LIFE-TIME MIGRATION AND OCCUPATION IN MOTHERWELL, 1851–91

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This article is a revised version of an undergraduate final project report for Open University course DA301. The author is a retired chartered chemist.

Aims and strategy

The aim of this study is to determine if there was any relationship between lifetime migration distances and occupations of migrants. In practice the volume of a migration stream often declines with increasing distance, a phenomenon referred to as the ‘friction of distance’. The idea that distance is less of an obstacle to migrants with particular occupations stimulated the project. A hypothesis-testing strategy was well suited to the nature of the study and the evidence abstracted from census enumerators’ books (CEBs). A formal hypothesis was expressed as: ‘Some migrants overcome the obstacle of distance more readily than others depending on their occupations’.

Migration is one of the most important historical processes in population studies. Ravenstein was a pioneer in the demographic study of internal migration and summarised his observations as a series of laws. However, they cannot be regarded in the same way as physical laws and are really insights into overall trends revealed by analysis of birthplace tables from the Victorian censuses. Nevertheless his work is the starting point for many migration studies and hypotheses. Ravenstein observed that the majority of migrants moved only short distances generally away from rural areas into towns, which grew more by migration than by natural increase. Although Ravenstein discussed motives it was Lee who formulated the eleventh law, which states that economic reasons were the main driving force behind migration.

A recent longitudinal study based on family histories supports Ravenstein’s view that migration was predominantly a short-distance phenomenon, but challenges the idea that the direction was mainly from rural to urban centres. The same study found that skilled workers tended to move longer distances, inferring that employment played a key role in migration. Anderson also points out that most migrants matched their skills with employment opportunities, so that migration was focused on both places and jobs. This idea is supported by Christaller’s Central Place Theory which seems to predict migration of people with specialised skills from lower to higher order centres. Jones reconstructed the circumstances of a small group of long-distance migrants from Mostyn, Wales. He established that factors at both the places of origin and destination were important. When the Mostyn Quay colliery was closed in 1884 the miners migrated to other mining districts in preference to changing their occupation.
Ireland and the Scottish Highlands both had distinctive migration patterns with longer distance out-migration. A tradition of seasonal migration from Ireland to the west of Scotland was established in the eighteenth century by agricultural labourers. In the next century the potato famine forced many to migrate permanently. The Highlands experienced population growth without industrialisation and migration to the Lowlands involved both stepwise and seasonal patterns.

Economic and demographic development

Motherwell, which is situated in the Dalziel parish of Lanarkshire, was chosen as the test locale because it evolved from a series of villages into a heavy industrial town in the last century. In terms of Christaller’s Central Place Theory it grew from a low order centre into a high one. Steady rises in the population of the parish were recorded by successive censuses with an imbalance of the sexes, pointing to male-selective in-migration. Between 1831 and 1841 the population more than doubled from 5,545 to 11,175.

Lanarkshire was one of four main counties where handloom weaving was concentrated in the west of Scotland. The best paid workers were both the most skilful and the strongest and they could be regarded as a ‘labour aristocracy’. But at the other end of the hierarchy little skill was required. About 1840 domestic handloom weaving was still thriving, but alongside power looms in factories. Competition from the latter, changing fashions and a depression all led to a decline in the 1850s. Handloom weaving only survived as a part time occupation in Lanarkshire into the second half of the century and eventually it became extinct.

However, Motherwell itself did not decline, rather it became an industrial centre for railways, coal mining, iron and steel. The growth is related in the contemporary Handbook and Directory of Motherwell and more recently by Duncan. Apart from surface mining and shallow pits, rich coal seams in the Motherwell area were not really exploited until the 1850s. From this time, coal mining, railways and iron working developed rapidly under an inter-related set of driving forces. The railways were constructed in the 1840s linking Motherwell to neighbouring ironworks and important centres like Glasgow. There was the parallel growth in iron and coal production, every ton of pig iron produced requiring two to three times its weight in coal. Technological development of winding gear led to the opening up of deeper coal seams that were previously uneconomic. Iron manufacturers began to invest in new pits where they could transport the coal to their furnaces using the new railways.

