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Innovation in the peripheries: Counter-flows of students to second tier cities in Portugal

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ABSTRACT

Each year, student migration flow to small and medium cities in peripheral regions in Portugal to enter higher education, because they are unable to get into the more prestigious and larger universities in the main cities. Those are small *counter-flows* of the main flows from the periphery to larger cities. This study argues that these flows of students constitute potential flows of talent, drivers of innovation and economic growth, a means of enhancing human capital and regional upgrading and can contribute to the institutional change of remote areas. They are not exclusive to Portugal but take place in other countries where offer and demand differs between central and peripheral cities. The Portuguese case benefits from a unique process of access to public higher education, with a centralized process of allocation of vacancies linked with *numerus clausus* for all programmes, managed by the Ministry and is registered on a universal database each year. The analysis of the allocation of the students by place of origin, field of study and institution of enrolment, grades and other characteristics of the students offers evidence to support the argument of this paper.

1. Setting the scene

In Portugal, as in other European countries, there are migratory *counter-flows* of students who annually leave the large metropolitan areas and other regions to migrate and settle in small and medium-sized towns in the periphery and there enrol in a university or other higher education institution (HEI). These are small-scale migratory flows, with an origin dispersed throughout the country, consisting of young people who have finished secondary education and cannot find a place in higher education in their regions of residence. As they move in the opposite direction to the dominant migratory flows of greater magnitude which, in Portugal as in other countries, go from the peripheral areas to the central areas, I shall call them *counter-flows*.

Although their magnitude may be clearly lower than that of the dominant flows, their existence, nature, and potential impact deserve research attention, which has not been the case so far, possibly because they do not find a framework in the dominant theories on migration and migration of young people or students specifically, nor in the approaches to uneven regional development between the most dynamic metropolitan areas and the peripheral regions.

The dominant migration flows move from rural areas to urban centres and from peripheral to metropolitan areas; young people *flee* from the peripheries to major centres and it is on these flows that research attention has been focused, either to analyse them or to attempt to build barriers to reduce them and keep populations in their regions (Charles, 2016; Faggian & McCann, 2006; Fratesi & Percoco, 2014). There has been some research regarding the displacement of students, from city centres to the fringes, due to various factors (Bjerke & Mellander, 2017; Florida et al., 2008; Florida et al., 2016). It is, in these cases, a displacement within large metropolitan areas, often increasing the distance and commuting times between residence and university and not a definitive migration, to another city, in remote regions, as is the case of the *counter-flows* on which this study focuses. There has also been a growing number of studies on international student recruitment as sustainability strategies for HEIs in peripheral regions (Baas, 2019; Beech, 2018; Findlay et al., 2017; Madge et al., 2015; Soyer et al., 2020).

The process of access to higher education has been studied in its most diverse aspects and constitutes a particularly rich field for the analysis of higher education systems (Hazelkorn, 2015; Jongbloed & Vossensteyn, 2015; Marginson, 2016a, 2016b); traditionally, research has focused mainly on the student's decision process regarding getting in the higher education system and the choice of a field of study and institution,

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Table 1
Access to Public Higher Education in Portugal 2017/18 - Vacancies, Applicants and Enrolled Students by District.

Districts	Vacancies	Candidates 1st phase 1st option						Enrolled students (Final)				
		Candidates 1st option	From the district	Outside the district	Ratio Candidates/ Vacancies	Candidates from the district (%)	Candidates outside the distric (%)	Enrolled Students	From the district	Outside the district	Enrollment rate	Enrolled students outside the district (%)
	1.	2.	3.	4.	5. (2./1.)	6. (%)	7. (%)	8.	9.	10.	11. (8./1. *100)	12. (%)
Aveiro	2114	2283	1058	1225	1,08	46,34	53,66	2097	879	1218	99,20	58,08
Beja	476	126	78	48	0,26	61,90	38,10	292	123	169	61,34	57,88
Braga	3368	4216	3149	1067	1,25	74,69	25,31	3354	2370	984	99,58	29,34
Bragança	1908	293	134	159	0,15	45,73	54,27	922	243	679	48,32	73,64
Castelo Branco	2126	1304	418	886	0,61	32,06	67,94	1756	484	1272	82,60	72,44
Coimbra	5476	5109	2178	2931	0,93	42,63	57,37	5301	2054	3247	96,80	61,25
Évora	1088	907	381	526	0,83	42,01	57,99	1012	385	627	93,01	61,96
Faro	1405	993	742	251	0,71	74,72	25,28	1224	817	407	87,12	33,25
Guarda	680	141	66	75	0,21	46,81	53,19	466	114	352	68,53	75,54
Leiria	1900	1435	857	578	0,76	59,72	40,28	1750	944	806	92,11	46,06
Lisboa	13,665	18,128	11,495	6633	1,33	63,41	36,59	13,406	8528	4878	98,10	36,39
Portalegre	511	97	47	50	0,19	48,45	51,55	305	86	219	59,69	71,80
Porto	7465	11,965	8300	3665	1,60	69,37	30,63	7418	5333	2085	99,37	28,11
Santarém	1450	398	202	196	0,27	50,75	49,25	932	334	598	64,28	64,16
Setúbal	2294	1925	657	1268	0,84	34,13	65,87	2034	750	1284	88,67	63,13
Viana do Castelo	973	407	216	191	0,42	53,07	46,93	754	274	480	77,49	63,66
Vila Real	1375	1098	416	682	0,80	37,89	62,11	1289	413	876	93,75	67,96
Viseu	1308	552	391	161	0,42	70,83	29,17	925	475	450	70,72	48,65
R.A. Açores	663	440	403	37	0,66	91,59	8,41	511	440	71	77,07	13,89
R.A. Madeira	593	629	620	9	1,06	98,57	1,43	483	460	23	81,45	4,76
Total	50,838	52,446	31,808	20,638	**1,03**	60,65	39,35	46,231	25,506	20,725	90,94	44,83

Source: Access Database MCTES.
Complete Database by demand.

including the issue of possible migration out of the region of residence (Brezis & Soueri, 2011; Gibbons & Vignoles, 2012; Suhonen, 2014; Suhonen & Karhunen, 2019). The decision to leave home and migrate depends on personal, social, economic factors and the type of programme and institutions, as well as the perception of the quality or reputation of the HEIs (Ciriaci, 2014; Fearon et al., 2018; Fonseca, 2012; Hazelkorn, 2015). In this context, the issue of *brain-drain* from peripheral areas has been much studied, especially in terms of education or even regional development policies, in the perspective of trying to retain young people and preventing them from leaving (Beine et al., 2001; Charles, 2016). For this reason, new HEIs have been created, in Portugal as in other countries, in small and medium-sized cities in remote regions. Research on the role of universities in the development of the region or the third mission has also been very wide and diverse, even though, students have been quite absent from the dominant approaches (Benneworth, 2019; Benneworth & Pinheiro, 2017; Maassen et al., 2019). Recently, the journal *Regional Studies*, organised a special issue on the contribution of students to regional development and the need to reformulate the approaches on regional innovation systems, in which students play a much more relevant role than research has shown (Breznitz et al., 2022). The impact of students has mainly been measured in terms of consumption, i.e., spending in regions. The articles in this special issue come to discuss the impact of students and recent graduates on human capital, innovation and community development in regions, bringing them to the core of the discussion on innovation and economic growth.

In the framework of the vast scientific production on the economic geography of regional inequalities, to which I will return later (Fonseca & Fratesi, 2017.; Fratesi & Perucca, 2019; Pike et al., 2017; Rodríguez-Pose, 2020), on the condition of peripheral regions (Eder, 2019; Marques et al, 2019), on innovation as a driver of development (Crescenzi & Rodríguez-Pose, 2013; Doloreux & Gomez, 2017; Glückler, 2014; Morgan, 2017) and of more specific topics related to the third mission of universities (Atta-Owusu et al., 2021; Benneworth & Pinheiro, 2017; Compagnucci & Spigarelli, 2020; Kohoutek et al., 2017; Lee et al., 2020), as well as on migration in general and youth and student migration (Batista et al., 2012; Fratesi, 2014; Kazakis & Faggian, 2017; Lulle et al., 2019; Psycharis et al., 2019; Rodríguez-Pose & Vilalta-Bufí, 2005; Tosi et al., 2018), on *brain-drain* from the peripheries and increasing polarization of large metropolitan areas, these flows of students from the centre to the periphery - the *counter-flows*, as I have called them, do not find a satisfactory explanation, nor do they find visible references and evidence of their existence. For this reason I propose to study them, building up the explanatory strength of the empirical reality through a redefinition of the conceptual framework, adjusted to the observed phenomena.

