The Globalization of International Migration? A Conceptual and Data-Driven Synthesis

JASMINE TRANG HA, JACK DEWAARD, GUY ABEL, KAZUMI TSUCHIYA, JESSIE PINCHOFF, CHRISTOPHER LEVESQUE AND KOBIE PRICE

Although the globalization of international migration is commonly accepted as a general tendency in contemporary migration patterns (de Haas, Castles, and Miller 2020, 9), the corresponding body of empirical evidence is mixed and fragmented. Our review of global migration patterns over the past half-century highlights how the theories, expectations, and ultimately findings may vary depending on the specific definitions, vantage points, and measures being used. In this paper, we provide a simpler and integrated account of the globalization of international migration that includes a corresponding empirical template to quantify the relative importance of two processes at work: the intensity and connectivity of international migration. Using recent estimates of country-to-country migration flows every five years from 1990–1995 to 2015–2020, our analysis using demographic decomposition and group-based multitrajectory modeling highlights the dynamic relationship between intensity and connectivity from both the global and country vantage points. Our work in this paper provides a starting point in the form of a much-needed empirical template, one that is also highly flexible and customizable, for future research on the globalization of international migration to coalesce around and use going forward.

Jasmine Trang Ha, Department of Sociology, Western University, 1151 Richmond St, London, ON N6A 3K7, Canada and Center for Studies in Demography and Ecology, 206 Raitt Hall, University of Washington, Seattle, WA 98195-3412, USA. E-mail: jasmine.ha@uwo.ca. Jack DeWaard, Center for Studies in Demography and Ecology, 206 Raitt Hall, University of Washington, Seattle, WA 98195-3412, USA and Social and Behavioral Science Research, Population Council, 1 Dag Hammarskjold Plaza, New York, NY 10017, USA. Guy Abel, Department of Sociology, The University of Hong Kong, Pokfulam, Hong Kong and Wittgenstein Centre for Demography and Global Human Capital (IIASA, VID/ÖAW, WU), International Institute for Applied Systems Analysis, Laxenburg, Austria. Kazumi Tsuchiya, Social and Behavioral Health Sciences Division, University of Toronto, 55 College St, Toronto, ON M5T 1P8, Canada. Jessie Pinchoff, American Institute for Research, 1400 Crystal Drive, Arlington, VA 22202-3289, USA. Christopher Levesque, Sociology and Law & Society, Kenyon College, 104 College Drive Gambier, OH 43022, USA. Kobie Price, Department of Sociology, University of Minnesota, 909 Social Science Tower, 26 19th Ave. S., Minneapolis, MN 55455, USA.

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Introduction

The globalization of international migration is a topic of interest and importance to many different disciplines, sectors, and geographies (Arango 2000; de Hass et al. 2020; Czaika and de Haas 2014; Salt 1992), one that is part of broader globalization processes characterized by rich sets of interconnections and interdependencies permeating all aspects of life that have been said to be continually "widening, deepening, and speeding up" (Held et al. 1999, 2; see also Castells 1996; Vertovec 2007). The globalization of international migration is also an idea that has shaped and continues to shape researchers' and policymakers' thinking about past, present, and future migration, including about efforts (policies, programs, etc.) to monitor and manage migration (Pellerin 1993; Samers 2008).

While it may be the case that the "globalisation of migration provides grounds for optimism, because it does give some hope of increased unity in dealing with the pressing problems which beset our small planet" (Castles and Miller 1993, 275), it is most definitely the case that past and current research, especially empirical research, on the globalization of international migration is fragmented, mixed, and ultimately quite messy. This is so for at least three overlapping reasons, the first of which is the lack of a universally accepted and guiding conceptual definition of the globalization of international migration (Arango 2000; de Hass et al. 2020; Czaika and de Haas 2014; Salt 1992).

Add to this the fact that the globalization of international migration, as a seemingly multidimensional concept, has been and continues to be operationalized in different ways (Abel et al. 2021; Charles-Edwards et al. 2023; Czaika and de Haas 2014; IOM 2022; Vertovec 2007). For example, and to foreshadow part of our discussion in the next section, some studies have focused on, what Bell et al. (2002) called, the *intensity* (i.e., propensity) of migration, while other studies have emphasized the *connectivity* of countries (i.e., whether and the extent to which countries are connected to one another by migration) and of places and populations therein. Still other studies have focused on different dimensions of international migration altogether, such as the [geographic] distance of migration, net migration, and more. Along the way, studies have also differed with respect to the vantage point(s) taken, with some focusing on the experiences of individual countries and regions and others taking a more global approach.

Migration data and estimates are a third issue that has contributed to the fragmented, mixed, and messy body of empirical research on the globalization of international migration (Willekens et al. 2016). Despite long-standing efforts by the United Nations (UN 1998, 2021) to develop recommendations to improve the availability, quality, and comparability of data on and estimates of international migration, many, if not most, countries lack the capacity to implement these recommendations (Kupiszewska

and Nowok 2007). As a result, and to highlight just one downstream comparability issue that can and does arise, it is difficult to make meaningful comparisons between information on migrant stocks versus migration flows (Bilsborrow 2016). Migrant stocks refer to the number of persons living outside of their country of birth (and/or citizenship) at a given time point, whereas migration flows refer to the number of persons, and in some cases (e.g., from information obtained from some population registers) their individual migration transitions, who have changed their country of residence (and/or citizenship) during a specific time interval (over the past one-year, five-years, etc.). Migration flow data and estimates align more closely with the UN's (1998, 2021) recommendations and, as we later discuss, are better suited for studying the globalization of international migration than data on and estimates of migrant stocks because they provide valuable information on the timing of migration (Abel 2013; Raymer and Willekens 2008).

Given the fragmented, mixed, and messy body of research on the globalization of international migration, to say nothing of the continued importance of this phenomenon and the fact that a host of existing and emerging factors (global recessions and pandemics, the accelerating climate crisis, etc.) are likely to interact with this phenomenon in both expected and unexpected ways (Abel et al. 2019; Grecequet et al. 2017; McAuliffe & Triandafyllidou 2021; Calvin et al. 2023; Papademetriou et al. 2010), it is high time to consolidate and integrate the body of evidence and knowledge on the globalization of international migration in ways that reflect analytical and methodological rigor and agreed upon best practices. The overarching goal of this paper is to provide such a summary and synthesis.

In what follows, we begin by reviewing several strands of research on and around the globalization of international migration over the past half-century or so. We then propose a new conceptual definition for the globalization of international migration as a dynamic manifestation shaped by a multidimensional set of underlying component processes, among which the two primary component processes are the intensity and connectivity of migration. Using a recently developed set of estimates of country-to-country migration flows every five years from 1990–1995 to 2015–2020 (Abel and Cohen 2019, 2021), we combine the tools of demographic decomposition and group-based multitrajectory modeling (GBMTM; Das Gupta 1993; Nagin et al. 2018) to provide an integrated account of the globalization of international migration from multiple vantage points. In doing so, we provide a needed empirical template, one that is also flexible and customizable, for future current and research on the globalization of international migration to coalesce around and use going forward.

The globalization of international migration

Background and context

As a place to start, invoking the phrase commonly attributed to the Greek philosopher, Heraclitus, that the only constant in life is change, the globalization of international migration is perhaps best characterized by change, as well as by complexity, over time. To help contextualize this observation, international migration is one of many types of flows that result from and ultimately signify changing and complex global interconnectedness and interdependencies. It is, therefore, no surprise that, to take just one class of examples for the sake of illustration, past and current research on the determinants of international migration has identified a highly diverse, intersecting, and interacting set of demographic, economic, environmental, geopolitical, and sociocultural drivers (Black et al. 2011; de Haas, Castles, and Miller 2020; Massey et al. 1994). While an exhaustive or even extensive review of these drivers is outside of the scope of this paper, in the remainder of this subsection, we provide a brief overview of some selected highlights and exemplars that help to illustrate why and how the globalization of international migration is both an ever-changing and highly complex phenomenon.

