



# More students and more diverse: new trends in international mobility to Portugal

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## Abstract

Growing numbers of students from non-Portuguese speaking countries, designated as ‘non-Lusophone students’, signal the diversification of the international student population in Portugal. Until recently, international students came almost exclusively from other Portuguese-speaking countries. Employing social network analysis, the paper analyses the enrolment patterns of non-Lusophone students in Portuguese higher education – by institution type, qualification and discipline – to understand what aspects in particular attract these students. Findings indicate that public universities are mostly attractive for their doctoral degrees, in various disciplines, with students coming from very diverse regions. Public polytechnics enrol few non-Lusophone students, continuing to rely on the traditional Portuguese-speaking public. Private institutions attract Western and Southern European students, to integrated masters in Health programmes. Implications for institutions in other semi-peripheral countries intending to diversify their international students are highlighted: the identification of their strengths, at discipline or degree level, and the target-publics likely to find their programmes appealing.

**Keywords** International students · Mobility patterns · Study destinations

## Introduction

The recruitment of full-degree international students has become important for Portuguese higher education institutions over the last decade (Guerreiro, 2015; Sin et al., 2019b). Several developments – demographic, economic and political – have contributed to this: pessimistic demographic projections and a declining pool of national candidates (Dias et al., 2013); public funding cuts for higher education following the 2009 economic crisis; the

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*Strategy for the internationalization of Portuguese higher education* (MADR/MEC, 2014) which made international recruitment a priority; and the Statute of the International Student, a decree-law from 2014, according to which public institutions can charge higher fees for international students (except those from EU countries). The Bologna Process reforms, the creation of the European Higher Education Area (EHEA) and the Erasmus Mundus programmes already provided fertile ground for the expansion of international recruitment, by increasing the attractiveness of Europe as a study destination. However, in the context of European higher education, Portugal is a semi-peripheral country with less capacity for attracting foreign students (Sin et al., 2019). Although semi-peripheral countries share the fact that they are not in the “first league” of international student destinations, the reasons for their secondary position vary. In Portugal, the less productive and competitive economy and lower spending on higher education and research (Fonseca et al., 2015), as well as the dominance of Portuguese as teaching language, might explain the country’s lower attractiveness.

International student flows are undergoing major transformations. The attractiveness of major recruiting countries has been diluting with the emergence of new popular destinations across the globe (regional international education hubs in the Middle East and South-East Asia, smaller European countries etc.), as detailed further below. This represents an opportunity for Portugal to broaden its international recruitment base. Students from Portuguese-speaking countries have been the traditional international public of Portuguese HEIs. Currently, they still represent about two thirds of international students. Besides these, students from other countries have become more numerous and started to gain visibility. For instance, Portugal is becoming an appealing destination for students from some European countries, e.g. France, Spain, Italy and Germany (some of which have large Portuguese communities, whose younger generations may opt to study in Portugal), from China and from Iran. Among students from Portuguese-speaking countries, only the number of Brazilian students has grown significantly in the last decade, and especially in the past 4 years, when their number doubled. However, many recently enrolled Brazilian students may not have moved to Portugal to study. Some came with their families in a massive migration of Brazilians to Portugal (in 2019, 48,796 new residence permits were granted to Brazilians by the Immigration and Borders Service, an increase of 45.5% over the previous year). The number of students from Portuguese-speaking countries in Africa and elsewhere has registered a modest increase.

For students from non-Portuguese speaking countries, the growth was twofold during the past decade. Among these, the top sending countries registered a threefold increase. This evolution, alongside the novelty of this public for Portuguese higher education, suggests that these “new” students represent a potential source for the continued growth and diversification of the international student population. These students will be designated as “non-Lusophone students”. It is likely that this is the beginning of the phenomenon and that, under normal circumstances (controlling the covid-19 pandemic worldwide), their numbers will continue to increase. It thus becomes pertinent to study their pattern of enrolment, considering type of institution (public or private; university or polytechnic), degree level and disciplinary area. Are certain disciplines more attractive than others? Does attractiveness vary by type of higher education institution and degree level? How do these dimensions intersect and what do they tell us about international students’ education choices in Portugal? To this purpose, a mapping of the flow of non-Lusophone students in Portugal is under-

taken to understand what segments of the Portuguese higher education system attract them. Mapping allows identifying patterns of enrolment, which may help to infer Portuguese institutions' attractive niches. The results may be useful for higher education institutions, in Portugal but also other semi-peripheral countries, as they give insights into potential areas where they may need to invest to increase and diversify their international publics.

## Higher education in Portugal and international recruitment

The Portuguese higher education system comprises public and private institutions. These latter emerged mostly in the 1990s, at a time when there was great demand for higher education in Portugal and the public sector could not respond to growing numbers of applicants. Public institutions rely heavily on state funding (the number of enrolled students is part of the funding formula), while private institutions need to raise their own revenue, which is greatly dependent on tuition fees. As such, tuition is more expensive in private than in public institutions. In a context of decreasing number of prospective students since the 2000s, private institutions find it difficult to compete with public institutions, which are cheaper and perceived as more prestigious by students (Tavares, 2013). The higher education system also comprises universities and polytechnics. Universities have a more academic and theoretical orientation, while polytechnics are vocational institutions meant to prepare students for intermediate technical jobs.

After the 1974 revolution, which marked the dismantling of the Portuguese empire and the establishment of democracy, the government started subsidising places for students from the former colonies. This initiative was driven by political motivations to preserve privileged relations with these countries, as well as by cultural rationales rooted in the Portuguese language and a shared historical legacy (Veiga et al., 2006). The almost exclusive focus on students from Portuguese-speaking countries has persisted until very recently and these students still represent the majority of international students in Portugal.

