Thais França and Beatriz Padilla
(editors)

TRANSNATIONAL SCIENTIFIC MOBILITY

Perspectives from the North and the South

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PERSPECTIVES FROM THE NORTH AND THE SOUTH

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Transnational Scientific Mobility. Perspectives from the North and the South

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Chapter 1

Scientific Mobility to Portugal

Production and circulation of knowledge in highly-skilled migration — Preliminary Results

Thais França and Beatriz Padilla

Abstract This chapter presents the preliminary results of the project "Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration".[1] Its main objective was to investigate how scientific mobility takes places in Portugal, considering its complexity and different dimensions. It is based on the experience of foreign scholars and scientists who develop their academic career and scientific activities in Portugal. By using a mixed-method approach that includes an online survey and in-depth interviews to foreign scholars working in Portugal and semi-structure interviews to directors of research centres and national laboratories, it shows that Portugal has a great potential to attract international scientists, however some important aspects must be carefully analyzed and improved in order to better place the country in the international academic mobility dynamics.

Keywords scientific mobility, social inequalities, geopolitics asymmetries, mixed--methods methodology.

Introduction

Scientific mobility is one form of high-skilled migration. In Europe, this issue has been gaining relevance and attention since the late 1970s, mainly in concentrating efforts towards creating a common area for research. Initiatives such as the European Research Area, Marie Curie Actions, European Network of Mobility Centers and EURAXESS attest to its importance. In Portugal, its relevance is reflected by the legal changes incorporated in Law 23/2007 to facilitate the entry of international students and scientists into the country through the creation

1 The project was funded by the Portuguese Foundation for Science and Technology (FCT) between 2013 and 2015.

of a specific type of visa. In addition, there has been a blooming of initiatives to promote mobility research programs in the form of grants, scholarships, fellowships among others, mainly funded by public and private institutions such as the Portuguese Science and Technology Foundation (FCT), the Gulbenkian and the Champalimaud Foundations, the Camões Institute — which in conjunction with several bilateral agreements between national and foreign institutions have contributed to increase scientific mobility. This is because the production and circulation of knowledge have become increasingly important aspects for societies to integrate the so-called "knowledge society". Thus the mobility of scientists and scholars has become an integral part of the academic and scientific career (Thorn & Holm-Nielsen, 2006) contributing both to the internationalization of the sciences, as well as a crucial indicator itself to assess academia.

When considering the relevance of the dynamics of skilled immigration (Baganha & Ribeiro, 2007; Chaloff and Lemaître, 2009; Peixoto, 2004; Ackers and Gil, 2008), scientific mobility arises as a fundamental dimension of analysis, both because it refers to the transnational movement of individuals, and because it brings about questions regarding the production of knowledge and dissemination of information in a time when knowledge appears as a central resource for economic and social growth (Reis, et. al 2010). Currently, scientific mobility is not understood in terms of *brain drain* or *brain waste* any more (Salt, 1997). Rather, it is considered a continuous flow instead of a stalled process; therefore its effects cannot be assessed dichotomously. Based on that, the concept of circulation of knowledge, *brain circulation* was added to scientific mobility analysis (Meyer, 2003). In this perspective, scientific mobility is an enriching process for sending and receiving countries, by which both benefit from the knowledge produced (Solimano, 2008).

However, this new understanding of the phenomenon does not counterbalance old problems, because, depending on how they are managed, *brain drain* and *brain waste* may remain, especially when considering the mechanisms of gender and racial-ethnic segregation as well as international geopolitical asymmetries (Brown, 2010; Padilla, 2010). Like other migration dynamics, scientific mobility is pervaded by a set of variables ranging from macro issues — geopolitical hierarchies, national and international politics and policies for attracting and promoting mobility and high standard requirements for national research centers or institutions — to micro factors — family issues and individual aspirations (Bauder,

2015). It also varies according to stages in career and life cycle dynamics, especially after marriage and the birth of children with greater impact on women (Iredale, 1999), compelling that studies on scientific mobility to go beyond an economic perspective and examine personal aspects as well, overcoming aspects that are taken for grated, usually introducing biased views around gender, emotions and family.

