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Between fragmentation and institutionalisation: the rise of migration studies as a research field

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Abstract

It is clear that the field of migration studies has grown significantly over the past decades. What is less known is how this growth has taken place. This article combines bibliometric metadata with expert interviews to analyse the institutionalisation of the field in terms of self-referentiality, internationalisation, and epistemic communities. Self-referentiality in migration studies has gradually increased as the field has grown, until recently. The field has internationalised in terms of international co-authorships but has done so unevenly. Finally, we find that epistemic communities in migration studies, based largely on disciplines, increasingly refer to one another and are increasingly interdisciplinary.

Introduction

We know that the field of migration studies has grown significantly over the past decades (Pisarevskaya et al. 2019). This is manifest in the increase of the number of publications, journals, research institutes and undergraduate programs. This development in size says something on the relevance as well as the popularity of migration studies. What is less known is how this growth of migration studies has taken place. Does this growth involve an institutionalisation of migration research field as a research field? Or has growth come with a growing fragmentation of studies on migration? Our aim in this article is to provide empirical reflections on this process. There are studies that look at specific aspects of this process, for instance in terms of interdisciplinarity (Bommes and Morawska 2005), theoretical (Massey et al. 1998; Cohen, 1996) and methodological (King 2012; Vargas-Silva 2012) developments, but research with a holistic approach is lacking. Our research question, therefore, is *how has migration studies institutionalised in the past four decades?*

We examine institutionalisation from a three-fold perspective, drawing on migration studies and sociology of science literature. Firstly, we analyse self-referentiality – the extent to which researchers on migration refer to one another. Then we study internationalisation – the extent to which migration researchers have collaborated across countries and continents. The third aspect we analyse are epistemic communities –

groups of scholars congregated around certain themes, methods, disciplines, or concepts. Together, these three dimensions provide a comprehensive understanding of developments in the migration studies field in terms of both structures and cultures of knowledge production (cf. Kuhn 2012; Hess, 1997).

We investigate the institutionalisation of migration studies by mapping 48,842 migration-related Web of Science records (1975–2018) in the VOSViewer software (van Eck and Waltman 2009), namely by looking at when, where, and between whom collaboration and citation networks have occurred. Furthermore we interpret these collaborations and citation networks through qualitative insights gathered from interviews with long-standing experts in the field and from secondary literature. Thus, we pursue an iterative approach which triangulates between quantitative data, qualitative interviews, and literature.

There are at least three reasons why study of the institutionalisation of the field is important. First, for scholars who are potentially immersed in their own sub-fields or disciplines, this study provides an historical overview of the development of the broader migration research field. This expands one's horizons on what is out there in migration studies beyond one's epistemic milieu. As migration scholars, we cannot understand where we are without seeing how we got there. This is not without limitations of course. Web of Science's coverage of the social sciences and especially the humanities is limited compared to the natural sciences (see Aksnes and Sivertsen 2019), therefore the bibliometrics offer an *approximation* which is complemented by experts' input. Second, interdisciplinarity (Borkert 2018; Brettell and Hollifield 2015) and internationalisation (Thränhardt and Bommes 2010) are increasingly promoted as the means of scientific innovation. Therefore, a state of the art and historical re-tracing of these processes is needed. Third, since research is widely perceived as fragmented given the rapid growth of migration studies, it is necessary to see whether the claim of fragmentation is supported by bibliometric evidence.

The development of research fields

Research fields are institutionalised areas of study that build on as well as contribute to one or several disciplines. They have a specific thematic focus and a specific research infrastructure (such as their own conferences, institutes and educational programmes). A key question is whether migration studies has institutionalised as a research field, and if so, how its focus (culture of knowledge production) as well as infrastructure (structure of knowledge production) have taken shape. By "structure", we refer to how research is organised geographically, organisationally (including financially), and in terms of publication venues (e.g. journals). "Culture" in knowledge production here refers to how researchers "organically" or even unintentionally cluster around themes, disciplines, and even structures as they are referred to above, forming, in other words, epistemic communities (Knorr, 1999).

Before analysing its development, it is important to define what constitutes 'migration studies'. Here we take a definition that follows King (2012): migration studies encompasses research on all types of international and internal migration, migrants, and migration-related diversities. When mentioning research on migration, this paper is referring to all of these aspects. Although its origins lie with Ravenstein (1885) and early twentieth-century sociology, such as Thomas and Znaniecki (1918), this field has emerged with its own journals and institutes since the 1960s, with intensified growth since the 1990s (Pisarevskaya et al. 2019).

Institutionalisation can be explored through the phenomenon of *self-referentiality* (Shinn 2002, pp. 600–601). If migration researchers regularly refer to one another, then they are likely to share a common theoretical language and explicit or implicit expectations underpinning their research practices, which is an indicator of institutionalisation (cf. Scott 2008). The following two aspects delve more deeply into the where and how questions of institutionalisation. Given the peculiarity of the subject of migration as a global phenomenon, it is especially important to consider the *internationalisation* of knowledge production (Winter 2014). Studying migration from only a national perspective, as several critiques during the 2000s observed (Wimmer and Glick Schiller 2003; Thränhardt and Bommes 2010; Favell 2003; 2015), inhibits our epistemological understanding of migration. Then, analysing *epistemic communities* provides us with an understanding of the field's institutionalisation by revealing a potential array of organically emerging sub-fields, or paradigms (Kuhn 2012), focused around specific disciplines or themes. Taken together, these three aspects give us further insight into the theoretical maturity of the field that we previously theorised (Pisarevskaya et al. 2019).

In this study, we take an iterative approach to theory-building. In order to develop expectations for the empirical bibliometric analysis, we combine theory from published literature with information gathered from the expert interviews with long-standing scholars in migration studies (see *Methods* section). Below, we present the debates regarding the three aspects of institutionalisation mentioned above.

Self-referentiality

Knowledge production on migration has occurred for over a century (see Greenwood and Hunt 2003), encompassing a number of research traditions and methodologies (Brettell and Hollifield 2015; Bommes and Morawska 2005; Vargas-Silva, 2012). The field has grown significantly in recent decades (Pisarevskaya et al. 2019), to the extent that one might consider the present not only to be an "age of migration" (Castles et al. 2014), but an "age of migration *studies*" (Hatton 2011).

There is no clear consensus on how the growth of the field relates to the level of self-referentiality in migration studies. On one hand, some commentators note fragmentation in the field. They observe a lack of "synthesis" between different approaches, disciplines, and levels of analysis (Penninx et al. 2008, p. 8; Kritz et al., 1981; Massey et al. 1998; King 2012; Scholten et al. 2015, pp. 331–335). On the other hand, recent studies find that this thesis may be overstated. Topical analysis of the field suggests that it has a rather unified and stable conceptual and theoretical foundation, observed in increasing connectedness of topics in the past decade (Pisarevskaya et al. 2019).

Moreover, efforts to give structure to the field in recent decades may have led to a standardisation of norms and practices. For example, several migration-focused journals have been established during and since the 1990s (Pisarevskaya et al. 2019). Some of our expert interviewees noted the concerted efforts throughout the 1990s to formalise research on migration (see also Thränhardt and Bommes 2010). This included the establishment of a migration programme (1994) in the US by the Social Science Research Council (SSRC); the Network of Migration Research on Africa (NoMRA) in 1998; and a series of migration research institutes in Europe, including the Centre for Race and Ethnic Relations (CRER, Warwick), Institute for Migration & Ethnic Studies

(IMES, Amsterdam), Institute for Migration Research and Intercultural Studies (IMIS, Osnabrück), the Sussex Centre for Migration Research, and many more since, leading to the founding of the IMISCOE network (2004).

We therefore expect (E1) that our analysis of citation patterns will reconfirm the findings of the topic analysis of Pisarevskaya et al (2019). Despite intensified growth in the volume of knowledge in migration studies, the field has evolved from a disparate set of publications in the 1970s, into an increasingly self-referential field of study from the 1990s on.

Internationalisation

Since the 2000s, much has been written on the ontological and political consequences of "national model" (Bertossi and Duyvendak 2012) or "national paradigm" (Thränhardt and Bommes 2010) structures of knowledge production in migration studies. This is also linked to critiques of "methodological nationalism" (Wimmer and Glick Schiller 2003; Favell 2003; 2015). Migration research has traditionally been connected to national histories, policies, and narratives of migration, as well as languages, enshrined by established funding procedures and sources of empirical data, i.e. national censuses. Given these discussions and the increasing digitisation of knowledge infrastructures enabling easier international communication, one might expect a concurrent increase in cross-country collaborations (cf. Winter 2014). While cross-country collaborations may not necessarily mean the end of national paradigms, continued scientific co-operation across borders facilitates a broadening of conceptual and theoretical perspectives, a softening of national models, and, perhaps, a globalisation of migration theory.

