

Trajectories within international academic mobility: a renewed perspective on the dynamics and hierarchies of the global higher education field

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ABSTRACT

With an ever-growing number of students and academics in physical or virtual circulation around the world, issues related to academic mobility have taken centre stage in interpretations of the internationalisation of higher education. This mobility and its implications have been approached from multiple perspectives, from host and home countries' internationalisation strategies to individual experiences or the formation of transnational knowledge networks. Using the international higher education study trajectories of research active Mexican academics as a case study, this paper focuses on the under researched relationship between trajectories of South-North mobility and the stratification of the global HE field. It reveals how shifting patterns of individual study trajectories as well as overlapping sequences of study migrations from home countries contribute in no small measure to consolidating or destabilising the position of host countries within the field of global higher education, and therefore to its stratification.

1. Introduction

Over 6 million higher education (HE) students are in circulation around the world (OECD 2021), the majority of whom travel for degree programmes from middle income countries of the Global South to high income countries of the North. In these circumstances, international study mobility (ISM) has come and continues to symbolise larger global relationships of knowledge production, transfer, and circulation typically associated with globalisation and neoliberalism (De Wit and Altbach 2021; Brooks and Waters 2011; Bamberger et al., 2019; Shields, 2013). However, the complexification of study trajectories, the massification of higher education enrolments at home and the diversification of study destinations are inviting us to revisit the dominant paradigms and refine the methodologies of ISM with a view to situate those changes within the broader transformations affecting higher education globally.

This paper draws on a longitudinal analysis of study trajectories of a sample of Mexican academics, obtained from a national dataset. Our aim is to bring a historical perspective on changing study abroad geographies and trajectories to question enduring unidirectional interpretations of the relationship between social and institutional dynamics within the field (Rizvi, 2011; Bamberger et al., 2019) and

highlight the impact of those mobility trajectories from the global South on the structuration of the global HE field and the reproduction of its hegemonies.

We start by situating our study in relation to dominant interpretations of the status of ISM within the field global higher education. Our data and method are then explained and discussed with a focus on the relationship between study trajectories and study destinations across generations of students. A typology of host countries is suggested that reflects their unequal capacity of attraction of Mexican students according to study levels and subjects, their status within multi-country trajectories and their resulting position within the global HE field.

2. Understanding ISM within the global HE field

In a reflection of changing patterns and destinations, International Student Mobility (ISM) has been the focus of research from two rather distinct perspectives: one, typically micro and qualitative, focusing on the Individual experience of mobility and its impact on academic and professional trajectory/identity, and another, macro and quantitative, seeking to locate academic mobility within the broader features and transformations of the international higher education (HE) landscape

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(internationalisation, marketization, post-colonial dependencies).

For nearly four decades from the 1960s, the international dimension of academic and study mobility has been predominantly interpreted in terms of South North flows of students and staff from developing to developed parts of the world and has consequently been dominated by paradigms of academic imperialism, hegemonies, dependence and centre-periphery, and by push-pull and brain drain literatures (Meyer, 2001; Findlay, 2011; King et al., 2010; Solimano, 2008; Keim, 2014; Rizvi, 2005; De Wit, 2008). Drawing on frameworks from Migration Studies, South North mobility was treated both as consequence and aggravating effect of structural inequalities and dependencies in the international political economy and in academia (Nzima et al., 2016; Altbach, 1977; Alatas, 2003; de Haas, 2010). New interpretations emerged from the late 1990s under the paradigm of internationalisation, emphasising the benefits of international mobility for both home (sending) and host (destination) countries and a strong correlation between international mobility and the development of the knowledge economy (Altbach and Teichler, 2001; Knight, 2012; Wihlborg and Robson, 2017; De Wit and Altbach, 2021). From dependency theories to internationalization in the global knowledge economy, macro perspectives continued to pay more attention to the causes and contexts of mobility than to the trajectories and experiences of individuals.

Concomitantly, a strand in the literature of the 1990s turns to networks and territories and to concepts drawn from migration studies to understand study mobility as a process and a social phenomenon rather than as a consequence of macro-level structural factors in the HE world (Gümüş et al., 2019; Wilken and Dahlberg, 2017; Waters and Leung, 2013; Meyer, 2001). Methodologically, those studies signal a shift towards microlevel analysis and the possibility of understanding mobility from home country contexts despite a paucity of reliable and comparable data. Conceptually, this perspective is also beginning to challenge the then dominant policy and research paradigm of mobility emphasizing the temporality, circularity and fluidity of study mobilities within the networked society and knowledge economy (Knight, 2004; Altbach and Knight, 2007; Rizvi, 2011; Geddie, 2015; 2018). Premised on a “neoliberal imaginary of globalization” (Rizvi, 2011, 696) and related assumptions about the advantage of an international dimension to the educational capital (Rizvi, 2011; Findlay et al., 2012; Lomer, 2018), this paradigm and related mobility schemes (e.g. Erasmus in Europe) emphasized the individual benefit of transnational experiences, and their impact on human capital formation but ignored the inequalities of experience and outcomes according to countries or origin, destinations and subjects that qualitative approaches to ISM was beginning to reveal (Buckner and Stein 2020).