Two political initiatives, both from 2014, signalled a watershed in the national approach to international student recruitment and the diversification of the international student body: the *Strategy for the internationalisation of Portuguese higher education* (MADR/MEC, 2014) and the *Statute of the International Student* (Decree-Law 36/2014). The strategy, unprecedented in Portuguese higher education policy, intended to provide a framework of concerted national action to improve internationalisation, declaring that it was 'essential to develop a national strategy (...) that, without undermining institutional autonomy, provides coherence to the fragmented efforts that are being promoted by several institutions on their own' (MADR/MEC, 2014, pp. 17–18). The recruitment of international students stood out among the priorities and an objective was set to double their number by 2020. Although the Portuguese language is portrayed as an asset for international recruitment, the strategy stressed the importance of diversifying students' countries of origin: modest enrolments from non-Portuguese speaking countries indicated a considerable growth opportunity. Portuguese universities capitalised on the momentum and designed a joint approach to advertise the country and its institutions abroad (Sin et al., 2019a, b). Only a decade ago, Portuguese institutions' strategies for internationalisation were marginal and ad-hoc (Veiga et al., 2006), while currently modest steps towards articulated strategies are undertaken (Sin et al. 2019b).

The *Statute of the International Student* eased international recruitment and created incentives for the enrolment of international students in public institutions. First, it created a separate entry regime for these students, independent of the admission requirements applicable to Portuguese students, and allowed greater flexibility for institutions to define their own admission criteria. Second, it allowed public institutions to charge higher tuition fees for international students (non-EU), to reflect the real cost of provision. In the definition given by the Statute, international students exclude those coming from other European Union countries.

Before this legislation, international students in public institutions counted equally as national students in the attribution of funding and, therefore, a profit logic did not apply (Veiga et al., 2006). In contrast, revenue from international enrolments was always important for private institutions, given their reliance on fees to ensure their sustainability. Public institutions appear to have welcomed this political measure (Sin et al., 2019b) and increasing numbers of international students may be an indication that they took up the opportunity. Recruiting international students became a way of compensating funding cuts and fewer national candidates. Based on negative demographic projections, the number of prospective higher education students in Portugal is estimated to decrease significantly by 2035, between one fifth and more than a quarter of the young population (Dias et al., 2013).

The different types of higher education institutions are not equally affected by the loss of the traditional national public, i.e., recent high-school leavers. The private sector has suffered greatly from the declining demography over the past decade (see Table 1), as the proportions of occupied places for degree-awarding programmes show.

In the public sector, universities have maintained relatively stable enrolments, with a slight increase in occupation rates, while polytechnics have overall seen some fluctuations

**Table 1** Number of places in degree-awarding programmes and occupation rates in the general admission regime<sup>2</sup> (2011/12-2019/20)

Year	Public universities		Private universities		Public polytechnics		Private polytechnics	
	Places	Occupation %	Places	Occupation %	Places	Occupation %	Places	Occupation %
2011/12	28,820	92.95%	20,939	28.50%	25,248	70.97%	11,633	20.33%
2012/13	28,620	93.00%	18,460	29.01%	24,270	70.67%	10,530	16.69%
2013/14	28,554	91.94%	15,941	31.27%	23,547	62.76%	8807	14.64%
2014/15	28,458	88.63%	13,106	31.33%	23,008	65.75%	7775	18.85%
2015/16	28,338	93.01%	14,406	44.07%	22,833	73.83%	7679	24.20%
2016/17	28,406	93.59%	14,231	47.21%	22,942	75.78%	7495	26.67%
2017/18	28,518	93.68%	14,544	55.59%	22,976	79.55%	7299	32.51%
2018/19	28,284	93.87%	14,952	51.87%	23,276	74.51%	7404	30.49%
2019/20	28,382	94.46%	14,252	59.31%	23,186	77.71%	6444	36.68%

Source: General Directorate for Education and Science Statistics (excludes Universidade Aberta, policy/military institutions and the Portuguese Catholic University)

<sup>2</sup> The general admission regime includes traditional applicants (high-school leavers) who make up the large majority of candidates to higher education. Special admission tracks are in place for other student categories: mature students, students with special needs, international students, etc. The placement system is centralised for public institutions (based on student preferences and grade point average) and conducted in-house for private institutions.

in enrolments but decreased their available places. In contrast, the private sector reduced drastically its number of places over this period, with polytechnic institutions being most affected, but occupation rates increased following this reduction. Even so, in 2019/20, private polytechnics only managed to fill in just over a third of available places through the general access regime. Thus, the private sector has felt more acutely the need to compensate for falling numbers of national students and is more pressured to find alternative publics, including international students. Analysing the enrolment of international students from new destinations may help understand whether this has been a strategy to fill in available places.

## Emerging tendencies in international student mobility

The diversification of international students in Portugal is reflecting global shifts in the traditional flows of internationally mobile students. The majority used to ‘originate from a large number of countries, especially Asian ones, and gravitate towards a few, wealthy and mostly English-speaking countries’ (Börjesson, 2017, p. 1264). However, the strength of this pattern has weakened and new flows have emerged, especially within a region and between developing countries (also known as South to South). This has led to the emergence or consolidation of new countries in the global higher education space (Didelon & Richard, 2012; Hou & Du, 2020; Kondakci, 2011; Perkins & Neumayer, 2014). The current wave of international student mobility is thus marked by increasing competition among new and traditional destinations (Choudaha, 2017).