Early neoclassical migration theory posits that international migration is a key mechanism for reallocating surplus labor among countries (Papademetriou 1985; see also Torado 1969). Against the backdrop of global economic integration over the past half-century or so characterized by the liberalization and deregulation of cross-border flows of capital and trade through the General Agreement on Tariffs and Trade (GATT) that was later replaced by the World Trade Organization (WTO), the North American Free Trade Agreement (NAFTA), and numerous other cross-national cooperation agreements, labor migration flows have increased correspondingly, albeit not always in ways that demonstrate full awareness of and/or proper planning for these changing and complex economic interconnections and interdependencies (de Haas 2023; de Haas, Castles, and Miller 2020; Massey 2001).

If the economic story of the globalization of international migration can be roughly summed up by the phrase, "We wanted workers" (Borjas 2016), then, as several other strands of research have argued and convincingly shown, global economic integration is by itself a necessary, but insufficient condition. Workers are, after all, people, and people are inherently social creatures who are connected to and dependent on one another in many changing and complex ways. Not surprisingly, a large body of research on migrants' social networks, and on migration-specific social capital embedded in these networks, has documented associations between the size and composition of these networks and international migration (Boyd

1989; Garip and Asad 2016; Massey and España 1987; Massey and Espinosa 1997). Over time, this relationship can and does become self-sustaining as more and more actors (individuals, households, etc.) migrate and thereby expand the set of social networks and capital that potential future migrants can draw from to facilitate their own migrations (Fussell 2010), a phenomenon that often goes hand-in-hand with the so-called "culture of migration" whereby migration can become a de facto rite of passage for young people in migrant-sending communities (Ali 2007; Kandel and Massey 2002).

Overlapping and amplifying the economic and sociocultural drivers of international migration is the exponential pace of innovation and development in and around the areas of information and communications technologies (ICTs) as tools for creating and maintaining changing and complex global interconnections and interdependencies. ICTs are invaluable for promoting awareness of and sharing information about international migration opportunities, process(es) of migrating, and more (de Haas 2010). ICTs and technology more broadly have helped to reduce the economic costs of travel, including and especially air travel. They have also helped to reduce the noneconomic costs of migrating by making it easier to stay connected to family and friends in migrant-sending and migrant-receiving countries as well as in transit areas along the way and in between (Faist 2004). As such, ICTs are a key element of transnational migration and social spaces and fields more broadly (Faist, Fauser, and Reisenauer 2013; Levitt and Jaworsky 2007; Levitt and Schiller 2004; Mazzucato and Dito 2018; Roth 2009).

Definitions and dimensions

Against this contextual backdrop of change and complexity, what exactly is the globalization of international migration? Or, to put this question more explicitly, what exactly is changing and becoming more complex? As we noted earlier, there is no universally accepted and guiding conceptual definition of the globalization of international migration (Arango 2000; de Hass et al. 2020; Czaika and de Haas 2014; Salt 1992). Instead, in past and current research, exactly what the globalization of international migration is (and, conversely, is not) must be gleaned and inferred from statements such as the one by de Haas, Castles, and Miller (2020, 9, emphasis ours; see also Arango 2000; Czaika and de Haas 2014, 284; Salt 1992) that "more and more countries [are] significantly affected by migration."

Despite the lack of a universally accepted and guiding conceptual definition of the globalization of international migration, one thing that is clear is that the concept itself is very likely a multidimensional one. For example, in their investigation of the globalization of international migration, building on the work of Bell et al. (2002) who focused on four

dimensions of migration (*intensity*, *connectivity*, *distance*, and *effect*), Czaika and de Haas (2014) borrowed the first three and added two more: *diversity* with respect to the changing compositions of the sets of migrant-sending countries and migrant-receiving countries and *concentration* with respect to migration along some specific corridors—e.g., Mexico to the United States, Syria to Turkey, and India to the United Arab Emirates, which are currently the three largest migration corridors in the world (McAuliffe & Triandafyllidou 2021)—versus others.

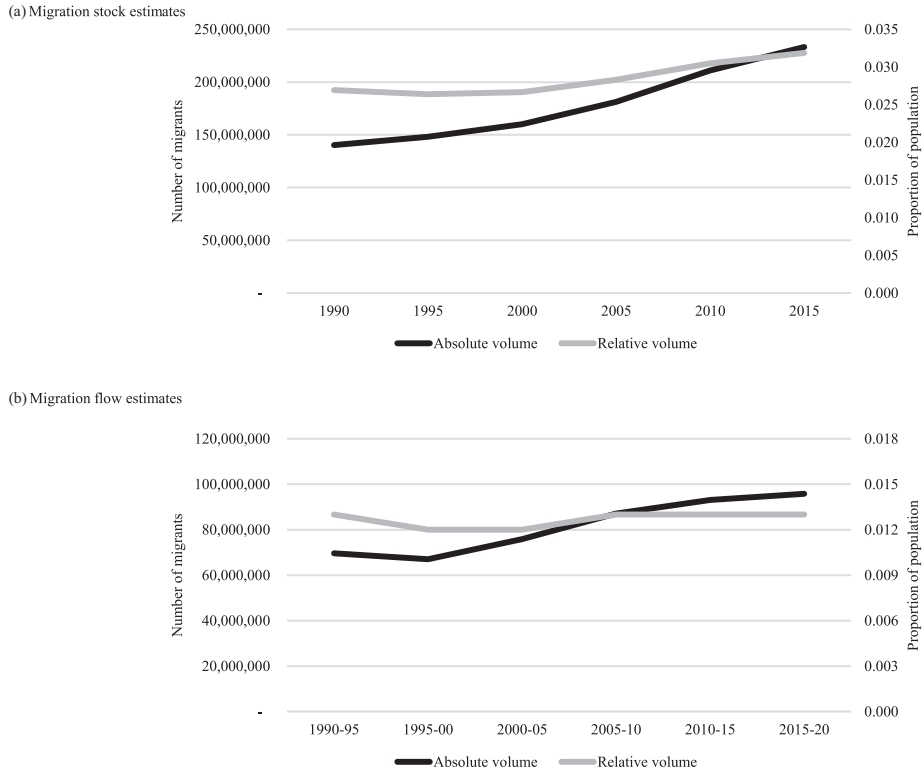
Of course, stepping back and reflecting on these five dimensions, Czaika and de Haas (2014) rightly pointed out that any taxonomy can effectively be reduced to two overarching dimensions. While they called these two dimensions the *level* and the *diffusion* of international migration to distinguish them from and encompass the five dimensions described in the previous para, for the sake of both clarity and consistency in this paper, we [continue to] use the terms *intensity* and *connectivity* to refer to these to two dimensions. As we noted earlier, the intensity of migration refers to the propensity of international migration, while the connectivity of migration refers to whether and the extent to which countries are connected to one another by migration.

The intensity and connectivity dimensions are also relevant for migration policy. For instance, recalling our earlier reference to labor migration in the previous subsection, bilateral policy agreements between countries on and around labor migration have historically been the primary way that countries have approached and implemented international migration policy (McAuliffe & Triandafyllidou 2021; Wickramasekara 2015). Holding the connectivity of international migration constant, a focus on the intensity and intensification of migration would seemingly align with a migration policy approach focused on strengthening countries' existing bilateral agreements. In contrast, holding the intensity of international migration constant, a focus on the connectivity and growing connectivity of migration would seem to support a migration policy approach more aligned with developing new bilateral agreements and or multilateral ones (e.g., regional agreements such as the Sistema de la Integración Centroamericana (SICA) (Abella 2013).[1]

Empirical evidence

In addition to questions of what the globalization of international migration is and how it has been and/or might best be operationalized, another important issue concerns the base of empirical support for this phenomenon. As it turns out, empirical support for the globalization of international migration is fragmented, mixed, and messy for reasons that have to do with the availability, quality, and comparability of migration data and estimates (Willekens et al. 2016).

