

PORTUGUESE SCIENTISTS' MIGRATION:  
A STUDY ON THE 2008 CRISIS AFTERMATH

ABSTRACT

In the economic and social aftermath of the 2008 crisis there has been an important and growing new wave of highly qualified Portuguese emigration comprising scientists. No or very few public policies have been designed to reverse this phenomenon, risking the consequences of brain drain. International literature argues that professional reasons are central for scientists' decision to migrate, even after the 2008 crisis. Spending some time in a foreign country to study, research, or teach is perceived as a common step in an individual academic trajectory and as an advantage to a successful professional career in academia. It also is encouraged by European Union policies. Twelve individual portraits of Portuguese scientists living in central Europe reveal how important other factors are to the migration decision-making process. These factors include the economic crisis, student mobility programmes, and the current Portuguese scientific system revision.

Keywords: highly skilled emigration; economic crisis; scientific careers; motivations for migration; individual portraits

INTRODUCTION

The 2008 economic crisis reshaped migration patterns in Europe, and the mobility of scientists is no exception (Beets and Willekens, 2009; Chaloff, Dumont, and Liebig, 2012). In the years before the 2008 economic meltdown, Portugal was an appealing migratory destination, an oddity in its history. Between 2004 and 2013, Portugal had a positive net migration of almost 50,000 individuals (Observatório da Emigração, 2015).

From 2008 onward, however, the Portuguese migratory balance changed (Peixoto, 2014; Videira, 2013). In the course of 2008 financial – and subsequent economic and social – crisis that sprawled across the globe, some of the hardest hit countries during the downturn, such as Portugal, went from being a migration recipient country to a sending one (Bygnes, 2015; Enríquez and Romera, 2014; Triandafyllidou and Gropas, 2014; Castles, Haas, and Miller, 2014). According to the data provided by the Observatory of Emigration, Portuguese skilled emigration grew by 87.5% in 2000-2001 and 2010-2011. Portuguese highly qualified migration's weight on total migration grew from a relative value of 6.2% to 9.9% in 2010–2011 and now has reached 11%<sup>i</sup> (OECD-UNDESA, 2013).

As a consequence, the “brain drain” perspective is becoming prominent in Portuguese society and academia (Malheiros et al, 2015). Although data on outflows of Portuguese highly skilled workers has several limitations (Malheiros et al., 2015; Gomes et al., 2015), preventing a definitive conclusion on this subject, it strongly suggests that a brain drain process is occurring, and that such process is being aggravated by the economic crisis (Malheiros et al, 2015). The stocks of highly qualified Portuguese workers in foreign EU countries exceed “several times over” the number of qualified workers from other EU member states in Portugal; moreover, “the relative increases in the stocks of highly educated Portuguese in most of the relevant EU destinations were higher than the relative growth of highly educated people registered in the Portuguese Census between 2001 and 2011” (Malheiros et al, 2015, p. 83). These authors hypothesise that a “dual system of internal EU migration is developing” (*idem*, 2015, 83), characterised by a process of brain drain, in which young Portuguese highly skilled workers seek better job opportunities in western and central European countries, and by a smaller process of circulation of highly skilled young workers in precarious situations involving southern EU countries.

On several occasions, the 19th Portuguese government (2011-2015) declared emigration as a way out of unemployment for the most qualified. In December 2011, the Portuguese prime minister, while discoursing about unemployment among teachers, advised that professional group to consider other Portuguese official-language countries as possible work destinations. Other government staff followed the same tune (Meireles, 2013).

On this matter, the Strategic Plan for Migrations 2015–2020 was approved in March 2015. This plan was presented as a novelty as it included, for the first time, incentives aimed at the employment of returning emigrants<sup>ii</sup>. However, these incentives have been highly controversial and subject to public and political debate as it is not clear how they impact on the migration balance.

Concerning particularly the scientific system, the Foundation for Science and Technology (FCT) awards doctoral and post-doctoral fellowships for international research. Without return policies on its international grants regulations, the FCT has been the main source of sustenance for outbound academic mobility in Portugal (temporary or permanent), in the past few decades (Delicado, 2010). At the same time, the most recent research and development (RandD) units' assessment implemented in 2013–2014 by the FCT and the European Science Foundation (ESF) was described as “flawed” by Moro-Martin (2014, p. 1). The assessment was highly controversial and gave origin to a public debate in Portugal. Besides the absent return policy for international grants, general science state funding has been falling, since 2009; in 2014 it was 2,229 million Euros or 1.29% of the gross domestic product (GDP) (Direção-Geral de Estatísticas da Educação e Ciência, 2015). Thus, it is difficult to predict a bright future for the Portuguese scientific system, especially for those beginning their careers without a permanent position.