First, Asia, traditionally an exporter of students, has gradually become a significant importer as well. Countries in Asia and in the Middle East (Singapore, Malaysia, Qatar etc.) have created international education hubs as a strategy not only to retain domestic students, but also to attract students from the same region (Ahmad & Buchanan, 2017; Alam et al., 2013). Some major Asian countries which experience aging populations – namely Japan and South Korea – are implementing measures to increase international recruitment (UNESCO, 2018). China has strengthened ties with Africa and the presence of African students in China is recent, given the attribution of scholarships to this public (Didelon & Richard, 2012; UNESCO, 2018). Moreover, major Western institutions have set up campuses in various Asian countries. Second, Europe appears to be attractive not only for overseas students, but also for degree-mobile European students (Caruso & de Wit, 2015). With the creation of the EHEA, smaller European countries have recognised the importance of international student recruitment and developed strategies accordingly (Cox, 2013). Finally, some countries in the semi-periphery are becoming attractive for students from nearby countries, generally because they are more economically developed and have more reputed higher education systems than other countries in the same region, e.g. Turkey in Central Asia (Kondakci, 2011) or Poland in North-Eastern Europe (Sin et al., 2019a). None of the above appears to apply to Portugal, therefore the reasons why it has started attracting non-Lusophone students need investigation.

Börjesson (2017) argued that there exist three poles in the global space of international students, based on the flows between countries of origin and countries of destination: the Pacific pole, the Central European pole and the French-Iberian pole. For each pole, he put forward a logic to explain the main feature characterising the student flows. The Pacific pole spans the world and has the US as the country of destination receiving most international

students, but also includes Canada, the UK, Ireland, Australia, Japan and South Korea as important study destinations. Most international students in this pole are Asian, with China being the country of origin sending most students abroad. This pole is governed by a market logic, as tuition fees represent a substantial revenue for HEIs in the receiving countries. Tuition fees for international (and even home) students are generally high. The Central European pole comprises Central and Western European countries, with international students coming mainly from neighbouring countries. Börjesson thus argues that it follows a proximity logic. Student flows have also been incentivised by the promotion of intra-European mobility in the Bologna process and the creation of the European Higher Education Area. Tuition fees are low or absent altogether, which contrasts with the market logic. However, some countries have introduced higher fees for non-EU citizens, thus combining the market and proximity logics. Finally, the French-Iberian pole contains three destination countries (France, Spain and Portugal) and two regions of origin (Africa, Latin America and the Caribbean). As study destinations in this pole attract large numbers of students from former colonies, a colonial logic applies. Similar to what was noted earlier for Portugal, strengthening ties with the ex-colonies is important and this is also reflected in the dominant student trajectories. However, the *Statute of the International Student* and the subsequent possibility of earning revenue from international student fees, as well as the diversification of international students' origins, appear to be diluting Portugal's dominant international public and the colonial logic. The paper applies Börjesson's logics, although for student flows towards one country only, suggesting that multiple logics can govern flows towards the same destination. This is especially pertinent since the focus here is on non-Lusophone international students from countries where Portuguese is not an official language.

## Method

Data were retrieved from the General Directorate of Education and Science Statistics website, containing information on all study programmes between 2011/12 and 2019/20. In this study, international students include degree-mobile students registered with a nationality other than Portuguese (unlike the understanding of the statute which excludes EU students). As non-Lusophone students are our focus, students from Portuguese-speaking countries were excluded, as well as stateless and refugees. Between 2011/12 and 2019/20 the number of non-Lusophone students grew from 6692 to 13,193. The enrolments are disaggregated according to: HEI type (public or private; polytechnic or university), degree level<sup>1</sup>, disciplinary area, and student nationality. Table 2 shows the changes in the non-Lusophone international body in public institutions and in private institutions over the period.

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<sup>1</sup> The following degrees are awarded by Portuguese institutions: first cycles (bachelor's degrees) and second cycles (master's degrees), awarded by both universities and polytechnics; integrated master's degrees and third cycles (doctoral degrees), awarded by universities only. Integrated masters combine a bachelor's and a master's degree, lasting 10–12 semesters, offered in professional fields which require more than a bachelor's degree for students to be allowed to practice the profession (e.g., medicine, architecture, psychology or engineering). Additionally, institutions offer non-degree awarding short technical degrees lasting two years (CTESP), which grant access to bachelor's degrees, as well as a limited number of short non-degree awarding postgraduate qualifications.

**Table 2** Non-Lusophone students in public institutions and private institutions

		2011/12	2015/16	2019/20	2011/12	2015/16	2019/20	
		<b>Public institutions</b>			<b>Private institutions</b>			
	<i>Total</i>	5514	6166	8986	1175	2005	4203	
<b>Type</b>	University	4394	5029	6870	850	1422	3123	
	Polytechnic	1120	1137	2116	325	583	1080	
<b>Degree</b>	CTESP (Technical short cycle)	98	61	298	19	11	43	
	First Cycle	2125	1420	2273	690	903	1544	
	Second Cycle	1380	2394	3524	200	438	703	
	Integrated Master	562	366	448	222	597	1799	
	Third Cycle	1257	1842	2361	39	51	112	
	Postgraduation / non-specified	92	84	82	5	5	2	
	<b>Disciplinary area</b>	Agriculture	91	97	172	5	3	185
		Arts & Humanities	932	920	1366	179	216	254
Education		132	139	215	45	7	8	
Engineering		1306	1427	2151	183	203	226	
Health		482	463	556	222	848	2445	
Natural Sciences, Maths & Computer Science		724	907	1092	20	22	51	
Services		317	246	374	60	58	74	
Social Sciences, Business & Law		1530	1964	3053	461	648	960	
Other/non-specified		-	3	7				
<b>Top 5 countries of origin</b>		France (478)	China (594)	Italy (1080)	Spain (330)	Spain (660)	France (1753)	
	Ukraine (467)	Spain (544)	China (974)	France (90)	France (248)	Spain (657)		
	Spain (418)	Italy (516)	Germany (638)	Ukraine (71)	Italy (197)	Italy (521)		
	Germany (340)	Germany (437)	Spain (552)	Italy (60)	Germany (108)	Germany (235)		
	Italy (319)	Ukraine (415)	Guinea (546)	Netherlands (56)	China (104)	China (145)		