FIGURE 1 Changes in the volume of international migration globally using two different types of estimates



To dig into this issue in one concrete and illustrative way, consider the trend over the past half-century or so in international migrant stocks, which are defined as the number of persons living outside of their country of birth (and/or citizenship) at a given time point. As we show in Figure 1, panel a, according to the United Nations' International Migrant Stock estimates (2020), approximately 140 million people, or about 2.7 percent of the global population, were living outside of their country of birth in 1990. This figure increased in absolute terms to approximately 148 million persons, but declined in relative terms to about 2.6 percent, in 1995, followed by reaching highs of 233 million persons and 3.2 percent in 2015. One of the clear takeaways from these figures is that, with some decadal fits and starts, international migrant stocks have increased in both absolute and relative terms over time.

Of course, one of the main problems with data on and estimates on international migrant stocks is that they lack critical information on the timing of migration; they also have the potential to confound naturalization and mortality with migration (Cooper and O'Neil 2005; Massey et al. 1994). These problems render data on and estimates of international

migration flows, which are defined as the number of persons who changed their country of residence (and/or citizenship) during a specific time interval, with a comparative advantage for studying the globalization of international migration. As we show in Figure 1, panel b, according to one recent set of estimates of country-to-country migration flows every five years from 1990–1995 to 2015–2020 (Abel and Cohen 2019, 2021), the number of persons who changed their country of residence has increased over time in absolute terms, going from approximately 70 million persons during the 1990–1995 period to over 95 million persons during the 2015–2020 period, but has remained mostly flat in relative terms at around 1.3 percent of the global population (Abel et al. 2021).

While migration flow data and estimates align more closely with UN (1998, 2021) recommendations and are better suited for studying the globalization of international migration than data on and estimates of migrant stocks because they capture the timing of migration (Abel 2013; Raymer and Willekens 2008), they are not a silver bullet. After all, because migration flow data are less readily available than migrant stocks data (United Nations 2015), estimates of migration flows such as those developed by Abel and Cohen (2019, 2021; see also Azose and Raftery 2019) are derived for a given period (e.g., five years) by comparing information on migrant stocks disaggregated by country of birth at the start and end of a period and subsequently adjusting for fertility and mortality within the period using the demographic balancing equation. As such, the resulting migration flow estimates simply carry forward and ultimately reflect any problems with the migrant stock data used to produce them. That said, with the understanding that problems of availability, quality, and comparability are endemic to both migrant stock and migration flow data and estimates, the key differentiator and value-add of migration flow data and estimates is that they provide a better starting point for studying the globalization of international migration under the assumption that the timing of migration is, or should be, a priority consideration (UN 1998, 2021).

Putting the pieces together

To put the pieces of our discussion thus far in this section together, recall that the overarching goal of this paper is to consolidate and integrate the body of evidence and knowledge on the globalization of international migration in ways that reflect analytical and methodological rigor and agreed upon best practices. With an eye toward striking this balance and consensus, following similar examples by Brubaker (2001) and others, we, therefore, define the globalization of international migration in differentialist and emergentist terms as follows: *The globalization of international migration is a dynamic manifestation —varying in kind and over time and space—resulting from a set of individual and collective pressures exerted by a multidimensional set of*

underlying component migration processes (intensity, connectivity, etc.) that are constantly changing alongside and in relation to one another.

At least three features of this definition deserve to be unpacked. First, with respect to *underlying component migration processes*, this idea is informed by past and current research on the globalization of international migration and migration more broadly, which has emphasized the inherently multidimensional nature of migration consisting of at least two fundamental components: the intensity of migration and the connectivity of migration, each of which were defined earlier (Bell et al. 2002; Czaika and de Haas 2014). Second, regarding the notion that the *globalization of international migration is a manifestation*, the idea here is that the underlying and dynamic component migration processes at work combine and bubble up (i.e., are manifested) in different ways over time and space. Third, and relatedly, to step back and zoom out somewhat, our differentialist and emergentist definition clearly shifts the focus in prior research from identifying some sort of "end state" that *is* the globalization of international migration to "focusing on a *process*" or, in our case, an underlying set of [re]generative processes (Brubaker 2001, 542, emphases ours).

As conceptual definitions contain important clues and even prescriptions about subsequent operationalization and measurement, we conclude this section by revisiting and reflecting on the third issue that we identified earlier that has contributed to the fragmented, mixed, and messy body of research on the globalization of international migration—namely, that of migration data and estimates. In the conceptual definition of the globalization of international migration that we have proposed here, our emphasis on the dynamic and manifesting nature of underlying component migration processes carries the implication that the timing of these processes matters. As such, and as we discuss in more detail in the next section, despite their imperfections, our proposed conceptual definition of the globalization of international migration aligns with the use of data on and estimates of migration flows, versus migrant stocks, wherein the timing of migration—or, at least, the time interval of migration—is implicit.

Approach

To fully capture the three important features of the globalization of international migration as a dynamic manifestation shaped by multidimensional and regenerative processes which we discussed earlier, a framework that can *relate* changes in all components to one another and the manifestation is required. Distinct from prior efforts (e.g., Czaika and de Haas 2014), our proposed framework does not assume the relative importance (or weight) of each component. We leverage upon recent innovations in international migration flow data and estimates to render a data-driven portrait, capturing not only the multidimensional processes in the globalization of

international migration but also whether and how the different dimensions can play different roles in different times and places. Further, we seek to reconcile the potentially conflicting accounts of the globalization process from a global vantage point and the country-specific vantage point, as prior research has correctly pointed out that the global picture may conceal important changes at the country level (Czaika and de Haas 2014, Lee 2017). Our framework, therefore, leverages on parallels between the study of global migration patterns and social network research—wherein international migration can be seen as a type of connection between countries, resulting in a community of countries connected by stable migration exchanges over time (e.g., Abel et al. 2021)—to create new *relational* measures which can track changes across multiple dimensions in the globalization of international migration over time.

In this section, we put everything from the previous section together in an integrated empirical framework using, as we discuss in the following subsections, a recently developed set of estimates of country-to-country migration flows every five years from 1990–1995 to 2015–2020 (Abel and Cohen 2019, 2021), combined with the tools of both demographic decomposition and GBMTM (Das Gupta 1993; Nagin et al. 2018).

Estimates of country-to-country migration flows

Regarding the estimates of country-to-country migration flows every five years from 1990–1995 to 2015–2020 that we use in our analyses, these are sourced from Abel and Cohen (2019, 2021) who produced them by their applying an indirect estimation technique developed by Azose and Raftery (2019) that builds on a prior work in this area by Abel (2013) and Abel and Sander (2014). The general logic of this approach is to use data on country-level migrant stocks over time, disaggregated by country of birth, from national censuses and other administrative sources. Applying the demographic balancing equation (Preston et al. 2001), any change in country-level migrant stocks between two consecutive time points (e.g., between 2015 and 2020) must be the product of component changes in fertility, mortality, and migration. After accounting for fertility and mortality, one can then indirectly estimate counts of country-to-country migration flows for each intervening period (e.g., 2015–2020). As the original approach developed by Abel (2013) and Abel and Sander (2014) produces indirect estimates of *minimum* counts of country-to-country migration flows required to match migrant stocks at consecutive time points, Azose and Raftery (2019) developed a more flexible pseudo-Bayes variant of this approach that uses a weighted sum of estimates of both minimum and maximum counts of country-to-country flows.