In Portugal, research on scientific mobility is scarce, with the exception of Delicado's work (2008, 2010b) as well as contributions from Peixoto (2004), Gois and Marques (2008), Fontes (2007), Reis et. al. (2010), Fontes et. al (2012a) and Araújo et. al. (2013). All these studies have been unanimous to point out the need for more in-depth knowledge on the migration aspects of scientific mobility, particularly taking into consideration a need for a gender perspective. However, the lack of research on the feminization of skilled migration is global (Ackers, 2010; Kofman, 2000) and it has been kept invisible because of the gender blindness prevailing in most studies and of the dominant focus on the precariousness of migrant women, mainly as unskilled labour, covering blatant asymmetries.

If the debate around scientific mobility and gender is considered scarce, the one taking into account the effects of race, ethnicity and origin in shaping scientific mobility schemes is almost non-existent. Cantwell and Lee (2010) and Lee and Rice (2007) are some of the few studies on this topic. Likewise, the analysis of scientific mobility considering how geopolitical hierarchies shape scientific mobility dynamics and the logic behind the legitimization of knowledge production are even scarcer.

Thus, the objective of this study is to contribute to this field by sketching the profile of the non-Portuguese researchers and scientists in Portugal, analyzing the reasons for such transnational scientific mobility, examining how markers of difference (race, gender, ethnicity, nationality) and geopolitical asymmetries (North-South) structure the phenomenon. To do so, we propose a framework that incorporates a critical feminist perspective together with a decolonial approach.

Scientific mobility — general overview

The growth of international scientific mobility has led to a change in migration studies, broadening their scope. One the one hand, these

issues were not commonly investigated, and on the other, this new development promotes a more profound discussion about production and circulation of knowledge (Ackers, 2005).

International scientific mobility has been used to refer to the geographical movement of scholars and scientists among international institutions as part of an individual project or a formal exchange program aiming to develop academic and scientific activities for long or short periods (Bauder, 2015). It has gained enormous relevance internationally as it is directly related to knowledge production and circulation, and consequently to economic growth but also refers to the degree of internationalization of host and sending institutions. Its complexity involves a multiplicity of societal and political dimensions (gender, race, class, nationality, age, geopolitical hierarchies) claiming for an in-depth and critical analysis (Ackers, 2005, 2010).

Some of the advantages fostered by international scientific mobility are international network creation and development, increase in co-authoring and publications, experiments cost reduction, intensification of internationalization levels of academic institutions and the promotion of cultural diversity, among others. However, as stated previously, its straightforward and strong connections to knowledge production and circulation may be its main aim. Since knowledge started to be recognized as a key factor for societies' economic development and growth (Hardt & Negri, 2005; Padilla, 2010; Stehr, 1994) great political efforts and financial resources have been invested to encourage scientific mobility as a win-win situation for all actors involved — States, academic and scientific institutions and scientists and scholars.

Due to the increasing understanding of scientific mobility as a positive phenomenon contributing to scientific and social improvements and transformations, the more it has become an obligation to develop "good" scientific and academic career paths (Ackers, 2004; Bauder, 2015; Leemann, 2010). The more international experience a scientist or scholar possesses, the better his/her evaluation and positive impact on the evaluation of her/his institution.

Although the benefits brought by international scientific mobility schemes are undeniable, it is extremely naïve to believe that it is not distorted with problems or controversial issues. International scientific mobility is shaped by political interests, in which the articulation of distinct markers of difference — gender, race, ethnicity, nationality and social class among the others — and the position that each country

occupies in the international political and economic dynamic play a central role. Therefore, when Robertson (2010) states that scientific mobility is a resource and as all other resources it is not equally accessible to all, resulting in privileges and asymmetries among individuals and countries, he is recognizing the geopolitics embedded in mobility and knowledge production.

Even if studies that consider gender differences in international scientific mobility programs are still insufficient, some important aspects have been revealed, thus using a gender and feminist perspective is relevant to counterbalance the field. Domestic and family's responsibility, motherhood, gender segregation within sciences and academia, gender blindness throughout the selection process and mobility programs and the reduced number of women as host professors or supervisors have been pointed out as some of the reasons that limit even more women's international scientific mobility (Ackers, 2004, 2010; Jonkers, 2011; Jons, 2011).