The continuous development and refinement of biographical and ethnographic analyses of trajectories through HE programmes and institutions within a wider range of home and host countries these past twenty years further exposed the uneven distribution of those mobility opportunities whilst revealing the increasing complexity of trajectories (Morley et al., 2018; Lulle and Buzinska, 2017; Bilecen and Van Mol, 2017; Haas and Hadjar, 2020; Brooks and Waters, 2010). A small number of studies approached trajectories quantitatively, shedding light on inequalities resulting from the massification and diversification of HE systems by considering the macro level (system) and meso level (HEIs) influences on individual paths of progression through HE. As Haas and Hadjar revealed in their review of such studies, quantitative analyses, particularly those offering sequential trajectory reconstruction, remain unfortunately largely restricted to national contexts of the North where longitudinal datasets are available and where “long-term student behaviour” can more readily be related to opportunities and constraints of HE systems (Haas and Hadjar, 2020, 1113) This paper aims to fill this particular gap with the example of Mexico, by drawing on representative large scale data with historical depth to investigate changes over-time in study trajectories involving international mobility.

Our project addresses the interplay between macro level forces and power relations on one hand (Marginson, 2008; Bourdieu and

Wacquant, 1999; Kauppi and Erkkilä, 2011) and the dynamics of individual mobility trajectories on the other within the field of global higher education. We conceive the field (or subfield) of global higher education as a social space of power relations where individuals and institutions compete for symbolic and material resources (Bourdieu, 1988; Hilgers and Mangez, 2014). Hegemonies and relations shaping the structuration of this field are rooted in local and national existing social fields “composed of institutions, interests, public policies, and practices with a common denominator: higher education” (Kauppi and Erkkilä, 2011, 315). Whilst acknowledging the “shifting geographies” of transnational knowledge networks and changing mobility patterns (Jöns, 2015), our study seeks to explain the enduring hegemonies and centre-periphery polarisation of study destinations from the Global South. We suggest that the polarisation of ISM flows is in part reflecting the symbolic domination of poles such as the USA and the consecration of their universities as world leading (Bourdieu and Wacquant, 1999; Kauppi and Erkkilä, 2011). However this study aims to show that this power of attraction is also the result of overlapping sequences of increasingly diverse mobility trajectories. We suggest that these historical layers of complex decision making processes are strengthening and reproducing the dominant poles of the field alongside more commonly acknowledged “knowledge concentrations and flows” (Marginson, 2008, 311) or “power of consecration” (Bourdieu and Wacquant, 1999, 46) deriving from leading institutions.

3. Our study: data and method

Studies of academic mobility based on secondary analysis have long been affected by the availability, the reliability and the comparability of data reporting study or academic career destinations and trajectories (Rivza and Teichler, 2007; De Wit, 2008; Gümüş et al., 2019). This is particularly true of the global south where despite increasing availability of large-scale longitudinal datasets (Haas and Hadjar, 2020), these studies typically concentrate on the start and end points of trajectories. Our approach focuses on the sequences of mobility within full HE trajectories from undergraduate and doctoral studies. We concentrate on the international study mobility of a particular group of individuals: the research active population of Mexican academics qualified up to doctoral level, enrolled in the national system of researchers (*Sistema Nacional de Investigadores, SNI*). Introduced in 1984 to better incentivise research careers in Mexico and halt the brain drain phenomenon affecting highly skilled Mexicans, SNI rests on a principle of differentiated retribution according to productivity. The system is made of an entering stage and three subsequent highly selective levels (Didou Aupetit and Gérard 2010). Enrolment in SNI is voluntary although the prestige attached to the status makes it difficult to maintain a research active career without being part of it. In 2020, 33,165 individuals (about 10% of academics in the country), were members, mostly concentrated at the lower levels (CONACYT, 2021). The anonymised dataset provided by the CONACYT for this project includes information ranging from educational qualifications to successive academic positions and lists of publications and grants. Similar data have previously been used to reveal the level of internationalisation of the academic profession in Mexico (Didou Aupetit and Gérard 2010; Didou Aupetit 2016; Robles-Belmont, 2021) as well as the diversity and structural inequalities of the profession (Gil Antón and Contreras Gómez 2017; Grediaga and Gérard, 2019). The data drawn upon in the paper includes all research active academics enrolled in 2013 (about 21,000). SNI data offer a unique opportunity of home country access to a large volume of comparable information on individuals, in this case a highly representative sample of the research active academic profession (Robles-Belmont, 2021) including information on all steps of their academic and professional trajectories at home or abroad (place, year and types of all degrees and qualifications obtained, of various research positions occupied etc).

For this paper, we focus on individuals qualified up to PhD level.