The above developments stimulated further demand for iron to produce mining equipment and encouraged local development of ironworks, minimising the cost of transporting the coal. New rail links were established at the same time. The links between coal mining and iron manufacture were critical in the development of the town, which Duncan has described as ‘an industrial frontier’. Companies were involved simultaneously in iron manufacture and coal mining.
The first iron works in Motherwell had a brief life, from 1846–49, but reopened under new ownership in 1853. In the 1860s railway workshops were transferred to the town and in the 1870s two further iron works and several iron construction companies were established. Boilers, cranes, spades, shovels and bridges were all manufactured in Motherwell. The era of steel production began in the 1880s, with further expansion of heavy construction engineering; Motherwell developed into a 'steelopolis'. The timing of these last changes suggested that their impact would be reflected in the 1891 CEBs, which were not available when Duncan carried out his study.

Conceptual framework

In the following discussion migration refers to the movement of populations from one locale to a new one. Individual lives are not regulated by migration laws in the way that the behaviour of molecules are governed by scientific laws. However, trends can be studied by aggregating individual experiences. While several authors have proposed models and laws for migration, Lee's conceptual view is comprehensive and forms a theoretical framework for analysis in this project.4

Lee proposed that migration involves a place of origin, a destination, a series of barriers or intervening obstacles separating them and personal factors. Every place (origin or destination) has attributes, for example, employment, climate and housing which attract or repel people. Individuals react differently to these attributes and may be indifferent to some of them. There are also obstacles to migration, such as the distance, the presence of dependants and a psychological migration threshold. Migration is stimulated when the balance of attributes is more favourable at the destination, but does not occur until an initial inertia, or threshold, has been overcome. The model therefore accounts for both moving and staying. Personal factors include, for example, the threshold level, perceptions about the destination, sources of information about opportunities.

Lee argued that migration is selective so that migrants are not a random sample of the population of the origin. Migrants responding to attributes at the destination tend to be positively selected, for example on the basis of employment or proximity to relatives. Conversely, migrants who respond to factors at the origin tend to be negatively selected, for example the mass migration from Ireland during the nineteenth-century famine.

Lee's conceptualisation is flexible and accommodates all motives. Volume of migration is related to the difficulties imposed by obstacles. It is therefore of interest to investigate the role of occupations in positive selection with respect to the obstacle of distance.

Census enumerators' books: birthplace data

CEBs are the single most important primary source for internal historical lifetime migration studies, unless they focus on short-term moves. For this article they fulfilled two important criteria. There was comprehensive coverage of the
entire population and from 1851 onward they recorded occupations and birthplaces, including those of night workers, of particular relevance in an industrial town; people working on the census night were enumerated with the household they returned to in the morning. All of the appropriate 1851 CEBs were included in the survey while a fifty per cent systematic sample of households was taken from the 1891 CEBs.

The data were restricted to household heads, lodgers and servants. While it seemed valid to relate the occupation of the household head to the family migration pattern, this would have discriminated against unrelated persons, who can be assumed to have migrated independently. The distance between Motherwell and birthplace was considered a good enough proxy for life-time migration. In some instances step migration can be investigated by comparing birthplaces of the father (or head) with those of the children. However, it was not viable for this study because only countries of birth were usually recorded for in-migrants from Ireland, England and Wales. The method is also only useful for studying families and high proportions of migrants were unmarried.

As Motherwell became a burgh in 1865 and the boundaries were extended in 1878 and again in 1890, comparison of the two censuses was not straightforward. The earlier data was extracted from the 1851 CEBs for Dalziel and Hamilton parishes to obtain an equivalent area to the 1891 census. Descriptions of enumeration districts provided the basis for determining this area.