Campbell et. al. (2000), Lee and Rice (2007), Cantwell and Lee (2010), Leeman (2010) and Robertson (2010) are some of the few studies that discuss issues of race and ethnicity in Academia. According to them, on the one hand, non-white scientists and scholars have fewer opportunities to participate in scientific mobility program and face more difficulties during their academic mobility experience. On the other hand, upper-class scientists and scholars, whose parents are graduates, are more prone to take part in a scientific mobility program and have more access to more international networks. Further, they also have more social capital (family and financial support) to ensure a successful international scientific mobility experience.

Decolonial and post-colonial studies also offer important frameworks to better grasp the field of international scientific mobility. These theories have contributed largely to the debate about geopolitical asymmetries and knowledge production (Harding, 2006; Mignolo, 2010; Quijano, 2009; Said, 1979) by arguing that because of the colonial past and postcolonial domination practices, some regions were built as moderns, advanced, civilized and developed while others are viewed as traditional, illogical, exotic and barbarian. These dichotomies were transformed in epistemic hierarchies, placing some regions as recognized knowledge producers, "the Global North", and others as knowledge consumers or field work spots, named as "Global South" (Mignolo, 2003). The same process was observed with the subjects, not all subjects are

legitimate to produce valid knowledge, those coming from the Global North have the capacity of producing universal knowledge, while those from the periphery lack the skills to produce rational and theoretical knowledge (Grosfoguel, 2008). In this perspective, regions and human groups are also hierarchically racialized. Even if this debate raises extremely relevant issues to science and knowledge production, not many empirical studies articulate and recognize the effects of geopolitical hierarchies and asymmetries on academic mobility structure.

Based on this theoretical framework, in our project we aimed to analyze scientific mobility from critical perspectives (gender/feminist and decolonial) promoting new discussions and reflections.

High Skilled migration, scientific mobility and knowledge circulation — Contextualizing the Portuguese Case

Due to Portugal's global fragile economic situation, even if a member state of the European Union, the country was never able to attract a significant flow of high skilled workers. On the contrary, throughout the 20th Century, net migration was negative, emigration outnumbered immigration. One exception took place after the independence of the former Portuguese colonies in Africa with the influx of the returnees. However, most of the highly qualified returnees did not qualified as immigrants, as were the Portuguese living abroad or their descendants. A second exception was constituted by the first wave of Brazilians and Luso-Brazilians that arrived in the 1980 and 1990s, and had to fight for the official recognition of their qualifications, dentists being a remarkable case (Machado, 2000; Malheiros, 2007; Peixoto, 2004).

Few important studies have been conducted on highly-skilled migration in Portugal, thus interest in this field is rather unusual. Peixoto's pioneering studies on the topic (1994, 1998, 2004) drew one of the first pictures of skilled immigration to Portugal. However, because of the economic crisis the country faced in the first decade of 2000, the reality of skilled migration changed considerably. Nevertheless Peixoto's analysis still offers some relevant hints in understanding the current dynamic of international scientific mobility in Portugal.

In the 1990s, skilled migration represented almost a third of all inflows of foreign labor force, even if those fluxes were reduced. Skilled

migration was composed of expatriates, independent liberal professionals from Brazil, Western and Eastern Europe and students coming mainly from the former ex-colonies. Peixoto (2004) features the flows coming from the European Union as more company-related, due to the lack of skilled national labor force, while the independent flow was made up of liberal professionals coming from Brazil and Africa. According to him, student and academic exchange (scientific mobility dynamics, although he does not denominate it in this way) would contribute to increase skilled migration to Portugal, even if some of them were still in training.

Despite this configuration, the author identifies some vis-à-vis aspects regarding skilled migration to the country: low level of competitiveness to attract the best and the brightest, the persistence of a relatively less central status within the European context and the difficulty in consolidating local scientific centers of excellence in international comparative terms.

More recently, Góis and Marques (2007, 2014) highlighted that skilled migration is still not a well-known issue in Portugal — statistics, data, documentation and theoretical frameworks about the phenomenon are rather scarce — and that skilled migrants potential is not properly utilized in the national labour market. These authors identified three groups of skilled foreign workers in the Portuguese context: a) individuals who migrated to Portugal and whose their labor market position is in accordance with their level of qualification (mainly expatriated); b) independent migrants who are employed in a secondary labor market; and c) foreigners who attained their qualification in Portugal and work in the local labor market. Moreover, they are emphatic in denouncing the absence of a formal strategy to recruit and retain non-Portuguese scholars and scientists in the country, stressing the scarcity of the number of studies on this topic and the low relevance that scientific mobility has among the national migration policies (2014).