What makes these *counter-flows*, a relevant phenomenon and worthy of major attention? First, they move in a counter-current, that is, they go against the mainstream theoretical models of migration which recognise the repulsive force of the peripheral regions and the attraction of the central, richer regions. These *counter-flows* share some of the characteristics of the dominant flows from the peripheries to the major centres. They are voluntary flows; they are not forced. They are students who move in search of the higher education degree they want to attend and the diploma they want to obtain for their future life. The difference that constitutes the critical factor of their decision to migrate, however, is found in other characteristics. Unlike others, in the same conditions, who choose to apply for another degree other than the one of their first choice or enrol in a private HEI in the place where they live, students from the *counter-flows* migrate to another city, even if it is remote and on the periphery of the country.

The private supply of higher education in the two main metropolitan

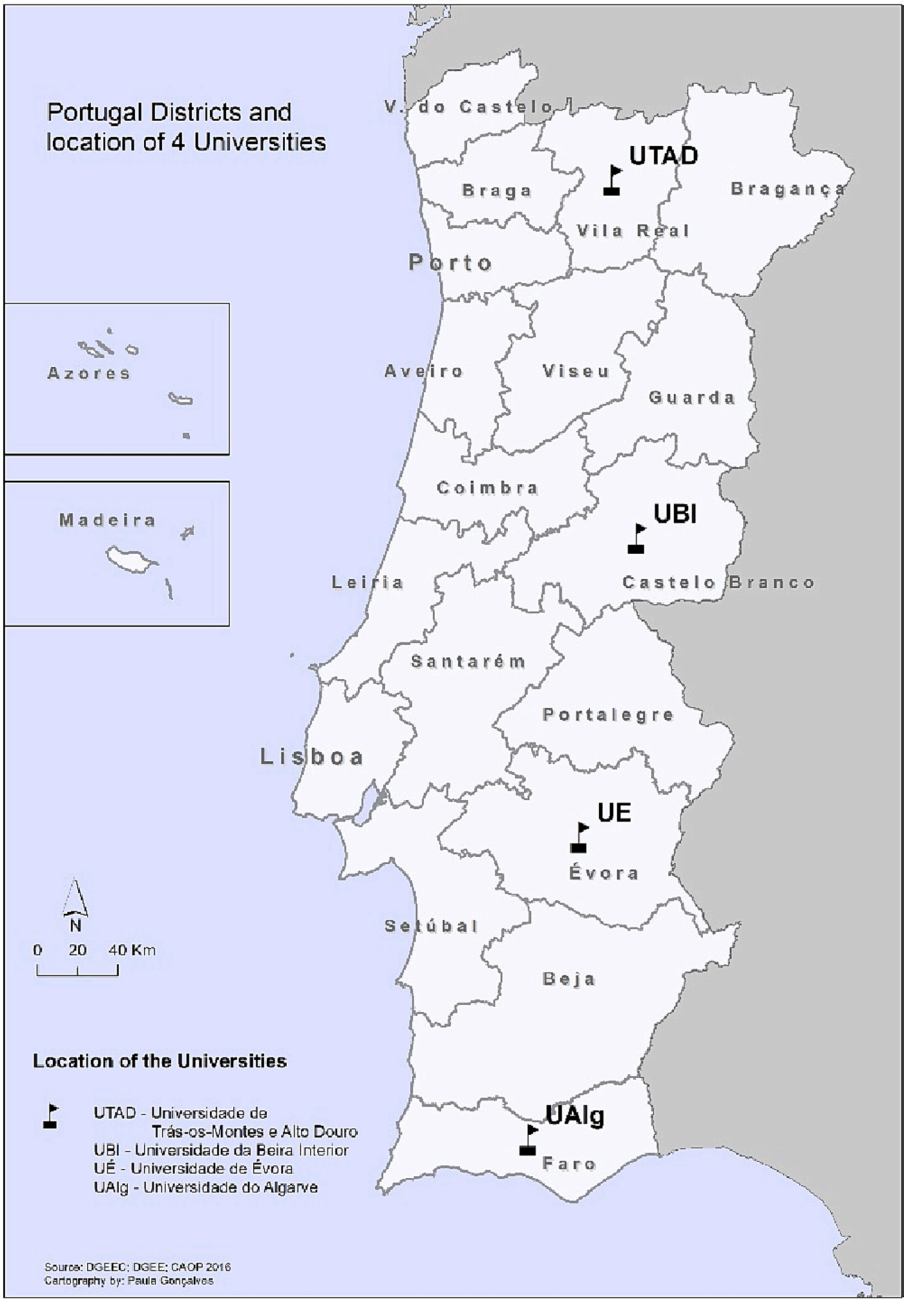

Fig. 1. Districts of Portugal and location of the four universities of the study.

areas of the country, Lisbon, and Porto, is currently higher than demand and recruitment is done directly by the institution itself. Many students who cannot get into the public system choose to enrol in a private institution, as the costs of moving to another city can be identical, if not higher, than the fees they must pay in the local private education.

Not finding locally a place in a public HEI in the degree of their choice, these young people who migrate to the peripheries do not conform to a suboptimal solution locally but migrate. They migrate because they are open to do so, they are ready to move, to change city, environment, and social networks, they have a life strategy, they have ambition, they know what they want and they are pursuing their goals, as evidenced by their choice of study programmes. The disposition of these students to move to small towns in peripheral regions, highlights their openness to the new, the different, the unknown, that overcomes some of the negative prejudices associated with the periphery and small province cities. The degrees they are looking for are as a rule specialised and, in many cases, not very traditional. Medicine or Veterinary Medicine induce migration in Portugal as in other countries and are responsible for a very significant segment of these *counter-flows*; but there are also students who migrate to study theatre, arts, oenology, marine biology, or other more innovative courses.

It is these characteristics of the students that explain the very existence of these migratory flows and define their nature as an asset in terms of human capital for the receiving regions.

The disposition to migrate and the possibility to do so is also related to the cultural background and economic support of young students. Not everyone can or is able to do it. Children of the middle and upper classes are more likely to migrate (Denzler & Wolter, 2010; Haussen & Uebelmesser, 2016; Lulle et al., 2019). However, the policies to encourage higher education participation and the increase of public social support, may lead young people from lower income social classes to do so more intensively in the future.

Table 2
Access to Public Higher Education in Portugal 2017/18: Applicants by District of Origin and District of Destiny.

District of origin of applicants																					
District of destiny (location of the HEIs of application)																					
	Aveiro	Beja	Braga	Bragança	Castelo Branco	Coimbra	Évora	Faro	Guarda	Leiria	Lisboa	Portalegre	Porto	Santarém	Setúbal	Viana do Castelo	Vila Real	Viseu	R. A. Açores	R. A. Madeira	Total applicants from the district of origin	% of Total of the country
Aveiro	1058		56	5	53	559	8	5	10	45	175	2	599	6	6	2	42	51	4	1	2687	5.12
Beja	6	78	2		1	13	44	62		5	251	2	6	3	33				1	1	508	0.97
Braga	139		3149	29	77	208	3	5	7	14	156		1049	5	9	139	178	8	3	1	5179	9.88
Bragança	28		26	134	25	79	3		1	3	33	1	161		1		45	3			543	1.04
Castelo Branco	20		3	2	418	93	10	4	5	20	228		26	8	22		4	3			866	1.65
Coimbra	76	1	10	3	38	2178	10	4	3	37	235		97	8	6	2	10	8	4		2730	5.21
Évora	3	8	4		9	19	381	25		9	326	4	10	4	47						849	1.62
Faro	24	18	7		22	63	51	742		17	646	6	39	8	62	1	2	1			1709	3.26
Guarda	59		11	7	110	162	3	1	66	9	143	2	64	1	9		13	18			678	1.29
Leiria	126	2	17	1	64	370	42	17	2	857	862	4	105	46	45		8	3	2		2573	4.91
Lisboa	24	5	20	7	72	84	98	38	7	153	11,495	14	102	74	843		5	7	6	2	13,056	24.89
Portalegre	7		2		35	21	61	8	1	10	187	47	5	1	30				1		416	0.79
Porto	306		454	58	112	291	12	12	10	25	297	3	8300	2	6	42	279	34	6	1	10,250	19.54
Santarém	65	2	2		76	212	71	17	3	128	853	7	40	202	69	1	4	2	2		1756	3.35
Setúbal	7	9	8	1	13	18	76	31	1	15	1140	1	12	10	657	1	4	4		1	2009	3.83
Viana do Castelo	47		273	8	29	77	4	2	1	13	54		424	1	5	216	23	2			1179	2.25
Vila Real	52		64	27	23	112	3	4	4	6	79		300		5	1	416	11		2	1109	2.11
Viseu	191		32	7	94	413	6		17	31	241		304	3	12		48	391	4		1794	3.42
R. A. Açores	25	2	35	3	14	64	9	5	1	22	291	2	128	8	33		10	3	403		1058	2.02
R. A. Madeira	20	1	41	1	19	73	12	11	2	16	436	2	194	8	25	2	7	2	4	620	1496	2.85
Total applicants to the destiny district	2283	126	4216	293	1304	5109	907	993	141	1435	18,128	97	11,965	398	1925	407	1098	551	440	629	52,445	100.00
%	4.35	0.24	8.04	0.56	2.49	9.74	1.73	1.89	0.27	2.74	34.57	0.18	22.81	0.76	3.67	0.78	2.09	1.05	0.84	1.20	100.00	
External applicants to the district	1225	48	1067	159	886	2931	526	251	75	578	6633	50	3665	196	1268	191	682	160	37	9	20,637	
%	53.66	38.10	25.31	54.27	67.94	57.37	57.99	25.28	53.19	40.28	36.59	51.55	30.63	49.25	65.87	46.93	62.11	29.04	8.41	1.43	39.35	

Source: Access Database MCTES.