Research policy and funding structures also play a role in internationalisation which can lead to an unevenness of this process across the globe (see Carling, 2015). For example, in the European Union, knowledge production has become "Europeanised" (Geddes and Scholten 2015). Research on migration has been co-ordinated cross-nationally in large part through IMISCOE, an EU Network of Excellence established in 2004, which has operated independently since 2009. We expect this initiative to have contributed to weakening national paradigms in this region. However, the interviewees remarked that due to a tendency to publish in their own language, French, and to a lesser extent, German migration research might not be as transnational as other European countries, including in the post-2004 "IMISCOE" era.

Where English is generally the lingua franca of western migration research, the linguistic diversity in Asian scholarship, according to one interviewee, means that a network such as IMISCOE has not taken off to the same extent. Another interviewee points out that although NoMRA exists for all of Africa, its activity has been concentrated in five key countries: Nigeria, Ghana, Kenya, Mozambique, and South Africa. According to this interviewee, such countries, due to limited domestic research funding, may avoid national paradigms, given the international nature of both their funding and research collaborations (see also van den Boom 2010). In the USA, as the country which produces more migration research than any other, there have been attempts to internationalise, but, as some interviewees commented, these have largely failed, due to a tendency to replicate American conceptualisations in foreign contexts. Meanwhile, as one interviewee noted, the establishment of the Metropolis network in Canada in the

1990s has led to a number of fruitful international collaborations between there and other – mainly European – nations.

In general, we expect that migration studies has become an internationalised field since the turn of the century, but not an entirely globalised one (E2). We expect migration studies to have become more internationalised in most European countries, Canada, and in some African countries, but to have internationalised to a lesser extent in the USA, France, Germany, and most Asian countries (E3).

Epistemic communities

Analysis of epistemic communities gives us an insight into the cultures of knowledge production in migration studies over the years. By 'epistemic communities', we refer to networks of scholars that have emerged (and disappeared) around certain topics, concepts, approaches, or disciplines.

There has been a long-standing question of whether or not migration studies is truly interdisciplinary, or transdisciplinary.[1] Given that migration studies is a research area that is approached from different disciplines, it is interesting to consider whether the "virtually unbreakable" structure of those disciplines (Abbott 2001, p. 149) has remained, or become less rigid over time, indicating cross-disciplinary osmosis. Over the past two decades, Brettell and Hollifield (2000, 2008, 2015) have invoked this discussion in their three editions of *Migration Theory*, arguing that by now we see more interchange among disciplines. However, Favell (2003; 2015, p. 319), in his epilogue to the latest edition, argues that Europe is more "post-disciplinary" than elsewhere. This may be related to the incentivisation of interdisciplinarity in major funding organisations, such as the European Union's Horizon 2020 programme (see European Union 2016).

On this basis, we expect to find that up until the 1990s, researchers of migration were divided according to disciplinary structures. From the 1990s onwards, we expect to find cross-disciplinary osmosis and the breaking down of these divisions (E4).

The published research suggesting concrete developments in the fieldin this regard is rather limited. We do know, however, that there is a plurality of paradigms employed in migration research, revolving, for instance, around opposing sides of the 'dyads' in migration studies that Cohen (1996) identifies, such as internal versus international migration. They may also be tied to more specific themes such as second-generation migrants, gender and migration, or the governance of migration-related diversity (cf. Portes 1997; King 2012). Analysis of such evolutions can be conducted through a multitude of lenses. Therefore we take an iterative approach using the qualitative input of our expert interviewees to trace some interesting patterns. By no means, we claim this description to be exhaustive, however, it still provides valuable insights into some key developments in the field. These include the examination of paradigmatic divides in the field such as Cohen's 'dyads' (1996); the questions of primacy of certain topics i.e. a claim that migration studies' have emerged from the 'shadows' of ethnic and racial studies in the 1970s–1990s; the proliferation of transnationalism from the mid-1990s onwards; and the "cultural turn" of migration

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[1]E.g. a transdisciplinary article is one where it becomes difficult to ascertain the discipline from which it has originated, even though it is clearly identified as belonging to migration studies.

research from being predominantly quantitative and demographic-focused, towards more nuanced qualitative studies of migration (E5).

Methods

This article employs an iterative approach combining bibliometric analysis of Web of Science data, using the VOSviewer software, and qualitative data gathered from 10 interviews with long-standing experts in migration studies. The metadata were collected from the Web of Science index on 12 March 2019. We used Erasmus University Rotterdam's subscription, which has access to records going back to 1975. We conducted an English-language complex query (see Annex) to gather our data. This generated 48,842 items, which are displayed per year in Figure 1. These include journal articles, editorials, comentaries, and reviews, but unfortunately not books. However, as this articel is concerned with general trends in the field not with analysis of the most infuential publications, as Sirkeci et al (2017, pp. 399-403) have already done, this is not a major limitation. The publications are produced by 44,286 different authors, publishing in 1512 different sources, based at 9052 different organisations, in 185 countries. See details about trends over time for each of these aspects in the Annex.

Bibliometric data provide empirical evidence of the structure and culture of the field, and interviews help us to interpret the data (cf. Gläser et al. 2017). Because they were conducted before the bibliometric analysis, the interviews served a double purpose of (i) developing, as seen above, our theoretical expectations, and (ii) of elaborating our qualitative interpretations of the data (cf. Charmaz 2001).

Expert interviews

To enrich our knowledge of the development of migration studies, expert interviews were conducted between March and May 2019. In total, 10 experts were selected. The criterion for the selection of the experts was that they had published commentaries or been instrumental in the development or institutionalisation of migration studies, whether globally or locally. Our interviewees have worked in Sub-Saharan Africa, East Asia, Europe, the Middle East, North America, and Oceania.

• Prof. Aderanti Adepoju

Founder, Network of Migration Research on Africa (Lagos)

• Prof. Stephen Castles

Former Director, International Migration Institute (Oxford)

• Dr. Yuk Wah Chan

Organiser, Network for Asian Migration Studies (Hong Kong)

• Dr. Josh DeWind

Director of Migration Program, Social Science Research Council (New York)

• Prof. James Hollifield

Director, Tower Center, Southern Methodist University (Dallas)

• Prof. Russell King

Former Director, Sussex Centre for Migration Research (Brighton)

• Prof. Peggy Levitt

Co-founder, Global (De) Centre (Cambridge, MA / Florence)

• Prof. Douglas Massey

Methods *(Continued)*

Co-director, Mexican Migration Project (Princeton)

• Prof. Rinus Penninx

Founder, IMISCOE Network of Excellence (Amsterdam)

• Prof. Steven Vertovec

Director, Max-Planck-Institute for the Study of Religious and Ethnic Diversity (Göttingen)

The interviews followed a semi-structured format in which the interviewees were asked in advance to prepare their ideas on the following themes in migration studies: institutionalisation; internationalisation; interdisciplinarity; key concepts, publications, authors, and institutes; and defining periods in the history of the field. The interviews ranged from 45 min to 2 h in length. We coded and summarised the key points related to each theme, by interviewee, in a spreadsheet.
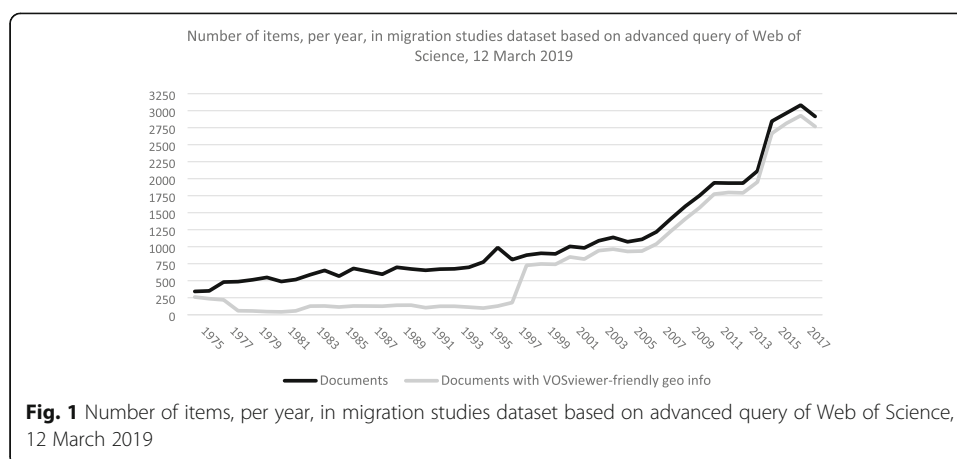
Bibliometric analysis

We conducted various analyses using VOSviewer (v.1.6.7 and v.1.6.11; van Eck and Waltman 2009) to probe our theoretical expectations. We explored the bibliometric and citation trends over time, to determine whether migration studies has become more or less self-referential, international, and/or, by the standard of our analytical framework, institutionalised, including multiple epistemic communities.