## Public sector

The number of non-Lusophone students increased consistently in the public sector (see Table 2), from 5515 to 2011/12 to 8990 in 2019/20, representing 29.16% of all international students enrolled in public higher education institutions. However, this growth did not happen uniformly in universities and polytechnics. In public universities, the growth has been more stable over the period, while the number has almost doubled in public polytechnics, which made the growth more visible. The first degree used to be the most sought-after one, but the master's and the PhD are currently the most popular degrees. At the beginning of the analysed period, these students came mostly from European countries, but lately non-European countries (e.g., China) have started to stand out. At the same time, the number of Italian students in the public sector has increased considerably. For non-Lusophone students, the

most attractive disciplinary areas are Social Sciences, Business and Law; Engineering; and Arts and Humanities.

### Private Sector

In the period 2011/12 to 2019/20, non-Lusophone students in private institutions amounted to a third (33.45%) of all international students. During this time, their number increased threefold, from 1177 to 4203 (see Table 2), a growth which suggests that private institutions may have made a great effort to tap into this non-traditional public to fill in vacant places. The distribution between universities and polytechnics remained stable, with around 70% and, respectively, 30%. The overwhelming majority came from European countries. Spain, France and Italy together represent more than half of non-Lusophone students. The integrated master's degree experienced the greatest growth, overtaking first-degree enrolments. Almost half of non-Lusophone students in private institutions study Health-related programmes, followed by Social Science, Business and Law. These two areas together enrolled 80%. Health enrolments grew very fast (almost tenfold), while the field of Social Science Business and Law decreased its proportion of enrolled students.

### Social Network Analysis

For the most recent year available (2019/20), an empirical analysis of these students' flows was performed, quantified by various social network analysis metrics. Students' countries of origin were divided into regions according to the classification recommended by the UN Statistics Division.

Network theory is the application of the principles of graph theory to the study of complex systems of interaction. Social Network Analysis (SNA) has been widely used as a powerful tool to identify patterns and the dynamic modelling of those patterns. As an interdisciplinary approach, SNA provides conceptual and methodological tools to analyse in depth the relational structure between interacting systems (Wasserman & Faust, 1994). The application of this analytic method to the study of international student mobility has brought a new and more detailed understanding of the dynamics behind students' choice of countries Barnett et al., 2016; Chen & Barnett, 2000; Kondakci et al., 2017).

Social networks consist of a finite set of nodes and their ties, defined as links or edges. Nodes can represent a person, a country, theoretical constructions, or anything else that can be studied. In turn, edges can represent the sharing or exchange of a variety of tangible or intangible items, reciprocity or interactivity (Haythornthwaite, 1996; Oliveira & Gama, 2012). Examples of tangible items are goods, services or money, examples of intangible items being information, social support or influence. The graph is called undirected when the edges indicate a reciprocal relationship, or directed when the edges have a specific direction. In addition, the edges may or may not have weights, indicating the strength of the relationship between internodes. Usually, weighted graphs are more complex and elucidating, as they provide more information about the connecting strength of the pair of nodes it links.

The main advantage of this analytical approach over other analytical techniques is that SNA examines both the content and the pattern of relationships to determine flows from one node to another. In addition, the position of nodes describes the social structure of the envi-



ronment, since it reflects whether one node is central or peripheral, or is closely or vaguely connected to others (Haythornthwaite, 1996).

Six network metrics were used to evaluate the graph: average weighted degree, weighted indegree, weighted outdegree, eigenvector centrality, modularity and graph density. Weighted indegree reflects the total weight of the edges incoming to the node, while weighted outdegree refers to the total weight of the edges going out from the node. Specifically, these metrics correspond to the number of international students who come from geographic regions and the number of students enrolled in the level under analysis (HEI type, discipline, degree level). The sum of the total weight of the edges divided by the number of nodes within the graph indicates the average weighted degree metrics. Eigenvector centrality is a measure of prestige and reflects the influence of a node. It is an essential metric in weighted networks and high scores indicate a strong influence over other nodes on the graph. Modularity indicates the number of communities present in a graph, using an approach similar to cluster analysis (Brandes et al., 2008). Finally, the graph density (or

