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Editorial on the Special Issue "The Role of Internal Migration as a Driver of Regional Population Change in Europe"

Philip Rees, Nikola Sander

1 Introduction

Europe has experienced a growing divergence of trends in population growth and age structure across cities and regions. A key driver of this divergence is internal migration, which also drives disparities in labour markets and economic development. This special issue focuses on the role of internal migration as a driver of regional population change in Europe, and relates current research to the early works on the "laws of migration" by Ernst Georg Ravenstein. The topic of internal migration and regional population change is important and timely, given the ongoing social scientific and political debate within Europe about the causes and consequences of regional disparities and the design of appropriate policies to reduce inequalities. The European Union, for example, has the goal of reduction of inequalities across member states and across regions within them. The instruments for achieving this goal are the Cohesion Policy (*European Commission* 2020a), the Regional Development Fund (*European Commission* 2020b) and the Social Fund (*European Commission* 2020c).

Previous research on the role of internal migration on past and future population dynamics within the context of regional disparities has largely focussed on population projections at regional and national scales. This includes a project on *Demographic and Migratory Flows affecting European Regions and Cities* (DEMIFER) (*ESPON* 2013). One task in DEMIFER was to forecast regional populations and therefore the component flows (births, deaths and internal, inter-member state and extra-European migration), with specific scenarios showing outcomes under different policies (*Rees et al*. 2012). Because of time constraints, the scenarios for migration assumed convergence, divergence or stasis in the attractiveness of regions to the three spatial categories of migrants, uninformed by an analysis of trends over space and time. More recent projections of European country populations have adopted either high, medium and low scenarios (*Cafaro/Derer* 2019) or combinations of high, central and low with differing levels of human capital of migrants (*Lutz et al.* 2019). However, EUROSTAT have not published regional population projections since 2008. There is therefore a gap in our knowledge of migration trends across Europe which could inform population projections under plausible policy

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assumptions and a lack of an update-to-date, Europe-wide set of projected regional populations for 2020 to use in monitoring infections and mortality rates during the Covid-19 pandemic, across the European Union. This special issue of Comparative Population Studies (CPoS) fills a serious gap in our understanding of the migration components of population change, which would also facilitate a more effective response to crises such as the Covid-19 pandemic.

This special issue presents new findings and insights into the role of migration in the development of the populations of cities and regions in Europe. All papers link their findings about contemporary migration flows with the "classic" papers by *Ernst Georg Ravenstein*, who studied internal migration in the British Isles and in a selection of European countries in the nineteenth century. One hundred and thirty years ago, Ravenstein studied the role of migration as a driver of regional population change and published two seminal papers on the Laws of Migration (*Ravenstein* 1885, 1889). Ravenstein's first paper describes the spatial patterns of internal migration in the British Isles, while the second discusses internal and international migration and population change in Europe and North America.

The remainder of this editorial is structured as follows: Section 2 lists the papers that constitute this special issue and describes their features, so that readers can choose the paper closest to their interests or organize their reading of all papers in a sensible order. Section 3 links the papers to the work of Ravenstein, showing which "laws" are evaluated and how. Section 4 summarises the contribution of the Special Issue to scholarship in internal migration studies and reflects on what the current Covid-19 pandemic might mean for migration intensity, migration distances, migration directions, migration variation by life course stage and migration impact. In this editorial, when we refer to "migration", we normally mean "internal migration" or place to place changes of usual residence within the borders of a nation state. Occasionally, reference is made to international migration between countries. Throughout the text, we use author names in italics to make reference to the special issue papers.

2 Papers in the special issue

The eight papers that are included in this special issue either focus on multiple countries in Europe and beyond to adopt a cross-nationally comparative perspective, or on a specific country (England and Wales, Germany, Spain, Italy and Russia). Table 1 sets out details of the papers in the special issue. All papers belong to Volume 44 (2019), but because CPoS is an online open-access journal that publishes articles on a continuous rolling basis, some of the papers were published in 2020.

