar			34685	35628	18497	23601
Trowbridge	11148	10487	11394	11901	11526	11815
Truro	16377	17487	6294	14978	11562	11325
Tunstall		11207	29675	30883	19492	22494
Twickenham			12479	16027	20991	29367
Tyldesley				12891	14843	15582
Tynemouth	28799	33698	45621	44968	49623	58816
Ulverston			10008	10015	10064	
Urmston					10250	12757
Uxbridge						10374
Wakefield	23057	24256	36923	40077	48256	51511
Wallington					15742	29893
Wallsend			32873	42275	34254	40734
Walsall	27626	40602	64262	78377	86430	92115
Walton-le-Dale				10556	11271	12350
Walton-on-Thames					10329	12856
Warrington	23342	26935	45239	54909	65276	79308
Warwick	10973	10589	11800	11903	11889	11858
Watford			15507	25921	29124	40939
Wednesbury	14281	21968	24566	25347	26554	28103
Wellingborough			13794	15068	18412	19753
Wembley						10696
West Bromwich	34591	41795	56295	59474	65175	70735
West Houghton				11077	13339	15046
Weston-super-Mare			12884	15520	19048	23235
Weymouth	10128	12038	14298	15399	19843	22324
Whickham					12852	18332
Whitby	10203	11137	13659	12598	11368	11139

Appendix: Continuation

Urban Settlement	1851	1861	1881	1891	1901	1911
Whitehaven	19292	19535	20371	19733	19219	21313
Whitley Bay						11436
Whittington						10344
Whitworth			20844			
Widnes			24935	30011	33280	34441
Wigan	40863	52794	77963	92668	103690	111186
Willenhall	11931	17256	18461	19366	18515	18844
Winchester	13442	14393	18668	19843	21339	23878
Windsor & Eton	14874	15073	21111	20972	23602	17759
Wingate						10890
Winsford			10041	10440	10382	10770
Wisbech	10594					10822
Woking					18349	24808
Wolverhampton	49927	60860	89036	97353	110150	122246
Wolverton						7384
Wombwell				10942	13252	17536
Worcester	27677	30561	42506	43504	46624	48011
Workington			14361	23751	26143	25065
Worksop			11625	12734	16112	20387
Worsborough					10336	12750
Worthing			12662	17622	21735	30305
Wrexham			10939	12552	14966	18377
Yeovil				10943	12057	13759
York	35456	43791	63911	70733	77914	82282

Note: The populations of the towns and cities in this appendix are colour-coded to indicate their position in the urban hierarchy for each census
year. The colours correspond to those used in table 1. For ease of reference:

Major Metropolitan
AAA Metropolitan
AA Metropolitan
A Metropolitan
Micropolitan

See section 2 for the method used to place towns and cities in the urban hierarchy.

Source: Author's calculations using data from *Smith et al.* 2018

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