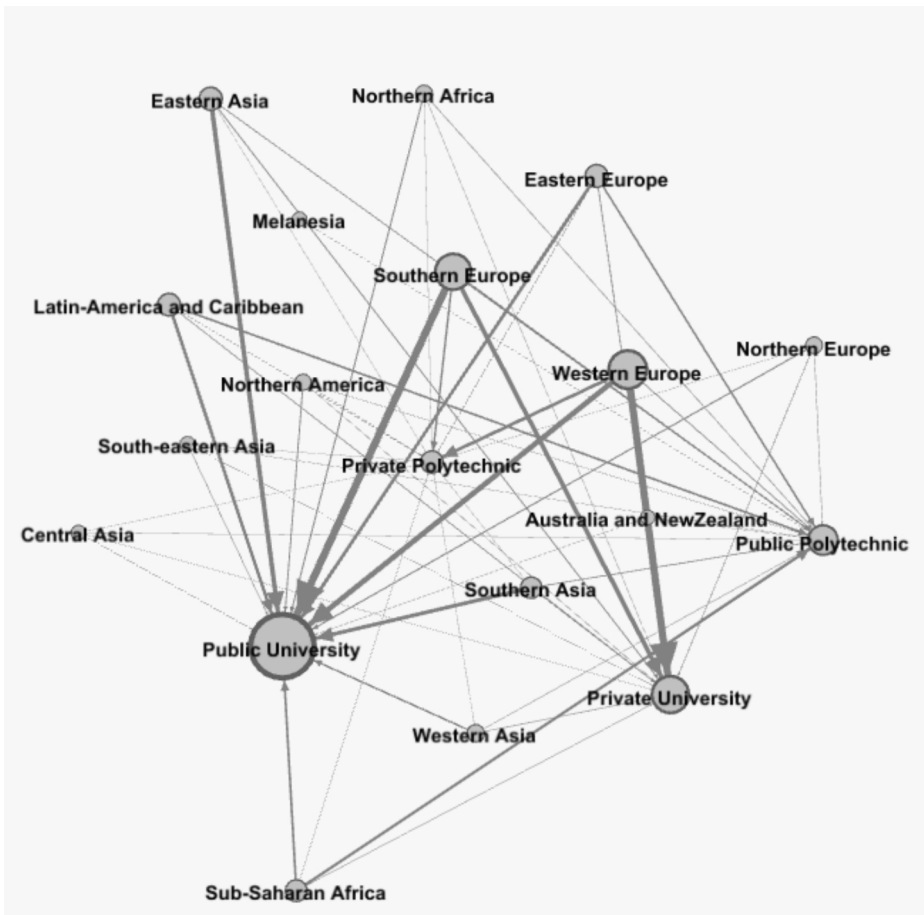


Fig. 1 Network graph for geographic regions and types of higher education institution

network density) measures the overall integrity of the network, with the value 1 being an indicator of a complete connection between links and nodes. Therefore, the closer the graph density is to 1, the more the nodes are connected to each other.

**Table 3** SNA metrics for HEI type

	Degree	Weighted indegree	Weighted outdegree	Eigen-vector Centrality	Modularity (clusters)
Australia and New Zealand	3	-	17	-	A
Central Asia	4	-	37	-	A
Eastern Asia	4	-	1204	-	A
South-eastern Asia	4	-	103	-	A
Southern Asia	4	-	943	-	A
Western Asia	4	-	407	-	A
Eastern Europe	4	-	1160	-	A
Southern Europe	4	-	2988	-	A
Northern Europe	4	-	333	-	A
Western Europe	4	-	3307	-	B
Latin-America and Caribbean	4	-	1124	-	C
Melanesia	1	-	3	-	C
Northern America	4	-	231	-	A
Northern Africa	4	-	327	-	A
Sub-Saharan Africa	4	-	1005	-	C
Public University	14	6870	-	0.266	A
Public Polytechnic	15	2116	-	0.127	C
Private University	14	3123	-	0.088	B
Private Polytechnic	13	1080	-	0.045	B

Average degree = 6.49158; graph density=0.164; modularity=0.177

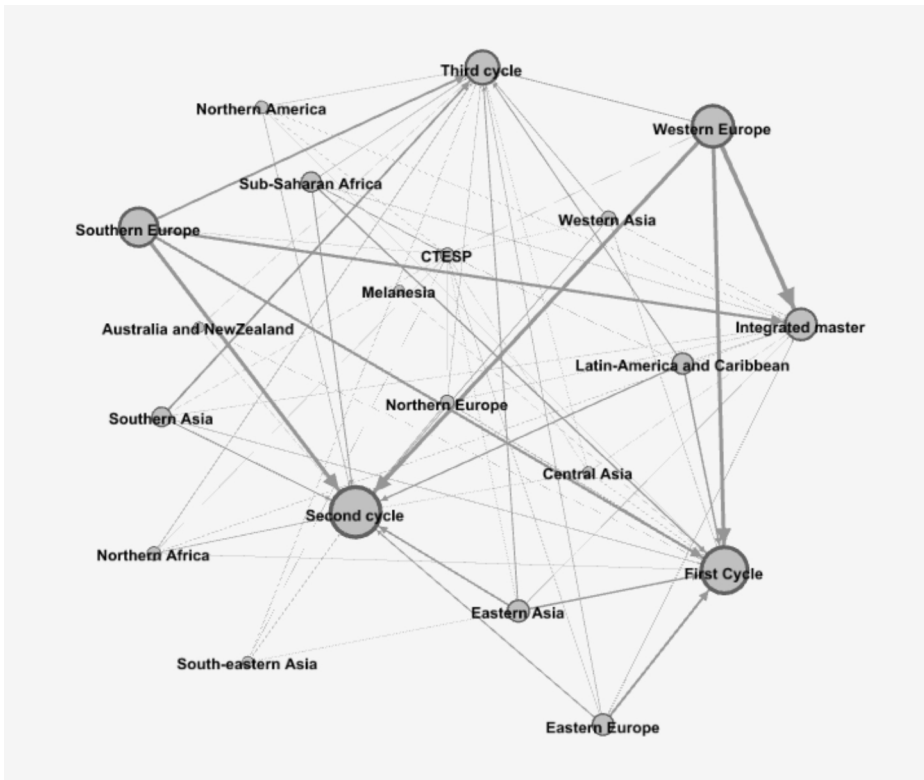
## Findings: non-lusophone students and social network analysis

