The potential impact of students' migrations to small cities in peripheral regions

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Abstract

Each year, there are student migration flows to peripheral regions in Portugal to enter higher education and enroll in small higher education institutions, 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 periphery to larger cities. We argue that these flows of students to the peripheries constitute 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 those remote areas.

Setting the scene

What is the innovative and socio-economic potential of the flows of students, coming from the main cities and other regions, who annually apply, get a place, and enroll in public higher education institutions in peripheral regions in Portugal? How can peripheral regions include them in their local development policies?

Most young people living in the peripheral regions of the country, and when completing their secondary education and wishing to enter higher education, they tend to "escape" from their regions and apply to the larger and more prestigious universities in Lisbon and Porto. In some cases, this is because local higher education institutions do not offer their preferred programmes; however, in most cases, their first objective, and for various reasons, is to move to the big cities. Those who have high grades from secondary school and the financial means to do it, usually succeed. At the same time, however, there is a counterflow of students from all over the country, including the large metropolitan areas, to higher education institutions located in the hinterland, generally because they do not have high enough grades to get a place in their home regions.

Due to the characteristics of the students, these flows may constitute an important driver of innovation and socio-economic dynamism to the peripheral regions. Regional development policies cannot ignore the students but must develop efficient strategies for their settlement. These are young people with qualifications, potential talent, openness, and tolerance who can strengthen the human and social capital of the peripheral regions.

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 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; European Commission, 2017; Fratesi & Rodriguez-Pose, 2016) 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; Fratesi, 2014; Glückler, 2014; Marques et al., 2019; Rodríguez-Pose & Vilalta-Bufí, 2005; Tödtling et al., 2013, Huggins & Thompson, 2019). 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). Higher Education Institutions, 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 public higher education institutions.

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, Dias, et al., 2014; Tosi et al., 2018). That is one of the reasons for continuous brain drain flows of young people at different stages of their education or careers from peripheral regions, and reflects the mismatch between the supply and demand for skilled workers (Adnett, 2010). However, not all young people and students flee from peripheral regions; some stay and there are counter flows into these regions from large metropolitan areas, intermediate cities and other peripheral regions (Fonseca et al., 2018; Soyer et al., 2020). The main argument of this paper is that 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 the 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. Yet, there are inflows of young students annually, as there are also placements of young public administration executives and trainees, doctors, nurses, teachers, prosecutors, or judges in several public services. Immigrating students share most of the characteristics of those who “flee” from

the peripheral areas to the most prestigious universities. They are highly qualified, able to get into higher education, open to the new, have a high innovative potential, and are willing and able to move. 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 even be a driver of improving the quality of institutions. If they are taken as a valuable 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 higher education institutions in those peripheral regions.

Previous studies, for other regions, have analysed the counterflows of students from all over the country, including from the metropolitan areas of Lisbon and Porto, who annually migrate to the medium-sized cities of more peripheral regions and enroll in local higher education institutions (Fonseca et al., 2018). Increasing inflows of foreign students into higher education institutions in the more peripheral regions are also taking place, as the result of more active recruitment strategies, often designed to ensure the funding and economic sustainability of the institutions, a phenomenon that is common to other European regions (Adnett, 2010; Giacalone et al., 2019; Soyer et al., 2020). The integration of these young immigrant students should go beyond the higher education institutions and be framed in the regional institutional context, so that they can benefit from their local settlement after graduation. They should be a means of enhancing human capital and upgrading of the local labour market as well as a driver for demographic renewal and empowerment of the social capital of those remote areas. Ideally, they can recreate attractive environments for young people in small towns in the hinterland, identical to those in large cities, if on a smaller scale.

The challenge of this study is thus to support the argument that the flows of students that arrive annually to the small cities in the hinterland in Portugal constitute a flow of talent and potential innovation.

Student migrations as talent flows

There are several timeless factors and processes common to most migration flows that are present in all regions. For any migration flow there are factors that push populations and factors that attract (pull) - the push-pull factors (Nolasco, 2016; Ravenstein, 1889). Sending regions or countries are generally those which are in worse social or economic conditions, including disaster scenarios, political conflicts or others, while the receiving regions or countries are usually those which are more developed and have richer and more dynamic economies. Populations that are likely to emigrate are, as a rule, those who find themselves in a problematic or unsatisfactory situation and therefore migrate in search of a better life. To achieve this, they must meet a set of skills and resource requirements. Migrations are always selective (Fratesi & Percoco, 2014; Fratesi & Riggi, 2007)(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 (Fearon et al., 2018). 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, Dias, et al., 2014; Franklin & Faggian, 2017).