Yet, it could be said that it was only after 2000 that some specific measures were implemented towards the regulation of qualified migration, which could be associated to a push given by the European Commission. For example, in 2007 significant changes were introduced to make legislation friendlier to qualified migrants and to foresee specific admission regimes for skilled migrants to perform research or qualified activities. Furthermore, a deeper Europeanization

Table 1.1 Legislation regulation on skilled-migration in Portugal

Decree 244/98	First law to recognize skilled migration and its specificity. It introduced the concession of study visas allowing scientific work and research.
Decree 34/2003	Creation of visas allowing scientific research activity development or any kind of activity that involves a high-qualified technical knowledge. The visas were temporary and could be extended according to specific requirements. Promote bilateral agreements signatures to concede special multiple entry visas to skilled individuals coming from the Community of Portuguese Language Countries (CPLP)
Decree 43/2003	Enabled a specific group of qualified Brazilians professionals to exercise their activities for 90 days without a visa (or search for jobs)
Law 23/2007	New Immigration Law that created a set of specific visa types, including skilled immigrants to perform scientific or high skilled activities, entrepreneurs and investors. It also brings the definition of researcher (a third-country national holding an adequate academic qualification, who is admitted at a research centre to execute a research Project which in principle requires the mentioned qualification) and of Highly Qualified Activity (as the one whose performance requires technical and specialised competences or competences of exceptional nature and thereby require adequate qualifications, namely university qualifications).
Law 29/2012	Transposition of the European Union directive 2009/50/CE and the introduction of the Blue Card.

process of national migration policies has been taking place, in this case through the introduction of the Blue Card in 2012 to regulate and promote skilled-migration. Table 1.1 illustrates the main Portuguese legal framework on skilled-migration.

Interestingly and overall, these pieces of legislation have had limited impact in retaining the scholars that had attracted through programs such as Welcome II and FCT-Ciência, given that after that once the contracts were over, no efforts were made to hire them permanently.

Reis et al. (2010) assert that skilled migrants in Portugal composed a very heterogeneous group, with different motivations, mobility standards and labor market entrance path. From an official data analysis (2002-2003), the authors concluded that at that time, immigrants represented about 5% of the total number of scholars and scientists in the country, which also corresponded to the percentage of Portuguese researchers and scientists who leave the country. Therefore they support the idea of a brain circulation dynamic instead of a brain drain one. In the global scientific mobility dynamic Portugal could be seen as a

circular platform, on the one hand Portuguese scientists are leaving the country and on the other hand international scientists are arriving. According to them, this position would reaffirm Portugal's relevance in the international scientific mobility dynamic. Regarding the country's ranking in the international research and scientific system, Reis et al. (2004) defend that, although Portugal cannot be recognized as a central country within the international scientific mobility schemes, it has the potential to attract qualified scientists and scholars just as much as any other European country.

Further on, the authors draw attention to three important aspects: the majority of international scientist and scholar are located in higher education institutions and only a small number in private companies or in public institutions, the main reasons to move to Portugal are related to personal issues, and the importance, not only of migration policies to attract and retain these individuals, but of the hosting institutions in integrating this population into their dynamic.

Regarding the international scientific mobility of Portuguese scientists and scholars departuring the country, Delicado (2008, 2010a, 2010b, 2011) has made a great contribution. Based on a quantitative on-line survey conducted in 2007 and interviews performed in 2008 with Portuguese PhD students and researchers abroad, her analysis focuses mainly on the reasons for leaving Portugal, the motivation to choose an institution abroad and the constraints and opportunities on their return. Further on, she considers the interaction between structural conditions, career path and personal choices taking into account gender, age, and career status.

Due the low development level of Portuguese higher education and research structure, Delicado's studies shows how the country still remains a departure platform of scholars and scientists, although the return flow of national scientists and researchers cannot be disregarded. She disagrees with Reis et al (2004)'s view of Portugal as a circulation platform for scientists. Instead, Delicado points the need for serious public policies to support this dynamic — departure and return — for enabling harvesting the most benefits out of it. While the motivations to leave the country are very much related to their scientific and professional career, personal reasons are also relevant, especially in the decision to return.