While CEBs are official standardised documents, it is well to recall their origin. Instructions drawn up by the census authorities were interpreted locally by temporary enumerators. The original entries on the householders schedules may not always have been accurate and even conscientious enumerators may have made transcription mistakes when they copied these schedules into the CEBs themselves. Both would constitute errors in the raw data used to test the hypothesis.

The raw data from each census were sorted and aggregated into arrays of occupations against birthplaces. This reduced the data to a manageable size, produced groups of people with common attributes and revealed trends. Aggregating relies on sufficient numbers to mask the diversity of human experience in overall population trends. Therefore an important consideration in choosing the classification of both birthplaces and occupations was that the sub-populations of the aggregates should be statistically meaningful.

Birthplaces were classified as follows: Motherwell and Dalziel parish; elsewhere within Lanarkshire; from the neighbouring shires of Stirling, Edinburgh, Peebles, Dumfries, Dumbarton, Linlithgow, Renfrew and Ayr; the remainder of Scotland; Ireland; England and Wales. The group of near shires was chosen after consulting a gazetteer for 1865. This method was practicable, but not ideal because the shires varied in both size and shape. As there were very few migrants from Wales it was convenient to group them together with those from England. Birthplaces in CEBs can be regarded as sufficiently accurate for research purposes. Anderson traced nearly 500 people in two consecutive
censuses and found a 14 per cent discrepancy in birthplace. [19] But many were
minor and involved variations in spelling. Some towns were placed in the wrong
shire because 'the grasp of British geography shown by householders or
enumerators was not strong'. [20] Perkyns cross-referenced birthplaces in the CEBs
for six adjacent parishes in Kent with baptism records and found similar levels of
events. [21]

Census enumerators' books: occupational data

Household heads were asked to enter profession or occupation (or rank in 1851).
Higgs is of the opinion that there are few problems of interpretation for men in
full-time employment and that occupations listed in trade directories were
generally comparable with those in the CEBs. [22] In fact the majority of occupations
compiled for this survey were almost entirely for men, as they were generally the
household heads (see above).

The unambiguous classification of occupations, as stated in the CEBs, poses both
conceptual and practical problems. [23] There are two broad approaches to
aggregation although neither can be considered as ideal. One uses occupations as
indicators of socio-economic status while the other classifies them according to
sectors of employment. [24] The latter is both simpler and closer to the intent of the
Registrar Generals in the Victorian era. [25]

The Booth-Armstrong classification for employment sectors is widely used. [26] This
was ideal for relating the economic developments in Motherwell to migration
patterns. Although occupations are grouped in a manageable number of
categories, detailed sub-divisions provide guidance on the allocation of
occupations. The disadvantage of the scheme is that it hides a diversity of
economic circumstances.

The relationship between occupations, as stated in the CEBs, and socio-economic
status is more complex and judgement is required on relative skills and incomes
of occupations, some of which are now obsolete. There are also problems where
the CEBs do not discriminate between masters and journeymen, for example, a
'baker' could either have owned a shop or been employed as an assistant.
Murray observes that handloom weavers belonged to a diverse occupational
group, where reward depended on skill and physical strength. [27]

Although the Booth-Armstrong classification is the most straightforward to
implement there are practical problems. Census schedules requested household
heads to include qualifying adjectives, like iron or coal, but they were frequently
omitted. [28] Engine keepers were employed in factories, mines and pitheads; of
necessity they were classified for this study under manufacturing unless it was
stated to the contrary in the CEBs. The incidence of reported dual occupations
was low and the first given was taken for classification purposes.

The Booth-Armstrong scheme is compatible with the concept of primary,
secondary and tertiary sectors of employment. [29] Logically both farmers and
agricultural labourers are included in the same group. But the distinction
between factory labourers and general labourers is somewhat artificial. In practice they would have been mobile across the manufacturing and industrial service sectors of employment. Neither household-heads nor enumerators could have been expected to be so precise with their entries.