Table 2 summarises the content of each paper in terms of spatial patterns, contribution to population change and the characteristics of the data sets employed. The first column of the table lists the family names of the authors. The second to fourth columns give descriptions of the data used in each paper, identifying the country or countries studied, the spatial zones used, and the time periods for which data were available. The fifth to seventh columns describe the key themes of each paper, in

Tab. 1: The special issue papers

Philip Rees, Nik Lomax 2020: Ravenstein Revisited: The Analysis of Migration, Then and Now. Comparative Population Studies, 44 (2019): 351-412. Date of Release: 07.05.2020. [https://doi.org/10.12765/CPoS-2020-10en] https://comparativepopulationstudies.de/index.php/CPoS/article/view/369/310
Francisco Rowe, Martin Bell, Aude Bernard, Elin Charles-Edwards, Philipp Ueffing 2019: Impact of Internal Migration on Population Redistribution in Europe: Urbanisation, Counter-urbanisation or Spatial Equilibrium? Comparative Population Studies, 44 (2019): 201-234. Date of Release: 06.11.2019. [https://doi.org/10.12765/CPoS-2019-18en] https://www.comparativepopulationstudies.de/index.php/CPoS/article/view/324/288
Joseph Day 2020: The Process of Internal Migration in England and Wales, 1851-1911: Updating Ravenstein and the Step-Migration Hypothesis. Comparative Population Studies, 44 (2019): 447-496. Date of release: 08.06.2020. [https://doi.org/10.12765/CPoS-2020-13en] https://comparativepopulationstudies.de/index.php/CPoS/article/view/374/313
Tony Champion 2020: Updating Ravenstein: Internal Migration as a Driver of Regional Population Change in the Wider South East of England. Comparative Population Studies, 44(2019): 269-290. Date of release: 20.03.2020. [https://doi.org/10.12765/CPoS-2020-05en] https://comparativepopulationstudies.de/index.php/CPoS/article/view/333/305
Nico Stawarz, Nikola Sander 2020: The Impact of Internal Migration on the Spatial Distribution of Population in Germany over the Period 1991-2017. Comparative Population Studies, 44 (2019): 291-316. Date of release: 23.03.2020. [https://doi.org/10.12765/CPoS-2020-06en] https://comparativepopulationstudies.de/index.php/CPoS/article/view/356/306
Fernando Gil-Alonso, Jenniffer Thiers-Quintana 2020: Population and Economic Cycles in the Main Spanish Urban Areas: The Migratory Component. Comparative Population Studies, 44 (2019): 413-446. Date of release: 21.04.2020. [https://doi.org/10.12765/CPoS-2020-09en] https://comparativepopulationstudies.de/index.php/CPoS/article/view/361/309
Liliya Karachurina, Nikita Mkrtchyan 2020: Age-specific Migration in Regional Centers and Peripheral Areas of Russia Comparative Population Studies, 44 (2019): 317-350. Date of release: 27.05.2020. [https://doi.org/10.12765/CPoS-2020-12en] https://comparativepopulationstudies.de/index.php/CPoS/article/view/372/312
Federico Benassi, Corrado Bonifazi, Frank Heins, Francesca Licari, Enrico Tucci 2020: Population Change and International and Internal Migration in Italy, 2002-2017: Ravenstein Revisited Comparative Population Studies, 44 (2019): 497-532. Date of release: 08.09.2020. [https://doi.org./10.12765/CPoS-2020-16] https://comparativepopulationstudies.de/index.php/CPoS/article/view/389/315

Tab. 2: Themes in the analysis of internal or international migration in the special issue papers

Authors	Data			Themes		
	Country or Countries	Spatial Zones	Time Period(s)	Spatial Directions or Patterns	Contribution to Population Change	Population groups
Rees, Lomax	Wide range of countries (focus on UK)	Scale and zonation issues reviewed	Recent decades	Distance density relationship; functional urban regions	Covers measurement of internal and international migration	Age groups, Genders, Education, Ethnicity, Nativity groups
Rowe, Bell, Bernard, Charles Edwards, Ueffing	28 EU Member States	Basic Spatial Units: 22 to 431	Years around 2000/2010	Gradients of net migration versus density; Concentration or Deconcentration	Migration impacts measured using summary indexes (CMI, MEI, INMI)	All groups together
Day	England and Wales	Parishes, Counties, Metro classes	1851-1911	Tests step by step migration hypothesis for individuals	Focusses on internal migration	Age groups, genders
Champion	England	LGAs in rings around London; TTWAs	2001-2016	Tests step by step migration hypothesis for aggregate flows	Direction of migration outwards from London to rings	All groups together
Stawarz, Sander	Germany	Counties	1991-2017	Temporal change in NIMR vs Population Density relationship	Relationship varies depending on labour/ housing markets	Six age groups