While these estimates of country-to-country migration flows have their share of limitations—e.g., as they are based on migrant stock data that

are collected and produced in different, sometimes very different, ways by different countries, they do not help to resolve underlying problems with data quality and comparability—two of the main advantages of these estimates are that (1) they contain information on the timing of migration and (2) they cover different types of migrants (labor, family, etc.) and migrations (e.g., direct and indirect/transit). These estimates thus come the closest to reflecting the work and recommendations of the United Nations (1998, 2021). What is more, validations by Azose and Raftery (2019) showed that these estimates align reasonably closely with observed migration flow data for the few countries that collect and disseminate these.

Demographic decomposition

Putting everything together in an integrated empirical framework, we see and understand the globalization of international migration as a manifestation resulting from individual and collective pressures exerted by the intensity of migration and the connectivity of migration over time. As manifestations of the globalization of international migration can take many forms, we focus here on a very simple manifestation, namely—the total volume of international migration in a given five-year period, V_p, which we write as follows:

$$V_p = I_p \times C_p \times K_p. \tag{1}$$

In Equation (1), the total volume of international migration, V_p, is calculated as the sum of migration flows from each migrant sending, or origin, country o to each migrant receiving, or destination, country d in period p, $\sum_o \sum_d M_{od,p} (o \neq d)$. This manifestation is decomposed into three components:

1. The first quantity on the right-hand side of Equation (1), I_p, is our measure of the intensity of international migration in period p and, borrowing from the network literature (Palla, Barabási, and Vicsek 2007; Tirabassi and Masoller 2016; see also Wellman and Wortley 1990), is calculated as the total number of country-to-country migration flows divided by the total number of country-to-country migration ties, $\frac{\sum_o \sum_d M_{od,p}}{\sum_o \sum_d T_{od,p}}$ $(o \neq d)$, where $T_{odp} = 1$ if there is a migration flow of any size from country o to country d in p (0 otherwise).
2. The second quantity, C_p, is our measure of the connectivity of international migration in period p and is calculated as the total number of country-to-country migration ties divided by the total number of possible country-to-country migration ties, $\frac{\sum_o \sum_d T_{od,p}}{N_p(N_p-1)} (o \neq d)$, where N_p is the total number of countries in p. This measure is called the index of migration connectivity (Bell et al. 2002, p. 452) in demographic research,

and in social network research, it is analogous to a measure of network density (Wasserman and Faust 1994).

3. The third quantity, K_p, is equal to $N_p(N_p - 1)$ and is included in Equation (1) for algebraic necessity.

The next step, which we do not show here (see Das Gupta 1993), is to develop a set of standardized estimates of V_p that correspond to a set of hypothetical scenarios wherein only one of the components on the right-hand side of Equation (1) is permitted to change over time. These standardized estimates—V_p^I, V_p^C, and V_p^K—are then used to decompose observed changes in the total volume of international migration between any two periods p and q, ΔV_{pq}, into a migration intensity effect, ΔV_{pq}^I, and a migration connectivity effect, ΔV_{pq}^C, as well as a residual country effect, ΔV_{pq}^K, as follows:

$$\Delta V_{pq} = \Delta V_{pq}^I + \Delta V_{pq}^C + \Delta V_{pq}^K. \quad (2)$$

The demographic decomposition in Equation (2) provides an integrated empirical portrait of the globalization of international migration at the *global* (i.e., across all countries) level. However, further recognizing and appreciating the importance of also glimpsing the globalization of international migration at other levels, Equations (3) and (4) are the country-level analogs to Equations (1) and (2), respectively. The only difference is that, at the country level, our starting point of the total volume of international migration is commonly referred to as gross migration, or the sum of total out- and in-migration flows. We, therefore, have opted to use the slightly different notation of $G_{o,p}$ to refer to gross international migration volume for country o in period p, where $G_{o,p}$ is the sum of out-migration flows from o to each destination country d and in-migration flows to o from d in period p, $\sum_o M_{od,p} + \sum_d M_{do,p}$ $(o \neq d)$. We then decompose this manifestation to three components identical to Equations (2) and (4) above:

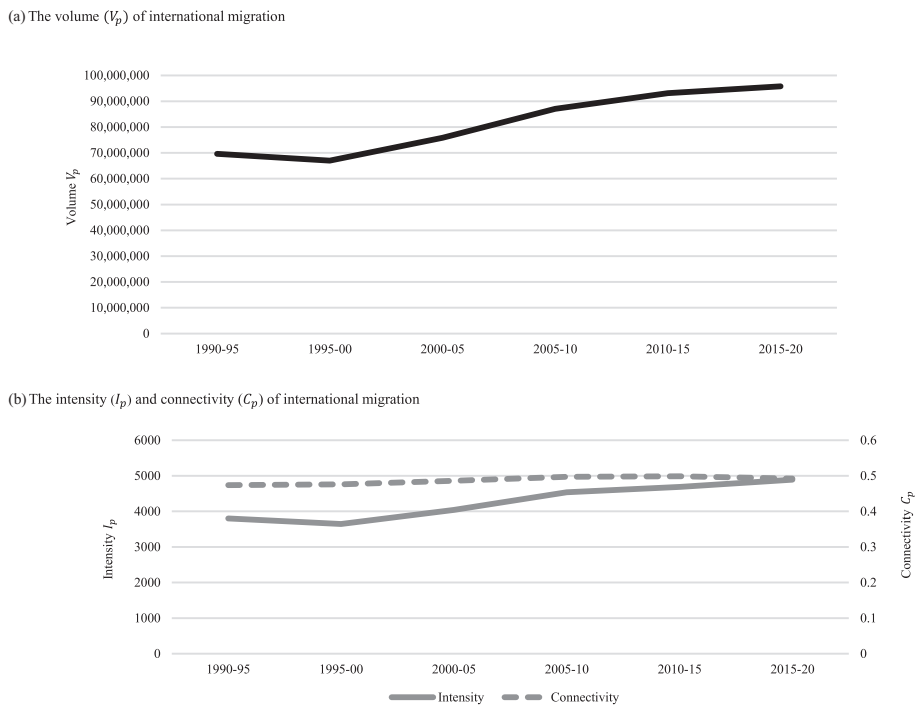
$$G_{o,p} = I_{o,p} \times C_{o,p} \times K_p, \quad (3)$$

$$\Delta G_{o,pq} = \Delta G_{pq}^I + \Delta G_{o,pq}^C + \Delta G_{o,pq}^K. \quad (4)$$

Group-based multitrajectory modeling

To take one further and final step in our analysis of the globalization of migration at the country level, we use the decomposition estimates in Equation (4) and GBMTM (see Nagin et al. 2018; Nagin and Tremblay 2001) to identify common trajectories of change among countries over the 1990–1995 to 2015–2020 observation window. GBMTM is a type of finite mixture model that uses maximum likelihood to estimate model parameters. As such, conventional fit statistics such as the Bayesian information criterion (BIC) can be used to choose between the models with m clusters and

FIGURE 2 The volume (V_p) of international migration and two dimensions of change—intensity (I_p) and connectivity (C_p), from 1990–1995 to 2015–2020



NOTE: Author's calculations using migration flow estimates (Abel and Cohen 2019).

m+1 clusters (Jones and Nagin 2013; Nagin et al. 2018). We use GBMTM to identify and distinguish groups of countries based on the direction and magnitude of migration intensity and connectivity effects to changes over time in a country's gross migration.

Results

Global vantage point

Recalling our starting point of Equation (1) in the previous section, we begin by examining the total volume of international migration, V_p, alongside the intensity and connectivity of migration, I_p and C_p, respectively, in Figure 2.[2] In Figure 2, panel a, the volume of international migration fell by about 2.6 million persons (−3.75 percent) between the 1990–1995 and 1995–2000 periods, followed by increasing over the next four periods to 95,783,368 persons by 2015–2020, with the rate of period-to-period increases going from a high of 14.85 percent between the 2000–2005 and 2005–2010 periods to a low of 2.88 percent between the 2010–2015 and 2015–2020 periods.