In order to contrast employment in Motherwell over the two censuses, handloom weavers and tambourers were separated from the new manufacturing industries. However, this was not possible for blacksmiths and hammermen, who were employed either in a traditional setting or (in 1891) in an iron and steel factory. Booth devised three categories for services, but they have been combined because numbers were too low to be considered statistically significant. Labourers comprised the most frequent occupation in Motherwell and therefore they were included in a single group, which coincidentally approaches most closely to the ideal of a socio-economic grouping. Only agricultural labourers were classified according to Booth's original scheme.

Where Motherwell is concerned manufacturing, mining and transport were overwhelmingly iron and steel (including railway workshops), coal and railways respectively. A few people could not be accommodated and are described as others; these were born in other countries (or at sea), annuitants, widows or paupers. Where a former occupation was given it was classified as such, for example, 'weaver retired', 'pauper tambourer'.

Results and discussion

The aggregated data in Tables 1 and 2 do not represent the occupational profile for Motherwell. Rather, by design, they refer to a sample of household heads, lodgers and servants. There were very high proportions of in-migrants in both decades and there was a considerable change in occupational profile between 1851 and 1891. This change was related to the growth of coal mining, railways and the heavy industries in parallel with decline in agriculture and cottage industry textiles. The obstacle of distance in migration was clearly evident from the total numbers for each birthplace group, and also within many occupations. However, numbers of migrants from Ireland were higher than from the distant shires of Scotland. Although distances could be less, depending on the exact location of origin, emigration from Ireland is associated with population pressures or negative selection as well as opportunities.\(^9\)

In 1891 the numbers of in-migrant in the services sector can be clearly ranked according to birthplace (Table 2). The majority were from Lanarkshire, a minority from the further shires and intermediate numbers from intermediate origins. This is not mirrored exactly in the occupational structure indicating occupational selectivity. This was most marked in the iron and steel industry and for labourers (Table 2).

The values expected for an even distribution with the same occupation and birthplace totals were compared with the actual results using a ratio (Tables 3 and 4). The actual values are those presented in Tables 1 and 2 while the corresponding expected ones are the products of the totals for each birthplace
Table 1  Occupations and birthplaces, of household heads, lodgers and servants, Motherwell, 1851

<table>
<thead>
<tr>
<th></th>
<th>Motherwell</th>
<th>Lanarkshire</th>
<th>Near Shires</th>
<th>Far Shires</th>
<th>Ireland</th>
<th>England and Wales</th>
<th>Total</th>
</tr>
</thead>
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<td>n.</td>
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<td>n.</td>
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<tr>
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<td>4</td>
<td>3</td>
<td>2</td>
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<td>17</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>31</td>
</tr>
<tr>
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<td>2</td>
<td>1</td>
<td>1</td>
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<td>32</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>3</td>
<td>21</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>Dealers</td>
<td>6</td>
<td>33</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>Labourers</td>
<td>20</td>
<td>18</td>
<td>2</td>
<td>6</td>
<td>9</td>
<td>2</td>
<td>57</td>
</tr>
<tr>
<td>Agriculture</td>
<td>14</td>
<td>36</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>64</td>
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<tr>
<td>Textiles</td>
<td>33</td>
<td>26</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>66</td>
</tr>
<tr>
<td>Coal</td>
<td>7</td>
<td>78</td>
<td>37</td>
<td>10</td>
<td>27</td>
<td>1</td>
<td>160</td>
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<tr>
<td>Total</td>
<td>97</td>
<td>251</td>
<td>72</td>
<td>29</td>
<td>55</td>
<td>10</td>
<td>514</td>
</tr>
</tbody>
</table>

Table 2  Occupations and birthplaces, of household heads, lodgers and servants, Motherwell, 1891