Three directed networks were drawn: for HEI type, degree level and disciplinary area. The weights are represented visually as the edge thickness. Tables 3, 4 and 5 show the SNA metrics (weighted indegree, weighted outdegree, average weighted degree, eigenvector centrality, modularity) for each network graph, calculated with the Gephi software. For all networks, the weighted outdegree metric is identical, showing the numbers of students coming to study from the different regions. Most come from Western Europe (3307), Southern Europe (2988), Eastern Asia (1204), Eastern Europe (1160), Latin America and Caribbean (1124), Sub-Saharan Africa (1005) and Southern Asia (943).

Figure 1 shows the network graph according to the type of institution and Table 3 shows the analysis metrics. The weighted indegree indicates that the public university type enrolls most of non-Lusophone students (6870). This type also presents the highest centrality in the graph (Eigenvector Centrality=0.266), reflecting not only the highest number of enrolments, but also the great diversity of regions of origin.

The analysis divides the network into three clusters. The first one concerns the public university type. This is the most wide-reaching one, including most geographic regions. Thus, the attraction capacity of public universities is larger than that of any other HEI type, as these do not have a specific regional niche from which they attract students. Nevertheless, from the perspective of sending regions, Eastern Asia is closer to the public university type, as almost 75% of students from this region enrol in public universities (most from China). Similarly, more than half of Eastern European students and Northern African students in Portugal enrol in public universities. The second cluster includes the private sector (polytechnics and universities) and only Western Europe. The weight of the links suggests that these HEI types have a very specific public among Western European students. Although not in the cluster, Southern Europe also emerges as an important actor for private institutions. For private polytechnics in particular, these regions are key players, with France and Spain representing almost 82% of all enrolments in this type. The third cluster, public polytechnics, comprises Latin-America and Caribbean, Sub-Saharan Africa and Melanesia. The first two regions are the most important senders, and two countries are overrepresented. In the former, Ecuador represents 62.4% of all students from this region, while in Sub-Saharan Africa Guinea accounts for 92.5% of all students. There is only one country representing Melanesia, with three students.

Figure 2 shows the network graph for regions and qualification levels and Table 4 shows the other SNA metrics. The second cycle enrolls most students (4227), followed by the first cycle (3817). Overall, however, non-Lusophone students are mostly drawn towards degrees leading to postgraduate awards. The eigenvector centrality analysis reveals that the second cycle has the highest prestige (Eigenvector Centrality=0.162). The analysis divides the network into three clusters. The first one groups CTESP and the first cycle with the regions of Central Asia, Eastern Asia, Eastern Europe, Latin America and Caribbean, Melanesia and Sub-Saharan Africa. This latter is an important player especially for the CTESP (the majority from Guinea). The second cluster groups the integrated master and second cycle with three European regions: Western, Southern and Northern Europe. The former two are particularly important players (France, Spain and Italy). The third cluster groups the third cycle and South-eastern Asia, Southern Asia (mainly India and Iran), Western Asia, Australia and New Zealand, Northern America and Northern Africa. It is interesting to note that



**Fig. 2** Network graph for geographic regions and qualification levels

the first cycle attracts a very heterogenous public, while the public for the second cycle is mostly European. The third cycle, in contrast, attracts mainly students from continents other than Europe

Figure 3 shows the network graph for geographic regions and disciplinary areas and Table 5 presents the other SNA metrics. The broad disciplinary area that includes Social Sciences, Business and Law has the greatest centrality in the network (Eigenvector Centrality=0.145). Engineering comes next (Eigenvector Centrality=0.108), while the other areas have considerably less centrality. The analysis divides the network into three clusters. The first one builds around Health and Agriculture and comprises Southern Europe and Western Europe; together these regions represent 85% of all enrolments of non-Lusophone students in Health, coming from France, Spain and Italy. The second cluster groups hard sciences (Engineering and Natural Sciences, Mathematics and Computer Science) with Southern Asia, Western Asia, Latin America and Caribbean and Northern Africa (mainly Iran, India, Ecuador)

The third cluster includes soft areas (Social Sciences, Business and Law, Arts and Humanities, Education, Services) and the remaining regions: Australia and New Zealand, Central Asia, Eastern Asia, South-eastern Asia, Eastern Europe, Northern Europe, Melanesia, Northern America and Sub-Saharan Africa. Soft areas enrol the most diverse international public. Particularly Eastern Asian students (most from China) show a preference for

**Table 4** SNA metrics for degree level

	Degree	Weighted indegree	Weighted outdegree	Eigen-vector Centrality	Modularity (clusters)
Australia and New Zealand	3	-	17	-	A
Central Asia	5	-	37	-	C
Eastern Asia	6	-	1204	-	C
South-eastern Asia	4	-	103	-	A
Southern Asia	6	-	943	-	A
Western Asia	6	-	407	-	A
Eastern Europe	6	-	1160	-	C
Southern Europe	6	-	2988	-	B
Northern Europe	6	-	333	-	B
Western Europe	6	-	3307	-	B
Latin-America and Caribbean	6	-	1124	-	C
Melanesia	1	-	3	-	C
Northern America	6	-	231	-	A
Northern Africa	6	-	327	-	A
Sub-Saharan Africa	6	-	1005	-	C
CTESP	13	341	-	0.040	C
First Cycle	15	3817	-	0.142	C
Integrated Master	12	2247	-	0.058	B
Second Cycle	14	4227	-	0.162	B
Third Cycle	14	2473	-	0.119	A
Postgraduate/ no-specified*	11	84	-	0.031	-

Average weighted degree = 628.048 ; Graph density=0.188; modularity=0.143

\*Excluded from the graph for better visualization

these areas, as 72,84% enrol in Arts & Humanities and Social Sciences, Business and Law. In contrast, Health and Agriculture enrol a very specific public coming from Western and Southern Europe (France, Spain and Italy). Hard sciences, too, have a relatively limited main public from only four regions.