For measuring how *self-referential* the dataset was, we conducted citation analyses at both document and source level. A citation analysis looks at the citations between documents and sources *within* the dataset, regardless of citing direction. If a large body of literature such as this one, sharing a thematic focus, is not at the *document* level, we analysed the proclivity of documents with 30 or more citations in the dataset ($N =$ 3466) to cite one another. By only analysing highly-cited papers (HCPs, see Plomp 1990), we focus on the 'influential core' of the field. While this method also has a bias in terms of emphasising older documents that have had more time to gather citations (Nakamura et al. 2011), increased overall self-referentiality, controlled for by the overall number of HCPs, could indicate the institutionalisation of the field. A source-level analysis usually considers citations between journals ($N = 1431$). This tells us whether, with a growing number of journals (see Additional file 1), the field became fragmented.

For sources, we conducted an additional analysis of network density. This gives an indication of how self-referential the field has been compared to how self-referential it *could* theoretically have been. By adding each consecutive year to the starting year, we calculated the density of the citation network using a slightly adjusted version of the formula employed by Reagans and McEvily (2003):

Where D is density, and t indicates the period from 1975 until each of the consequent year. The cumulative potential number of links is calculated using this formula:

Fig. 1 Number of items, per year, in migration studies dataset based on advanced query of Web of Science, 12 March 2019

$$P_t = \frac{N_t*(N_t-1)}{2}, \quad \text{where N is a Total number of sources for period } t.$$

The *internationalisation* of the field was measured by the likelihood of migration scholars to collaborate across borders. This provides a more meaningful view of internationalisation than merely studying the increase in diversity of countries producing migration research. For this reason, we follow Yarime et al. (2010), and operationalise collaboration as co-authorship. An increased proclivity to co-author internationally could potentially indicate that the weakening of national paradigms in migration research.

This analysis was limited to the years 1998–2018, because VOSviewer was only able to identify sufficient geographic metadata from 1998 onwards (Fig. 1). To measure the proportion of transnationally-structured research, we divided the total annual number of international co-authorships by the total annual number of articles containing geographic metadata. We did this analysis per country[2] as well as globally.

Finally, to explore the development of *epistemic communities*, we used co-citation analyses at the author level. This type of analysis allows us look behind the tapestry of citations in migration studies, and understand which authors constitute the reference bases for the literature. Co-citation network maps display the links between authors from within or beyond the dataset that *are cited together* in the documents within the dataset. In other words, these maps unveil latent communities of scholars who have been *linked together by others*. For feasibility reasons, we set the threshold to authors who have received 10 or more citations. This way we exclude authors who have influenced the field to a lesser extent.

We did this in five year increments (1975-1979; 1980-1984, and so on, with the exception of the final period, 2015-2018). The network files exported from VOSviewer can be found in the Harvard Dataverse (see Levy, et al., 2020). Following our iterative logic, this enabled us to analyse the data in the same terms – i.e. "early 1980s", "late 1990s" – as our interviewees described their perception of the field's development. VOSviewer clusters the authors according to how often they are cited together. We take these clusters to approximate the variety of epistemic communities within the field

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[2]See sheet 'all countries weighted' for relativized co-authorship statistics.

in each period. To assign labels, we used Google Scholar to find the unifying features of each cluster. We checked the research of each cluster's most-cited authors, and the first-page results (usually the authors' higher-cited works) enabled us to grasp their conceptual, thematic, or disciplinary focus. We triangulated this information with the reflections shared by our expert interviewees.

We supplemented the qualitative analysis of co-citation networks with a few basic quantitative network measures. Concretely, in each period of time we measured the size of the reference basis (in terms of total number of authors co-cited), the density of co-citation networks, and the average path length, to examine the epistemic communities' connectedness to one another across time.
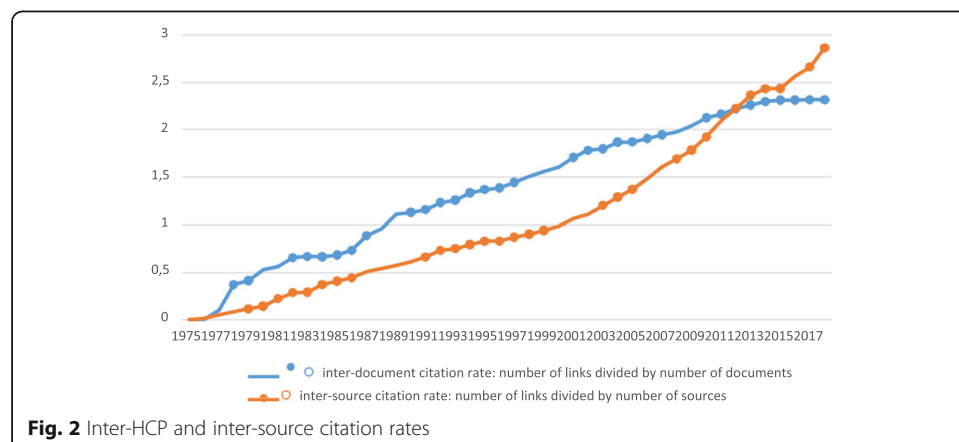
Here it is worth repeating that bibliometrics offer an empirical approximation of the development of the field. Due to the limitations of using Web of Science data, our analysis may underestimate the contributions that historians and anthropologists have made to the field, as well as researchers publishing in languages other than English. This is, in part, why the bibliometric analysis is combined with expert input.
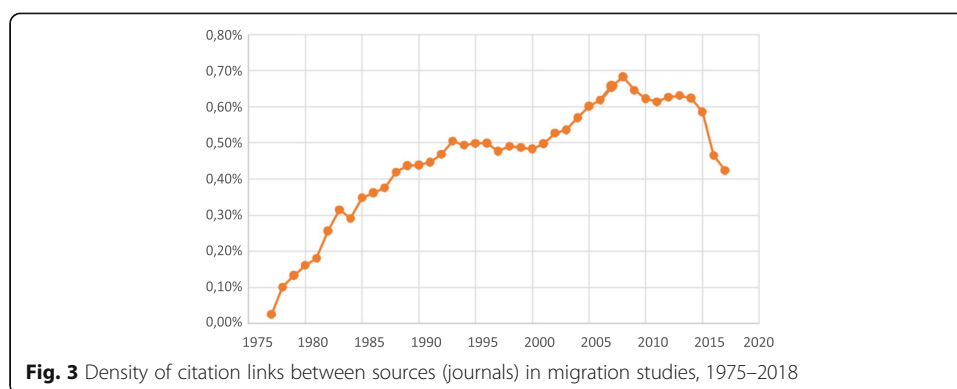
Results and analysis

Self-referentiality

Despite intensified growth in the volume of knowledge in migration studies, we expected to see the field become increasingly self-referential over the past four decades, particularly during and after the 1990s. In line with our previous work (Pisarevskaya et al. 2019), we indeed see intensified growth in the number of publications (Fig. 1), authors, organisations, sources, and countries (Additional file 1) publishing on migration, especially since the mid-2000s. In line with our expectation, Fig. 2 shows that, over time, the overall likelihood of research in our dataset to cite other research in our dataset has increased. This is the case for both highly-cited documents (HCPs), and for sources.