<table>
<thead>
<tr>
<th></th>
<th>Motherwell</th>
<th>Lanarkshire</th>
<th>Near Shires</th>
<th>Far Shires</th>
<th>Ireland</th>
<th>England and Wales</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>n.</td>
<td>n.</td>
<td>n.</td>
<td>n.</td>
<td>n.</td>
<td>n.</td>
</tr>
<tr>
<td>Railways</td>
<td>6</td>
<td>55</td>
<td>42</td>
<td>40</td>
<td>6</td>
<td>21</td>
<td>130</td>
</tr>
<tr>
<td>Services</td>
<td>3</td>
<td>23</td>
<td>15</td>
<td>14</td>
<td>9</td>
<td>4</td>
<td>68</td>
</tr>
<tr>
<td>Building</td>
<td>15</td>
<td>36</td>
<td>23</td>
<td>21</td>
<td>10</td>
<td>13</td>
<td>118</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>52</td>
<td>194</td>
<td>88</td>
<td>41</td>
<td>145</td>
<td>128</td>
<td>648</td>
</tr>
<tr>
<td>Dealers</td>
<td>5</td>
<td>59</td>
<td>30</td>
<td>16</td>
<td>2</td>
<td>9</td>
<td>121</td>
</tr>
<tr>
<td>Labourers</td>
<td>9</td>
<td>47</td>
<td>20</td>
<td>17</td>
<td>206</td>
<td>9</td>
<td>308</td>
</tr>
<tr>
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<td>2</td>
<td>9</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>Textiles</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Coal</td>
<td>18</td>
<td>110</td>
<td>61</td>
<td>12</td>
<td>60</td>
<td>3</td>
<td>254</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>533</td>
<td>284</td>
<td>173</td>
<td>444</td>
<td>168</td>
<td>1732</td>
</tr>
</tbody>
</table>

and occupation classes divided by the total population. A number of cells in Tables 3 and 4 are empty. It was decided that all ratios created with an expected value of less than five individuals would be excluded as they would be over-weighted and produce unusual results. The ratios were then used to test the hypothesis. Abstracting data from Table 2 for migrants from England and Wales employed in the building sector in 1891, the actual to expected ratio is 13 divided by (118x188/1,732), which computes to 1.0. In this case the actual number of migrants was therefore as expected.

Even if the hypothesis was false the theoretical value of exactly 1.0 would not be expected in every case. Chance phenomena in classes with low numbers and
Table 3  Actual to expected ratios, for household heads, lodgers and servants, Motherwell, 1851

<table>
<thead>
<tr>
<th></th>
<th>Motherwell</th>
<th>Lanarkshire</th>
<th>Near Shires</th>
<th>Far Shires</th>
<th>Ireland</th>
<th>England and Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railways</td>
<td></td>
<td>0.6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Services</td>
<td>*0.3</td>
<td>1.1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Building</td>
<td>1.7</td>
<td>1.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>*0.5</td>
<td>1.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dealers</td>
<td>0.6</td>
<td>1.4</td>
<td>1.0</td>
<td>-</td>
<td>*0.2</td>
<td>-</td>
</tr>
<tr>
<td>Labourers</td>
<td>1.9</td>
<td>0.6</td>
<td>*0.3</td>
<td>-</td>
<td>1.5</td>
<td>-</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1.2</td>
<td>1.2</td>
<td>0.6</td>
<td>-</td>
<td>0.9</td>
<td>-</td>
</tr>
<tr>
<td>Textiles</td>
<td>*2.6</td>
<td>0.8</td>
<td>0.4</td>
<td>-</td>
<td>*0.3</td>
<td>-</td>
</tr>
<tr>
<td>Coal</td>
<td>*0.2</td>
<td>1.0</td>
<td>1.7</td>
<td>1.1</td>
<td>1.8</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: Those values which are preceded by an asterisk are statistically significant. Those following unclassified occupations are ignored. Missing cells caused by ignoring all 'expected' values with a frequency of less than 5.