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).

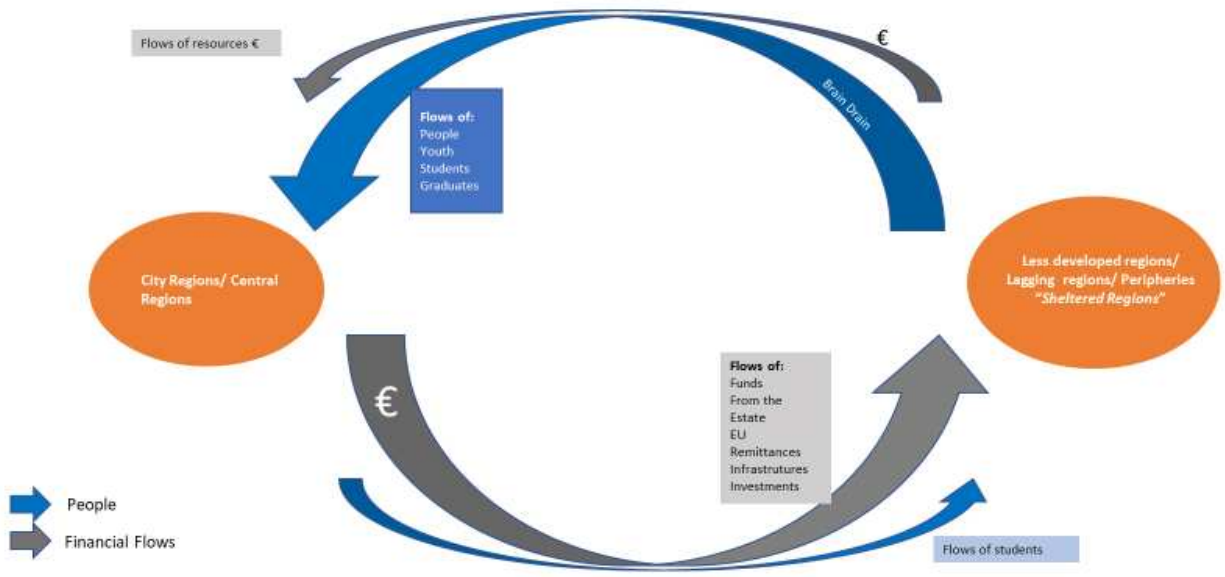
Florida carries out extensive research on the factors that impact the distribution of talent and the processes that lead to the increasing polarisation of cities and the concentration of high technology and economic growth. His approaches show how the ability to attract talent is a fundamental dimension of cities and of the economic growth of regions, while traditional development theories have placed firms and business at the centre of these concentration processes. William Kerr had also developed an approach to talent based on migration, using the example of the United States to argue how the entry of immigrants contributed to the economic growth and development of that country, turning it into the largest economy in the world (Kerr, 2019). Both authors and most of the literature on student migration (and migration in general) identify positive impacts of migration flows on receiving regions.

Student flows to the periphery will certainly not be the only drivers for economic growth and development in these regions, given their small magnitude and the unpredictability of their future trajectory (Figure 1). They are, however, important agents of knowledge creation and circulation and can contribute to institutional change, well beyond being a source of survival or financial

sustainability of local higher education institutions (Baas, 2019; Beech, 2018; Findlay et al., 2017; Haussen & Uebelmesser, 2016). Student migration is therefore not only an education issue, but an economic issue.

The conditions that enhance innovation and growth 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 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, Portugal's peripheries are well endowed with physical infrastructure and have received large investments from EU cohesion funds to improve accessibility, public infrastructure, and equipment. Hence, attention has been focused on measures to prevent people from leaving these regions, particularly the young, without, however, achieving satisfactory results.

Figure 1: Migration flows and resources flows and counter flows from core regions to peripheries



Until the early 1970s, there was a very small number of higher education institutions 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. 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 corresponds, in turn, to a differentiated perception of the quality of the institutions and programmes by the students and society in general. Institutions, in fact, have a diverse reputation (Fonseca, Encarnação, et al., 2014). 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 (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. 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.

Methodology

The methodology of this study consists of analysing the process of access to public higher education in Portugal using the general access database provided by the Ministry of Science, Technology and Higher Education - MCTES.

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 higher education institutions - 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 enroll 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 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.

Private higher education institutions recruit their own students, according to their own regulations, in accordance with the law.

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. In fact, for the latter there is no central regulation and HEIs recruit students on their own and the larger and higher ranked institutions in the main cities have more power to attract.

The access database made available by the Ministry 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 raise hypotheses about the reasons why.