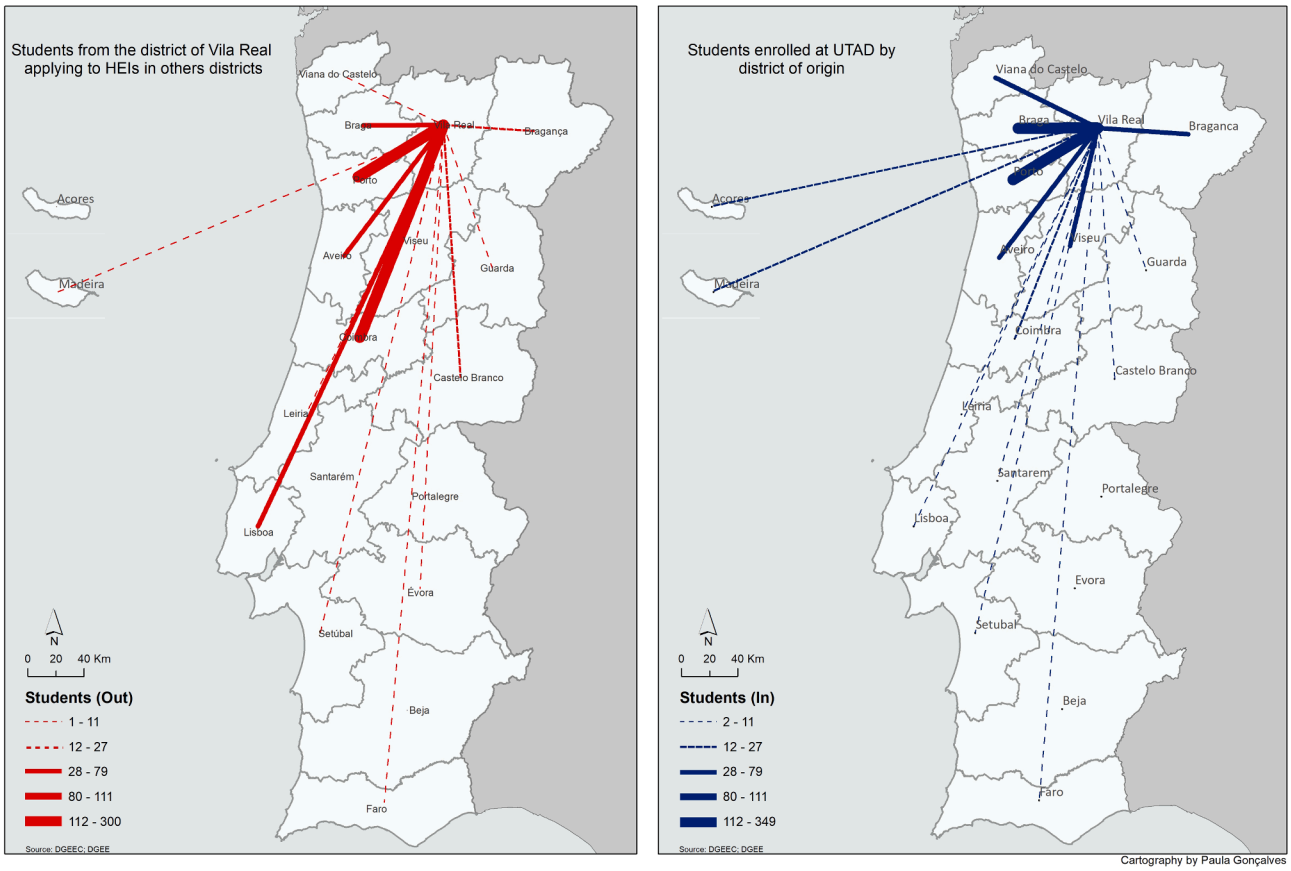

Fig. 2. Access to Public Higher Education in Portugal (2017/18): Universidade de Trás-os-Montes e Alto Douro – UTAD.

In this paper I will demonstrate that these *counter-flows* exist, and they must be explained by the characteristics of the respective students. These young people have been seen mostly as a statistic that ensures the sustainability or even survival of HEIs in small and medium-sized cities of the periphery, where the demand for higher education is much lower than the supply. They are, however, more than a statistic and, above all, more than an educational issue. They are a social, economic and institutional issue and can become a niche for regional development that defies traditional explanations. They may be the object of more active and efficient settlement policies and constitute an example - even if of lesser magnitude- of how innovation can be generated, and human capital boosted in peripheral regions.

The annual *counter-flows* of young people from the centre to the periphery are not exclusive to Portugal. They occur in all countries where the supply of higher education is unbalanced, being greater than demand in peripheral areas and, on the reverse, in central areas. The Portuguese case enabled a special verification thanks to the existence of a unique system of access to public higher education, centralised and managed by the State (Fonseca, 2012; Fonseca et al., 2014, 2018). For other countries, the process of identifying and characterising these *counter-flows* will be more complex, since there is neither a centralised allocation system nor a universal database. In such cases, a student living in a large city who cannot get a place of her choice will probably apply to several other institutions in different cities, where she anticipates less demand and more chances of getting a place to enrol. As applications are local and students can apply to any other HEI, it is impossible to have a universal database identical to the one we have in Portugal. There will be, however, *counter-flows* throughout the peripheral European regions.

The remainder of this paper is structured as follows: the next chapter briefly discusses the condition of peripheral regions - an inexorable decline or possible futures? The third chapter presents the argument of student flows as talent flows in the light of the theories of the economic geography of talent. This is followed by a summary description of the methodology, the development of the empirical analysis of student *counter-flows* to four peripheral universities in Portugal and at the end, conclusions are presented more in the form of reflections and ideas for future studies than a closed analysis.

2. Peripheral regions: An inexorable decline or possible futures?

The persistence of regional disparities in Southern Europe and the inability of development policies in the peripheral regions to achieve their intended outcomes are usually explained, among other things, by incorrect diagnoses, unidentified factors and the fact that these policies are aligned with traditional economic theory and only take into account the traditional production factors of physical capital, human capital, innovation or technology (Bathelt & Glückler, 2014; Iammarino et al., 2019; Rodríguez-Pose, 2018, 2020; Storper, 2018, Farole et al., 2011; Fonseca, 2017; Fonseca & Fratesi, 2017). New research strands, however, have shifted the focus away from individual firms and their innovative capacity and looked at the broader institutional context and at human and social capital, from a dynamic perspective highlighting the importance of migrations, among other factors (Bathelt et al., 2017; Crescenzi & Giua, 2020; Glückler & Lenz, 2016; Rodríguez-Pose & Ketterer, 2019). The conditions that enhance innovation and growth, however, are the same in the periphery or in the centre, they are just more difficult to find in the periphery (Eder, 2019). This is the reason why peripheral regions are unable to break out of their condition and in most cases remain stuck in a dependency trajectory. In the European Union, over the past 30 years, peripheral regions have placed high expectations on regional or cohesion policy, but they have also suffered repeated disenchantments, and today there is a widespread sense of failure and even misfortune (Dijkstra et al., 2019). These regions need