Data are analysed with reference to the following three structuring dimensions of their international experience: the period when qualifications were obtained (4 generations of qualifications identified), the subject area(s) of those qualifications, the country(ies) involved in study abroad trajectories. These dimensions were captured through two datasets created out of the original data²: a transversal dataset providing demographic information on individuals at the point of extraction of the data (age, sex, nationality, current employment position and disciplinary area), and a series of longitudinal datasets tracking the education and professional trajectory of those individuals. The latter allowed us to rebuild the chain of events and factors affecting individual study trajectories, including the countries through which individuals transited, the degrees obtained and the time spent for each of them, the subject areas of qualification obtained, the date of graduation for each of these.

Using this simple typology, we are then able to relate changes observed over time in patterns of trajectory to structural parameters such as the socio-demographic identity of mobile Mexican students, the status of disciplines and knowledge areas in Mexican science, the evolution of the international market of academic qualifications, and the Mexican policy of internationalization.

In this paper, trajectories in international mobility by qualification, discipline, and country(ies) of destination are reported to periods of mobility and generations of researchers in order to answer the following questions: 1) How do international study mobility trajectories relate to the evolution of national higher education and research systems (expansion, diversification, stratification, recognition)? and 2) to what extent do international study mobility trajectories contribute to the stratification of the global higher education field?

4. The global HE field, its hierarchies and changing polarities: a perspective from Mexico

Of the 21257 academics and scientists registered with SNI and qualified to doctoral level in 2013 (Rodríguez, 2016), nearly 40% had obtained part or all of their HE qualifications abroad. The list of countries where they studied, spans over South and North America, Europe, Asia, Oceania, and Africa, and grew continuously from the late 1990 s. Yet a small number of countries have had and keep having to this date a decisive hand in shaping the Mexican research capacity (López Ramírez, 2017). So, while a diversification of destinations is clearly observed from the early 2000 s onwards, it is worth noting that by 2013, training destinations in Asia (primarily Japan, Korea, China), Northern Europe (Denmark, Sweden, Norway), Oceania (Australia and New Zealand), and Africa (South Africa) had altogether attracted 3% of our sample of Mexican SNI researchers, and as shown in Table 1, about 13% of those internationally mobile.

By contrast, 70% of those aiming for international qualifications had opted for countries and institutions that have for four decades been in the top ten study destinations: the United States, the United Kingdom, France, Spain, and to a lesser extent Germany and Canada. These countries are therefore akin to primary poles of attraction to which Mexican students continue to go in large numbers,³ following routes long established by generations of students before and built upon crisscrossing influences of international and national bursary programmes, family ties and migration networks, linguistic and cultural domination, personal stories and envies (Grediaga Kuri and Gérard, 2019; López Ramírez, 2017).

² We wish to acknowledge the input of statistician Andrainolo Ravalihasy (IRD-CEPED) in the statistical analysis of those datasets, and for testing the relevance and statistical accuracy of our hypotheses.

³ Data on the overall international degree mobility of Mexican students revealed the same top six destinations in 2021 (UNESCO Institute for Statistics (UIS) 2021)

Table 1

Mexican academics trained abroad by country of destination and qualification obtained (in % of those having studied abroad).

	Bachelor's degree	Master's	Doctorate	All
USA	12,5	30,0	27,7	26,2
Spain	13,1	11,8	18,4	15,5
France	7,0	16,9	16,0	15,0
United Kingdom	3,7	12,6	15,1	12,6
Germany	2,5	3,3	4,2	3,7
Canada	1,8	3,4	3,3	3,1
Russia	5,6	4,4	3,0	3,8
Latin America	29,7	4,8	1,7	6,8
others	24,3	12,9	10,5	13,3
Total	100,0	100,0	100,0	100,0

Source: SNI dataset 2013

Through the international destinations they choose, mobile students do not only follow channels established by national or international scholarship programmes and institutional exchanges. They contribute themselves to the design of a globalized, but highly polarized and hierarchised field: the United States have for decades been the first destination of Mexican academic trained abroad (Table 1) while the Latin American region for instance hosted 6% of our sample with no single country of the region clearly standing out.

The resulting world map of destinations reveals distinctive polarities, including a set of "primary" poles, supplemented by "secondary" and those we could qualify as "marginal" poles. Categorisations such as Global North vs. Global South do not fully reflect those polarities: a number of countries in North America (Canada) and Europe (Germany, but also Italy, the Netherlands, etc.) although attracting significant numbers of Mexican students today feature in our list of secondary poles for the training of academics. Conversely, some countries of Latin America seem to have established a connexion with Mexico in specific disciplines (e.g. Cuba in Medicine) or are feeding the Mexican system with Bachelor's degree graduates (e.g. Colombia) completing their postgraduate trajectory and settling in Mexico (Robles-Belmont, 2021). Moreover, as will be shown later in the paper, these poles and their hierarchy have evolved overtime, from one period to another or from one student generation to another. For instance, Russia and other countries of the former eastern European bloc, a marginal pole in today's mobility patterns, played a significant role in training contingents of Mexican mathematicians and physicians up until the early 1990s.