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.

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. 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.

Table 1 – Insert here

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.

Flows of students as flows of talent to peripheral regions

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 offer enough vacancies to meet demand. At the national 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 in order 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 reasons that motivate a student to choose a particular programme at a particular institution are diverse and have been extensively researched. 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.

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., 2018). 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., 2018; Fonseca, et al., 2014).

At the end of the three phases of the access process, however, many students end up enrolled in programmes and institutions that were not their first choice, because their grades were lower than those of the other candidates or the number of vacancies did not allow them to enter. The grades will therefore determine the placements, and whether or not students will have to move.

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). 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).

Table 2 – insert here

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 are able to 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. Despite this, at the end of the access process, those universities manage to

fill their vacancies and achieve enrolment rates of around 100 per cent, recruiting students in the second and third phases of the access process. In fact, those four public universities from the Portuguese periphery recruit the majority of their students from outside their region. They end up gathering the applications of students who did not get places in the major universities in the large cities and were pushed out to the periphery. This is how students from all regions are flowing to the periphery. These students have been responsible for ensuring the sustainability, or the survival, of the institutions in peripheral regions for some years now. Recently, as is common all over the country and in Europe, HEIs in those peripheral regions have also been recruiting more and more international students, according to statistics. In some cases, international students already represent between 30 and 40% of all enrollments in HEIs in small centers.

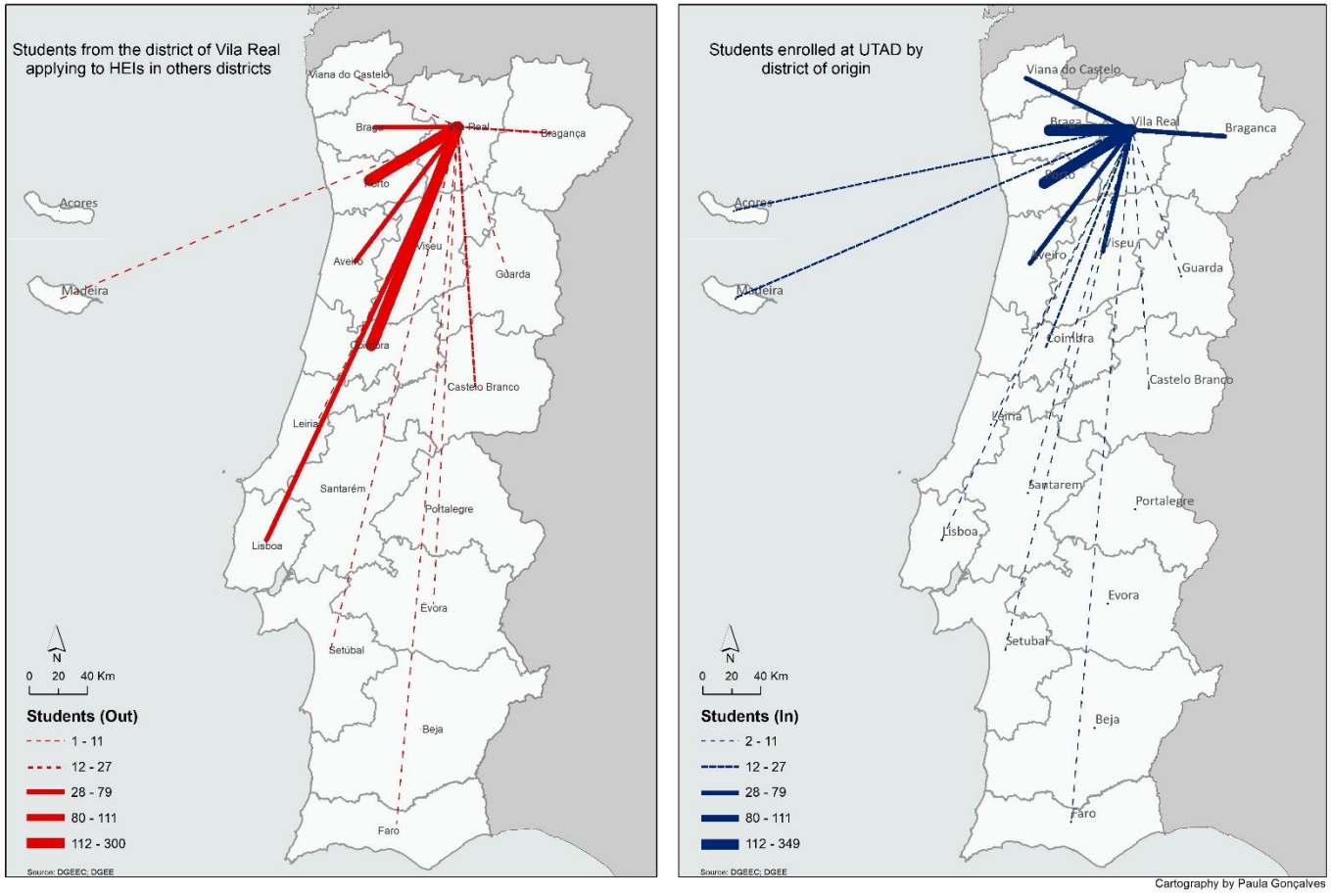
Figures 2 to 5 show, for each of the universities of this study, the outgoing and incoming flows of students. The outflows (in red) correspond to the students from the district whose first choice is not the institution in their region. Those red flows show the intentions, the dream destination. The inflows (in blue) correspond to the students from outside the region enrolled in the indicated HEI at the end of the access process, by district of origin.