In this sense, there are no public policies, or close to none, to incentive the return of expatriates. On the contrary, the 19th Portuguese government has been publically

advocating emigration as a way out of unemployment and underemployment, and the FCT has been funding the out-bounding of doctoral candidates and post-doctoral researchers without any incentives to return or regulation.

Malheiros (2011) drew a clear connection between the growth in emigration of highly skilled Portuguese and the economic and social aftermath of the international financial crisis of 2008. The effects of the crisis led to the joint intervention of the International Monetary Fund (IMF), the European Union, and the European Central Bank in 2011, which resulted in austerity policies and measures that are still in place (AA.VV., 2011). In fact, one of the hardest hit sectors was the scientific one.

Academic mobility, encouraged by European policies, is often associated with individual career perspectives and is perceived as a healthy symptom of a globalised world, particularly of an integrated European Union on track for becoming a knowledge economy (Mahroum, 1998). In this sense, scientists tend to be considered knowledge migrants rather than economic migrants (Ackers, 2005a, 2005b; Casey, Mahroum *et al*, 2001). In countries such as Portugal, however, there is a need to address the intrinsic relationships among the migration decision-making processes, the crisis' effects in Portugal, academic individuals' career aspirations, and the opportunities for mobility created by national and European policies.

This study includes individual portraits (Lahire, 2002) of twelve Portuguese scientists who migrated to a European country since the outbreak of the 2008 economic crisis. Interviews were conducted to explore the importance of the Portuguese economic context in the activation of the migratory disposition on academics.

First, the study looked at the importance of academic mobility. Policymakers and people in academics seem to see academic mobility as a motto for a Europe of knowledge under construction (Towards a Europe of knowledge, 2000). Nonetheless, exodus and diaspora

as models for highly skilled migration are discussed in the scope of the 2008 economic crisis. Second, in order to ground the discussion on the migration of Portuguese scientists, one addresses the chosen methodology – the individual portrait (Lahire, 2002) – and its theoretical implications.

Third, the researchers analysed the twelve individual portraits concerning migration motivation. Finally, we discuss the conclusion that Portuguese scientists, along with their south European peers, did not state the economic crisis as the major reason they left country but clearly declared the 2008 meltdown as one of the reasons to continue on exodus.

### PORTUGUESE HIGHLY-SKILLED MIGRATION

Along with Peixoto (2001), one considers that scientific mobility must be addressed in the scope of the specificities of a scientific career (Ackers, 2005a). Academic mobility generally is perceived as something desirable and capable of enabling positive effects, essentially when it is addressed as circulation (Meyer, 2001). The management of academic careers increasingly is linked to international mobility (Beaverstock, 2010), as part of a process of exchange "ways of doing" science and producing knowledge. In fact, it has become an essential aspect of it. European science policies are not exempt in this issue. The European Commission pictures mobility as "an essential element of lifelong learning and an important means of enhancing people's employability and adaptability" (Aleandri and Giaconi, 2012, p. 35). Multiple programs were created to encourage international mobility at different stages of academic careers, including the Marie Skłodowska-Curie actions research grants and Erasmus+ (The Council of the European Union, 2009). These programs seem to reinforce the mobility expectation. In fact, the Bologna process stresses the importance of mobility to the construction of the European

Higher Education Area as a knowledge-based society<sup>iii</sup>. “The more mobility, the better” is Bologna’s motto (Powell and Finger, 2013, p. 278).

According to Powell and Finger (2013), the Bologna process seems to ignore the social selectivity of both higher education and mobility initiatives, thus overlooking the nexus between social and spatial mobility. If it stresses geographic mobility as a fundamental aim of European policies for science and higher education, it disregards the necessity of making mobility socially more equal. Otherwise, it risks failing at its goal of promoting social integration through education. The nexus between mobility and social background means that ‘if the European model of mobility is to be achieved, social selectivity must be addressed’ (Powell and Finger, 2013, p. 271) and one could add geographic selectivity. How has the Portuguese scientific system been profiting from the circulation promoted by European policies?