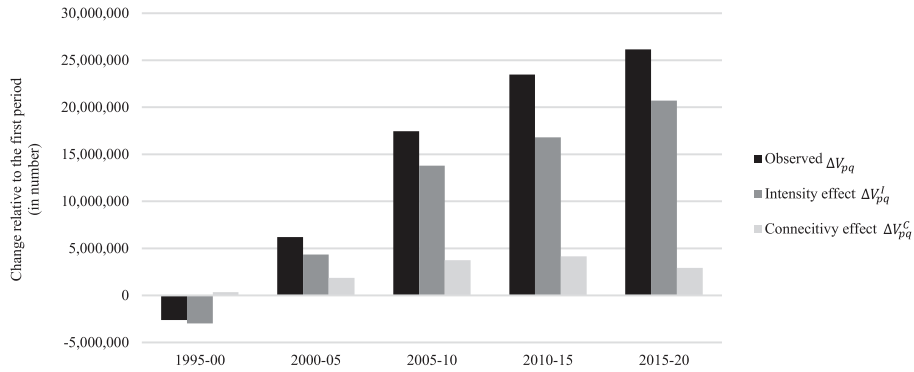
Turning to the results displayed in Figure 2, panel b, the intensity of international migration exhibited the same general pattern during the observation window as the volume of international migration. After decreasing by 4.16 percent between the 1990–1995 to 1995–2000 periods, the intensity of international migration increased by 10.82 percent and 12.31 percent over the next two sets of consecutive periods, followed by diminishing, but still positive changes of 3.31 percent and 4.34 percent between the 2005–2010 and 2010–2015 periods and the 2010–2015 and 2015–2020 periods, respectively. In contrast, the connectivity of international migration exhibited relatively slower and steady increases over the observation window ranging from 0.33 percent between the 2005–2010 and 2010–2015 periods to 2.23 percent between the 2000–2005 to 2010–2015 periods, followed by declining by 1.26 percent between the 2010–2015 and 2015–2020 periods.

Per our guiding conceptual definition of the globalization of international migration, in Figure 3, we display observed changes over time in the total volume of international migration, ΔV_{pq}, and the absolute and relative migration intensity and connectivity "effects,", ΔV_{pq}^{I} and ΔV_{pq}^{C}, respectively, each relative to the 1990–1995 period. To walk through an initial and concrete example of how to interpret these results, consider the −2,611,636 person change in the volume of international migration between the 1990–1995 and 1995–2000 periods displayed in Figure 3, panel a. As is also displayed in Figure 3, panel a, changes in the intensity and connectivity of migration between these same two periods put downward pressure (−2,973,312) and upward pressure (348,216) on the volume of international migration, respectively. In relative terms, the change in the volume of international migration globally between the 1990–1995 and 1995–2000 periods was −3.75 percent, which equals the sum of changes in the intensity of migration (−4.17 percent), in the connectivity of migration (0.5 percent), and the remainder (0.02 percent) due to changes in the number of countries in our data over time, K_p.

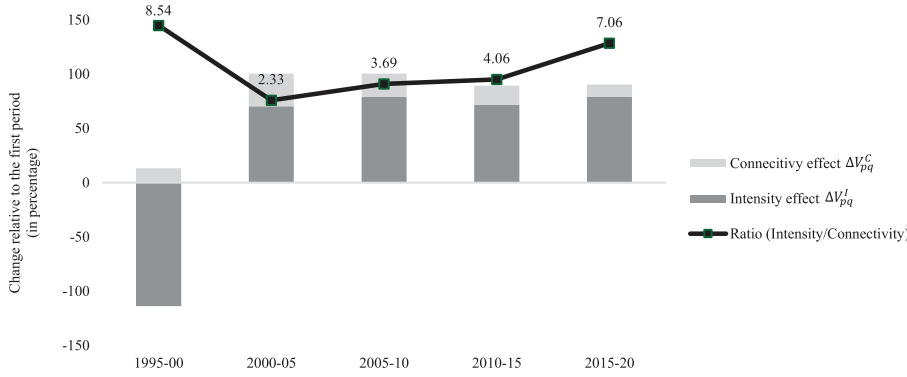
In Figure 3, panel b, we present the same results in a different way, such that changes in all components sum to 100 percent (Das Gupta 1993). Focusing again on the 1995–2000 period, the results indicate that the decline in the global migration volume would have been even lower if intensity had been the sole dimension of change, at −113.85 percent. The connectivity effect works in the opposite direction, pulling the changes upward by 13.33 percent, while the third component K_p (not shown) accounts for the remaining 0.52 percent. We further include, on a secondary axis, the ratio of intensity effect relative to the connectivity effect, to visualize the relative contribution by the two components. Between the 1990–1995 and 1995–2000 periods, the contribution by intensity is 8.54 times larger than the contribution by connectivity.[3]

FIGURE 3 Global decomposition results for changes in the volume of international migration in each period from 1995–2000 to 2015–2020, relative to the first period (1990–1995)

(a) Absolute values



(b) Relative values



NOTE: Author's calculations using migration flow estimates (Abel and Cohen 2019).

In all subsequent periods in the observation window, the contributions by intensity and connectivity are in the same direction, both pushing the observed volume of international migration upwards. The contribution by intensity ranges from a low of 70.3 percent in the 2000–2005 period to a high of 79.09 percent in the 2005–2010 period, which is consistently larger than the contribution by connectivity, which ranges from a low of 11.2 percent in the 2015–2020 period to a high of 30.23 percent in the 2000–2005 period. The relative magnitudes of the two effects, as indicated by the ratio of intensity effect over connectivity effect, follow a U-shaped pattern. From a high of 8.54 in the 1995–2000 period, the ratio declined to 2.33 in the 2000–2005 period before steadily increasing in the latter periods, reaching 7.06 in the 2015–2020 period.

Overall, the results support the idea that global international migration is concurrently deepening (i.e., supported by positive intensity effects) and widening (i.e., supported by positive connectivity effects) for most, but not all, time periods in the observation windows. Although the intensity of international migration is the leading component of change in all time periods, the relative contribution by the two components—intensity and connectivity—changes in a dynamic manner over time.