The four cases share some common characteristics. Young students living in peripheral regions where these four institutions are located, "flee" 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 of this study 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 from the four districts under study. 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 moving from the regions (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.

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



Fgure 3: Access to Public Higher Education in Portugal (2017/18): Universidade da Beira Interior - UBI

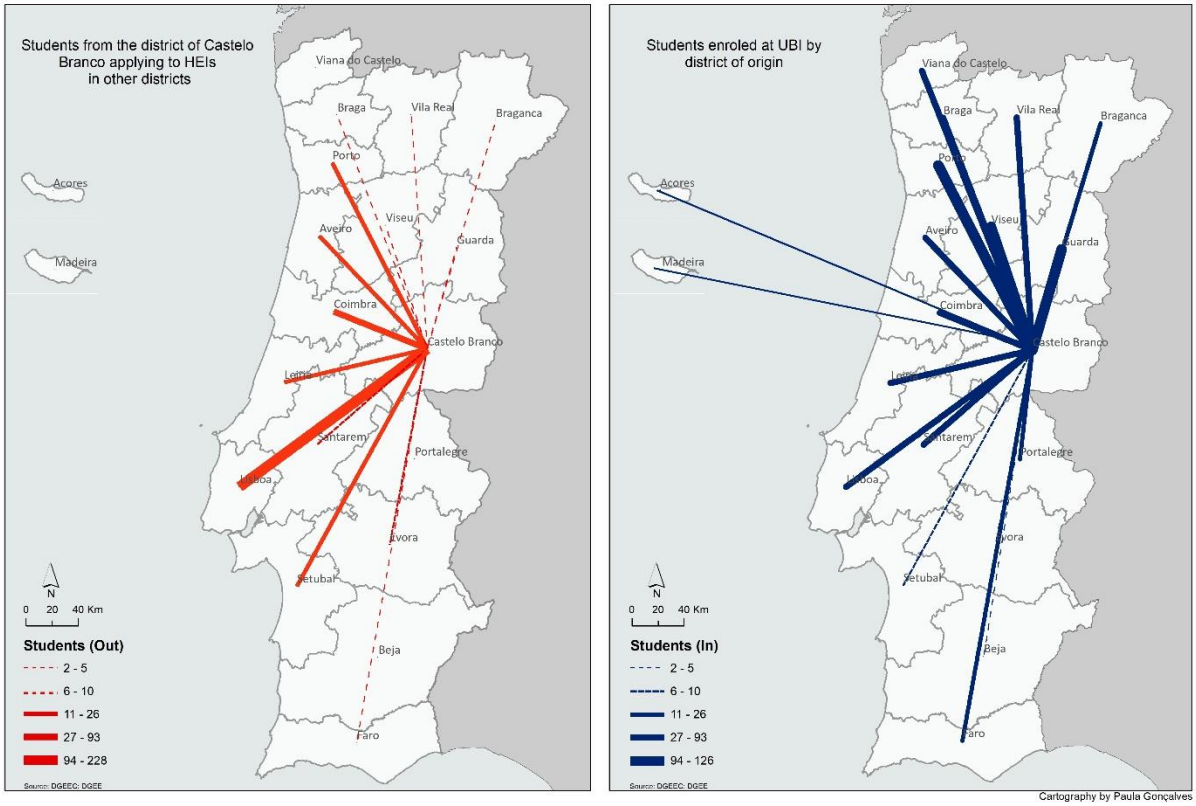


Figure 4: Access to Public Higher Education in Portugal (2017/18): Universidade de Évora - UÉ