Addressing the migration push and pull factors, Musselin (2004) and Ackers (2005a) argued that spending some time working in a foreign country is frequently a means to secure a better position in the academic environment of the researcher’s home country. As Ackers puts it, “career progression in scientific research *demands* a very high level of mobility in order to achieve the level of international experience necessary for progression” (Ackers, 2005a, p. 104).

Scientists’ emigration motivations may be related to factors outside individual career ambitions and the overall logic of the academic field. Aspects like employment (career progress, access to research units of excellence and better funding schemes, earning improvements) are obvious ones (Guth and Gill, 2008). However, wider economic and quality of life issues, and personal development associated with travelling and experiencing other cultures also should be considered when addressing scientific migration (Ryan and Mulholland, 2013). Transparent and meritocratic environments are

perceived as a locus for progression and the rewarding of excellence— fairer opportunities – especially for south European scientists. Social status also may be a factor for emigration as could other factors. According to Martin-Rovet (2003, p. 1), scientists “look for a society where science is respected and where their social status is esteemed”. At once other factors can also be considered. For instance, Mahroum (1998) stated that researchers change countries motivated by scientific curiosity, and King (2002) stressed self-realization as a motive.

Even if the motivation for scientists’ migration is analysed in the scope of the specificities of a scientific career, this migratory phenomenon also must be addressed in terms of generic highly skilled migration. For several decades the economic effects of high-skilled migration have been discussed with some emphasis on knowledge migration (Videira, 2013; Guth and Gill, 2008; Ackers, 2005a, 2005b). Skilled emigration has been analysed according to two contrasting models: (a) the model of the *Exodus* that stresses the idea that more skilled individuals are forced to the exile, enabling them to get a job and remuneration corresponding to their training and (b) the model of the *Diaspora* that stresses the mutual benefits of intercultural exchanges opened by the circulation of academic, scientific and cultural cosmopolitan elites.

In the discussion of these two models what seems to be at stake is the impact of the migratory balance on both the sending and receiving economies and societies. In the first one, emigration of high-skilled professionals from less developed countries to developed countries leaves the sending countries’ economies with a reduced supply of skilled people in research, production, and public and private services, charging a heavy toll on the less developed countries. The resulting brain drain would limit the use of educational investment in the sending countries, creating favourable conditions for their re-use by the more developed countries. The second one, as Meyer (2001) argued, brings to the debate

positive aspects, such as scientific cooperation or knowledge and technology transfer, which arguably would compensate the sending countries for the brain drain effects.

One can distinguish several theoretical perspectives on the relationship between high-skilled emigration and its economic effects. Brain drain, brain circulation, brain overflow, brain gain, or even brain waste have been expressions built to try to capture this relationship (Beine *et al*, 2008; Cabrito, *et al.*, 2014; Dickson, 2003; Docquier and Marfouk, 2007; Fratesi, 2014; Lodigiani *et al* 2013; Straubhaar, 2000). In fact, in cases such as the Portuguese situation, it may be interesting to analyse knowledge migration as latent brain drain due to students' mobility. Erasmus+ and other student mobility programmes have increased significantly in the last decade. Individuals leaving to study abroad, with or without grants, originally occurred in temporary fashion but might become permanent due to their insertion in the labour market of developed countries or countries less affected by the 2008 European economic meltdown (Pizarro, 2005).

Therefore, this paper aims to study Portuguese knowledge migration in conceptual and methodological terms, first by refusing the logic of globalising assumptions of human capital theory, guessing that migration can be caused by factors other than an economy of attraction-repulsion factors. On the other hand, one estimates that the international academic system is not a space entirely free and therefore is not dependent on the free play of supply and demand. Hence, it also is necessary to observe biographical trajectories to understand the reasons, destinations of migration, and the place of European mobility programmes and the economic crisis on the migration decision-making process of twelve Portuguese scientists.

## METHODOLOGICAL DESIGN



Considering the interest to understand the social significance of the economic crisis, EU mobility and career development as push factors, we draw on individual portraits as a research technique. Bernard Lahire's (2002, 2003, 2011, 2015) methodological device is proposed as able of capturing a double plurality in individual life trajectories: first, unequal "strength" and systemic internal dispositional plurality; second, the outside contextual plurality, the multiple associated processes, agencies and context or the worlds of life (Habermas, 1981).