Country vantage points

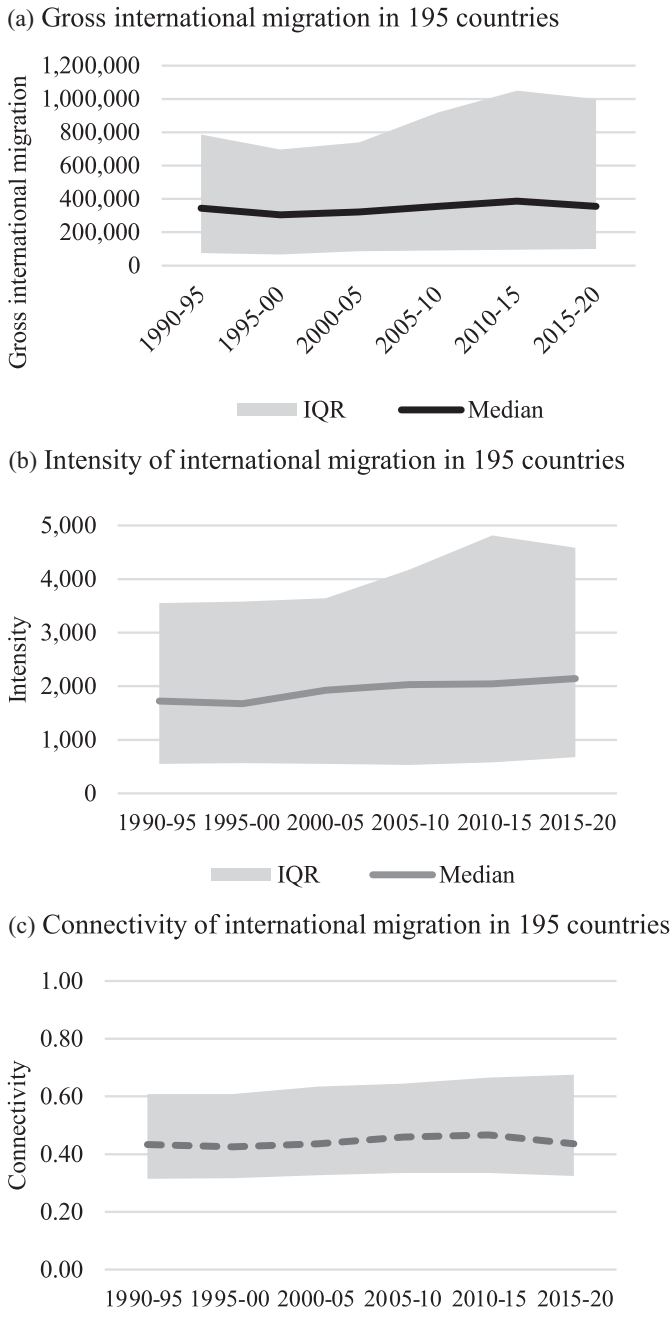
Recognizing that the global patterns may conceal unique patterns of change in international migration at the country level, our second set of decomposition analysis focuses on individual countries. We begin by displaying the inputs for our decomposition procedure, which we described earlier in Equation (3). The manifestation of international migration from the country's vantage points—gross international migration volume, $G_{o,p}$, is shown in panel a of Figure 4. The two components, namely the intensity, $I_{o,p}$, and connectivity, $C_{o,p}$, of international migration are shown in panels b and c, respectively. To summarize the distribution of these quantities for 195 countries, we display the median values and the interquartile ranges (IQRs).

In Figure 4, panel a, median values in the gross volume of international migration across all countries globally have remained relatively stable over time, ranging from a high of approximately 387 thousand persons in the 2010–2015 period to a low of approximately 305 thousand persons in the 1995–2000 period. The IQRs indicate a range of variation in the countries' experiences of changes in the gross migration volume, with the lowest 25th percentile being approximately 67 thousand persons and the highest 75th percentile being over 1 million persons. The distribution in each time period is skewed to the right, meaning that there are a small number of countries whose gross volume of international migration is extremely large. Variations in the country-level gross volume of international migration become wider in later time periods, as indicated by the wider IQRs. Turning to the results displayed in Figure 4, panels B and c, the intensity and connectivity of international migration at the country level exhibited the same general pattern of wide and growing variations over time. Both distributions are also skewed toward the right.

Using these inputs, we then apply the decomposition procedure for each of the 195 countries and summarize the results in Figure 5, displaying the median values and IQRs of the observed changes in the countries' gross volume of international migration and two-component effects as a series of box plots.

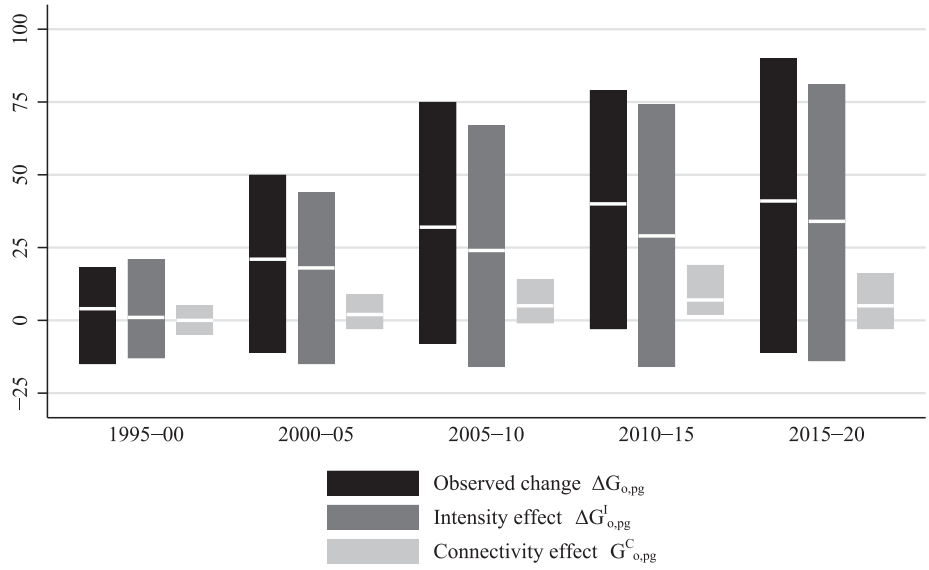
The black boxes indicate changes in the gross volume of international migration, which again highlight the variations in the countries' experience of change in the globalization of international migration. Focusing

FIGURE 4 Gross international migration ($G_{o,p}$) and two dimensions of change—intensity ($I_{o,p}$) and connectivity ($C_{o,p}$) in 195 countries, from 1990–1995 to 2015–2020



NOTE: Author's calculations using migration flow estimates (Abel and Cohen 2019).

FIGURE 5 Decomposition results in 195 countries in each period from 1995–1900 to 2015–2020, relative to the first period (1990–1995)



NOTE: Author's calculations using migration flow estimates (Abel and Cohen 2019). The box plots show the interquartile range for each period. The median values are denoted by the lines within the box plots.

on changes in the 1995–2000 period relative to the first period, the median value indicates that half of the countries experienced an increase in gross migration volume at 4 percent or higher. While the median values for changes in the gross volume of international migration become more positive in the subsequent periods, the IQRs indicate that several countries continue to experience declines in gross international migration volume.

The two sets of gray boxes display the intensity and connectivity effects, respectively. We observe that the IQRs for intensity effect across all periods are from −16 to 81 percent, which is much larger than the IQRs for connectivity effect, which go from −5 to 19 percent. The distributions for the two effects both widen over time.

Results from Figure 5 indicate that, on average, the relative relationships between the intensity and connectivity effects from the country vantage points are similar to those from the global vantage point. For most country periods, the intensity of international migration is the dimension that contributes the most to observed changes in the gross volume of international migration. However, missing from these distributions are the specific country experiences where the connectivity effect is the leading component of change. The country Jamaica represents one such example, where the consistent increase in the country's gross migration is led by a positive contribution in the connectivity effect, at 12 percent on average, while the intensity effect is negative at approximately 6 percent on average.

Group-based multitrajectory modeling

To capture the unique combination of relative changes in two components—the intensity and connectivity of international migration—over time and in each country, we use the decomposed intensity and connectivity effects as inputs for the GBMTM to identify clusters of countries that share similar trajectories of change from 1990–1995 to 2015–2020. Following Nagin et al. (2018), it is necessary to remove extreme values to reduce noise and optimize the model performance. We, therefore, exclude 11 countries,[4] where observed changes in the gross migration volume, $\Delta G_{o,pq}$, exceed 3 standard deviations above or below the mean of the distribution, which is discussed earlier in Figure 5.