Moreover, it can be grasped from Delicados' studies that the relevance of gender, age, family relations, scientific discipline, career status for shaping scientific mobility's choices, attitudes and representations should not go unnoticed, since they have different qualitative impact. Her

analysis reaffirms the importance of scientific mobility to career development, showing how mobile researchers' have better career opportunities and more chances to find a position. However, Delicado's work also points to how, due the high inbreeding level and the existence of mistrust practices within Portuguese institutions, national scientists and scholars who were abroad may face difficulties to find a position after their return. Also, returning researchers may find a gap between their new expertise and the level of scientific innovation in their new host institutions, which may imply not being able to profit entirely from their experience abroad.

During 2007 — 2010 the project MOBIScience — Scientists' mobility in Portugal: trajectories and knowledge circulation[2] was conducted by a research team led by Emília Araújo. Based on the analysis of Portuguese scientists who moved abroad and non-Portuguese scientists who move to the country in three different fields (immunology, civil engineering and sociology), the main objective of the project was to investigate how scientific mobility is associated with knowledge circulation, considering its implications for the actors involved and for the organization of scientific production at the country level. Based on the data of this project, Fontes, Videira and Calapez (2012b) highlighted that international networks are relatively more frequent in the case of mobile scientists, although it is necessary to consider the difference between mobility performed during PhD and post-PhD professional mobility. The project also reaffirms the importance of public policies fostering scientific mobility as it can be considered a relevant step to building international scientific networks.

Another important discussion brought about by MOBIScience is the analysis of scientific mobility considering gender differences. Araújo and Fontes (2013) investigated scientific mobility of Portuguese scholars and scientists taking into account the differences between men and women in their mobility experience (reasons to leave and impact on their career) and how these differences were converted into gender inequalities. Further, they identified a hierarchy between a core group with stable working contract and a peripheral group depending on precarious contracts, which obliged them to be more available for mobility programs. The authors' analysis regarding these hierarchies is very original, drawing attention to the importance of

2 MOBIscience — Scientists´Mobility In Portugal: Trajectories And Knowledge Circulation. Project reference: PTDC/ESC/64411/2006, Funded by FCT.

gender, ethnicity and social class differences in this dynamic. Yet, Araújo and Fontes (2013) discuss the link between scientific mobility and the precariousness of the scientific career process as an aspect to be considered when analyzing men and women's understanding of scientific mobility. This is especially remarkable for the new generations who are consolidating their professional career and family plans while these transformations on academic career and scientific mobility structure are an ongoing process. Due to traditional division of labor and family conventions, women are responsible for family duties and wellbeing thus it is expected they would sacrifice their careers to follow their husbands. The precarious conditions offered by academic mobility schemes (low salary, fix term contracts, no accommodation support, espouse hiring visas or childcare) contributes negatively, discouraging women from taking part in such programs.

More recently, still as a result of MOBIScience project, Araújo et al. (2013) published book with 7 different contributions named "On a debate on mobility and brain drain /Para um debate sobre mobilidade e fuga de cérebros". The book focuses mainly on the discussions between brain "drain" and "gain" processes, transversal to most of scientific mobility and skilled migration projects. The authors consider scientific mobility and skilled migration one of the most important social political issues in present days, and therefore call for more in-depth studies on the topics. Among the contributions, Delicado and Alves (2013) based on a secondary data analysis (EUROSTAT, GPEARI[3] and FCT) state that Portuguese women scientists and scholars face similar problems compared to the rest of European women in academic and scientific field — mainly difficulty of progressing in their career due to gender segregation and discrimination.

Fontes and Araújo (2013) investigate the relationship between scientific mobility and scientific networks in Portugal, based on research conducted with scientists and scholars from three different fields: heath, information technology and sociology. They compared scientists and scholars with a singular mobility trajectory: a first group without international mobility experience who have a strong international network, a second group with long duration international mobility experience who

3 Gabinete de planeamento, estratégia, avaliação e relações internacionais -Ministérios das Finanças / Planning, Evaluation, Strategy and International Relations Office — Finance Ministry.

have a strong international network as well and finally, a third group without international mobility experience and who have no access to international networks. They concluded that, although long duration scientific mobility is not fundamental to establishing an international networks, it contributes to improve the quality of the relations.