The individual portraits' analysis was based on in-depth life course interviews conducted across Europe between 2014 and 2015 with fifty-two highly skilled Portuguese migrants who left the country after 2008 (Cabrito, *et al.*, 2014; Gomes, *et al.*, 2015; Ganga, *et al.*, 2014). Those individuals were selected by convenience sample, using the snowball technique and four selection criteria that helped to balance the sampling process.

It was a research concern to listen to an identical number of individuals from the four highly skilled migration modalities profiles. The first profile concerns migration to a European country to exercise their profession in higher education or scientific systems, and the second was long-term migration to a European country to work in a primary or secondary segment of the employment system. The third profile was 1<sup>st</sup>, 2<sup>nd</sup>, or 3<sup>rd</sup> cycle European student mobility that leads to insertion in the primary or secondary segments of the receiving countries' employment system. The fourth profile was mobility and transient movement or commuting through European networks of science, production, services, or culture.

Because this article focused on academic and scientific workers, the analysis addresses twelve individual portraits included in case study A – emigrants who work in the scientific system of the receiving country.

## PORTUGUESE SCIENTIFIC MOBILITY

### Who are they? Sociodemographic characteristics

The migratory trajectories of these twelve individuals took them to three different countries, all of them strong, central economies in Europe: France (five cases), Germany (four cases), and the United Kingdom (three cases). These are young individuals; only two were born before 1980. Half are single, four live in a civil partnership, and only two are married. Only three have children. Eight of the portrayed individuals are women.

Regarding academic qualifications, four had completed their doctoral degrees, seven had master's degrees, and one is a graduate student. With two exceptions, all obtained their higher education credentials in Portugal. One of the others completed his highest academic degree in Germany, and the other is in a joint doctoral program between institutions in Portugal and Germany. However, nine of them had previous academic mobility experiences during their training.

Professional activities in Portugal were diverse. Three individuals were students, four were researchers working under a grant, and three had scientific or technical occupations outside academia. One of the interviewees was working as a reservation agent at a hotel, and other was unemployed. In the receiving country, all of them were working in the scientific system, whether as researchers or university professors (or both). Some of them were developing doctoral or post-doctoral projects.

Emigration clearly improved their incomes. In their last job in Portugal, seven of the interviewees earned less than 1,000€ a month, one earned between 1,000€ and 1,499€, and one earned between 1,500€ and 1,999€. Three of the individuals never worked in Portugal. These figures clearly contrast with their incomes in the receiving country. Three individuals earned between 1,000€ and 1,499€, one had a salary between 1,500€ and

1,999€, four had incomes between 2,000€ and 2,499€, and other four earned between 2,500€ and 2,999€.

Finally, answers to the pre-portrait survey on the reasons for emigration showed that the familiar reasons were less popular, being identified by only one individual. Economic reasons were mentioned five times. Eight interviewees indicated that they emigrated to continue their studies. The most prevalent motives for leaving Portugal were professional, being selected by eleven individuals. Economic factors appear to have been less important than academic (i.e., to keep studying) and professional ones; however, these may be related with the latter. Individual portraits analysis will shed light in this issue.

#### Migrant scientists' individual portraits

In a recent publication, Bygnes (2015) analyzed the post-2008 economic crisis migration of highly-skilled Spaniards to Norway. Bygnes argued that those individuals were reluctant to identify the economic crisis as the main push factor. In the current study, the migration motivation factors of the white and highly skilled individuals were the same before and after the 2008 economic crisis. These migrants left their home countries as a form of career development rather than because they were unemployed. In fact, this author argues that people from south European countries migrated to run away from anomic societies (Durkheim, 2003 [1897]).

Nine of the scientists interviewed emigrated to pursue doctoral or post-doctoral research opportunities, taking advantage of formal recruitment processes. However, the reasons for emigrating were diverse. Yara, Fernando, Eva, and Ana Taborda left because they were not able to acquire funding for their doctoral or post-doctoral projects in Portugal after years of efforts. Ângela and Duarte also went to Germany and France, respectively, to pursue doctoral studies with FCT grants. Alexandre won two

scholarships, one in Portugal and one in the United Kingdom, and his decision to pursue a doctorate in England was related to better funding conditions and more promising future prospects. For Pedro and Ana da Costa, migration was a career and life course plan. In da Costa's words:

"I came because I always wanted to. I always had this spirit and taste. I do not see myself as someone who had to emigrate. In fact, I think I am a privileged because I had this opportunity and I am fine" (Interview on 24 November 2014).