4.1. Polarization in mobility flows

The polarization of the global field of postgraduate qualifications is therefore dynamic rather than static. Equally, polarities cannot be solely captured through the final destinations of students (e.g. the PhD) because study trajectories are not always linear. They can involve stages in different countries or spells of varying length back home. Trajectories also tend to take contrasting profiles according to areas of study, and by generations of students. In the process, the patterns shaping study trajectories also influence the stratification of international poles.

Table 2 illustrates this process: most Mexican academics from our dataset (97%) followed a "typical" HE trajectory (Bachelor's degree /Master's degree/doctorate), with the remaining 3% obtaining more than one qualification at a given level (e.g. two Masters) or skipping one level (bachelor's to doctorate). A closer attention to their destinations for each degree obtained enroute to the PhD reveals a wider range of training destinations and changing polarities (primary, secondary or marginal) according to the level of study.

The table reveals how the overall dominant position of a host country is not necessarily observed at all levels of study. From one level of study to the other, destinations change revealing how the hierarchy organising the poles is subject to variations. Not only do Mexican academics tend to study abroad in larger numbers for higher level qualifications (from

Table 2
Country of HE qualification by level of study.

	Bachelor's degree		Master		Doctorate		Total	
	N	%	N	%	N	%	N	%
Mexico	18593	89,8%	14650	76,5%	13386	63,2%	46629	76,5%
USA	263	1,3%	1348	7,0%	2147	10,2%	3758	6,2%
Spain	275	1,3%	529	2,8%	1427	6,8%	2231	3,7%
France	147	0,7%	761	4,0%	1242	5,9%	2150	3,5%
United Kingdom	77	0,4%	566	3,0%	1172	5,6%	1815	3,0%
Germany	52	0,3%	149	0,8%	324	1,5%	525	0,9%
Canada	37	0,2%	153	0,8%	257	1,2%	447	0,7%
Russia	117	0,6%	197	1,0%	229	1,1%	543	0,9%
Latin America	626	3,0%	215	1,1%	132	0,6%	973	1,6%
Other	513	2,5%	582	3,0%	817	3,9%	1912	3,1%
Total	20700	100%	19150	100%	21133	100%	60983	100,0%

Population: SNI members qualified to PHD level in 2013

8.9% at bachelor's level to 36.8% for the doctorate), they also travel to different countries according to the level of qualification sought. For instance, a higher proportion obtained a Master in France than in Spain, but Spain edges ahead of France at doctoral level. And while Spain rises to the second most important destination for the doctorate, other Spanish speaking countries see their position declining as the level of qualification sought abroad by Mexican students rises (Robles-Belmont, 2021). Adequate mapping of the international poles of formation of a highly qualified population therefore requires the inclusion of intermediate maps for each level of study constituting sequential study trajectories to reveal the relative position of host countries at each stage of the process.

Fig. 1 illustrates this dimension with a granular reading of individual trajectories in our sample. It indicates the trajectory steps (level of study and destination) of the 5177 SNI members (25.3%) who obtained at least some of their qualifications abroad (each individual is represented by a line in the graph). The graph allows to distinguish stationary trajectories (where individuals do not change country throughout their

studies) from those involving one or more additional country(ies) from any level of study.

Overall, countries attracting significant numbers of students at master's level also tend to consolidate their positions as doctorate providers (USA, Spain, UK, France). Equally, changes within trajectories abroad reveal the feeble capacity of retention (of students from one degree to another) of certain countries, and by contrast the tendency for the above dominant poles to capture students at the highest levels of qualification.

4.2. Springboard and rebound and anchorage destinations: a sequential view of the structuration of the global HE field

Table 1 and Fig. 1 clearly evidence the contrasting attraction capacity of destination countries at any level of HE qualification considered: while some countries welcome increasing numbers of Mexican students as levels of qualification rise (Spain, UK, Germany), others maintain a constant level of attraction (France, USA, Canada from