Table 4  Actual to expected ratios, for household heads, lodgers and servants, Motherwell, 1891

<table>
<thead>
<tr>
<th></th>
<th>Motherwell</th>
<th>Lanarkshire</th>
<th>Near Shires</th>
<th>Far Shires</th>
<th>Ireland</th>
<th>England and Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railways</td>
<td>*0.5</td>
<td>1.0</td>
<td>1.4</td>
<td>*2.8</td>
<td>*0.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Services</td>
<td>-</td>
<td>1.1</td>
<td>1.3</td>
<td>*2.1</td>
<td>*0.5</td>
<td>*0.5</td>
</tr>
<tr>
<td>Building</td>
<td>-</td>
<td>1.0</td>
<td>1.2</td>
<td>1.8</td>
<td>*0.3</td>
<td>1.0</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>1.3</td>
<td>1.0</td>
<td>0.6</td>
<td>0.6</td>
<td>0.9</td>
<td>1.8</td>
</tr>
<tr>
<td>Dealers</td>
<td>0.7</td>
<td>1.6</td>
<td>1.5</td>
<td>1.3</td>
<td>*0.1</td>
<td>0.7</td>
</tr>
<tr>
<td>Labourers</td>
<td>*0.5</td>
<td>*0.5</td>
<td>*0.4</td>
<td>*0.6</td>
<td>2.6</td>
<td>*0.3</td>
</tr>
<tr>
<td>Agriculture</td>
<td>-</td>
<td>1.3</td>
<td>-</td>
<td>-</td>
<td>0.7</td>
<td>*0.4</td>
</tr>
<tr>
<td>Textiles</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Coal</td>
<td>1.1</td>
<td>1.4</td>
<td>1.4</td>
<td>*0.5</td>
<td>0.9</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Notes: Those values which are preceded by an asterisk are statistically significant. Those following unclassified occupations are ignored. Missing cells caused by ignoring all 'expected' values with a frequency of less than 5.

Errors in the raw data will produce deviations from theory. However, systematic patterns in deviation are likely to be substantively important. There was thus a tendency among migrants from beyond Lanarkshire to a selectivity by specific occupations.

Unfortunately, the numbers in some classes, especially for 1851, were too low to be considered statistically significant and have accordingly been omitted from Tables 3 and 4. The aggregate analysis breaks down to a study of individual lives or random circumstances. The two English railway workers of 1851 are an extreme example (Table 1). The ratio when calculated would be 5.4, but as the expected number of English railway workers was less than 5, it has been omitted from Table 3.
In the sample for 1851, although about a third of the indigenous population worked in textiles, the major source of overall employment in the town, among head of households at least, was in the coal industry (Table 1). The respective ratios show a significant tendency amongst the indigenous population for labouring, building and textiles, but against work in the coal industry (Table 3). The cascading development of heavy industries required an equally rapid growth in the labour force. As the demand could not be met locally it was supplied by in-migrants, mainly native Scots and Irish (Tables 1 and 2). Positive and negative selection respectively are inferred from the historical contexts. By contrast, in-migrants in the textiles sector in 1851 were almost entirely from Lanarkshire. Distance was apparently more of an obstacle in migration amongst textile workers than other groups.

A significant number of in-migrants were from Ireland with a high selectivity for labouring. The actual number of Irish labourers was more than twice that expected number in 1891 (Table 4). Historical evidence points to a negative selectivity due to the potato famine. The CEBs indicated that they possessed relatively few skills which were useful in the urban environment, e.g. blacksmiths and shoemakers. So their in-migration was absorbed in unskilled work. Since values are contingent upon their neighbours in the same birthplace and occupation classes the ratios for non-Irish labourers must be significantly less than one. This reflects the real life situation that the Irish took the unskilled and dirty jobs which others did not want.