For these individuals, the decision to emigrate was career oriented. All of them developed a fondness for scientific research and decided they wanted to become a scientist while doing their graduate studies or even before entering university.

This project should not be addressed without a reference to the social origins of these individuals. All of them came from families with a reasonable stock of social resources, chiefly cultural capital, and their decision to embrace an academic career was clearly supported, if not encouraged, by their family. This is particularly revealing in the case of Alexandre, whose parents work at a university. These individuals started investing on their future careers early, seizing short-duration mobility opportunities while students and understanding international mobility as a prerequisite for a successful professional career. At the same time, that does not mean the migration decision was unrelated to economic conditions. Yara, Fernando, Eva, and Ana Taborda—four out of ten—failed to obtain funding for their doctorates in Portugal and left to Europe. For these individuals emigration seems to be related to career ambitions as well as a lack of funding or scientific employment opportunities in Portugal.

Therefore, it is not surprising that for these individuals, geographical mobility was not a consequence of the economic crisis in Portugal but the direct result of mobility

experiences while students and of career strategy. Such a strategy is motivated by the experience of working in foreign scientific institutions and the contact with different ways of researching. That is regarded as an important, if not indispensable, career trajectory moment.

The destiny country choice is related to pull factors of scientific order: better working conditions, better access to funding, the reputation of a certain institution or research, mobilization of previous networks, recognition of individual scientific merit, and models of quality evaluation (Granovetter, 1973). This is particularly true as shown in research on East-West doctoral mobility. Guth and Gill (2008) stressed the idea that scientists move for professional and socioeconomic reasons focussed in career development motivations – “[Scientists] have to leave their home country not so much for the wages but rather to seek an environment in which they can work effectively with enthusiasm and support” (Dickson, 2003, p. 1).

The Erasmus+ program and other similar student mobility programmes are a way of taking advantage of the university international networks, and they allow students to establish their own transnational networks. Those programmes were absolutely decisive in awakening students’ will to leave Portugal. Enrolling in international mobility programs emerged as a facilitator of future emigration (Baláz and Williams, 2004). However, one must be aware that these programs are socially selective, predominantly attracting students from families with more social resources (Powell and Finger, 2013). In the specific case of Alexandre, he understood, during his Erasmus+ program experience at Canterbury that the University of Kent had better working conditions and better access to funding than the University of Porto. So when it came to choose where to complete his doctorate, Alexandre selected the Physics Department of the University of Kent, capitalizing on and strengthening already established international networks:

“The genealogy of supervisors: my current supervisor was my master degree supervisor’s supervisor. He is a Faculty of Science professor, whose supervisor was a retired teacher from my current group in Kent. So, he also did his doctorate here. My thesis external examiner also graduated in Kent. So this networks are a bit curious” (Interview on 29 October 2014).

The remaining three cases – Sara, Joana and Manuela – differed from the other students. Sara, currently a doctoral candidate and university professor, emigrated because: “I could not find anything in my field, I sent resumes everywhere, but I found nothing”. With a degree in Modern Languages and Literatures (Portuguese-French), she longed for a career in her training area. The reason that mobilized her to emigrate is the same one that keeps her in the host country: the Portuguese stagnant labour market and the shaky economic situation.

Coming from a blue-collar family that was hit hard by the crisis, forced to look for a job in her teenage years, and after several unsatisfying experiences with uninteresting, underpaid and/or precarious working experiences, Joana decided to accompany her boyfriend to London and try to find a job there. One should stress that Joana’s decision was also related to a mobility experience in Sweden under the Erasmus+ program, where she found a different model of work organization and better working conditions. After a few precarious jobs, she found a position as research assistant at the University of Cambridge, where she is also enrolled as a master’s degree student.