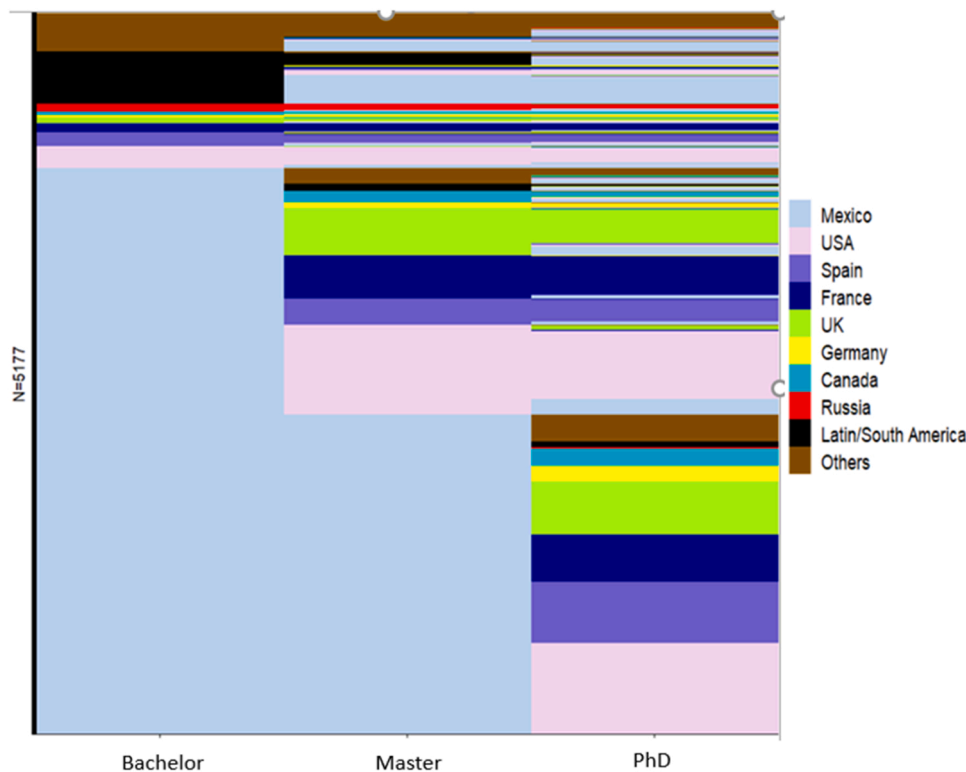


Fig. 1. sequence index plot: Countries of study within international Individual HE trajectories, Population: SNI members qualified to PHD whose trajectory comprise 1 Bachelor's degree, 1 Master's and 1 doctorate only.

masters to doctorate), and some others lose students along the way. Fig. 2 below provides selected illustrations of this unequal capacity, or variable degree of retention of leading destinations. It considers for each country, out of the total number of Mexican students having been hosted for a Bachelor’s qualification, the proportion of those who stayed in the country from one level to another, and the proportion and destinations of those who left to pursue high level degrees elsewhere.

In the case of the United Kingdom for instance (N = 38), most students having arrived for a first degree remained in the country up to their doctorate. Those who left went in large numbers back to Mexico, or to the USA and Canada. France (N = 69) also shows a high degree of retention. The figure clearly distinguishes countries with high degree of retention just discussed from those with lower retention capacity across levels of study such as the countries of the Latin American pole. In between those poles, countries such as Canada seem to struggle to retain Mexican students up until the doctorate but can re-emerge as significant pole of doctoral studies for those leaving Mexico later or changing destination along their trajectory.

Countries of Latin America and many others around the world can be qualified as “springboard countries” (Gérard, 2019) for Mexican students. They are the first destinations that trigger and facilitate an international trajectory for many (see e.g. Robles-Belmont, 2021 for a focus on Latin America in Mexican researchers’ study trajectories). Subsequent destinations vary according to springboard countries. These play a key role in defining international trajectories although they are rarely mentioned in most mobility studies whose data rest on final destinations. Canada for instance appear to be a significant springboard for pursuing doctoral level studies in the UK or in the USA. “rebound” destinations operate at both intermediate and final destination levels, redistributing some of their Mexican visitors received from springboard countries to other poles while retaining others in specific disciplines for the doctorate (e.g. Spain in the social sciences). Finally, we consider the USA, and to a lesser extent France and the UK as anchorages as they show higher degrees of student retention from bachelor’s to doctoral degree. In some cases (France and the UK), they retain students through to the doctorate in specific subject areas while operating as rebound in other areas.

The variable attraction and retention capacity of countries, and their role as springboard, rebound or anchorage destinations lead, to a refined typology distinguishing three types of poles, namely the “secured” or institutionalised poles (typically those “primary poles” mentioned earlier in the paper), the “emergent” poles, and the “relegated” poles losing their place in Mexico’s high skills provision as qualifications rise.

Mexico itself, but also the USA, Spain, the UK and France belong to the first group. The second includes Canada and Germany, as well as countries of East Asia now establishing themselves as poles of Mexican student mobility but still peripheral in our dataset. The third group includes countries of Latin America, and several European countries. Russia constitutes an interesting outlier: once a primary pole (USSR) in specific subject areas for the training of cadres and scientists from Mexico and many other “third world” countries (Hessler, 2018) is today presenting many of the characterisations of a “relegated pole”.

A hierarchy of the poles emerges from these observations, distinguishing a dominant group (the primary poles) of anchorage and rebound countries controlling the outputs of the international market of HE qualifications, from a set of very diverse “secondary” poles of rising or declining influence operating mostly as springboard destinations. The case of Russia suggests that this hierarchisation is a dynamic process: countries may move from one group to the other because of their evolving global influence, or because of the changing needs of home countries, or even because the trajectories of students abroad change shape and direction overtime for a more complex set of reasons. It is therefore essential to complement our approach in terms of the status of destination countries at each stage of mobility trajectories, with a reading of the variations in the mobility process itself, its causes, and its impact on the status of destination countries.