Figure 3 shows the analysis of actual citation links versus potential citation links at the source level. From the mid-1970s (0.02%, or 6 out of 11,000 potential links) until the late 2000s (0.65%, or 888 out of 138,000 potential links), a gradually higher and higher proportion of the potential citation connections within migration research sources were exploited. Since the late 2000s, the network density has stagnated and
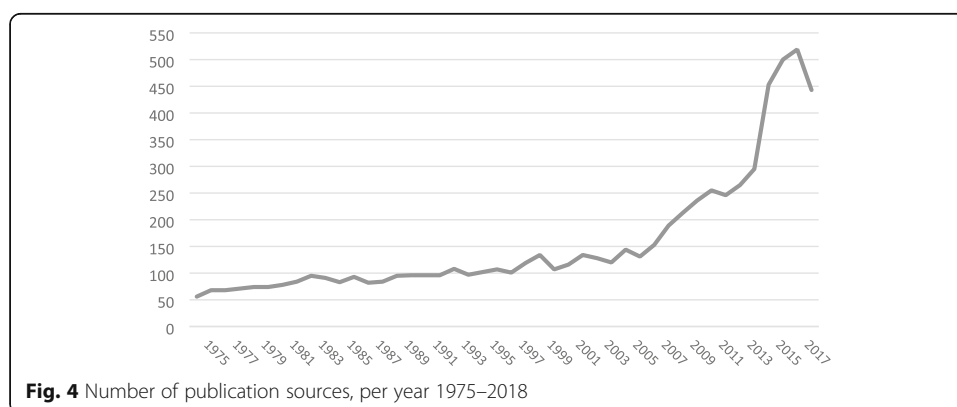

Fig. 2 Inter-HCP and inter-source citation rates

Fig. 3 Density of citation links between sources (journals) in migration studies, 1975–2018

gradually declined. The reason for this negative trend in recent years is possibly related to "citation lag", whereby influential research, particularly in interdisciplinary fields, does not tend to begin accumulating citations for around 5 years (Nakamura et al. 2011, pp. 228–230). While the stagnation in the years 2008–2013 could be due to an exponential growth in the number of sources (see Fig. 4).

Taken together, these findings give support to our expectation (E1). By looking at influential papers and sources publishing on migration, we see that the field has generally become more self- referential, which indicates a trend towards institutionalisation. However, when the self-referentiality of the sources is compared against a theoretical threshold of all possible connections, we see that the percentage of actual citation links increases up to a point. Since the late 2000s, the proliferation of sources has intensified to much higher extent than have the actual inter-source connections. This does not necessarily undermine the process of institutionalisation; it may simply be due to citation lag, or indeed it could be related to the mainstreaming of migration research 'back' into traditional disciplines. The epistemic communities section will elaborate on this.

Internationalisation

We expected migration studies to have internationalised, but to have done so unevenly. As Fig. 5 shows, we see that the overall proclivity of migration researchers to collaborate internationally has significantly increased over time, particularly since the
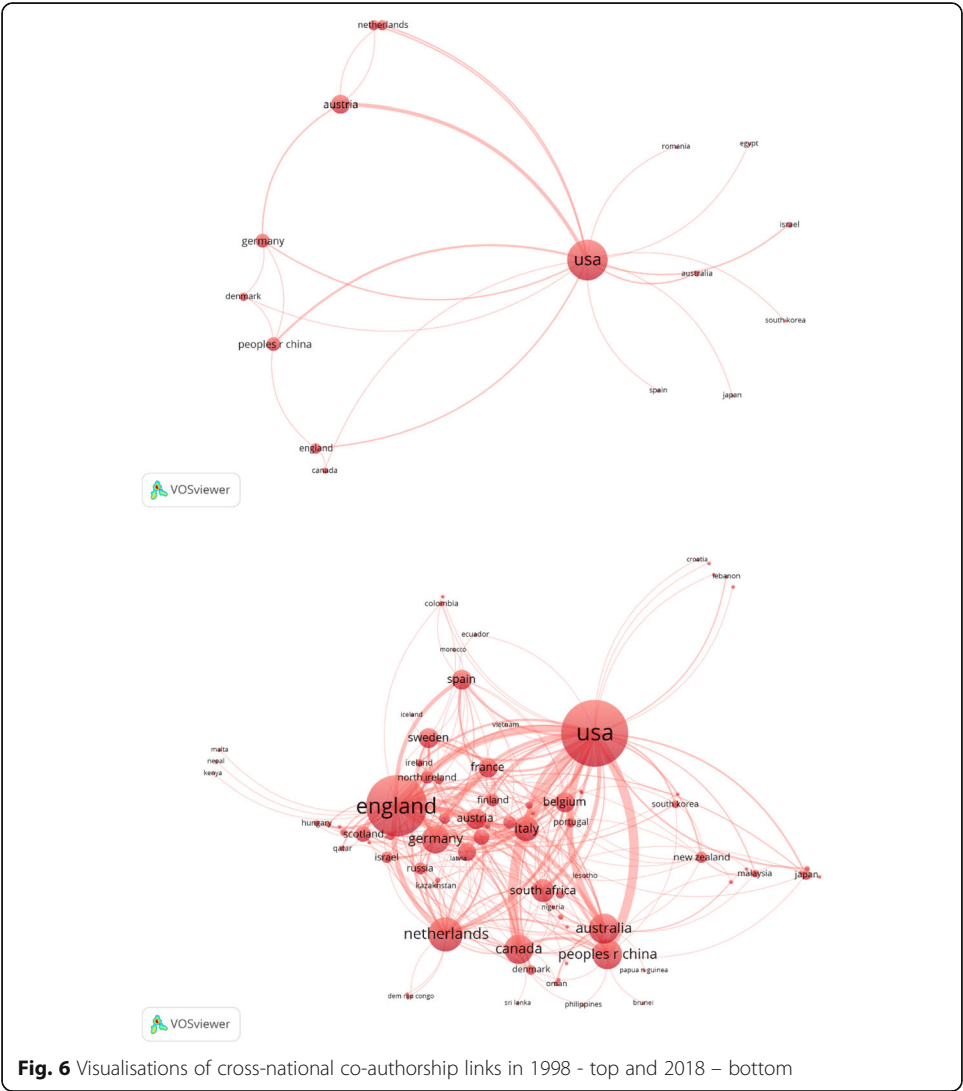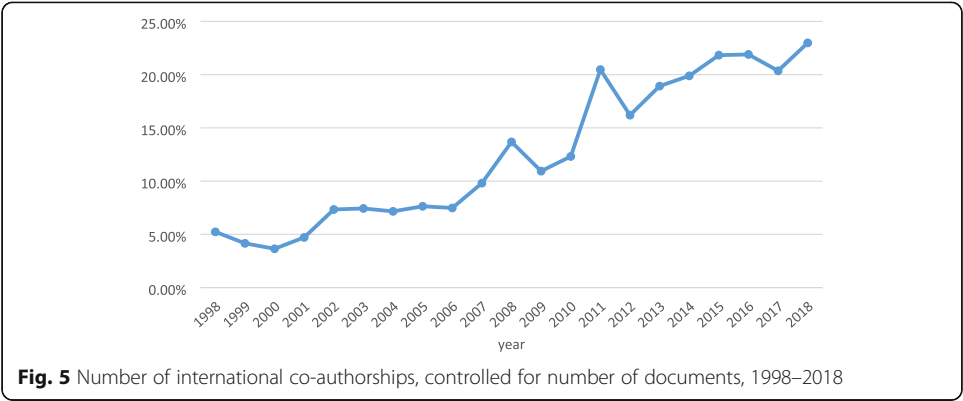

Fig. 4 Number of publication sources, per year 1975–2018

Fig. 5 Number of international co-authorships, controlled for number of documents, 1998–2018

Fig. 6 Visualisations of cross-national co-authorship links in 1998 - top and 2018 – bottom

Table 1 International co-authorships by region, 1998–2018 (only countries with over 30 articles)

Region	International co-authorships as share of articles	International co-authorships (total)	Articles (total)
North America	15%	2150	14,724
Europe	36%	4852	13,559
Asia	44%	851	1944
Oceania	32%	576	1804
MENA	28%	212	750
Africa	67%	282	423
South America	61%	214	353
Grand Total	**27%**	**9137**	**33,557**

mid-2000s. In 1998 there were 38 international co-authorship links, representing 47 countries, across 726 articles. In 2018, there were 636 international co-authorship links, representing 104 countries, across 2767 articles. In other words, around 5% of migration research published in 1998 was cross-nationally co-authored, and around 23% in 2018. Figure 6 visualises this development in terms of the most strongly connected countries. The size of a node reflects the respective country's number of cross-national co-authorships. The thickness of a link reflects the number of co-authorships between the countries at either end.

A deeper probing of the data unveils an *uneven internationalisation* taking place (Table 1). We see that among the two regions with the largest overall output the trend of internationalisation is substantially stronger in Europe than in North America. In Europe, despite linguistic diversity, critiques of national paradigms have perhaps landed on fertile soil. Research policy at the European level has particularly played a role in this. For example, in the 2000s the European Union's FP6 introduced Networks of Excellence (NoE; see de Baas and Vallés 2007) and established the IMISCOE NoE. Our interviewees regarded this as a key turning point for internationalisation. Furthermore, FPs since then have encouraged international collaboration.