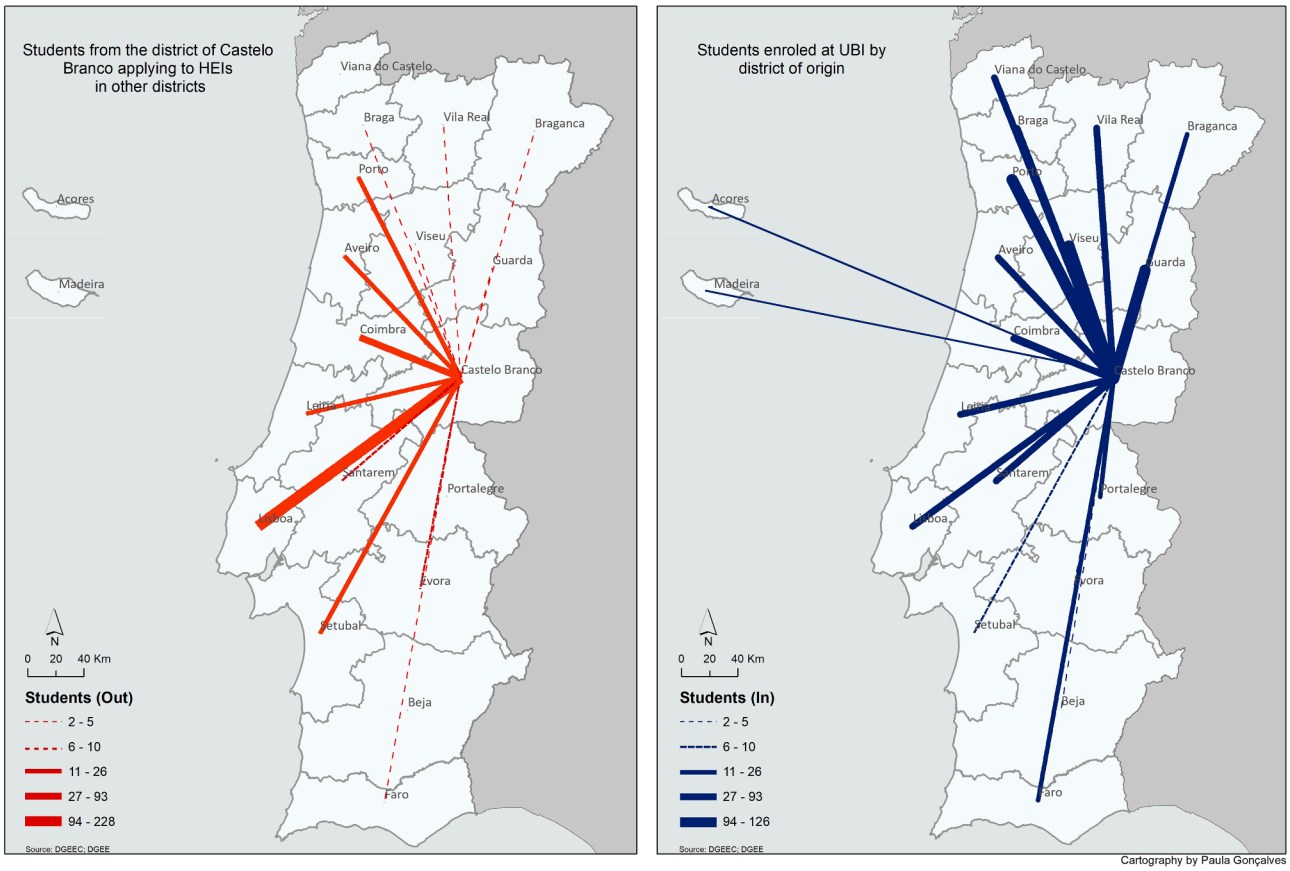

Fig. 3. Access to Public Higher Education in Portugal (2017/18): Universidade da Beira Interior – UBI.

growth, but they are not able to trigger growth processes from inside due to the depletion of some resources, even though they have good infrastructure. They need to be attractive to induce flows of human capital or talent, to balance the outflows, as physical capital alone does not bring growth. Like other similar regions in Southern Europe, some of the Portuguese peripheral regions are well endowed with physical infrastructure and have received large investments from EU cohesion funds to improve accessibility, public infrastructure, and equipment, for instance HEIs (Nilsen et al., 2022). Hence, attention has been focused on measures to prevent people from leaving these regions, particularly the young, without, however, achieving satisfactory results.

The less developed regions, whatever the wording - peripheral, remote, poor, *non-core regions* (Leick & Lang, 2018) or, at the most extreme, *places that don't matter* (Rodríguez-Pose, 2018) remain, however, a space for experimentation (Eder, 2019; Fratesi and Rodríguez-Pose, 2016; European Commission, 2017) and the link between innovation, human capital and economic growth remains easier to understand at a theoretical rather than an operational level, including the university-region (or university-industry) relationship (Faggian & McCann, 2006; Fonseca, 2017; Frangenheim et al., 2020; Fratesi, 2014; Glückler, 2014; Huggins & Thompson, 2019; Marques et al., 2019; Rodríguez-Pose & Vilalta-Bufí, 2005; Tödtling et al., 2013; Trippl et al., 2015). In effect, great expectations are placed on the university by society in general, and by governments at various levels, especially in the different activities of its third mission, whether as a centre of knowledge and innovation production, or as a training centre for qualified workers, or even as a partner in the most diverse public and private institutional projects, but always as an economic and development driver (Youtie & Shapira, 2008; Laredo, 2007; Maassen et al., 2019). HEIs, however, on their own, cannot be efficient in the process of generating innovation and economic growth without an institutional context or the integration into networks that will include regional and other external institutions (Fonseca, 2017; Huggins et al., 2019).

In the present study, we will consider the attraction of young students to second tier cities in the peripheral regions in Portugal, caused by the process of access to HEIs.

3. Student migration as talent flows

The weakened economies of the peripheral regions cannot absorb all the higher education graduates from their regions, which currently experience, in Portugal as in other European countries, a supply higher than the local demand, while the regions of the big cities have a deficit, with less supply than demand. Even if only temporarily, peripheral regions find themselves in a situation of over-education (Fonseca et al., 2014; Tosi et al., 2018). That is evident in the continuous *brain-drain* flows of young people at different stages of their education or careers and reflects the mismatch between the supply and demand for skilled workers (Adnett, 2010; Beine et al., 2001; Charles, 2016; Giacalone and Raffaele Panarello., 2019). Not all young people and students flee from peripheral regions, however; some stay and there are *counter-flows* into the periphery from large metropolitan areas, intermediate cities, and other peripheral regions. Regional and local development policies may have traditionally focused more on the outflows of people and resources from remote regions, trying to stop that bleeding, and have ignored those inflows. At least the dominant narrative of local policies focuses repeatedly on how to retain local populations, especially youth, and how to prevent their exit. Besides, there are also regular placements of young public administration executives and trainees, doctors, nurses, teachers, prosecutors, or judges in several public services in second tier cities.

Like those who "flee" from the peripheral areas these students that come to the peripheral areas have qualified to enter university and are willing and able to move. But they move in an unexpected direction, they do not follow the mainstream, nor do they stay fixed in their

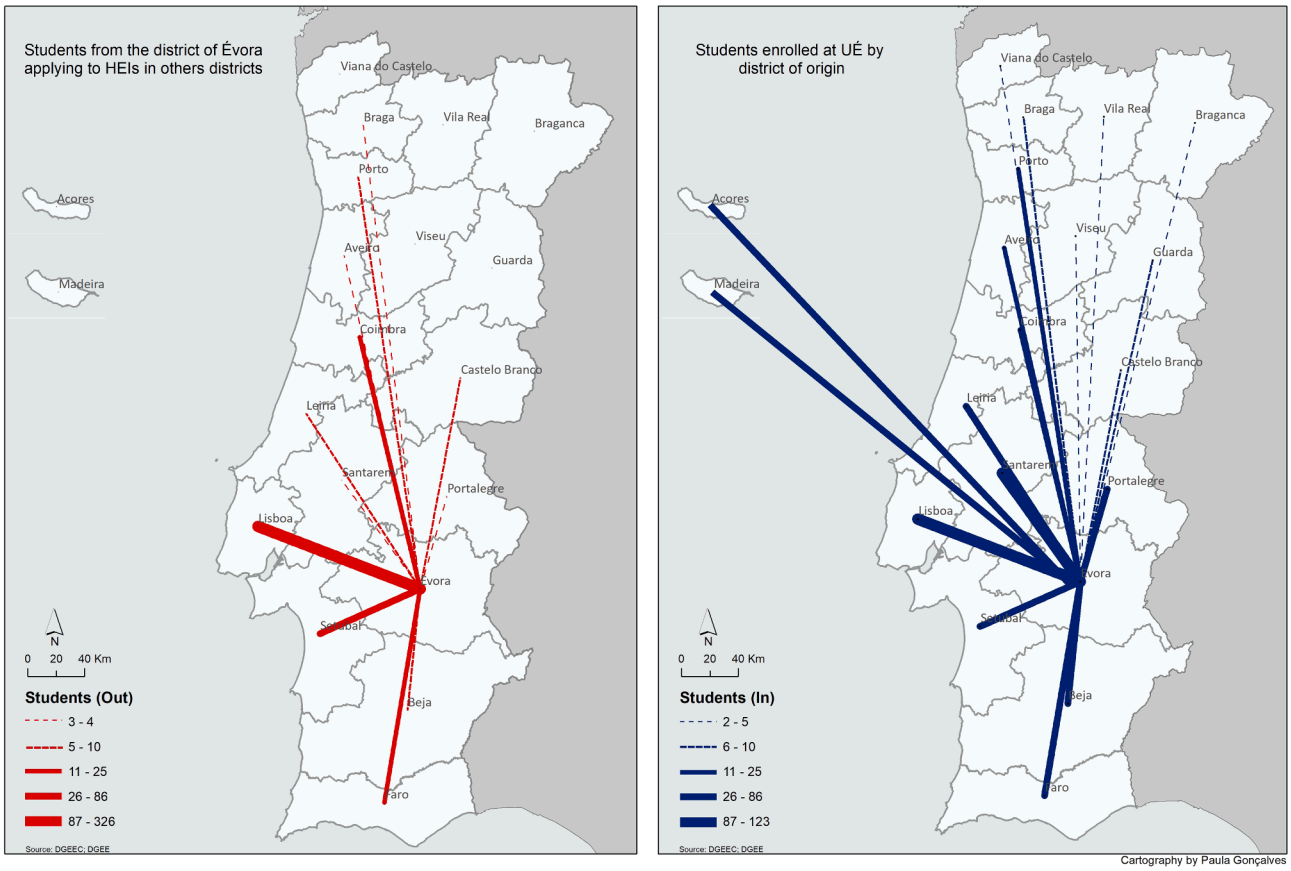

Fig. 4. Access to Public Higher Education in Portugal (2017/18): Universidade de Évora – UÉ.

regions, dropping out of higher education or choosing a programme that is not their preferred one.