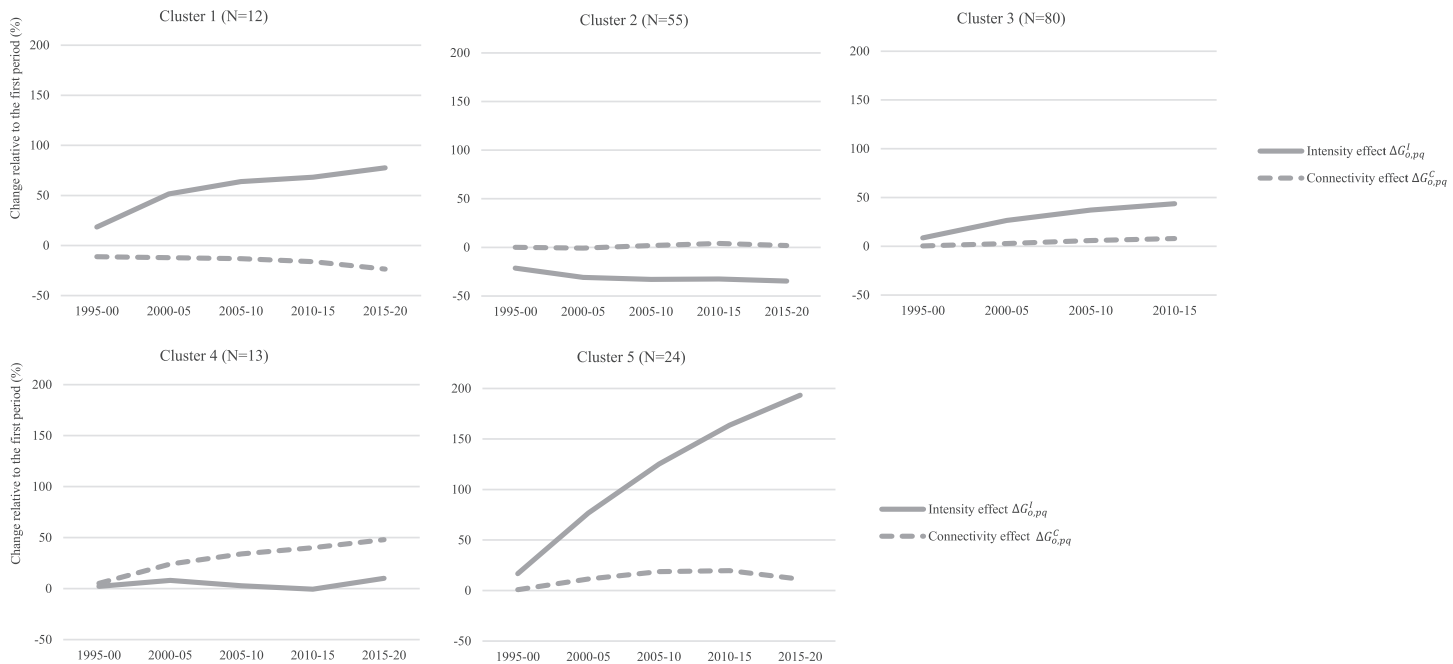
We report findings from the GBMTM analysis for the remaining 184 countries which identifies five clusters. We selected the five-cluster model because the six-cluster model does not offer an improvement in model fit, as indicated by the BIC. At the same time, the sixth cluster includes only one country, which does not add substantive insights. For each of the five estimated clusters, we display the trajectories in the intensity and connectivity effects over time in Figure 6.

Among the five estimated clusters, Cluster 3 is the largest, comprising 80 countries or 41 percent of all countries included in the GBMTM analysis. In this cluster, the relative trajectories in the intensity and connectivity effects are the most similar to those identified from the global vantage point, such that intensity is the lead component of change, contributing positive change at roughly 30 percent on average whereas connectivity plays a very minor role, contributing positive change at roughly 2 percent on average. The largest clusters include several prominent destination countries, such as the United States, United Kingdom, Canada, Germany, and France as well as prominent origin countries, such as China, India, and the Philippines.[5]

The second-largest cluster, Cluster 2, includes 55 countries, or 28 percent of all countries in the GBMTM analysis. The trajectory for connectivity effects over time is similar to that of Cluster 3, while the trajectory for intensity effect is negative and growing over time. Several countries in Cluster 2 are impacted by conflicts and prominent flows of refugees, asylum seekers, and displaced persons, to name a few: Afghanistan, Burundi, Bosnia and Herzegovina, Eritrea, Guatemala, Honduras, and Rwanda. These flows are oftentimes limited in connectivity, such that there are relatively few countries involved in the management and resettlement of population displaced by conflicts. Further, following any given conflict, the intensity of migration may reduce sharply.

The three smaller clusters, Cluster 1, 4, and 5, diverge from the trajectory identified from the global vantage point in different ways. In Cluster 1, the trajectory for the connectivity effect is negative and growing over time. In Cluster 4, the magnitude of connectivity effects is larger than the

FIGURE 6 Five estimated trajectories of change in the globalization of migration in 184 countries, 1990–2005 to 2015–2020



NOTE: Author's calculations using migration flow estimates (Abel and Cohen 2019).

intensity effect. Finally, the countries in Cluster 5 experience the largest intensity effects and connectivity effects.

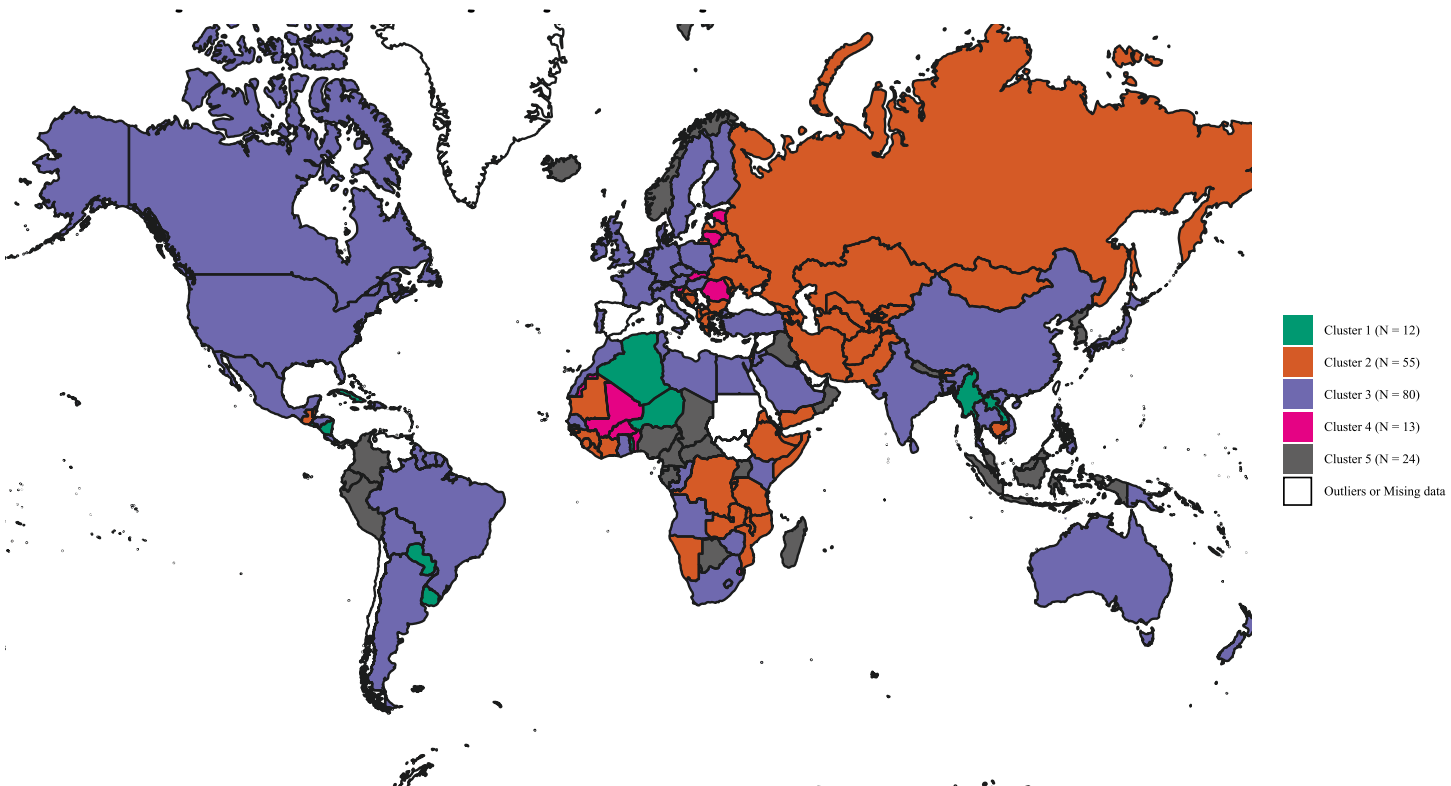
We further map the cluster membership on the world map in Figure 7 to examine potential spatial clustering. The results are mixed. Several contiguous countries are assigned to the same cluster; however, the clusters do not fully encapsulate any world region or subregion. Whereas Clusters 2, 3, and 5 include countries from all major world regions, Cluster 4 includes countries in only two world regions, Europe and Africa. Similarly, Cluster 1 only includes countries in Latin America and the Caribbean, Asia-Pacific, and Africa.