In-migrants from England in 1891 were predominantly employed in iron and steel showing occupation-selective migrations. Although there were more Irish than English and Welsh migrants employed in iron and steel in 1891 (Table 2), the former were almost much as expected, while there were almost twice as many of the latter than expected (Table 4). This selectivity is probably accounted for by recruitment of specialised skills. Iron and steel manufacture involved high levels of manual skill and technical expertise by operatives acquired over years of experience. Some coal mining jobs did not involve high levels of skill and in any case both Lanarkshire and Ayrshire were mining areas.

The evidence also points to selective migration of Scots from distant areas into railway employment. In 1891 there nearly three times as many of these Scots working on the railways than expected (Table 4). This was quite an unexpected finding. Employment on the railways was respectable and well-paid although it involved long hours, harsh discipline and hard work. However, there is no obvious reason for a relationship between railways and this group of Scots. The railway companies recruited a diverse work force and skill levels cannot account for the migrant selectivity. Tasks were often learned by progression from one job to another; even guards and signal men underwent only short intensive training. Only railway engine drivers could be regarded as very skilled and their earnings were comparable with those of skilled artisans, but even porters were better off than agricultural labourers.

Although numbers of long distance Scottish migrants were low in the building and services classes a selectivity is implied. There was also a tendency not to
work in mining, manufacturing or labouring. Historically both positive and negative selection may have been involved. The overall long-distance-migration pattern of Scots may be similar to that of the Irish, but featuring more urban skills and the ability to secure ‘better’ employment.

Conclusions

It is worth emphasising that conclusions are not based solely on analysis of the evidence from the CEBs. They also rely on integration of the study with the historical background and Lee’s conceptual view of migration. Although the actual to expected ratio is clearly a powerful analytical tool for revealing relationships it provides no indication about the motives. Ratios significantly greater than unity can reflect different circumstances at both the origin and destination.

Motherwell proved a suitable locale for testing the hypothesis. Migration was not confined to a short distance basis, although numbers in some aggregates were low and not considered significant. There were several factors influencing migration to Motherwell. The manpower needs of the new industries could not be met locally with resultant inward migration from other parts of Britain and Ireland. The obstacle of distance was evident in many occupational sectors, especially in 1851 in the cottage textile industry (Table 2). However, this was in decline and unlikely to attract migrants by positive selection. Although the obstacle of distance was less severe in other occupations it was still evident, for example in the 1891 building sector (Table 2).

There was both negative and positive selection by migrants. There was a tendency to negative selection by migrants from Ireland fleeing poverty and famine. They clearly overcame the obstacle of distance although many lacked urban skills. They found work in most occupational sectors, but the number of Irish labourers was more than twice that expected in 1891 (Table 4).

In 1891 there was a strong tendency to positive selection in the iron and steel sector by migrants from England, who clearly overcame the obstacle of distance. The actual number of migrants was almost twice that expected (Table 4). The origin of this selective migration lies with the high levels of manual skills and technical expertise needed for specialised tasks in iron and steel manufacture combined with a skills shortage during the period of rapid expansion in Motherwell.

Long distance Scottish migrants showed high specificity for employment in 1891. The number of railway workers was nearly three times that expected. However, this cannot be accounted for by recruitment of skilled workers alone. It could be suggested that as the Caledonian Railway spread over most of Scotland and its employees travelled as a matter of course to identical jobs elsewhere in Scotland, this expected value is exaggerated. There was also a marked tendency for employment in services and building. Numbers were as expected for dealing, but less than expected in mining, labouring and iron and steel.
The hypothesis is therefore confirmed. Some migrants overcame the obstacle of distance more readily than others dependent on the skills associated with their occupation. The findings are consistent with Christaller's Central Place Theory and accommodated by Lee's concepts. A corollary to the findings is that positive selection by specific occupations increases with migration distance. The occupations of these migrants were unchanged by migration. Conversely migrants who were negatively selected tended to adapt and take what work they could find. Those without skills ended up as labourers.

NOTES

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