David Charles in his study on rural university campuses in England assessing the impact of the universities on local development and innovation potential also highlighted the barriers to local retention of students and although the study did not focused on students migration specifically, the author suggests this hypothesis right at the end of his conclusions: "If a campus alternatively attracts students from outside of the area then there is also a potential benefit from the influx of young people, often increasing local diversity, and invigorating the local economy at least in the centre of the town where the campus is based." (Charles, 2016. Pag 771).

In fact, the reason for the existence of these *counter-flows* of students from the center to the periphery lay on their personal characteristics. They can increase social capital, bring more openness, multiculturalism and tolerance to the local environment and reinforce the human capital of the receiving regions (Blit et al., 2019; Dotti et al., 2013). They can be a driver of innovation and improving the quality of institutions. If they are taken as an asset or resource of the region, or a talent flow, regardless of its magnitude, they may capture more attention from local authorities and not just be a source of higher education funding or a guarantee of sustainability for HEIs (Haussen & Uebelmesser, 2016).

Migrations are always selective (Nolasco, 2016; Ravenstein, 1889) and migrations of young students or recent graduates are particularly selective and specific, both in terms of regions of origin and destination, the students' social and economic level, career prospects or other personal motivations (Dotti et al., 2013; Fearon et al., 2018; Fratesi, 2014; Fratesi & Percoco, 2014; Fratesi & Riggi, 2007). The dominant pattern, however, as with migrations in general, is that of flows from less developed regions to richer regions and to large cities and capitals (Adnett, 2010; Corcoran & Faggian, 2017; Fonseca et al., 2014; Franklin & Faggian, 2014).

Richard Florida was the first to use the term Economic Geography of Talent, giving it the meaning of the distribution of individuals with high human capital and linking it to migration (Florida, 2002b, 2002a, 2014; Florida et al., 2008,2017). Human capital, knowledge or competences and skills, i.e., know how, is not a regional stock; they are flows because they exist in people and people can move. Furthermore, human capital (or talent) cannot be measured only by the education qualifications of individuals, but also by other characteristics. The best environments for creativity and innovation to flourish must have several characteristics at the same time, or the three T's of talent, technology and tolerance (Florida et al., 2008). Tolerance covers values such as openness, diversity and multiculturalism or cosmopolitanism, factors that reduce barriers to communication and facilitate the entry and adoption of new ideas, innovation and consequently progress, economic growth, and development (Rutten, 2019).

The ability to attract talent is a fundamental dimension of cities and of the economic growth of regions, although traditional development theories have focused mainly on larger cities and metro regions (Florida et al., 2008; Kerr, 2019).

Student *counter-flows* to the periphery will certainly not be the only driver for economic growth and development in these regions, given their smaller magnitude and the unpredictability of their future trajectory. They can, however, replicate the atmosphere of big cities, on a smaller scale if they are embedded by local contexts. Those students should not spend their school time until they graduate, closed in a bubble of outsiders, gravitating around the HEI, without being inserted in the wider community that should welcome them in local groups of arts, sports or offer them internships and mini jobs. Even the HEIs could recreate activities identical to those they organise for Eramus students' mobility with the aim of integrating them into the local culture.

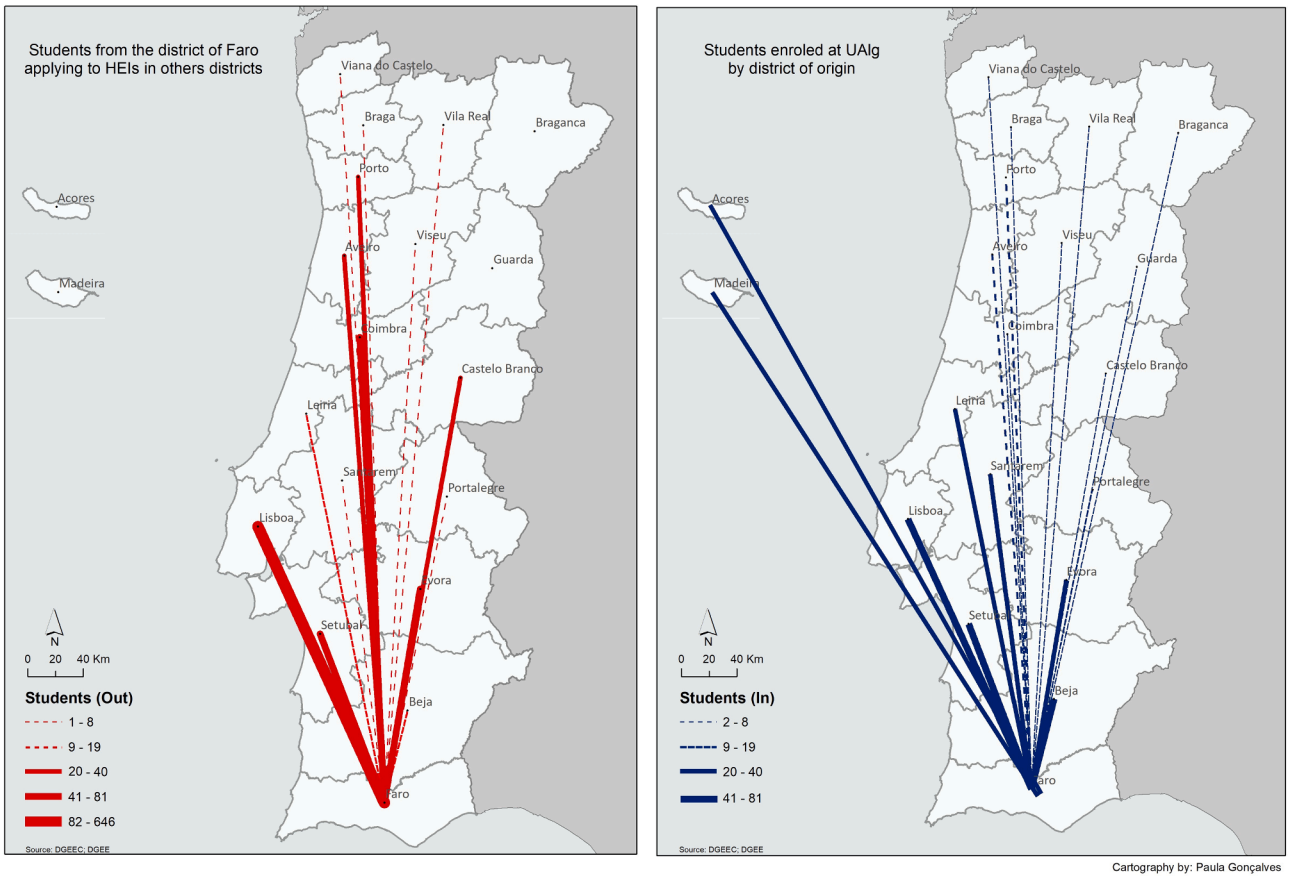

Fig. 5. Access to Public Higher Education in Portugal (2017/18): Universidade do Algarve – UAlg.

4. The Portuguese higher education system

Until the early 1970s, there was a very small number of HEIs in Portugal, which forced young people from all over the country to travel to Lisbon, Porto and Coimbra, the only cities with universities (Fonseca, 2012). From the late 1970s to the early 1990s the higher education system grew in number and nature of institutions and expanded, following an international general trend (Boucher et al., 2003; Marginson, 2016a). On the initiative of the State, HEIs were created in the most remote regions in an attempt to guarantee access to higher education for all. Currently, the system is very diversified and covers the entire national territory (Fonseca & Encarnação, 2012).However, supply is not the same in all institutions and locations. There is a stratification both in terms of quantity and diversity which also corresponds to a differentiated perception of the quality of the institutions and programmes by the students and society in general. Students' perception of the quality of the institutions is also associated with the career potential or ladder effect of some of the programmes or of the institutions that award them, as well as the cities or regions where they are located, known as the escalator effect (Ciriaci, 2014; Venhorst et al., 2010). Social groups with a higher economic level or those that are better informed look for the institutions with the best reputation, even if this means that their students have to move within the country or abroad (Denzler & Wolter, 2010; Gibbons & Vignoles, 2012; Suhonen, 2014; Suhonen & Karhunen, 2019). In general, public universities in Portugal enjoy a better reputation and are the first choice for most of the students, before resigning to enroll in a polytechnic or private institution. This has traditionally been the dominant pattern (Fonseca & Encarnação, 2012). In addition, the institutions located in the capital city, Lisbon and in the country's second largest city, Porto, attract students from all over the country not only because of their reputation, but also because of the attractiveness of the cities, perceived by students as most convenient for a future career, due to the size, diversity, and salary levels of the respective labour markets.