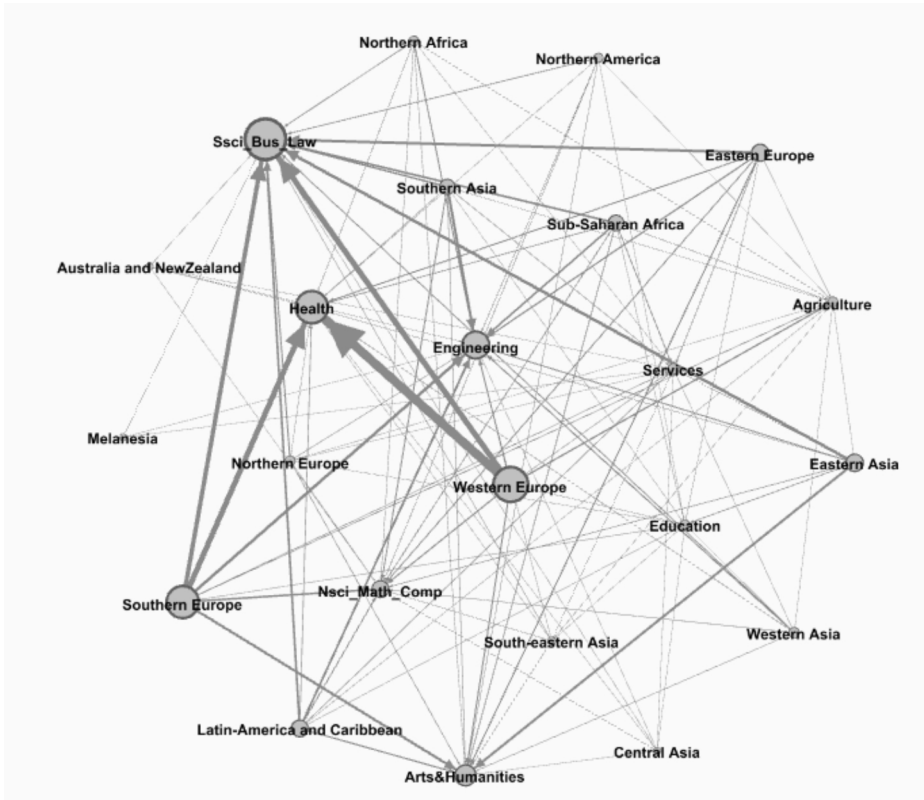


Fig. 3 Network graph for regions and disciplinary area

## Discussion

The study has revealed patterns of enrolment, synthesised below by institution type, suggesting that there are niche segments which attract specific groups of international students. Based on the identified patterns, logics that govern them are proposed following Börjesson (2016), but additionally a new academic logic is put forward.

### The private sector: market (niche) and proximity logics

The case of the private sector is very interesting, with Health programmes emerging as the niche which attracts non-Lusophone students. These students almost quadrupled and the Health disciplinary area experienced the largest expansion (more than ten times), becoming by far the dominant one. The prevalent region of incoming students is Western Europe and, to a lower extent, Southern Europe. The integrated master is the degree with the largest increase (around eightfold). It is noteworthy that the private sector has far more integrated master students than the public sector, which is visible in the strength of the relationship between integrated master and private institutions. A detailed analysis of the most popular programmes sheds light on the logics which govern international flows towards the pri-

**Table 5** SNA metrics for disciplinary area

	Degree	Weighted indegree	Weighted outdegree	Eigenvector Centrality	Modularity (clusters)
Australia and New Zealand	5	-	17	-	C
Central Asia	7	-	37	-	C
Eastern Asia	9	-	1204	-	C
South-eastern Asia	8	-	103	-	C
Southern Asia	9	-	943	-	A
Western Asia	8	-	407	-	A
Eastern Europe	9	-	1160	-	C
Southern Europe	9	-	2988	-	B
Northern Europe	8	-	333	-	C
Western Europe	9	-	3307	-	B
Latin-America and Caribbean	8	-	1124	-	A
Melanesia	3	-	3	-	C
Northern America	7	-	231	-	C
Northern Africa	7	-	327	-	A
Sub-Saharan Africa	8	-	1005	-	C
Agriculture	12	357	-	0.032	B
Arts and Humanities	13	1620	-	0.067	C
Education	12	223	-	0.034	C
Engineering	15	2377	-	0.108	A
Health	14	3001	-	0.064	B
Natural Sciences, Mathematics and Computer Science	14	1143	-	0.062	A
Services	14	448	-	0.048	C
Other	5	7	-	0.027	B
Social Sciences, Business and Law	15	4013	-	0.145	C