5. Changes in the polarities of the global HE field

5.1. Variations in time and according to the “generation” of qualifications

According to UNESCO data, Spain features nowadays among the leading study destinations for Mexicans (UNESCO Institute for Statistics (UIS) 2021), particularly at doctoral level, but this has not always been the case (Peña, 2015). Despite its linguistic proximity with Mexico, the country only features among the poles discussed above from the early 1990s when it starts reaping the fruits of its post Franco international respectability and European Union accession (Gérard and Cornu, 2013).

Canada and Germany emerged in that group at an even later stage, and Latin American countries are seeing numbers growing across a wider range of subjects and qualifications. On the other hand, France, a “historical” destination for Mexican students, saw its position behind the USA gradually eroded. Leading destinations show significant variations from one generation of students to another.

Trend analyses of Mexican international academic mobility have so

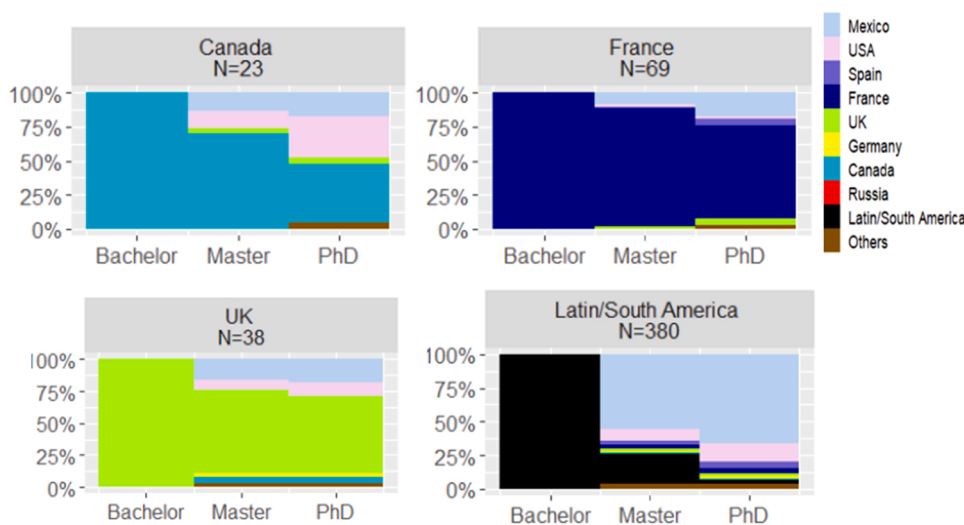


Fig. 2. (state distribution): Destinations according to country of Bachelor’s qualification. Population: SNI members qualified to PHD whose trajectory comprise 1 Bachelor’s degree, 1 Master’s and 1 doctorate only.

far used policy markers (e.g. the introduction of a scholarship scheme or a bilateral agreement) in their periodisation of the flow of Mexican students abroad (Grediaga Kuri and Maldonado Pérez 2012; Grediaga Kuri and Gérard, 2019). Such periodisations tend to be built on policy temporalities using key Mexican HE reforms or international events as milestones in the evolution of the entire system. A closer attention paid to the dates when different generations of students obtained their degrees reveals what we are calling “generations of qualifications”, that do not always match policy-based periodisations. As we will see now, reforms within the Mexican system have not been the only significant factors impacting on study trajectories abroad, and their impact has not always been immediate. In fact the majority of those qualified with a Bachelor’s or a Master’s degree prior to the 1990s – the only qualifications then required to teach in the Mexican HE system – did return to further studies (for a Master’s or a doctoral degree) at home or abroad much later, and in a discontinued way once in the profession (Gérard, 2019). Conversely, in line with worldwide trends, the younger generation of academics shows shorter and more linear trajectories of HE qualifications (Gérard, 2019).

A Gaussian distribution of the years when HE qualifications were obtained revealed two significant periods for our sample of SNI members: one during which the average years of graduation with a Bachelor, Master and Doctorate were 1984, 1987 and 1991 respectively (we are calling it the “old” period) and another one (the “recent” period) for whom those medians were 1999, 2001 and 2006. We were able to distinguish “generations of qualification” on that basis: one grouping researchers who obtained all three degrees in the “old” period “old-old-old” in the table below); one for those who obtained both master and doctorate much later than their first degree (old- recent-recent), another one grouping those qualified up to a Master in the old period but who obtained the doctorate in the recent period (old-old-recent), and finally those recently qualified at all levels (recent-recent recent). The first generation represented 24.6% of the SNI population in 2013, the second 17.3%, the third 17.6% and the fourth 39.9%. The distribution of these periods across age groups is presented in Table 3.