In Asia and Oceania, a significant amount of research is also internationally co-authored, but the volume of output is much lower. As for Middle Eastern, African, and South American countries, there is an even lower volume of research, but with a much higher proportion of international co-authorships in Sub-Saharan Africa and South America. Relatively little Middle Eastern migration scholarship is internationally co-authored. These disparities are very likely down to the English-language focus of our dataset, or also the extent of Web of Science's coverage of journals in developing countries. Nevertheless, what this analysis shows is that perhaps there is a relationship between international collaborations in Asia, Africa, and South America, and the probability of being published in English-speaking international journals.

Delving into the country details (Table 2), to our surprise, we can see that German and French migration scholarship is overall among the most internationally collaborative (51%). However, since a large body of French- and German-language literature is probably not included in our dataset, this indicator may be limited.

As expected, among North American countries, the proclivity to collaborate was comparatively lower. For example, the United States, the high absolute number of

Table 2 Countries with >40 international co-authorships 1998-2018

COUNTRIES WITH > 40 INTERNATIONAL CO-AUTHORSHIPS, 1998–2018		
Countries	Abs. N of intl. collaborations	As percentage of total output
Slovakia	40	91%
Nigeria	43	90%
Chile	69	85%
Austria	154	72%
Poland	80	68%
Belgium	258	62%
South africa	202	60%
Portugal	65	57%
South korea	98	53%
Taiwan	54	52%
Germany	515	51%
France	249	51%
India	70	51%
Switzerland	151	50%
New zealand	144	49%
Mexico	98	49%
Greece	51	49%
Brazil	85	46%
Italy	249	45%
Scotland	180	44%
Singapore	79	42%
Netherlands	538	41%
China	362	41%
Spain	275	41%
Turkey	102	40%
Japan	88	40%
Wales	51	40%
Finland	91	39%
Malaysia	50	39%
Russia	74	38%
Norway	129	37%
Sweden	197	35%
North ireland	47	35%
Ireland	69	34%
Denmark	105	33%
Australia	432	29%
Canada	477	24%
England	1196	22%
Israel	110	22%
Usa	1575	13%

international co-authorships comprise a relatively low percentage (13%) of its overall extensive output. To illustrate this trend, our interviewees gave the example of the Social Science Research Council's International Migration programme, which, despite aiming at internationalisation, was rather US-centric, replicating US-developed concepts and theories (Portes and DeWind, 2004, pp. 845–847). Canada is somewhat more internationally collaborative, which is possibly due to its historical involvement in the Metropolis International Network, which was emphasised by several interviewees.

South Africa and Nigeria have been leading African countries in terms of publications and international co-authorships. Especially in the past decade, these have been joined by Kenya, Mozambique and Ghana (see Levy, et al., 2020), where migration research institutes have recently been established. This is in line with the perception of our interviewees.

In Asian scholarship, as Table 2 shows, there are a large number of cross-national collaborations involving China. This is likely related to international interest in the country's 'floating population', as the world's biggest case of internal migration (see Xiang and Tan 2005). Singapore, Japan and Taiwan are also among the most internationally collaborative Asian countries. Our interviewees regarded these as migration research hubs, for instance due to the migration focus of the Asia Research Institute at the National University of Singapore.

To sum up, the absolute and relative increase in international co-authorships in migration studies might be a consequence of the critiques of national paradigms which emerged in the early 2000s, although the structural context may have facilitated this trend (cf. Henke 2001, p. 595). In this period, the digitisation of science has provided the general context in which internationalisation has taken place, but differences persist in terms of the uneven internationalisation that we have theorised. Our evidence indicates that varied levels of internationally-oriented research policies, on the one hand, and global inequalities of knowledge production, on the other, may have also played a role in different levels of internationalisation across regions.

Epistemic communities

Whereas self-referentiality and internationalisation are indicators of structural institutionalisation, another side of institutionalisation involves more the substance of knowledge production, or the 'culture of knowledge production. Therefore, in this section, we bring together the themes discussed above and elaborate on the argument that within migration studies there are several sub-areas that have evolved over time. These developments can be traced using co-citation analysis, which shows *authors who are often referred to*, regardless of the type of publication (including books), in migration literature. It is important to emphasise that these are not necessarily authors who cite each other. Authors who are often cited together (co-cited) in one document form a cluster. These clusters can be interpreted as epistemic communities, or so to say, discursive spaces, reflecting the way in which authors position themselves in wider conceptual discussions. A common reference basis allows scientists to engage in meaningful discussions on theory and methodology. Therefore, the frequent co-citation of authors indicates a shared epistemic foundation from which the cit*ing* literature stems. Of course, authors whose work is criticised may be co-cited with others whose theory or method one adopts.

Nevertheless, such co-citation still points to the existence of a shared epistemic community within which such debates make sense, since the citing researchers know about the existence of the authors they disagree with and deem relevant to distinguish their own approach from those who are being criticised. These reference communities may be thematically -, disciplinarily- and even geographically-bound, in light of the uneven internationalisation discussed in the latter section.

Here we demonstrate the findings from this analysis and how they relate to the insights obtained from the expert interviews.

### Reference islands: (cross-)disciplinary themes

From the late 1970s to late 1980s migration research was divided into several distinct clusters, pointing at the existence of separate reference 'islands' (bubbles), cited by different groups of scholars (Fig. 7). The main three groups we define are "Assimilationists" (red), "Economic sociologists" (dark blue) and "Economists" (light blue), "Demographers" (green), "Refugee studies" (violet). The assimilationists' and demographers' clusters seem to have the least in common, as they are positioned on the opposite sides of the network. The epistemic community of "Assimilationists" were during this time discussing the process of migrant adaptation and inter-group relationships, while "Demographers" worked largely on issues of fertility and mortality across various ethnic groups and migration statuses. Overall, there is a clear divide between cultural sociologists, economic sociologists, economists and demographers. These dispersed groups are connected via the US census as a data source, indicating that migration studies then were largely US-based.

In the next 10 years (Fig. 8) we see that the cluster of "Assimilationists" (red) changed, and some authors of the previous decade were grouped into other clusters. New names, such as Smith, Liberson, Banton, Asante and Davidson were cited the

Fig. 7 co-citations 1975–1984 (*N* = 554)