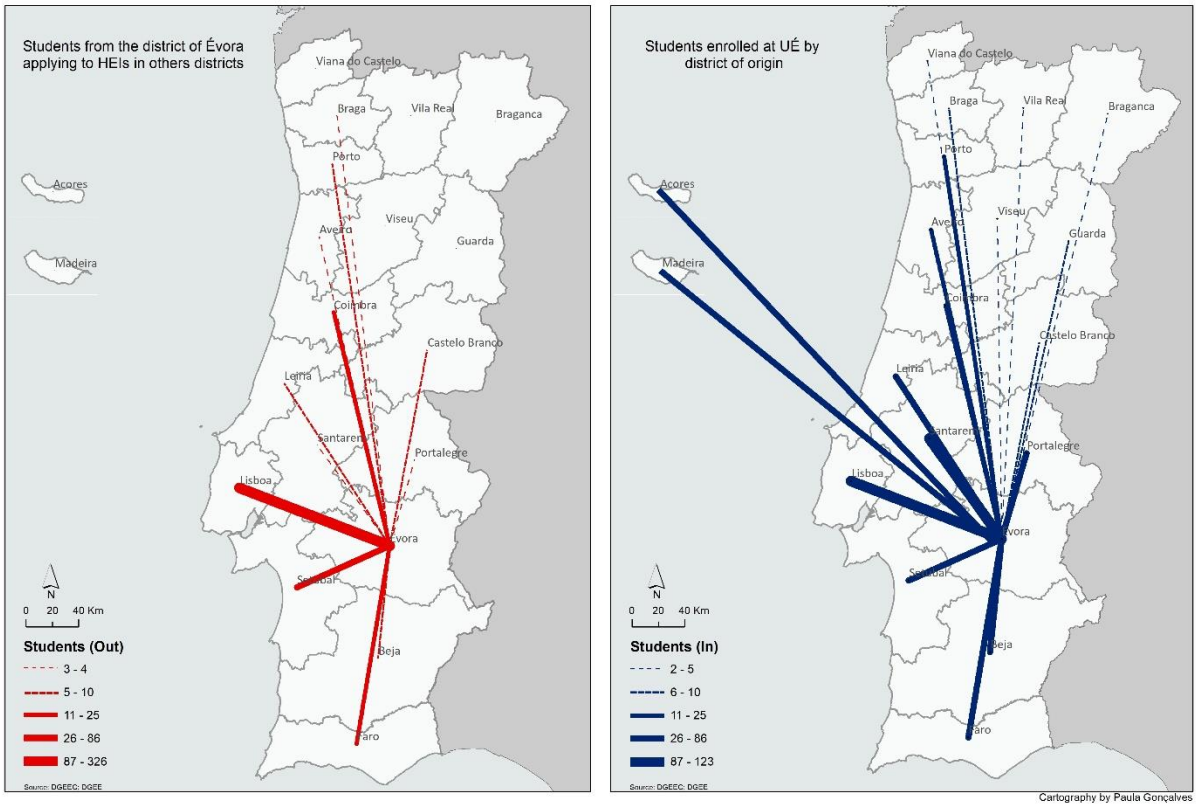
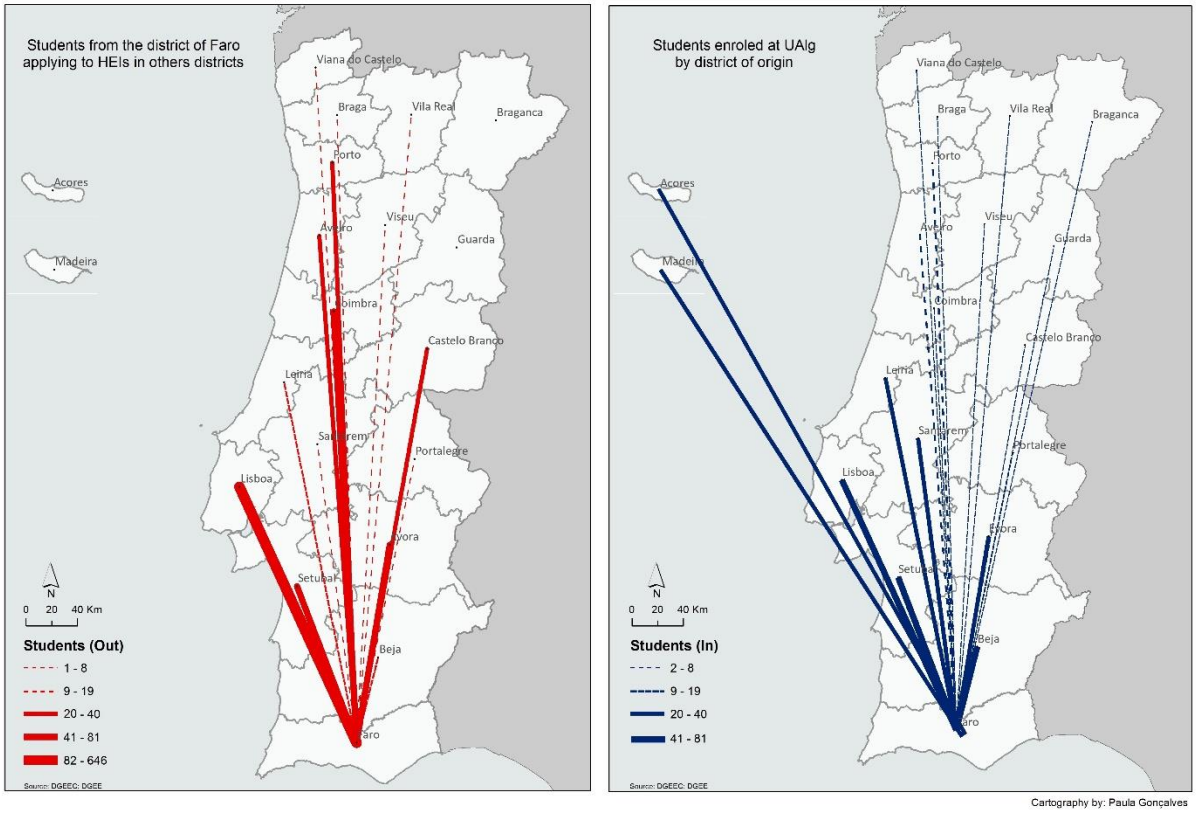