Tab. 2: Continuation

Authors	Data			Themes		
	Country or Countries	Spatial Zones	Time Period(s)	Spatial Directions or Patterns	Contribution to Population Change	Population groups
Gil-Alonso, Thiers-Quintana	Spain	The five largest Metro regions, Rest of Spain	2005-2016	Metropolitan Concentration and De-concentration	Contribution of Native-born and Foreign-born internal migrants	Native-born and Foreign-born
Karachurina, Mkrtchyan	Russia	Municipal Formations	2010, 2012-2016	Migration from periphery to regional centres	Focusses on internal migration	Age groups
Benassi, Bonifazi, Heins, Licari, Tucci	Italy	Local Labour Markets	2002-2017	Contribution of international and internal migration to population change	Native-born and Foreign-born internal migrants	Foreign-born and native-born

Notes:
EU = European Union, LGA = Local Government Areas, TTWA = Travel To Work Area, UK = United Kingdom
CMI = Crude Migration Intensity, MEI = Migration Effectiveness Index,
INMI = Index of Net Migration Impact
NIMR = Net Internal Migration Rate

terms of migration patterns, contributions to population change and whether different population groups were considered in the analysis.

The migration data used in the special issue papers vary in spatial and temporal scale due to cross-country variations in the definition and measurement of migration flows (see Table 2). *Rees* and *Lomax* review measurement and analysis approaches adopted by Ravenstein and contemporary researchers. Illustrations of the main arguments are drawn mainly from the United Kingdom and decades from 1990-91 onwards. Maps of net internal migration at local government district scale are used to illustrate changes in spatial variation over a recent decade. *Rowe et al.* analyse migration patterns in 28 European Union member states (only 27 since 31 January 2020), using the smallest spatial unit available in each country. *Day* uses census microdata for England and Wales. He employs scales ranging from parishes

through counties to metropolitan regions by population size class. *Champion* uses local government areas at various scales in England and Wales, the part of the British Isles studied most intensively by Ravenstein. *Stawarz* and *Sander* use data on migration flows between 401 counties in Germany for the period 1991 to 2017 to study the impact of migration on regional population change. *Gil-Alonso* and *Thiers-Quintana* aggregate municipal level migration data to the five largest urban regions of Spain (Barcelona, Bilbao, Madrid, Seville and Valencia, and the rest of Spain) to analyse net migration flows and population changes by native and foreign residents. *Karachurina* and *Mkrtchyan* employ a spatial framework of regions divided into centres and peripheries, based on aggregating data for municipalities, to track the change over time in migration flows by broad ages. *Benassi et al.* aggregate municipal register migration data by year to labour market areas to demonstrate the vital contribution of foreigners to Italian internal migration and the relationship of net internal migration and international net inflows and outflows by age in Italy. Mapping these flows demonstrates the continuing differences between the South of Italy with a strong outflow of internal migrants and Italy's Centre and North to where native internal migrants move.

3 Themes of the special issue papers

We provide a brief summary of the rich seams of analysis and findings presented in the eight papers. We do this by commenting on the relationships between paper findings and Ravenstein's "laws of migration" (empirical generalisations), using the interpretation of these in *Grigg* (1977).

3.1 How does migration analysis in recent decades differ from that of Ravenstein?

Rees and Lomax review how migration is defined, how it is measured, and through what instruments the data are collected (censuses, surveys, registers, telecommunication and internet sources). The paper identifies the type of migration measure used by Ravenstein: tables of counties of birth and residence at a census, collectively termed "lifetime migration". Because these data do not pin-point when the migrants moved, they have been rarely used in analysis subsequently. The paper discusses methods developed recently for inferring between country migration for fixed time periods from collections of census and survey tables of the population classified by country of birth and country of residence, triggered by key papers by *Abel* (2013) and *Abel* and *Sander* (2014).

3.2 Migration and distance

Ravenstein: The majority of migrants move only over short distances (Grigg 1977, Law 1)

The development of gravity models of migration embodying distance decay functions post-dates Ravenstein's papers. However, it is difficult to compare the decay parameters between countries because they are highly dependent on how many regions are used and what their size is. *Rees and Lomax* review findings by *Stillwell et al*. (2016) on distance decay parameters standardized to be comparable across countries with different numbers and size of regions, using methods developed in the University of Queensland's IMAGE[1] project. Lower distance frictions are characteristic of large, high migration intensity countries.