Fig. 8 co-citation networks 1985–1994 (*N* = 1043)
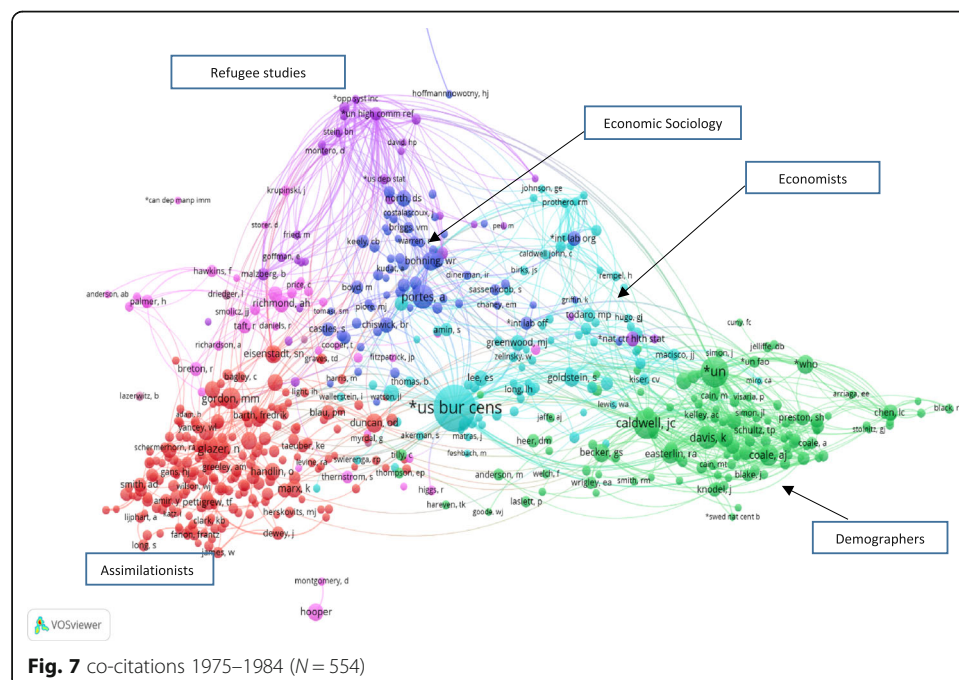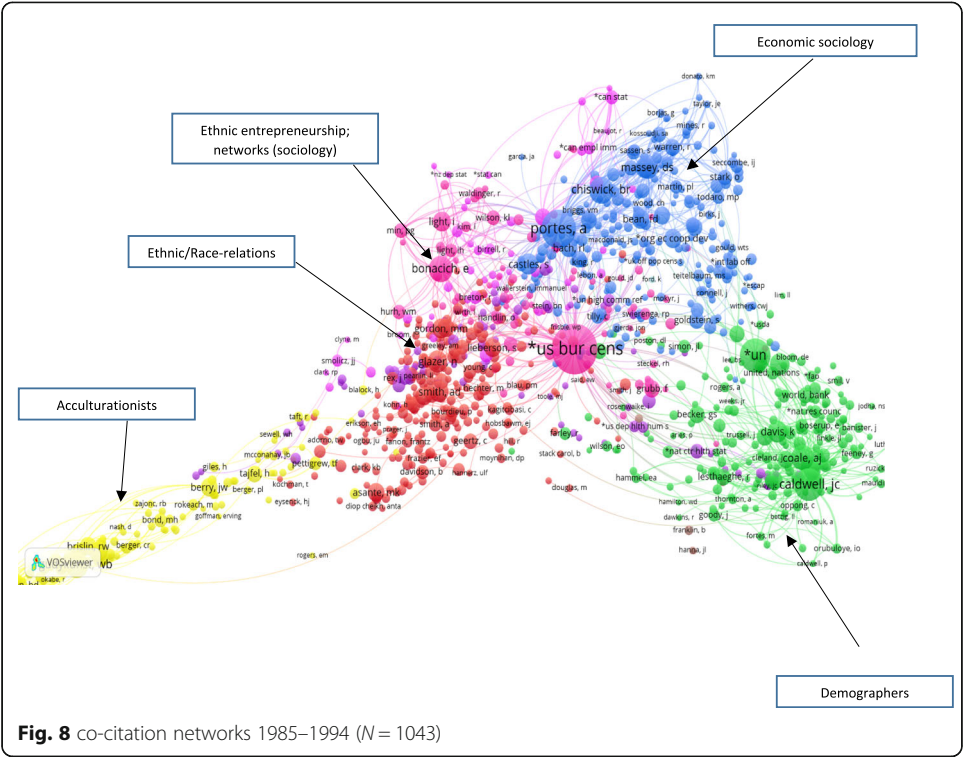
most, and therefore a new name "Race and ethnic relations" seems to be more appropriate for this cluster (red). From this period on, critical black scholars became increasingly prominent in this sub-field, such as Gilroy, Hall, Du Bois, Eduardo Bonilla-Silva. Other pink and rose-coloured clusters deal with the issues of ethnic entrepreneurship, migrant networks and refugee movements. The blue cluster encompassed both economists and sociologists who investigated economic aspects of migration and integration/assimilation. Also, a new cluster (yellow) emerged, which we named "Acculturationists", it is represented by authors who wrote on cross-cultural interactions,

**Fig. 9** co-citations 1995–2004 (*N* = 2237)
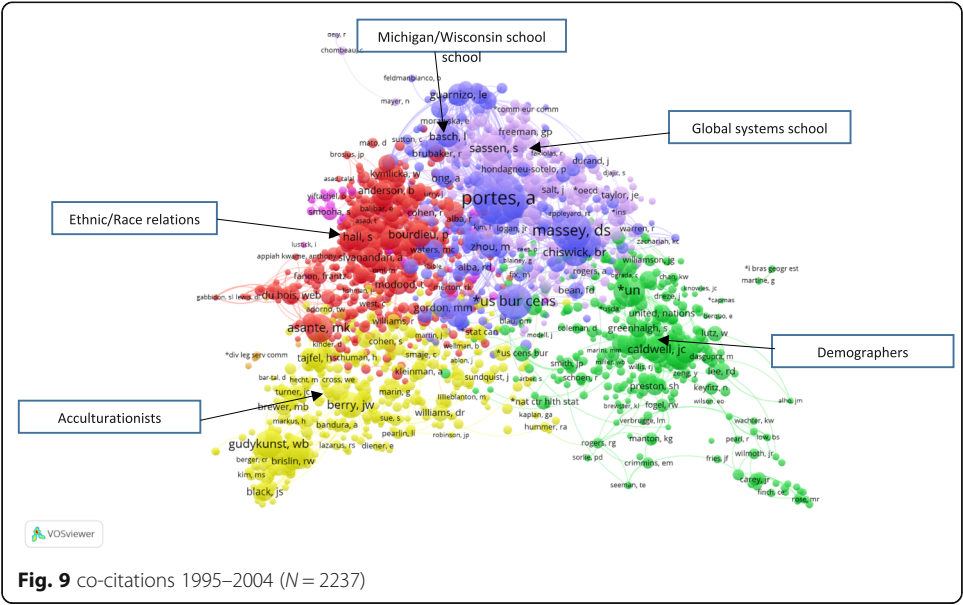
intercultural behaviour and interpersonal communication across cultures, such as Gudykunst, Triandis, Brislin as well as J. W Berry, who became increasingly prominent over time. This cluster seems to have a psychological disciplinary orientation and is connected mostly with the "Race and ethnic relations" cluster.

In the late 1990s and early 2000s we found the beginning of significant transformations in migration literature, as the reference field grew quickly (see Fig. 1). The clusters "Acculturationists" (yellow), "Race relations" (red), "Economic sociologists" (dark blue) seem to be positioned more closely together (Fig. 9), indicating more co-citations across these communities. "Economic sociologists" (dark blue in Figs. 8 and 9) absorbed some authors from "Refugee studies" (violet), and "Race relations" (pink) (Fig. 8), as the authors were co-cited more frequently. This fusion may have led to the formation of a new cluster located next to "Economic Sociologists", which includes Vertovec, Sassen, Castles, and Freeman (light rosy Fig. 9). This could possibly be interpreted with the help of our interviewees, who suggested that migration studies developed with two sociological traditions: (i) the Wisconsin/Michigan approach represented by Massey, Portes, and Cornelius, with a focus on the migration and the (receiving) state, and (ii) the Wallerstein/world systems approach represented by Sassen, Levitt, Soysal, and Joppke which focused on globalisation and adopted a more critical ontology of assimilation and migration. We therefore renamed the blue cluster as "Wisconsin/ Michigan school", and the light pink as "Global systems school".

The new age of migration studies: 2005-present

Since 2005, a new age of migration studies has emerged. The rounder shape of the co-citation network (Fig. 10) means that there is now more literature that draws upon the authors from various clusters, pulling the edges closer to each other. Together with the
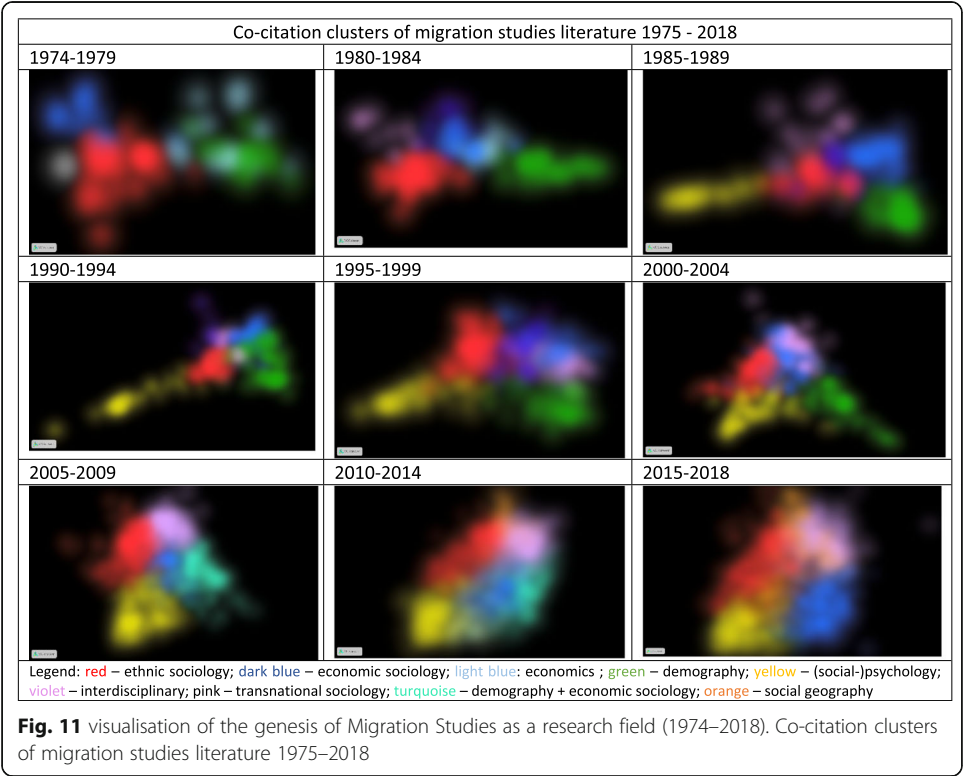