Figure 5: Access to Public Higher Education in Portugal (2017/18): Universidade do Algarve - UAlg



Regarding inflows (in blue), the pattern is completely different. The four institutions recruit their students from all over the country, with the exception of UTAD which had no students enrolled from three districts quite far away in the South. The four universities receive flows of students from the metropolitan areas and the more populated districts in the west coastal part of the country. The metropolitan cities of Lisbon and Porto are the centres of the most populated and younger regions. Consequently, there is a greater demand for higher education and more competition for the vacancies for the most prestigious and larger public universities of the country that are located in those regions.

Some students from the metropolitan areas of Lisbon and Porto 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 migration flows occur, not only from the metropolitan areas but from all over the country, caused by the competition for vacancies and the candidates' grades. As a result, this is how the universities located in the small cities on the periphery of the country recruit their students from all over the country. The result however has 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 of their dreams 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 have higher grades than the local candidates. This is particularly relevant in some programmes, like medicine in UBI or veterinary in UTAD or UÉ. In fact, 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. This is the case with Psychology and Nursing, the latter not being offered at UBI. 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, while 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 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 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, regardless of 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 enroll, even though their grades may influence their preferences (Fonseca et al., 2018). In the case of UTAD, Fonseca et al. (2018) 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., 2018), and reinforced by the results of the present study, it is possible to state that external students, those 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.

Final reflections and future developments

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 in particular, 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 flows of students who annually move from all regions of the country to enroll in an institution of higher education in small towns on the periphery of Portugal and analyses four public universities in this context. These are counter flows to the dominant and larger migrations of young people from the peripheries to the main metropolitan areas. They apply every year and, when they have high grades and economic means they manage to get into the large and more prestigious institutions in Lisbon, Porto or intermediate centres.

Pushed to the universities on the periphery, for lack of vacancies or lower grades, students from all over the country move to those small cities in remote areas. Those 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 another district 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 the more in-depth study that will follow, in the Beira Interior region, with a longer timeframe complemented by qualitative analysis and field work aimed at assessing the regional integration potential of these students, in a broader institutional context beyond higher education.

It is important however, to recognise the existence and relevance of these students' migrations 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 enrollment rates of local higher education institutions; they are flows of talent, and the local political powers should embrace and accommodate them as a contribution for prosperity.