The approach in terms of generations of qualification allows a deeper understanding of the relationship between student mobility and the state of the global HE field. More than the common reading of qualifications and destinations per age, the generation approach reveals the variable nature of HE study cycles per age groups. Generations of internationally mobile Mexican students do not simply follow each other in regular sequences to either identical or different destinations; they sometimes “cohabitate” in the same countries for a similar degree but at a very different moment of their career.

From a “generations of qualifications” perspective, the HE space of international mobility is defined by the study destinations of individuals, and also by the sequences of this circulation, be they linear (uninterrupted trajectory from one level of study to another) or discontinuous. For instance, we suggested earlier that the USA were gradually losing their grip over the formation of Mexican academics. This is undeniably revealed by data comparing destinations for doctoral studies since the early 2000s. However, the approach in terms of generations of qualification reveals that this decline started earlier than often suggested, but that it was concealed by the cohabitation in the country of two distinct flows at Masters and PhD levels: the old

generation returning for additional qualification and the new generation of mobile students. Other host countries, with fewer returnees from the “old” generation in their overall intake of postgraduate students, may be hastily seen as less influential over the formation of Mexican researchers while they are actually establishing themselves as prime destination for doctoral studies in the younger generation of Mexican academics.

Our dual reading of sequential and generational flows of students abroad suggests that poles do not only owe their global standing to geopolitical and economic power relations. Their position as primary or secondary poles, or as “dominant” or “dominated” actors in the field, also depends, as we have just illustrated, on the presence of distinct generations of students and researchers. Therefore, a pole consolidates its position by attracting new students in large numbers, and through the perpetuation of the flow of students of all generations towards its universities, particularly at postgraduate level. In the process, the pole builds and reproduces historical channels of mobility capable of transcending political and economic conjectures, and thus maintains its relative influence over the formation of another country’s scientific elite.

And finally, our data reveal a significant evolution of the student mobility more generally: the decline of international degree study mobility from the older to the newer generations of academics. Academics of the older generation were more mobile for HE qualifications and were also more likely to complete their studies across more than one host country: 53,9% changed country at least once for 28,9% in the new generation; 8 1% of the former changed at least twice for just 3% of the latter group. Recent data confirm this trend, revealing how the international dimension of the research training of Mexican academics is today better reflected in the rise of post-doctoral stays abroad and in the credit mobility of postgraduate research students (Lebeau, 2019).

The dynamic interaction between mobility and poles within the field of global higher education is therefore not only the product of policies and global market trends. It clearly varies according to three temporal dimensions: the succession of steps and sequences in study trajectories, the periods when qualifications were secured, and the generation of qualifications to which individuals belong. The hierarchy among destination poles is itself affected by these three dimensions: not all poles can hold their position over a long period, or even over the totality of individual trajectories within any given generation. Some countries consolidate their position over a particular level of study while others withdraw to a specific disciplinary field, disappear, or go on to become transdisciplinary dominant poles across all levels.

The last key factor that deserves attention in this analysis of temporalities in mobility is the weight of academic disciplines in destinations and trajectories.

5.2. From one mobility to another: disciplinary dynamics in destination and trajectories

As we have seen, sequences of mobility vary across and within any given generation of academics trained abroad. In addition to these inter and intragenerational patterns determined by a range of factors, “disciplinary mobility” represents an interesting dynamic at the intersection of micro and macro trends. If the majority (over 80%) complete their higher education studies within one disciplinary grouping, nearly

Table 3
HE trajectories per generation of qualification and generation of birth of students.

Generation of qualification			Total	Generation of birth (age groups)								
				27 – 34		35 – 44		45 – 54		55–65		
Bachelor	Master	Doctorate	N	%	N	%	N	%	N	%	N	%
Recent	Recent	Recent	5994	100%	2024	33,8%	3689	61,5%	257	4,3%	24	0,4%
Old	Recent	Recent	2688	100%	4	0,1%	1053	39,2%	1329	49,4%	302	11,2%
Old	Old	Recent	2561	100%	1	0,0%	305	11,9%	1528	59,7%	727	28,4%
Old	Old	Old	3220	100%	0	0,0%	104	3,2%	1547	48,0%	1569	48,7%

20% do change discipline during their studies. Typically, those changes take place in the transition from one level of study to another. The transition between Bachelor’s degree and Master’s degree is where those changes are most likely to happen (46.6%).

Not all disciplines or disciplinary groupings are equally subject to bifurcations in terms of subject and destinations. Table 4 shows for example that students in medicine and Health Sciences rarely changed country during their trajectory while at the other end, those in the social Sciences and the Humanities were the most geographically mobile: over 46% changed country during their studies, and nearly 10% did it twice.

Overall, our analysis shows that disciplinary mobility often generates geographical mobility. 40% of those changing subject between their first degree and their master’s were in this situation and over 27% of students changing subject between the master’s and doctorate also chose to leave the country where they were studying. Finally, 37.5% of those undertaking two doctorates in two different disciplines did so in two different countries.