Fig. 10 co-citations 2005–2014 (*N* = 7782)
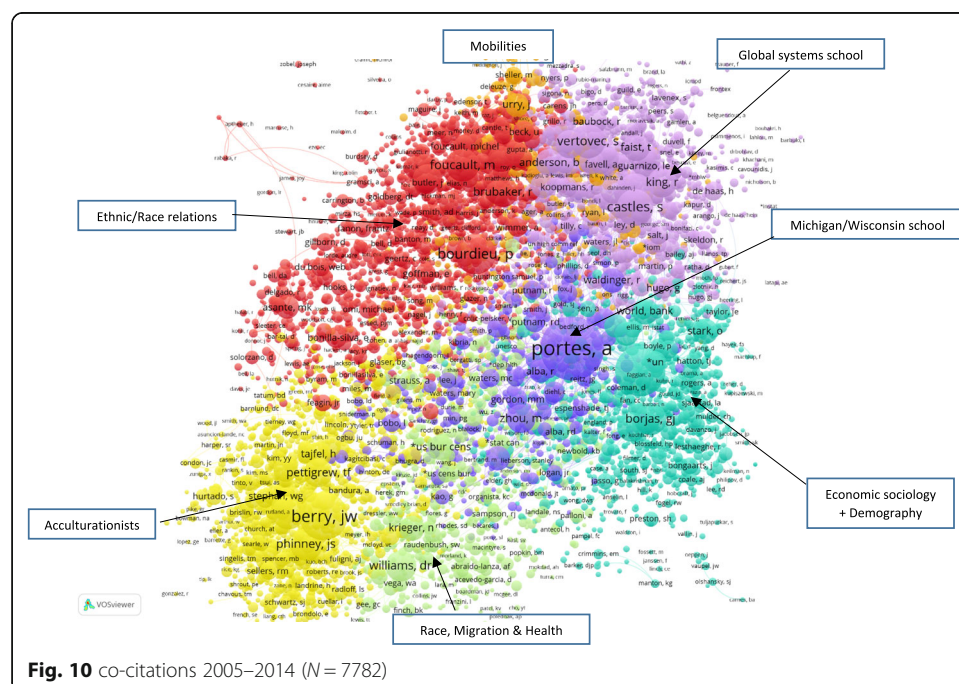
diminishing citation prevalence of Caldwell's work, the cluster of "Demographers" (green in previous periods) has merged with part of the "Wisconsin/Michigan school" led by Massey, Borjas and others. The cluster of the "Global systems school" has dramatically grown and seems very intertwined with other epistemic communities. Between the yellow cluster "Acculturationists" and "Economic sociology + demography" (turquoise) we see a new cluster (Lime) devoted to the topics of "Race, Migration and Health" represented by Williams and Krieger. Between the "Race relations" and the "Global systems" schools we can see a cluster which could be labelled as "Mobilities" (orange), illustrated by Sheller and Urry's prominence.

Disciplines and cross-disciplinary osmosis

Our expert interviewees reflected in depth on the interdisciplinary evolution of the field. In this section we bring together their perceptions and the bibliographic evidence.

Sociology was regarded as either the founding or a prominent discipline in migration studies by nearly all our interviewees. Our findings confirm this, showing that sociology has been one of the three core disciplines in the field since the 1970s. In Fig. 11 the readers can see that many clusters have a sociological orientation throughout the whole period of analysis. Moreover, since the 1990s, sociologists such as Bourdieu and Foucault – among the most-cited authors by migration scholars (Figs. 9 and 10) – indicate sociology's dominance in the field.

The importance of economics in migration studies, highlighted by some interviewees, can also be confirmed. One interviewee noted that economists have been writing on migration since at least the 1970s, as we can observe in their separate cluster in the period 1975–84. Another expert argued that economics joined "the talks of

Co-citation clusters of migration studies literature 1975 - 2018

1974-1979   1980-1984   1985-1989

1990-1994   1995-1999   2000-2004

2005-2009   2010-2014   2015-2018

Legend: red – ethnic sociology; dark blue – economic sociology; light blue: economics ; green – demography; yellow – (social-)psychology; violet – interdisciplinary; pink – transnational sociology; turquoise – demography + economic sociology; orange – social geography

Fig. 11 visualisation of the genesis of Migration Studies as a research field (1974–2018). Co-citation clusters of migration studies literature 1975–2018

globalisation and transnationalism" in 1980s, and indeed since late 1980s, the economists were merged in one cluster with economic sociologists (dark blue) (Fig. 11), possibly due to literature referring to authors from both disciplines in discussions on these emerging topics.

A few interviewees noted that demography has gradually become an important discipline in migration studies. Our analysis of epistemic communities shows the presence and prominence of demography from 1975 until 2004, after which it merged with the cluster of economic sociology, indicating a growing shared reference basis for quantitative migration studies in the new millennium. It is understandable that some respondents did not consider demography a central discipline in the field. One possible reason is that in the past demography was not at the "core" of migration studies, but it was one of several equally prominent, yet separated "cores" until 2005. In that period, demographic literature became increasingly co-cited with the US-centric cluster of economic sociologists and economists. This, however, is conceptually distant from the burgeoning "Global Systems school", in which the work of the interviewee is situated.

Several interviewees agreed that lawyers and economists are not very interdisciplinary, with few exceptions. We did not identify *separate* clusters of lawyers and economists, except in the late 1970s and early 1980s, therefore this claim is not supported by our analysis. On the contrary, economics seems to have become part of one epistemic community comprised of economic sociologists and population studies researchers. Though, notably, social-psychology (yellow) has maintained its separation from other epistemic communities the longest. Surprisingly, we did not identify *separate* clusters of historians, despite the fact that several of our expert interviewees supported the importance of this discipline in the development of the field. This might be due to Web of Science's limited coverage of historically-, as well as anthropologically-oriented journals. Even though the latter discipline was also not clearly delineated in the co-citation analyses, quite a few social anthropologists (i.e. Penninx, Vertovec, Khosravi, etc.) were noticed among the present clusters, but they did not form a separate group meaning that their studies have been much used by sociologists and other researchers of migration.

The cluster of social geographers began to be visible in our networks only recently (since 2010), so according to our data it did not seem to be as important as sociology in the field. Geographers have been perceived by our experts as the lynchpin for interdisciplinary developments. This may be true, since we can see that their prominence in the networks coincided with the period when the distant edges of the network came together in the circular shape of Fig. 10.

Both qualitative and quantitative analysis of co-citation networks generally confirm expectation 4. Overall, disciplinary orientations have not disappeared over time, but it is clear that since the twenty-first century the co-citation network has developed a round shape (Fig. 11), which happens when authors from very different and previously-disconnected epistemic communities are cited together in the works of emerging scholars. Based on this, we can confidently claim that the interdisciplinary basis for future research is now stronger than it was 40 years ago. This shift is particularly striking from 2005 onwards. Our respondents identified the rise of transnationalism, the establishment of interdisciplinary migration research centres around the world as catalysts for this change. This was also possibly facilitated by the creation of the interdisciplinary

Table 3 Co-citation network density, per decade, 1975-2018

Years	Total number of authors in the network	density	average path length
1975–1984	554	12.90%	**1.97**
1985–1994	1043	9.50%	**2.02**
1995–2004	2237	7.40%	**2.00**
2005–2014	7782	4.20%	**1.99**
2015–2018	6209	5.00%	1.98

funding programmes, such as the Migration Program (1994–2008) in the USA funded by the Social Science Research Council, and the emergence of large-scale research networks and postgraduate programmes at the Universities of Sussex and Oxford in the 1990s. However, according some experts, the field is not interdisciplinary enough, because it is hindered by existing structures (cf. Abbott 2001), namely: the higher impact factors of mainstream disciplinary journals; disciplinary boundaries in faculty structures; and funding streams, especially those coming from the EU.