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

Districts	Vacancies	Applicants 1st phase 1st option						Districts	Enrolled students (Final)				
		Applicants 1st choice	Local Applicants	External Applicants	Ratio Applicants/ Vacancies	Local Applicants (%)	External Applicants (%)		Enrolled Students	Local Students	External Students	Enrollment rate	Enrolled Rate for External Students (%)
	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	Aveiro	2097	879	1218	99.20	58.08
Beja	476	126	78	48	0.26	61.90	38.10	Beja	292	123	169	61.34	57.88
Braga	3368	4216	3149	1067	1.25	74.69	25.31	Braga	3354	2370	984	99.58	29.34
Bragança	1908	293	134	159	0.15	45.73	54.27	Bragança	922	243	679	48.32	73.64
Castelo Branco	2126	1304	418	886	0.61	32.06	67.94	Castelo Branco	1756	484	1272	82.60	72.44
Coimbra	5476	5109	2178	2931	0.93	42.63	57.37	Coimbra	5301	2054	3247	96.80	61.25
Évora	1088	907	381	526	0.83	42.01	57.99	Évora	1012	385	627	93.01	61.96
Faro	1405	993	742	251	0.71	74.72	25.28	Faro	1224	817	407	87.12	33.25
Guarda	680	141	66	75	0.21	46.81	53.19	Guarda	466	114	352	68.53	75.54
Leiria	1900	1435	857	578	0.76	59.72	40.28	Leiria	1750	944	806	92.11	46.06
Lisboa	13665	18128	11495	6633	1.33	63.41	36.59	Lisboa	13406	8528	4878	98.10	36.39
Portalegre	511	97	47	50	0.19	48.45	51.55	Portalegre	305	86	219	59.69	71.80
Porto	7465	11965	8300	3665	1.60	69.37	30.63	Porto	7418	5333	2085	99.37	28.11
Santarém	1450	398	202	196	0.27	50.75	49.25	Santarém	932	334	598	64.28	64.16
Setúbal	2294	1925	657	1268	0.84	34.13	65.87	Setúbal	2034	750	1284	88.67	63.13
Viana do Castelo	973	407	216	191	0.42	53.07	46.93	Viana do Castelo	754	274	480	77.49	63.66
Vila Real	1375	1098	416	682	0.80	37.89	62.11	Vila Real	1289	413	876	93.75	67.96
Viseu	1308	552	391	161	0.42	70.83	29.17	Viseu	925	475	450	70.72	48.65
R.A. Açores	663	440	403	37	0.66	91.59	8.41	R.A. Açores	511	440	71	77.07	13.89
R.A. Madeira	593	629	620	9	1.06	98.57	1.43	R.A. Madeira	483	460	23	81.45	4.76
Total	50838	52446	31808	20638	**1.03**	60.65	39.35	Total	46231	25506	20725	90.94	44.83

Source: Access Database MCTES

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	11495	14	102	74	843		5	7	6	2	13056	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	10250	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	18128	97	11965	398	1925	407	1098	551	440	629	52445	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	20637	
%	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

Table 3: Access to public higher education in Portugal (2017/18)										
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	
	10	Occupation or enrollment rate (enrolled students/ vacancies*100) (9/1*100)	94.47		105.78		101.93		92.7	
	11	Enrolled students from the district (local applicants or stayers)	400		324	138.37	414	133.14	857	
	12	Enrolled students from the district (local applicants or stayers) - %	30.79		24.60		37.33		65.77	
	13	Enrolled students from out of the region	899		993	142.82	695	133.4	446	
	14	Enrolled students from out of the region - %	69.21		75.40		62.67		34.23	
Local Applicants	**15**	Local applicants (of the district) to public higher education	1109	139.98	866	138.45	849	136.45	1709	135.71
	16	Local applicant to this HEI	416	132.52	296	137.16	381	132.02	742	132.38
	17	Local applicant to this HEI - %	37.51		34.18		44.88		43.42	
	18	Local applicant to other HEI of the district *			122	125.32				
	19	Local applicant to other HEI of the district % *			14.09					
	20	Applicants of the district to a HEI out of the region (leavers)	693	140.52	448	143.87	468	136.83	967	136.02
	21	Applicants of the district to a HEI out of the region (leavers) - %	62.49		51.73		55.12		56.58	
	22	(21) .... to a HEI in LISBOA	79	153.28	228	152.19	326	148.21	646	150.86
	23	(21) .... to a HEI in LISBOA - %	7.12		26.33		38.40		37.80	
	24	(21) .... to a HEI in PORTO	300	155.07	26	157.91	10	146.93	39	143.64
	25	(21) .... to a HEI in PORTO -%	27.05		3.00		1.18		2.28	
	26	(21) .... to a HEI in COIMBRA	112	145.34	93	140.93	19	138.56	63	142.36
	27	(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