The Portuguese Higher Education System currently includes public and private institutions of two types, Universities and Polytechnic Institutes, the latter often referred to as Universities of Applied Sciences. In the year 2017/2018, there were around 367,000 students enrolled, 83% of which were in the public system and 17% in the private system. Public Universities, being the largest segment of the Higher Education system, enrolled 52% of all students; about 190,000.

Access to higher education in Portugal, being regulated by the government, has a universal *numerus clausus* system for all the bachelor's programmes and other first cycles. The number of vacancies is approved by the Ministry, after being validated in the accreditation process by the Portuguese Accreditation Agency.

Public HEIs - Universities and Polytechnic Institutes - recruit their students through a centralised process of allocation of candidates, conducted by the General Directorate of Higher Education, on an annual basis. This is the national access process. To be able to enrol in a public HEI in Portugal, for the first time, in a first cycle programme, students apply nationally, indicating up to six programmes and institutions. The candidates are ranked according to their grades for the set of those six possible preferences. There are three phases or rounds in the allocation of vacancies and students that do not get a vacancy in each phase, or are not happy with their placement, may apply for the next round. The grades will therefore determine the placements.

Private HEIs recruit their own students.

Although the public higher education system covers most of the territory and there is at least one public institution in the capital city of each district, not all institutions offer study cycles in all scientific areas, nor do they all offer enough vacancies to meet demand. At the national

Table 3
Access to Public Higher Education in Portugal (2017/18) – the 4 case studies' universities.

Indicators			Universidade de Trás-os-Montes e Alto Douro (UTAD)		Universidade da Beira Interior (UBI)		Universidade de Évora (UÉ)		Universidade do Algarve (UAlg)	
			Nr. / ratio/ %	Grades average	Nr. / ratio/ %	Grades average	Nr. / ratio/ %	Grades average	Nr. / ratio/ %	Grades average
Vacancies	**1**	Vacancies	1375		1245		1088		1405	
Applicants	**2**	Applicants to the HEI	1098	133.38	1026	135.62	907	133.99	993	127.31
	3	Strengh index (2/1)	0.80		0.82		0.83		0.71	
	4	Local applicants to the HEI from the local district	416	132.78	296	137.16	381	132.02	742	130.79
	5	Local applicants to the HEI from the local district %	37.89		28.85		42.01		74.72	
	6	Applicants to the HEI from out of the district	682	133.43	730	135.45	526	134.13	251	128.97
	7	Applicants to the HEI from out of the district %	62.11		71.15		57.99		25.28	
Enrolled students	**8**	Placed students (total)	1518		1554	143.88	1257		1573	
	9	Enrolled studens (total)	1299		1317	142.3	1109	133.38	1303	
	##	Enrollment rate (enrolled students/ vacancies*100) (9/1*100)	94.47		105.78		101.93		92.7	
	##	Enrolled students from the district (local applicants or stayers)	400		324	138.37	414	133.14	857	
	##	Enrolled students from the district (local applicants or stayers) - %	30.79		24.60		37.33		65.77	
	##	Enrolled students from out of the region	899		993	142.82	695	133.4	446	
	##	Enrolled students from out of the region - %	69.21		75.40		62.67		34.23	
Local Applicants	##	Local applicants (of the district) to public higher education	1109	139.98	866	138.45	849	136.45	1709	135.71
	##	Local applicant to this HEI	416	132.52	296	137.16	381	132.02	742	132.38
	##	Local applicant to this HEI - %	37.51		34.18		44.88		43.42	
	##	Local applicant to other HEI of the district *			122	125.32				
	##	Local applicant to other HEI of the district % *			14.09					
	##	Applicants of the district to a HEI out of the region (leavers)	693	140.52	448	143.87	468	136.83	967	136.02
	##	Applicants of the district to a HEI out of the region (leavers) - %	62.49		51.73		55.12		56.58	
	##	(21) …. to a HEI in LISBOA	79	153.28	228	152.19	326	148.21	646	150.86
	##	(21) …. to a HEI in LISBOA - %	7.12		26.33		38.40		37.80	
	##	(21) …. to a HEI in PORTO	300	155.07	26	157.91	10	146.93	39	143.64
	##	(21) …. to a HEI in PORTO -%	27.05		3.00		1.18		2.28	
	##	(21) …. to a HEI in COIMBRA	112	145.34	93	140.93	19	138.56	63	142.36
	##	(21) …. to a HEI in COIMBRA - %	10.10		10.74		2.24		3.69	

Source: Access Database MCTES.
*The district of Castelo Branco has 2 HEIs.

level, the number of vacancies in public higher education has been increasing in recent years, not only to meet demand, but also to achieve political goals of improving the qualification of the Portuguese population and reinforcing human capital. However, there is still a mismatch between the supply and demand for vacancies by programmes, institutions, and locations (Teixeira et al, 2009) (Fonseca, 2012; Fonseca & Encarnação, 2012). The discrepancies result in significant divergences, although at the end of the three application phases the occupation rates reach satisfactory levels, close to or even higher than 100%.

There are always students who do not get a place, others who end up withdrawing and not enrolling, and those who enroll in second options to stay in their home region, but a very significant segment (close to 40% at the national level) do not hesitate to move in order to obtain a place in the subject or programme that they really want. This generates several rounds of displacements in the three phases of the access process and the system gradually accommodates the applicants (Fonseca et al., 2014).

The metropolitan cities of Lisbon and Porto are the centres of the most populated and younger regions in Portugal. Consequently, there is a greater demand and more competition for the vacancies.

Some students from the two metro cities, however, are bypassed by students from the rest of the country who compete with higher grades and force them to migrate out of those areas. This is how *counter-flows* occur, not only from the metropolitan areas but from all over the country, caused by the competition for vacancies and the candidates' grades.

Access to the first year of undergraduate studies offers the small institutions located in remote regions the ideal opportunity for attracting students, due to the centralised system of allocation of vacancies associated with the *numerus clausus* system. Not all HEIs have the capacity to attract students for master's degrees or PhDs, to which there is no central regulation and HEIs recruit students on their own.

5. Methodology

Based on several studies on access to Higher Education in Portugal, I was confronted with the existence of the *counter-flows*, as I called them. The spatial patterns of these flows contradict dominant models. Crossing institutional approaches on regional development (Bathelt & Glückler, 2003, 2014; Cicerone et al., 2019; Rodríguez-Pose, 2020), with the literature on migrations and especially students and recent graduates

Table 4
Access to Public Higher Education in Portugal 2017/18 - Applicants by Origin and Fields of Study.

Universidade de Trás-os-Montes e Alto Douro - UTAD

Ranking	Total			Local Applicants from the district of Vila Real			External Applicants		
	Applicants	*%*	*Programme*	*Applicants*	*%*	*Programme*	*Applicants*	*%*	*Programme*
1	179	16.30	Veterinary Medicine	52	12.50	Nursing	161	23.61	**Veterinary Medicine**
2	138	12.57	Sports Sciences	50	12.02	Sports Sciences	88	12.90	Sports Sciences
3	92	8.38	Psychology	44	10.58	Psychology	53	7.77	Management
4	84	7.65	Nursing	41	9.86	Communication and Multimedia	48	7.04	Psychology
5	83	7.56	Management	30	7.21	Management	38	5.57	**Genetics and Biotechnology**
6	64	5.83	Communication and Multimedia	30	7.21	Tourism	32	4.69	Nursing
7	60	5.46	Tourism	21	5.05	Computer Engineering	30	4.40	Tourism
8	58	5.28	Genetics and Biotechnology	20	4.81	Genetics and Biotechnology	24	3.52	Languages and Business Relations
9	39	3.55	Communication Sciences	18	4.33	Veterinary Medicine	24	3.52	Social Work
10	39	3.55	Languages and Business Relations	16	3.85	Communication Sciences	23	3.37	Communication Sciences
11	37	3.37	Social Work	15	3.61	Languages and Business Relations	23	3.37	Communication and Multimedia
12	35	3.19	Computer Engineering	13	3.13	Social Work	17	2.49	**Oenology**
Total	1098	100		416	100		682	100	