Basic quantitative analyses of the co-citation networks support our qualitative findings. The amount of unique citation sources overall increased drastically by 14 times from the beginning of the analysed period until now. Due to this increase, the probability of two different sources being mentioned together in a study has decreased, since there are many more authors to choose from, while the number of references in an average scientific publication could not grow to that extent (Table 3). One would cite 30–40 sources at most per document. So, the decrease in density in this case does not mean a disciplinary fragmentation. Looking at the average path length (APL), or the average number of authors it takes to connect one author to another author in the network, we can see that it remained stable and has even slightly declined since the late 1990s. The APL of 2 means that on average all possible authors in the co-citation network are connected with each other via 2 other authors. In recent years this value has become even less than 2. This means that the epistemic communities in migration studies, despite the quantitative proliferation of the sources, remained closely interlinked. Taken together with our previous qualitative findings, this strengthens our argument that migration studies represents an institutionalised field.

Epistemic divides in migration studies

The distinction between the two sociological schools of thought (Michigan/Wisconsin – Global systems approach) most strongly applies to the 2000s onwards. Even though scholars from these streams have been co-cited in many studies (indicated by the close proximity of the clusters), they still maintain their division.

One interviewee argued that there are three separate groups of migration scholars: those focused on integration and assimilation, those studying transnational/international migration, and another sub-field on migration and development. The first one included scholars such as Alba, Nee, Portes, Rumbaut, Kasinitz, Waters; while the second included Massey, Vertovec, Severs, Schneider, Soysal, Crul, and Favell. Although this interviewee did not name specific authors in the third stream, but in the analysis, we consider authors such as Mabogunje, Appleyard, and Castles, and, more recently, de Haas, Piper, and Carling to be possible representatives of this group.

Our analysis largely confirms the distinction between the "integrationists" and "transnationalists", since the latter's emergence in the 1990s. In 2005–2014 (Fig. 10) we see that the "integrationist" authors (Alba, Portes, Rumbaut, Kasinitz and Waters) and interestingly also Crul, belong to the cluster called "Michigan/Wisconsin school". While Levitt, Vertovec, Soysal and Favell –the "transnationalists" - were part of another cluster, "Global systems approach". There is no conclusive evidence to suggest that the third group, "developmental scholars", form a "separate conversation" in any period. In the past, authors writing on development appeared on the intersections of several clusters, meaning that their writing was cited by scholars from multiple communities. Moreover, the centrality and citation prominence of the UN and World Bank references in the demographic cluster in the 1970s–1980s (Fig. 8), suggests a possible development focus in this area. More recently, development scholars such as de Haas, Piper, Carling, Landau have been intertwined with the "Global systems school"/ "transnationalists", however they are somewhat separated from the integration scholars (Fig. 10).

Key developments in migration studies

Based on the theory (E5), we expected that migration studies emerged from the "shadows" of ethnic and racial studies in the 1970s–1990s and became its own field after the turn of the century. Our findings indicate that throughout the whole 45-year period studies on migration referenced both authors focused on "ethnic/race relations" and those focused on "labour market/ economic aspects" of migrant integration. Both streams of research grew substantially over the years (as did the field in general), with these streams of literature gradually becoming more interlinked. The migration studies of today did not seem to come from the shadows of ethnic/race relations studies alone, but rather developed from a combination of demographic studies, socio-psychological studies, race/ethnic relation studies, labour/economic integration studies, refugee studies, transnationalism and development studies.

We also expected to see the emergence of transnationalism from the mid-1990s onwards as a prominent sub-field of migration studies. This trend was suggested by several interviewees. Key authors who introduced and developed the "transnationalism" concept include Levitt, Faist, Portes, Glick-Schiller and Vertovec. Since the early 2000s these authors have been increasingly cited and co-cited in the migration studies, indicating a growing amount of literature looking at migration in terms of a process, not an end point, as it was widely conceived in the 1970–1990s.

Another expectation related to the "cultural turn" of migration research, in terms of a shift from predominantly quantitative and demographic approaches towards of epistemic communities centred around broader qualitative studies of migration. The reference patterns observed in the data seem to confirm such a development. The rise and the increased citations of Foucault and Bourdieu, together with the decreased citation significance and centrality of the Census Bureau may point to the rise of qualitative approaches in migration studies. Although based on the co-citation analysis we cannot claim that such approaches overtook quantitative studies, as here we analyse reference lists of the studies, not the amount of documents and their topics. Moreover, we notice that besides the World Bank and US census bureau, new data sources have

begun to be referenced in recent years, such as OECD, ILO, and Eurostat, Canadian statistics, and other countries. Over 30 statistical offices are being referred to in the literature in the period 2015–2018, while nearly 3 decades earlier there were only two (US and the UK).

Conclusion and discussion: fragmentation and institutionalisation in the field of migration studies

This article provides an empirical analysis of the growth of migration studies. It asks whether the proliferation of migration studies over the last four decades involved a gradual institutionalisation as a research field, or whether growth came with fragmentation. Our analysis helps migration studies to reach beyond relatively simplistic understandings of growth as a sign of institutionalisation in itself; it shifts attention from the fact *that* migration studies has grown to *how* it is has grown.

We have taken self-referentiality, internationalisation and the development of co-citation networks (epistemic communities) as indicators of institutionalisation. If migration studies has institutionalised as a research field, we expected an increase in self-referentiality, an increase of internationalisation and the evolution of a coherent set of co-citation networks. In contrast, if growth comes with fragmentation, this would be visible in declining self-referentiality, stagnating internationalisation and the absence of coherent co-citation networks.

Our analysis confirms that the growth of migration studies has involved institutionalisation as a research field. Self-referentiality has strongly increased since the 1970s, although the data since the late 2000s suggest that this is not a linear trend. Even when controlling for the immense increase of publication outlets (and hence referencing opportunities), the intensity of citation links increased, especially between 1975 and 2008. Since 2008 there appears to be a stagnation, for which there is no clear interpretation available. This could be down to lag effect in referencing, but it could also be an indication that, since 2008, migration studies is increasingly embedded in other fields, and develops less as a discrete research field.

In addition, we found a clear absolute and relative increase in international co-authorships. This is a clear indication of the internationalisation of the field. Whether this indeed means that migration scholars have reached beyond the critiques of methodological nationalism requires further research. Also when compared to internationalisation in other fields, this internationalisation is also likely a consequence of digitisation and the increase of opportunities for collaboration. However, we also found this internationalisation to be uneven; a disproportionate share of international co-authorships involves collaborations in (and not necessarily between) Europe and North-America, casting a shadow on the globalisation of the research field.

Furthermore, we found that in terms of co-citation networks, there is also a growing coherency in the field of migration studies. Our analysis of co-citation networks shows that whereas in the 1970s migration studies involved distinct and also very separate co-citation clusters, in the 2010s there was a clearly enhanced coherency between these clusters. Although migration studies, as any research field, consists of distinct epistemic communities that refer to themselves primarily, they also increasingly refer to one and another. Many of the epistemic communities that we found also clearly relate to

specific disciplinary backgrounds, such as economic sociologists, or demographers. Therefore, our findings suggest that migration studies evolved from a multi-disciplinary field (with various but very distinct disciplines) to a more interdisciplinary field (with various and linked disciplines).

Finally, we found distinct developments within the epistemic communities that make up the field of migration studies. We found that migration studies does not come from the shadows of ethnic/race relations studies alone, but rather developed from a combination of demographic studies, socio-psychological studies, race/ethnic relation studies, labour/economic integration studies, refugee studies, transnationalism and development studies. Furthermore, we see that recent migration studies show a proliferation of specific epistemic communities, including that on ethnic/race relations and on global systems theory. Furthermore, new communities have emerged, such as most notably on race, migration and health.

Supplementary information

Supplementary information accompanies this paper at https://doi.org/10.1186/s40878-020-00180-7.

> **Additional file 1: Annex 1**: Web of Science complex query. **Annex 2**: Yearly overview of authors, organisations, and countries publishing migration research, 1975-2018.

Authors' contributions
NL wrote the introduction, theoretical and methodological sections. NL conducted the analyses for and wrote the sections on self-referentiality and internationalisation. AP cross-checked and edited all of the above sections. AP conducted the analyses for and wrote the section on epistemic communities. NL cross-checked and edited the section on epistemic communities. PS cross-checked and edited the entire manuscript. All authors met and discussed key conclusions. PS wrote the conclusion/discussion section. NL and AP cross-checked and edited it. All authors read and approved the final manuscript.

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