Results from the GBMTM analysis demonstrate variations in the dynamic interaction between the two components, intensity and connectivity, over time and space. The prominence of the intensity of international migration over connectivity observed from the global vantage point holds true for roughly 63 percent of the countries making up three Clusters 1, 4, and 5. At the same time, the clusters do not neatly align with any existing typology in migration research, for example, the categorization of countries as destinations and origins, by world regions, or development levels. While the cluster results alone are not sufficient for establishing a new typology, they suggest that the answer may lie in considering the interactions between different attributes. For instance, as several countries in Cluster 2 have prominent flows of refugees, asylum seekers, and displaced persons, it could be fruitful to characterize countries by their most prominent types of migration flows in tandem with their status as origin or destination countries. Such an effort should also be accompanied by new theoretical and conceptual work to identify the drivers for changes in each dimension—intensity and connectivity—separately.

Discussion

The globalization of international migration is a fascinating and important topic to many and for many reasons, not the least of which is the set of connections to globalization processes more broadly (Arango 2000; de Hass et al. 2020; Castells 1996; Czaika and de Haas 2014; Held et al. 1999; Salt 1992; Vertovec 2007). However, as we discussed early on and throughout this paper, the body of past and current research, especially empirical research, on the globalization of international migration is messy for several overlapping of reasons (e.g., the lack of a clear and guiding conceptual definition) that continue to warrant concerns. We, therefore, used this 50th-anniversary special issue paper to provide a simpler and integrated account of the globalization of international migration that includes a corresponding empirical template that makes use of such tools as demographic decomposition that will be familiar to many, if not most, readers of the *Population and Development Review*.

FIGURE 7 Mapping five estimated trajectories of change in the globalization of migration in 184 countries, 1990–2005 to 2015–2020



In doing so, we have made at least four contributions to research on the globalization of international migration and to migration research more broadly. First, following prior research by Brubaker (2001) and others on the differentialist turn in migration research, we have proposed a new conceptual definition of the globalization of international migration that puts the emphasis where it belongs, namely—on the underlying process or processes at work. Having shifted, or tried to shift, the focus away from what the globalization of international migration *is*, the second contribution of this paper lies in its claim that the intensity and connectivity of migration are the two primary processes at work and from which all other potential components, for example, distance (Bell et al. 2002) or diversity (Czaika and de Haas 2014), originate. Third, informed by the idea that the globalization of international migration is, as we stated earlier, a manifestation that takes different forms over time and space and results from pressures, or what we also called effects, exerted by the intensity and connectivity of migration, we envisioned and subsequently modeled these effects on the total volume of migration worldwide as one manifestation of the globalization of international migration. The fourth and final contribution of this paper is its empirical findings. Specifically, our global decomposition results tell a clear story, one that is dominated by the prominence of the intensity of international migration. And, while the connectivity of international migration is not unimportant at the global level, it is relatively more important and, in some instances, of paramount importance at the country level. Trajectory analysis using the GBMTM further highlights that the way intensity and connectivity relate to each other at the global level only applies to 41 percent of the countries. Overall, these contributions move in the same direction as the concurrent calls in migration research broadly to prioritize interrelations between theories (Riosmena 2024) and intersections across various analytical frameworks (Maharjan et al. 2024) and add to those calls by integrating both conceptual and empirical insights. Of course, like any summary and synthesis of this sort, our work in this paper rests on the assumptions and choices that we made along the way, which, while we did our best to contextualize and justify in past and current research and best practices, are open to critique. For example, recalling the emphasis on *more*—that is, "*more* and *more* countries [are] significantly affected by migration"—by Czaika and de Haas (2014, 284, emphasis ours), one critique of the conceptual definition of the globalization of international migration that we proposed is that it is too vague to be useful to actually pin down and distinguish what the globalization of international migration is from what is not. Ultimately, this critique, which we do not take on and respond to here, reflects larger discussions and debates throughout the social sciences on the pros and cons of more constructivist and emergentist (vs. essentialist) definitions, including in demography and population studies (e.g., see Szreter et al. 2004).

Another critique of our efforts in this paper lies in our elevating the intensity and connectivity of migration as the two primary components underlying the globalization of international migration. This critique likely rests on the question of whether and to what extent a given set of components, whatever their exact number, overlap (or not) one another, both conceptually and empirically. While this is an eminently sensible question, it misses the larger point that, as we argued in the paper, these components can and should be viewed hierarchically, with some components nested in and flowing from others. For example, the component of migration diversity identified and studied by Czaika and de Haas (2014) is premised on a [changing] set of migrant-sending and migrant-receiving countries and, as such, is embedded in and flows from the [changing] connectivity of international migration.

Finally, a third criticism of our work in this paper concerns our empirical approach. Regarding the demographic decompositions, there are, as we alluded to in the paragraph above, additional migration components such as migration diversity that one might wish to incorporate. One might also wish to incorporate information on exposure(s) via population size, land area, and/or other characteristics. Finally, following other formulations by Das Gupta (1993), one might wish to utilize different specifications (e.g., interaction terms) in the decomposition equations to understand different dynamics (e.g., amplification) of the underlying component migration processes. Of course, as we noted earlier, our work in this paper simply provides a starting point in the form of a much-needed empirical template, one that is also highly flexible and customizable, for current and future research on the globalization of international migration to coalesce around and use going forward.

Toward this end, and to step back and zoom out at this point, we hope that this paper will help in this coalescing toward a less fragmented, mixed, and messy body of research on the globalization of international migration over the next 50 years in the life of the *Population and Development Review*. For our part, we have tried to lay some of the groundwork (conceptual definition, integrated empirical framework, etc.) that we think is both necessary and overdue for this work and invite others to build and expand on what we have done here in both similar and different ways.

Notes

1 Central American Migration System. (See https://www.sica.int/)

2 Given our focus, we do not display and only scantly discuss K_p (i.e., the number of countries in period p) in the Results section of this paper.

3 One can arrive at the same result by taking the ratio of the intensity effect to the connectivity effect in any unit (number, percentage, etc.). Between the 1990–1995 and 1995-2000 periods, the ratio 8.54 equals 2,973,312 / 348,216 = 4.17 percent / 0.5 percent = 113.85 percent / 13.33 percent

4 The 11 outlier countries which are excluded from the GBMTM analysis are: Chile, Lesotho, Maldives, Micronesia, Qatar, Spain,

Syrian Arab Republic, Timor-Leste, United Arab Emirates, Vanuatu, and Venezuela.

5 We include the full list of countries in all clusters in the Online Appendix.

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