Confronted with a stalled professional career because of restrictions in public service career progression in the wake of the crisis, and with her husband facing wage arrears, Manuela and her family decided to depart to the United Kingdom to avoid a downgrade in their lifestyle. Despite a comfortable social background, Manuela has never invested clearly in a scientific career. In this case, emigration was clearly related to the

economic and social effects of the 2008 crisis, which had degrading effects on the couple's professional situation. Although this is a different case than Joana's, it also is a situation in which the economic and social backlash of the crisis was more important to emigration than a career in science.

Previous 2008 studies reinforce this argument. Sretenova (2003, p. 8) revealed that Bulgarian knowledge migrants often prefer the mobility and a nomadic lifestyle in order to perform their profession effectively and productively “instead of being frozen at home.”

Labrianidis (2014) and Labrianidis and Vogiatzis (2013a, 2013b) have argued that qualified emigration in Greece is related not only with its economy, which lacks international competitiveness and generates few job opportunities for highly qualified workers – problems which are also observed in other southern European countries, such as Portugal; but also with the perception of corruption, clientelism, and opacity in the economic, political and legal procedures. In this sense, Bygnes (2015) and Enríquez and Romera (2014) proposed new type of refugees, the ones that try to escape from a lack of future prospects, corruption, a lack of meritocracy, fraud, the absence of faith in political and economic elites, and civic, social, and political disorganization and apathy. They could be called civic refugees. The social, political, and economic circumstances described by those authors are pre-2008 southern European problems that are only exacerbated by the current deep economic crisis. In the same sense, the highly skilled migration push factors are magnified by the 2008 crisis and are the main reasons to retain those scientists in exodus. In fact, most of these twelve scientists expressed a desire to return to Portugal at some point in their careers if they were able to maintain the same working conditions they have now.

While in Portugal, some of these individuals had precarious professional experiences, often related to the acquisition of resources to support future studying and sometimes in the form of research grants. In the countries in which they currently live, they felt integrated in the labour market while doctoral students or post-doctoral researchers as they have work contracts and contribute to social security schemes. “The working conditions here in France are very good and going back (to the same conditions in Portugal) is something I do not want to do. So I would always look for countries with reasonable wages and workers' rights” (Interview on 30 September 2014).

Decreasing professional opportunities in Portuguese academia, conjugated with the prevalent view of international mobility as a career advantage, might also trigger a phenomenon of a missed generation of researchers (Guth and Gill, 2008). There will be an age gap between the current established generation of academics and the next one as young postgraduates, find the doors to a stable (or even unstable) position in Portuguese academia closed (Ganguli, 2014). This may happen if science and education policies remain the same (i.e., significant cuts in research units funding and reduction in the number of individual doctoral and post-doctoral grants). The European Union mobility policies' focus on circulation seems to be going in the opposite direction of the Portuguese science policies—a focus on the exodus. These policies cannot attract Portuguese brains back to the country, nor attract foreign researchers (Delicado, 2010); mainly due to difficulties in generating employment and promising career prospects for young PhD holders (Halme *et al*, 2012).

The interviewees seem to agree on jobs creation as a policy core to attract back the expatriates or to prevent brain drain. Ângela Relógio said she thinks the FCT should increase significantly the investment in strategies to keep the brightest or at least to support networking that would allow the maintenance of relationships between those



leaving and the remaining in the research fabric in Portugal. In this situation, the country would not entirely lose the investment made in training these scientists. If mobility is characteristic of the research system, it also should be addressed at the institutional level.

For the reasons mentioned before, but also because of personal and familiar ties built abroad, migrants who invested heavily in settling in the country of destination are not expected to return. Ana Taborda expressed this idea very clearly:

“People are making their lives elsewhere, they will not come back. There are no conditions to return. Am I going back to Portugal to do what? Two years from now I will return to Portugal to do what? The country will be the same, science will continue to be cut down, there will be no grant to apply to, there will be no projects, there will be no places in the companies, and then a person will going back to what? If there are conditions, one person can stay elsewhere”

(Interview on 30 September 2014).

Highly skilled workers from southern European countries such as Greece, Italy, Spain, and Portugal seem to be reluctant to state the economic crisis as the main push factor on their migration narratives. Nonetheless that is the main reason that kept them in the country in which they currently live or motivates them to move wherever career opportunities take them (Triandafyllidou and Gropas, 2014).