Universidade da Beira Interior - UBI

Ranking	Total			Local Applicants from the district of Castelo Branco			External Applicants		
	Applicants	*%*	*Programme*	*Applicants*	*%*	*Programme*	*Applicants*	*%*	*Programme*
1	187	18.23	Medicine	34	11.49	Psychology	**166**	22.74	**Medicine**
2	74	7.21	Management	30	10.14	Management	**63**	8.63	**Aeronautical Engineering**
3	74	7.21	Psychology	26	8.78	Computer Engineering	**46**	6.30	**Cinema**
4	73	7.12	Engenharia Aeronáutica	21	7.09	Medicine	44	6.03	Management
5	57	5.56	Computer Engineering	20	6.76	Communication Sciences	40	5.48	Psychology
6	55	5.36	Sports Sciences	17	5.74	Sports Sciences	38	5.21	Sports Sciences
7	49	4.78	Communication Sciences	14	4.73	Biomedical Sciences	33	4.52	**Fashion Design**
8	48	4.68	Cinema	13	4.39	Political Science and International Relations	31	4.25	Computer Engineering
9	45	4.39	Fashion Design	12	4.05	Pharmaceutical Sciences	29	3.97	Communication Sciences
10	41	4.00	Pharmaceutical Sciences	12	4.05	Fashion Design	29	3.97	Pharmaceutical Sciences
Total	1026	100.00		296	100.00		730	100.00	

Universidade de Évora - UÉ

Ranking	Total			Local Applicants from the district of Évora			External Applicants		
	Applicants	*%*	*Programme*	*Applicants*	*%*	*Programme*	*Applicants*	*%*	*Programme*
1	123	13.56	Veterinary Medicine	38	9.97	Management	104	19.77	**Veterinary Medicine**
2	100	11.03	Psychology	32	8.40	Psychology	68	12.93	Psychology
3	78	8.60	Management	30	7.87	Nursing	40	7.60	Management
4	53	5.84	International Relations	29	7.61	Computer Engineering	33	6.27	**International Relations**
5	49	5.40	Computer Engineering	24	6.30	Tourism	21	3.99	Sports Sciences
6	48	5.29	Nursing	24	6.30	Sports Sciences	21	3.99	**Design**
7	45	4.96	Sports Sciences	20	5.25	International Relations	20	3.80	Computer Engineering
8	42	4.63	Tourism	20	5.25	Languages and Literatures	19	3.61	**Human Biology**
9	37	4.08	Languages and Literatures	19	4.99	Veterinary Medicine	18	3.42	Nursing
10	30	3.31	Design	14	3.67	History and Archaeology	18	3.42	Tourism
Total	907	100.00		381	100.00		526	100.00	

Universidade do Algarve - UAlg

Ranking	Total			Local Applicants from the district of Faro			External Applicants		
	Applicants	*%*	*Programme*	*Applicants*	*%*	*Programme*	*Applicants*	*%*	*Programme*
1	107	10.78	Tourism	71	9.57	Tourism	38	15.14	**Marine Biology**
2	83	8.36	Psychology	62	8.36	Psychology	36	14.34	Tourism
3	63	6.34	Nursing	56	7.55	Nursing	21	8.37	Psychology
4	61	6.14	Management	50	6.74	Sports	18	7.17	**Pharmaceutical Sciences**
5	55	5.54	Sports	48	6.47	Management	15	5.98	Communication Sciences
6	53	5.34	Communication Sciences	42	5.66	Computer Engineering	13	5.18	Business and Management
7	53	5.34	Business and Management	40	5.39	Business and Management	13	5.18	Management
8	51	5.14	Computer Engineering	38	5.12	Communication Sciences	12	4.78	Biomedical Sciences
9	48	4.83	Marine Biology	32	4.31	Marketing	9	3.59	Hospitality Management
10	40	4.03	Marketing	28	3.77	Communication Design	9	3.59	Computer Engineering
Total	993	100.00		742	100.00		251	100.00	

migrations with the approaches of Richard Florida and other authors who have followed up his theories, in the field of the Economic Geography of Talent, I built an explanatory hypothesis that I present in this paper, testing it for Portugal, due to the existence of an annual, unique and exhaustive database for the national access application.

The methodology for this paper thus started with the findings of previous studies, based on which the indicators were developed, and case studies were selected.

Four public universities from the peripheral regions were included in the study based on the following criteria: First, they are the public universities where the number of vacancies is much higher than the number of applicants but, at the end of the access process, they reached occupation rates of 100% or close to it (Table 1). Second, the four universities are located in districts where most of the local students apply to institutions outside the district - those are the students who "flee" - with values varying between the maximum of 62.49% for Vila Real and the minimum of 51.73% for Castelo Branco.[1] Third, in three of the four HEIs selected, the quota of enrolled students from outside the district is higher than the national average, reaching values around 70%. In the fourth one, the University of Algarve, the values are lower but the University is located in a district where the percentage of students from the district who want to leave and apply outside is almost 57% of the residents. Finally, all four universities are located in medium-sized cities in the hinterland.[2]

The universities covered by the study are the following: Universidade de Trás-os-Montes e Alto Douro (UTAD), located in the city of Vila Real, district of Vila Real; Universidade da Beira Interior (UBI), located in the city of Covilhã, district of Castelo Branco; Universidade de Évora (UÉ), located in the city and district of the same name; and Universidade do Algarve (UAlg), located in the city and district of Faro (Fig. 1).

For the characterisation of the students, I considered the following variables: geographical origin, application grade average, degree, and institution of application in first choice and degree and institution of enrolment, making comparisons between groups of students - those who migrate and those who stay in their regions - and the national average.

A student's first choice in the first phase has a particular meaning, i.e., it corresponds to the programme of their dreams (Fonseca et al., 2020). We can take it as an indicator of the attractiveness of the programmes and institutions. The ratio between the number of applications to the first option in the first phase and the number of vacancies by programme or by institution has been designated by the Strength Index to indicate potential attractiveness of programmes and institutions (Fonseca et al., 2014a,b; Fonseca et al., 2020).

The national access process for the year 2017/18 was considered in this study because it is the most recent consolidated access database, before changes were introduced in the number of vacancies in some programmes and in some institutions, the impact of which has not yet been assessed and may be biased by the COVID-19 pandemic.

Previous studies had also considered the socio-economic characteristics of students, by migrant and non-migrant groups, using another national database of social grants applications. However, this database is not exhaustive, nor are they linkable. Hence, the socio-economic issues and cultural background of applicants have not been addressed in the present study.

6. Data

This paper benefits from a unique dataset of applications and enrolments in the public Portuguese Higher Education System for the access process, i.e., for getting in for the first time, in a first cycle programme. The general access database was provided by the Directorate General of Higher Education of the Portuguese Ministry of Science, Technology and Higher Education – DGES - MCTES.

The access database contains all the information about the applications and placements, allowing the calculation of indicators to characterise the students by individual features, by region of origin and placement, grades, and choices, among other aspects. Thus, it is possible to know how many students move to the peripheral regions and to test my hypotheses about the reasons why.

7. The students' *counter-flows* to peripheral regions in Portugal

The reasons that motivate a student to choose a particular programme at a particular institution are diverse and have been extensively researched (Charles, 2016; Fonseca et al., 2014; Suhonen, 2014; Suhonen & Karhunen, 2019). These are complex decision-making processes involving a wide range of variables, from personal preferences, perceptions, financial constraints, the influence of friends and family, the influence of the media and other completely random factors. Student migration is part of this complex process and the decision to move away from home has also a wide range of reasons.

Considering the 2017/2018 academic year and excluding the Portuguese Autonomous Regions due to their insularity, almost all Portuguese districts registered a Strength Index below 1, i.e., the number of applicants to their institutions was lower than the number of vacancies, except in the districts of Lisbon and Porto and the districts of Aveiro e Braga, next to Porto (Table 1 – column 5). This means that HEIs in these central districts attract more students than the number of places they have to offer. In the same year, the districts of Lisbon, Porto and Setúbal (in the South Bank of Lisbon) with 46% of the total of vacancies, received more than 60% of the applications of the entire country.

The applications by district of origin and destination for the entire country show that although there is the aforementioned general pattern, there are diverse specificities by type of regions. On average, 39,35% of the applicants to an HEI do not live in the district where the HEI is located (Table 2).

The more populated regions with the larger cities (Lisbon and Porto) have more vacancies to offer and they match with the better rated institutions. HEIs located there can recruit locally, and students from the correspondent districts are not eager to leave as is the case of students in the peripheral districts. HEIs in some districts from the most remote regions do not receive enough applicants in the first round to fill their vacancies and must wait for the second and third phases of allocation of vacancies to reach acceptable enrolment levels.

Outside Lisbon and Porto, there are seven other cities in Portugal, which are the capitals of their district, with a public university. Three of these seven cities are medium-sized cities and are located in intermediate regions, in terms of economic development. Those are the Universities of Coimbra, Aveiro and Minho (shared by the cities of Braga and Guimarães). The remaining four public universities are found in small cities in the most peripheral regions of the country and are the only ones for which the number of applicants has been consistently lower than the number of vacancies for more than 20 years. Those four public universities from the Portuguese periphery recruit most of their students from outside their region. This is how students from all regions are flowing to the periphery. These are the *counter-flows*.