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	Medicina Veterinária	52	12.50	Enfermagem	161	23.61	**Medicina Veterinária**
2	138	12.57	Ciências do Desporto	50	12.02	Ciências do Desporto	88	12.90	Ciências do Desporto
3	92	8.38	Psicologia	44	10.58	Psicologia	53	7.77	Gestão
4	84	7.65	Enfermagem	41	9.86	Comunicação e Multimédia	48	7.04	Psicologia
5	83	7.56	Gestão	30	7.21	Gestão	38	5.57	**Genética e Biotecnologia**
6	64	5.83	Comunicação e Multimédia	30	7.21	Turismo	32	4.69	Enfermagem
7	60	5.46	Turismo	21	5.05	Engenharia Informática	30	4.40	Turismo
8	58	5.28	Genética e Biotecnologia	20	4.81	Genética e Biotecnologia	24	3.52	Línguas e Relações Empresariais
9	39	3.55	Ciências da Comunicação	18	4.33	Medicina Veterinária	24	3.52	Serviço Social
10	39	3.55	Línguas e Relações Empresa	16	3.85	Ciências da Comunicação	23	3.37	Ciências da Comunicação
11	37	3.37	Serviço Social	15	3.61	Línguas e Relações Empresariai	23	3.37	Comunicação e Multimédia
12	35	3.19	Engenharia Informática	13	3.13	Serviço Social	17	2.49	**Enologia**
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	Medicina	34	11.49	Psicologia	**166**	22.74	**Medicina**
2	74	7.21	Gestão	30	10.14	Gestão	**63**	8.63	**Engenharia Aeronáutica**
3	74	7.21	Psicologia	26	8.78	Engenharia Informática	**46**	6.30	**Cinema**
4	73	7.12	Engenharia Aeronáutica	21	7.09	Medicina	44	6.03	Gestão
5	57	5.56	Engenharia Informática	20	6.76	Ciências da Comunicação	40	5.48	Psicologia
6	55	5.36	Ciências do Desporto	17	5.74	Ciências do Desporto	38	5.21	Ciências do Desporto
7	49	4.78	Ciências da Comunicação	14	4.73	Ciências Biomédicas	33	4.52	**Design de Moda**
8	48	4.68	Cinema	13	4.39	Ciência Política e Relações Inte	31	4.25	Engenharia Informática
9	45	4.39	Design de Moda	12	4.05	Ciências Farmacêuticas	29	3.97	Ciências da Comunicação
10	41	4.00	Ciências Farmacêuticas	12	4.05	Design de Moda	29	3.97	Ciências Farmacêuticas
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	Medicina Veterinária	38	9.97	Gestão	104	19.77	**Medicina Veterinária**
2	100	11.03	Psicologia	32	8.40	Psicologia	68	12.93	Psicologia
3	78	8.60	Gestão	30	7.87	Enfermagem	40	7.60	Gestão
4	53	5.84	Relações Internacionais	29	7.61	Engenharia Informática	33	6.27	**Relações Internacionais**
5	49	5.40	Engenharia Informática	24	6.30	Turismo	21	3.99	Ciências do Desporto
6	48	5.29	Enfermagem	24	6.30	Ciências do Desporto	21	3.99	**Design**
7	45	4.96	Ciências do Desporto	20	5.25	Relações Internacionais	20	3.80	Engenharia Informática
8	42	4.63	Turismo	20	5.25	Línguas e Literaturas	19	3.61	**Biologia Humana**
9	37	4.08	Línguas e Literaturas	19	4.99	Medicina Veterinária	18	3.42	Enfermagem
10	30	3.31	Design	14	3.67	História e Arqueologia	18	3.42	Turismo
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	Turismo	71	9.57	Turismo	38	15.14	**Biologia Marinha**
2	83	8.36	Psicologia	62	8.36	Psicologia	36	14.34	Turismo
3	63	6.34	Enfermagem	56	7.55	Enfermagem	21	8.37	Psicologia
4	61	6.14	Gestão	50	6.74	Desporto	18	7.17	**Ciências Farmacêuticas**
5	55	5.54	Desporto	48	6.47	Gestão	15	5.98	Ciências da Comunicação
6	53	5.34	Ciências da Comunicação	42	5.66	Engenharia Informática	13	5.18	Gestão de Empresas
7	53	5.34	Gestão de Empresas	40	5.39	Gestão de Empresas	13	5.18	Gestão
8	51	5.14	Engenharia Informática	38	5.12	Ciências da Comunicação	12	4.78	Ciências Biomédicas
9	48	4.83	Biologia Marinha	32	4.31	Marketing	9	3.59	Gestão Hoteleira
10	40	4.03	Marketing	28	3.77	Design de Comunicação	9	3.59	Engenharia Informática
Total	993	100.00		742	100.00		251	100.00	

Source: Access Database MCTES