## FINAL REMARKS

These twelve individual portraits confer density to and put a face on Portuguese scientific migration. Besides the diversity of individual experiences, they show, among other things, cross-cutting regularities that are worth noting. These include:

- i) Internationalization of scientific careers is the main reason to emigrate;

- ii) Students' mobility sets the ground for the decision to migrate. Mobility is part of a European education project despite the fact that European countries benefit differently from those initiatives. In the case of Portugal, it seems that Erasmus+ and similar programmes are levers for permanent migration, exacerbating the latent brain drain;
- iii) Even if the economic crisis in Portugal is not perceived by migrant scientists as the main reason for geographical mobility, it is explicitly stated as the main reason for these scientists to stay in exodus;
- iv) Returning to Portugal is improbable, because of the specificities of scientific work in Portugal. Portuguese scientific policies have changed, and, after a moment of investment, science is facing significant financial cuts as a result of the economic crisis (Moro-Martin, 2014). In Portugal, most job opportunities are precarious (research grants) and working conditions are perceived as poor.

Despite the disposition to migrate being activated in different situations, mainly in contexts of student mobility, the economic crisis and its effects remain present in these scientists' life decisions. They may not drive them out of the country, but they keep them from wanting to return to Portugal. Many of the interviewees looked with dismay at the current Portuguese scientific field, identifying a diminishing state investment in science and high education, a consequent greater difficulty of finding job and funding opportunities, and a growing precariousness of scientific occupations as deterrents to an eventual return to the home country.

In all of twelve portraits there is a common thread: to resist the loss of the value created by investment in education. These individuals do not resign themselves to the status of unemployed or underemployed and continue to improve social and economic status – a

process often initiated by their parents. They did not submit to failure and chose the path that other Portuguese from different generations and with different qualifications have chosen for centuries: migration.

Analysed data suggests that this is a brain drain phenomenon, rather than diaspora one. The flows tend to be strongly asymmetrical (with a negative balance between arrivals and departures), intense, permanent and long-termed (Morano-Foadi, 2005). Qualified migration will become definitive instead of transitory, as it usually is, because qualified migrants will not return to a country with a stagnant economy, “with systematic growing of unemployment, a productive model traditionally based on cheap and intensive labour” (Malheiros, 2011, 140). Emigration in Southern European countries threatens to entrap them in a spiral of underdevelopment, as such countries are losing “an important element for their dynamism, namely their highly skilled labour force” (Labrianidis and Vogiatzis, 2013a, p. 474).

This study, however, leaves many unresolved issues that invite further discussion:

- i) What are the modalities, causes and characteristics of scientists’ brain drain over the past decade in Portugal?
- ii) Which is the evolution of the stock and flows?
- iii) What are the forms of articulation between the brain drain and the increasing flow of academic mobility?
- iv) What are the consequences for the scientific system and Portuguese higher education?
- v) What is the impact in the emergence or reduction of scientific networks featuring Portuguese scientists?

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## NOTES

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<sup>i</sup> Along with Salt (1997, p. 5) the definition of highly skilled migrant, in the scope of this research is an individual possessing a ‘tertiary level of education or its equivalent in experience.

If one considers the last value, which concerns the period of 2011–2013, it is estimated that skilled emigration flow has reached a value of about 40,000 individuals.

<sup>ii</sup> Specific programmes were designed closely with the Ministry of Foreign Affairs to promote the return of expatriates or to strengthen their ties to Portugal, thus helping reverse the emigration movement (Plano Estratégico para as Migrações (2015-2020), 2015). One of these programmes, the Emigrant

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Entrepreneurship Valuation (VEM) offers financial support for recruitment, creation of self-employment, and internship opportunities for Portuguese on diaspora. However, in September 2015, only 80 applications were submitted (Marujo, 2015). This is an absolutely residual number considering half a million Portuguese have left the country since 2011 (Burgo, 2015).

<sup>iii</sup> According to the European University Association, the Bologna Process aimed to create a European Higher Education Area (EHEA) by 2010. Signed in 1999 by the Ministers of Education of 29 countries, it has been expanded to 46 countries. The Bologna Process aims to provide tools to connect the national educational systems and facilitate the recognition of degrees and academic qualifications, mobility, and exchanges between institutions. The most significant achievement was the creating of a comparable three-cycle degree system: bachelor, master and doctoral degrees (European University Association, 2004).