Figs. 2–5 show, for each of these four universities, the outgoing and incoming flows of students. The outflows (in red) correspond to the students' first choices if not the institution in their region. Those red

[1] Portugal has a very unbalanced urban system. Macro-cephalic. The metropolitan areas of Lisbon and Porto concentrate about 46% of the Portuguese population of around 10 million inhabitants, in 2021, according to the National Statistics. The Metropolitan Area of Lisbon has about 2,9 million inhabitants and the Metropolitan Area of Porto has about 1,7 million. There are only a small number of intermediate cities around 70 to 100 thousand inhabitants, i.e. there is a gap of intermediate cities and almost all the cities which are district capitals of the peripheral regions have a population between 20 and 50 thousand inhabitants (Statistics Portugal, Population and housing census – 2021. https://www.ine.pt).

[2] The complete database is available by request.

flows show the intentions, the *dream* destination. The inflows (in blue) correspond to the students from outside the region enrolled in the HEI at the end of the access process, by district of origin – the *counter-flows*!

The four cases share some common characteristics. Young students living in peripheral regions where these four institutions are located, "flee" as expected and apply to the universities in Lisbon, Porto, or Coimbra. From the district of Vila Real, around 63% of the local students apply for an institution outside; from the district of Castelo Branco the number is 52%. Considering the destination districts of the applicants from the four districts of the remote areas under analysis, Lisbon stands out as the most attractive destination, with maximum figures for the flows from Évora and Faro, with almost 40% of the total number of applicants.

The outflows (in red) are clearly targeted and selective and the students from the selected districts do not apply to the whole country, nor to all the districts or types of institutions. The flows to Lisbon and Porto are the largest, although Coimbra has some relevance for candidates from Vila Real and Faro. There are some districts that do not receive candidates at all. All these districts lay in the periphery of the country or correspond to the Autonomous Regions of Madeira and Azores.

The pattern of the applicants trying to move (in red) reveals that there is a trade-off between the search for a more prestigious institution, the recognition of the potential of big cities in a career perspective and the proximity to the home district, although the latter is not decisive, based on the data.

Regarding inflows – the *counter-flows* – (in blue), the pattern is completely different. The four institutions recruit their students from all over the country, apart from UTAD which had no students enrolled from three districts quite far away in the South. The four universities also receive flows of students from the metropolitan areas and the more populated districts in the west coastal part of the country.

This is how the universities located in the small cities on the periphery of the country recruit their students from all over the country, with some very positive aspects. Those small institutions in the hinterland receive a very diverse and multicultural student body, even if within the limits of the cultural diversity of our small country.

There are two particularly important aspects of this group of students migrating to the hinterland. Firstly, they are willing to migrate, and they do not give up looking for the programme they really want or to get into university; and secondly, to be able to get a place in an institution, they must have sufficiently high grades. In fact, they will often also bypass local applicants, taking away their places by having higher grades (Table 3).

On average, students migrating from outside the four districts of the study – the *counter-flows* - have higher grades than the local candidates. This is particularly relevant in some programmes, like medicine in UBI or veterinary in UTAD or UÉ. HEIs in the hinterland have a higher magnet potential when they offer certain fields or programmes, as is the case of Medicine at UBI.

On the supply side, the fields of study that offer the most places throughout the higher education system in Portugal are, in decreasing order, Computer Engineering, Information Technology, Management, Nursing, Medicine, Mechanical Engineering, Law, Economics, Basic Education, Biology and Pharmaceutical Sciences. On the demand side, however, the most sought after areas are, in descending order, Computer and IT Engineering, Management, Law, Medicine, Nursing, Psychology, Mechanical Engineering, Economics, Sports Sciences and Communication Sciences.

When we compare the preferences of applicants to the four universities under analysis, we can see that there are mismatches between the preferences of local applicants and of the external applicants. Local applicants tend to be conservative, choosing traditional areas of study, like Psychology or Nursing. It is the external applicants who enroll in the fields that are scarcer, more competitive, or in emerging fields (Table 4).

Thus, at UTAD and UÉ, Veterinary Medicine is the most distinctive and most competitive programme, and the one which receives the most applications in total. It is students from outside, however, who apply in larger numbers. At UTAD in the year under analysis, there were 161 applications for Veterinary Medicine from external students and just 18 from local students, while the local students' top fields were Nursing (the most popular programme for local students) with 52 applications, and Sport with 50 applications. At the UÉ, there were 104 external applications for Veterinary Medicine, while there were only 19 local applicants.

Programmes in emerging and cutting-edge areas were more demanded by external students than by local students, including Genetics and Biotechnology or Oenology at UTAD and Human Biology, International Relations, Design or Drama, at UÉ. Local students from the district of Vila Real, where UTAD is located, applied, in descending order, for Nursing, Psychology and Sport, and those from the district of Évora applied to UÉ, in descending order, for Management, Psychology and Nursing.

At UBI, Medicine follows the same pattern of the other HEIs of this study. Medicine is the programme with the highest demand at UBI, receiving 166 applications from external students and only 21 from local students. Aeronautical Engineering, Cinema, and Fashion Design, which are less traditional fields, also received far more applications from external applicants than from local students. The local applicants to UBI applied, in decreasing order of popularity, to Psychology and Management.

At UAlg, it is the Marine Biology programme that follows this pattern. As it is the only Marine Biology bachelor programme in the country, it receives applications from all over the country. In 2017/18 there were 38 applicants from external applicants in contrast to 10 local applicants. The local applicants to UAIg chose Tourism, Psychology and Nursing as their first preferences.

We know that students with high grades and economic resources living in the districts of the hinterland prefer to apply to the major universities in Lisbon and Porto. Thus, only a portion of the local students stay in the district and therefore we have to accept that there is a low demand from them for the most competitive programmes. The focus of this study, however, is not the factors that lead a student to select a programme, but rather the characterisation of the students who migrate from all over the country to the universities in the periphery and the reasons that lead them to do so, with the aim of contributing to policies for their retention.

Previous studies have highlighted the relationship between the socio-economic level of students, their family background in terms of social and cultural capital, and the programmes in which they enrol, even though their grades may influence their preferences (Fonseca et al., 2020). In the case of UTAD, Fonseca et al., 2020 pointed out that students from outside the district received less social support, even though they were covered by special mobility support schemes. The local students received more social support (on average and per capita), even without the mobility support schemes, revealing lower socio-economic levels overall. Considering the results of the UTAD case (Fonseca et al., 2020), and reinforced by the results of the present study in the other indicators, it is possible to state that external students, those of the *counter-flows*, who immigrate to these medium-sized cities in the hinterland, belong to higher-income social classes and, consequently, have higher cultural and educational capital, behaving more competitively with regard to the choice of more innovative and promising fields in terms of career. In turn, these are attributes that may contribute in a relevant way to the institutional change of the regional contexts of the periphery, to which they move (Charles, 2016; Florida et al., 2016).

8. Conclusion: final reflections and future developments

The effect of distance on the decision of a student to migrate when entering higher education has been widely studied but mostly from the perspective of barriers to migration. This paper focuses on the exceptionality of the flows of students who go against the dominant pattern

and move against the current from central regions to small and medium-sized cities in peripheral regions. Only their personal characteristics can explain their predisposition to migrate, making them a flow of high potential human capital, talent, and openness to innovation and to diversity. The Economic Geography of Talent, a theoretical proposal of Florida (2002b) since the beginning of the century, goes far beyond the limits of an original and appealing designation. It follows the evolution of economic geography in general and of theories of economic growth and regional development, focusing less on the firm at the centre and more on the wider institutional context, on human capital and on people. Bringing people to the centre of development problems, it also brings mobility and migration to the core of the issues. Human capital is not a resource, Florida argues; they are flows, because human capital exists in people and people move. Besides, as we know, migrations are always selective in their structure and destinations.

The present study focuses on the *counter-flows* of students to four public universities in remote regions in Portugal. Driven to the universities on the periphery, for lack of vacancies or lower grades, students from all over the country move to small cities in remote areas. Those *counter-flows* have a significant magnitude and can be an important driver for the institutional change of these regions. First and foremost, they are qualified young people with a high potential for innovation and creativity - talent - and they bring with them openness, the willingness to change, diversity and the possible cosmopolitanism in a small country like Portugal.

Some of these students move to study medicine or veterinary medicine, which are particularly competitive programmes. Those are the most ambitious who do not give up fighting for a career. Others move to study theatre, cinema, oenology or marine biology. These, too, were not satisfied with a second choice in their areas of residence and move to the periphery, to a small town, looking for their dream subject, in an ambitious life path and with the prospect of a future, even if in non-traditional areas and without any guarantees. They are taking risks, which is also evidence of their potential for institutional change.

This study has important limitations which have been pointed out. It serves, however, as a pilot for more in-depth studies.

It is important however, to recognise the existence and relevance of these students' *counter-flows* in the development and innovation framework of the Portuguese impoverished and ageing peripheries. They are not just tuition fee payers or a statistic for the enrolment rates of local HEIs; they are flows of talent, groups of multicultural young people and the local political powers should embrace and accommodate them as a contribution for prosperity.

CRediT authorship contribution statement

Madalena Fonseca: Conceptualization, Methodology, Investigation, Data curation, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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