Further analysis revealed that students changing country at a point of change of disciplines, were more likely to move towards the primary poles (i.e the United States, UK, Spain, and France). Overall, those bifurcations therefore appear to benefit the dominant poles’ positions as anchorages. However, the data also showed how through these disciplinary changes, more marginal destinations seem to emerge or to consolidate their position as secondary poles in the formation of Mexican researchers.

6. Conclusion

By combining the analysis of temporal and geographical trends in the academic mobilities of a large and homogenous population our study reached two important conclusions.

Firstly, international study trajectories are often geographically complex, mixing subject areas, institutions and countries in more or less linear sequences. This complexity can itself be the product of multiple factors including the nature and availability of the subject area studied, the geopolitical circumstances of the mobility, or the decision-making process involved in the formulation of individual choices. Some countries show a great capacity of retention of international students due to their institutions’ hegemonic position in the field of higher education or in strategic disciplinary fields, to their investments in academic cooperation and internationalisation agencies (Zezeza, 2016; Cremonini and Antonowicz, 2009), to broader trade agreements with sending countries, and/or to factors such as migration networks in the country. By contrast, others operate as springboards at the start of an international trajectory potentially spanning over up to three different countries. Therefore, the structuring impact of mobility on the field of global higher education cannot be fully understood through the sole lens of final destinations. Secondly, historical comparisons of the final destinations of students in mobility, seized in isolation from the sequences of mobility of different generations of students, only offer a partial understanding of the actual influence of major poles of attraction over the stratification of the

international market of qualifications.

These two dimensions of mobility bring to light the complex and dynamic relationships between individual study trajectories and the global dynamics of higher education. Secondly, they reveal how the consolidation or endurance of some destinations as primary poles on the world map is not only the travail of market or political forces but also the result of the intrinsic dynamics within individual and collective mobility trajectories, and of their accumulation over time.

The leading poles of the field remain leaders because they have overtime for all sorts of reasons, academic and non-academic, built a capacity of retention of students visiting earlier in their HE trajectory, along with a capacity to attract students not only directly from their home countries, but also from other “springboard” countries (often mistakenly analysed as new destinations in studies producing snapshots of study destinations). These complex and unstable patterns of domination can be sustained long after a primary pole fades away as “knowledge empire” (Fahey and Kenway, 2010, 629) or as knowledge hub in a given subject area through the impact of “cumulative processes of academic mobility” (Jöns, 2015, 373).

It is worth reiterating that our study only considered completed study cycles of academics employed in Mexico at the time. It did not consider the thousands of aborted mobility trajectories, or those leading to permanent settlement in a host country. Studies of recent trends show that these mobilities, increasingly privately funded, involve a wider range of geographical destinations (López Ramírez, 2017; Grediaga and Gérard, 2019). They certainly reflect in the case of Mexico those “major shifts in youth culture” and “new practices of global networking” (Rizvi 2011, 700) observed worldwide.

But are these shifts a sign of changing power relations within the global HE field? Our take on mobility, based on longitudinal data from a home country of the Global South reveals how the erosion or emergence of dominant poles in the formation of talents is not the simple substitution or translation process expressed in many studies today.

Yet the erosion of traditionally dominant poles is more and more palpable at degree mobility level as the competition with secondary poles intensifies and the endogenization of higher education across the Global South generates shorter and more linear ISM trajectories. More longitudinal studies of this type are needed, considering trajectories in their totality to determine whether this process signals a shift in geographies of power and new “circuits of knowledge” (Collyer, 2018, 66; Connell et al., 2018) or rather a change in mobility patterns towards credit mobility and short research stays within international research hubs, ultimately reinforcing through different means the symbolic domination of the leading countries and institutions of the global HE field.

Authors’ contributions

50–50%.

Table 4 Geographical mobility according to disciplinary fields.

Disciplinary field	Number of moves from one country to another											
	Total n	%	0 n	%	1 n	%	2 n	%	3 n	%	4 and more n	%
Physics, mathematics, and Earth Sciences	3340	100%	2111	63,2%	1108	33,2%	113	3,4%	8	0,2%	0	0,0%
Biology and Chemistry	3498	100%	2615	74,8%	802	22,9%	73	2,1%	8	0,2%	0	0,0%
Medicine and Health Sciences	1615	100%	1299	80,4%	267	16,5%	46	2,8%	3	0,2%	0	0,0%
Humanities and Behavioural Sciences	3112	100%	1978	63,6%	891	28,6%	214	6,9%	27	0,9%	2	0,1%
Social sciences	3245	100%	1739	53,6%	1163	35,8%	308	9,5%	31	1,0%	4	0,1%
Biotechnology and Agro-Veterinarian Sciences	2416	100%	1502	62,2%	810	33,5%	102	4,2%	2	0,1%	0	0,0%
Engineering	3202	100%	1869	58,4%	1222	38,2%	102	3,2%	8	0,2%	1	0,0%
Total	20428	100%	13113	64,2%	6263	30,7%	958	4,7%	87	0,4%	7	0,0%

Note: χ^2 test significant at the 5% level

Author Agreement

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