3.3 Migration and settlement hierarchies

Ravenstein: Migration proceeds step by step (Grigg 1977, Law 2)

Ravenstein's generalisation that migration proceeds step by step has been interpreted and investigated in two different ways. The first interpretation is that it represents the hypothesis that migrants, over the course of their lifetime, make a chain of migrations through a sequence of successively larger settlements. The second interpretation is that the sequence of flows occurs at an aggregate, not an individual scale. For example, there might be a net flow from county A to county B and from county B to county C. County A might be highly rural, county B might consist of mixed urban and rural settlements and county C would be highly urban. But different people would be involved in each step of the flow sequence. Ravenstein coined his generalisation by mapping selective chains of migration flows. *Day* provides an insightful review of understandings of the step by step migration hypothesis and demonstrates, using census microdata and parish registers and other evidence, that most migrants in 19th century England and Wales took *only one step* from starting home to a bigger place. *Champion* uses aggregate migration flow data from patient registers to demonstrate that internal migration flows to and from the major metropolitan area of London constitute an outward, *step by step downward cascade*, providing evidence that migration flows not only proceed up the settlement hierarchy but can also point downwards.

3.4 Migration, Urbanisation and Economic Development

We group the following Ravenstein generalisations together, because of their close relationships.

- Migrants proceeding long distances generally go to the great centres of commerce and industry (*Grigg* 1977, Law 2)
- Towns grow more by migration than natural increase (*Grigg* 1977, Law 8).
- Migration increases as industries develop and the means of transport improves (*Grigg* 1977, Law 9).

[1] The IMAGE project compares **I**nternal **M**igration **A**round the **G**lob**E**.

- The major direction of migration is from the rural areas to the towns (*Grigg* 1977, Law 10).
- The main causes of migration are economic (*Grigg* 1977, Law 11).

The discussion about the aggregate form of the step by step hypothesis is closely linked to the debate about the extent to which migration leads to urban concentration/urbanisation (driven in part by net migration gains in urban centres) or de-concentration/counter-urbanisation (driven in part by net migration losses in urban centres). Urbanisation has been the dominant global trend through most of the 19th and 20th centuries, but de-concentration was observed in some countries in Western Europe from the 1970s onwards. Because it is difficult to define urban, rural and intermediate regions in a comparable way across countries, researchers have used an indirect method to track the phenomenon: measuring net migration rates for territorial units and tabulating or regressing them against the units' population density (*Rees et al*. 2017).

Stawarz and *Sander* examine the degree to which internal migration in Germany has been "to the great centres of commerce and industry" (*Ravenstein* 1885: 199) or away from them, using a regression method. They show that in recent decades, the patterns of internal migration have swung back and forth between urbanising and counter-urban tendencies, causing population gains in either the inner cities or their hinterlands. These swings are related to changes in urban and rural labour markets, the rise in the higher education industry in cities and the role that rising housing prices have on preferences for urban, suburban or rural residence among families and older adults. The impact of internal migration on population change varies over time and country: that is, it is context-dependent.

Rowe et al. produce a summary graphic of changes in net internal migration rate and population density relationships for four European countries over the 1995 to 2010 period. Each country follows its own path. Their table for 10 countries in the 1980s-1990s and 2000s-2010s shows the same mixed picture as *Stawarz* and *Sander*.

3.5 Migration differences across population groups

Ravenstein: Most migrants are adults; families rarely migrated (Grigg 1977, Law 7).
Ravenstein: The natives of towns are less migratory than those of rural districts (Grigg 1977, Law 5).
Ravenstein: Females are more migratory than males within the kingdom of their birth, but males move more frequently abroad (Grigg 1977, Law 6).

Ravenstein did not have access to census migrant tables disaggregated by migrant characteristics. This was the era of counting of the census returns by hand. It was not until 1884 that Herman Hollerith patented his punched card tabulator (*Wikipedia* 2020). This made production of multiple census tables possible before the 1960s, when mainframe computers took over, to be replaced by mini and personal computers and servers from the 1990s. Analysis of population behaviour by life course

variables such as sex, age, birth cohort and status within the household are now the foundation of much demographic and health analysis. Internal and international migration are routinely classified by these demographic attributes. The papers in the special issue naturally reflect their importance.