Average weighted degree = 549.25; Graph density = 0.207 and modularity = 0.165

vate sector. In the case of private universities, Dental Medicine (offered as an integrated master) attracts large numbers of students from France, Spain and Italy. In these countries, there are limits (*numerus clausus*) on the number of places available each year for first-year students. Therefore, these students probably come to Portugal to surpass this limitation and take advantage of Portugal's geographical proximity. Initially, some Portuguese private institutions tried to offer these programmes in the countries of origin, but they met the opposition of local authorities and professional bodies. Authorisation to teach these courses was eventually repealed in Italy and in France (Amaral et al., 2016). This rather large operation was then transferred to Portugal, which may explain the very fast increase in the numbers of European students. In the polytechnic sector, Portuguese private institutions offer programmes in Nursing and Physiotherapy, which also attract a substantial number of students for similar reasons. These results show that the private sector has employed a strategy of offering study cycles in disciplinary areas that have limited intakes (*numerus clausus*) in the home country, thus allowing these European students to do the degree abroad. This was combined with a strategy of concentrating teaching over short periods of time to facilitate student attendance. It seems that a combination of provision of courses in a niche discipline, geographical proximity and *numerus clausus* regulations in the countries of origin drives

non-Lusophone students' flow towards the Portuguese private sector. Both a proximity logic and a niche market logic apply to this student flow (Börjesson, 2017).

### **Public universities: market and academic logics**

In the public university sector, third cycle programmes account for around a third of enrolments by non-Lusophone students, which explains the clustering together of third degrees and public universities. This contrasts with the under 5% of non-Lusophone students enrolled in doctoral degrees in private universities. Even acknowledging that public universities offer comparatively more third cycle degrees, private universities seem little attractive at this qualification level. The degrees are offered in a variety of disciplinary areas, ranging from Social Sciences, Business and Law to Natural Sciences, Mathematics and Computer Science and to Engineering. Another characteristic is the broad regional diversity of non-Lusophone students enrolling in advanced research degrees. This variety of publics and disciplinary areas at postgraduate level suggests that public universities may have invested in the worldwide visibility of their research activities. Moreover, English has increasingly become a more common teaching language to accommodate a wide variety of nationalities (Sin et al., 2019b). Research in various disciplines is arguably public universities' asset to attract non-Lusophone students. The broad recruitment base and disciplinary offer strengthen public universities' position, making them less vulnerable to events or contingencies that may negatively impact the demand from a certain national public or the demand for a certain discipline. Whether this has been a deliberate strategy of the public university sector needs further investigation. A market logic may apply, harnessing the research visibility of public universities to attract international students at a degree level with less internal demand. Moreover, the cost of living in Portugal may make doctoral programmes more appealing than similar programmes elsewhere. An academic logic may also be appropriate to characterise these student flows, as universities may see a diverse international body as an improvement opportunity.

### **Public polytechnics: colonial logic**

In public polytechnics the number of non-Lusophone students is low compared to the intake capacity of these institutions. The social network analysis revealed a rather circumscribed public. Non-Lusophone students from only a limited number of regions seek predominantly public polytechnics and they study first degrees and short non-degree awarding technical courses (CTESP), either in the broad area of Social Sciences, Business and Law or in Natural Sciences, Mathematics and Computer Sciences. Attracting students from very specific countries in few regions makes public polytechnics' position more vulnerable when it comes to diversifying the body of international students. In fact, the low number of non-Lusophone students may be an indication that such diversification has received little attention from public polytechnics, which continue to rely on the traditional international public, i.e., students from Portuguese-speaking countries. It seems, therefore, that the colonial logic continues to be the only one applying to the flow of international students to public polytechnics.



## Conclusions

The paper has studied non-Lusophone international students' patterns of enrolment in Portuguese higher education institutions to understand what segments of the Portuguese system attract these students and, consequently, what may explain Portugal's appeal for non-traditional international publics. Social network analysis was employed to identify international students' choices regarding types of higher education institution, qualification levels and disciplinary areas.

Growing enrolments of non-Lusophone students in Portuguese institutions and the fact that Portugal is becoming an attractive destination for a more diverse international student body illustrate the increasing complexity of international mobility flows and the re-shuffling of old patterns (Hou & Du, 2020; Kondakci et al., 2018; Perkins & Neumayer, 2014). Student flows no longer follow a clearly defined logic, and multiple logics can apply to the same destination (Börjesson, 2017). This is also indicative of mounting competitiveness between old and new destinations (Choudaha, 2017). For example, students from China, the largest sending country, have been seeking Portugal – a semi-peripheral country in the international global space – more and more. It is unclear if the growth of non-Lusophone students is mainly due to proactive strategies on the part of institutions or because of other developments, either national or international.

For example, the growth of provision in English may be an explanation for growing numbers of non-Lusophone students in advanced research degrees, as mentioned earlier in the case of third cycles in public institutions. The lack of centralised data on degrees taught in English, however, represents a limitation for this study, because it is not possible to establish a causal link between the evolution of English provision and the increasing numbers of non-Lusophone students. This study identifies patterns of enrolment, but the reasons which explain these patterns are tentative. This is the major limitation of this study and calls for further research into the reasons for Portugal's growing attractiveness for non-traditional international publics.

This study contributes to the literature by showing that the attractiveness of a semi-peripheral country and its institutions for new publics is not uniform, but segmented: different students find different parts of the Portuguese higher education system attractive. The findings are relevant for institutions in other semi-peripheral countries which intend to recruit internationally and diversify their international student recruitment base. Especially, they stress the necessity of analysing the institutions' strong areas, either at discipline or degree level, and invest in these assets while simultaneously identifying the potential publics most likely to be attracted to their educational offer.

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