For example, *Rees* and *Lomax* show for Great Britain in 1990-91 that the strength of the net internal migration-density relationship varied by life course stage, with de-concentration the dominant process in the family and working ages, with urban-ward migration important only in the late adolescent and young adult ages. *Karachurina* and *Mkrtchyan* demonstrate that, for Russia, inter-regional migration flows are dominated by young adults migrating to regional centres and large metropolises, particularly Moscow, for higher education and training. *Gil-Alonso* and *Thiers-Quintana* and *Benassi et al.* find, for Spain and Italy respectively, that foreigners are much more active in internal migration to and between metropolitan areas than are natives.

3.6 Effectiveness of migrant flows

Ravenstein: Every migratory current has a counter current (Grigg 1977, Law 7)

Rowe et al. use the Migration Effectiveness Index (MEI), which is the scaled absolute value of a given directional migration flow minus its counter-flow divided by the sum of flow and counter-flow. High values of MEI indicate a substantial imbalance in flow volumes and that internal migration is altering the population distribution. The MEI is a building block along with the Crude Migration Intensity (CMI) of an overall Index of Net Migration Impact (INMI). The authors show that the same amount of impact can be generated by a high CMI and low MEI as a low CMI and high MEI. For example, both Russia and Finland have almost the same INMI values. Russia's INMI derives from a low CMI and a very high MEI, while Finland's derives from a high CMI and low MEI. The analysis thus confirms Ravenstein's observation that every flow has a counter-flow, although the counter-flow may be much smaller in size, leading to population redistribution.

3.7 The relationship of internal and international migration

Some papers focus on internal migration, such as *Rowe et al.* and *Karachurina* and *Mkrtchyan*. Other papers include a consideration of international migration into and out of the country being studied, such as *Gil-Alonso* and *Thiers-Quintana* and *Stawarz* and *Sander*. In particular, the role of people with foreign origins in internal migration is analysed by *Benassi et al.* for Italy and *Gil-Alonso* and *Thiers-Quintana* for Spain. *Rees* and *Lomax* review the fields of internal and international migration in terms of concepts, measurement techniques and analysis methods, comparing current practice with methods available to Ravenstein. They explain the methods developed to estimate international migration between countries in a sequence of papers starting with *Abel* (2013). The suggestion is made that lifetime internal migration data, available in many countries but not much used because the timing of

the migration captured is uncertain, could be used to make estimates of period-specific migration trends.

4 Discussion

We hope that the outline of the contents of this Special Issue demonstrates the usefulness of looking back at a classic study to make sense of a complex phenomenon such as internal migration. Of course, we have only described a small part of the richness of analysis to be found in the eight papers. How might this knowledge be used?

At the start of this editorial, we pointed to the need to develop new projections of regional populations in Europe, using a multi-country and multi-region framework. Such projections were implemented up to 2008 by Eurostat but have since been abandoned. If the opportunity arose to construct such projections, the special issue papers would suggest the projection model needed to take into account the shifts over time in the spatial structure of internal migration flows, and to be made operational for a hierarchy of cities, their immediate surrounds and rural areas.

We have prepared this overview of the special issue in spring 2020, a time of severe crisis due to the Covid-19 pandemic affecting all countries of Europe. Human mobility plays a key role in this pandemic because infectious disease spreads through human contact. Based on current knowledge, Covid-19 originated in the city of Wuhan in China in late 2019 (*Ma* 2020; *Davdison* 2020), and spread to other countries, particularly those in Europe, in early 2020. Governments throughout Europe took action to reduce social contact. As a result, human mobility was rapidly reduced, spanning from daily mobility patterns (e.g. travel to work), to commuting flows and international (labour) migration. India, for example, took the step, with only a few hours notice, to "lock down" the country's 1.3 billion population and precipitated a reverse internal migration from the cities to the countryside in chaotic travel conditions (*The Economist* 2020a).

The Covid-19 pandemic has, in effect, radically altered patterns and intensities of internal and international migration. However, we cannot yet quantify the ways in which Covid-19 has changed migration due to lags in data publication. Neither we as the guest editors nor the authors of the special issue papers envisaged the virtual disappearance in 2020 of the flows under study. However, we trust that all forms of human mobility and migration will eventually resume, if only in subdued form to begin with, and that the findings of this suite of research papers will provide some guide to the future study of migration and its role in regional population change.

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