Finally, Videira (2013) reflects on the Portuguese case of scientific mobility based on a literature review of the current discussions about the theoretical and methodological framework to approach international scientific mobility. The author points some important aspects of the Portuguese reality: lack of studies in the country, the high numbers of Portuguese scholars and scientists who decided to go abroad because of they could not find opportunities in Portugal or because they recognize scientific mobility as a career obligation. He also points out, in accordance with Delicado (2008, 2010a, 2010b), that in the Portuguese case, going abroad in a mobility scheme can be damaging to the professional career in terms of future reinsertion. However, despite this, between 1994 and 2010, as a consequence of the intensification of national investments to develop the academic and scientific sector in Portugal, 43% of scholarships were given to Portuguese PhD students enrolled in institutions abroad. This had a great impact on the internationalization level of Portuguese science and research, translating into an increase in international networks and collaborations. Videira (2013) also highlights Portugal's poor capacity to attract or retain international and Portuguese scientists and scholars either because of the economic crisis or the structure of the Portuguese scientific and academic sector: low salaries, unstable careers and poor infrastructure, to which endogamy could be added.

Overall, the state of the art points out that several factors hinder scientists' international career path. Among those, discrimination and sexism arises both as a structural problem and as a micro-level issue with a direct impact on women's scientific mobility performance.

Project description and objectives

The literature discussed above allows concluding that although the excellence of Portuguese literature on high skilled migration and scientific mobility cannot be questioned, it is still scarce and insufficient. Thus, the mapping of previous work reinforce the relevance of the present study; which aims to draw a profile of international scientific

mobility to Portugal and analyzing it from a broader perspective. It intents to give visibility to a variety of social hierarchies, asymmetries and exclusion processes that places individuals in a more or less privileged position in the international scientific mobilities dynamics. In other words, this project is fully engaged in discussing scientific mobility from a critical perspective, taking into account mechanisms embedded in this phenomenon, which are usually taken for granted.

Based on these remarks, the main objective of this project is to fully investigate scientific mobility in Portugal, analyzing the internationalization of the national academic environment based on the assessment of migration policies, including actions to attract researchers and agreements between Portuguese and international higher education institutions, labs and research centers. This study also aims to analyze the scientific mobility trajectory of foreign researchers and their scientific mobility experiences in Portugal. The identification of good practices, if any, for promoting scientific mobility and gender equality intersects the entire development of this study.

Its specific objectives are:

1. To understand how Portugal appears as a destination for scientific mobility.
2. To profile foreign researchers and scientists in the country: origin, place of residence, gender, field of work, types of mobility program, etc.
3. To identify key aspects in the mobility trajectory of these scientists and researchers: motivations, prior experiences, short and long term plans, etc.
4. To understand why researchers and scientists choose Portugal, how they evaluate the employability process, their satisfaction levels, etc.
5. To analyze their work relation in Portugal — opportunities; inclusion/ exclusion dynamics.
6. To investigate work relationships with the country of origin, whether there is intent to return, motivations and obstacles.
7. To examine the institutional perspective on scientific mobility.
8. To analyze the effects of the current economic crisis on the immigration of foreign scientists to the country.

Methodology

The definition given to international scientists and scholars in this project is broad, it included all foreign individuals participating in Portuguese doctoral programs and postdoctoral fellows, as well as junior and senior scholars or scientists currently affiliated to any private or public scientific or academic institution across Portugal for at least a year.[4] The subjects could rely on different funding sources home country or international sponsors, host institutions and even private resources. Also, as one of the projects objectives was to analyze the relation with home country, scientists or scholars who had the previous commitment to return to their country of origin were included in the sample.

This study uses a mixed-methods approach. This choice is justified because the combination of methods to collect quantitative and qualitative data complements each other, strengths findings and recommendation and allows to reveal the multidimensional nature of the phenomenon. As Ackers (2005) points out, international scientific mobility has been investigated mainly from a quantitative standpoint allowing a more objective description. For that, we opted for collecting and analyzing secondary data (statistics, official sources) and collecting primary data through the application of a survey to foreign scientists in Portugal.

However, a quantitative approach misses many aspects relevant to international mobility, as not everything can be quantified. For instance the singularities of gender and racial experiences, personal and family matters, the differences across countries of origin, among others. So, qualitative approach through interviews was chosen as an innovative way to understand scientific mobility, as it allows collecting other type of information — mainly issues regarding personal and family matters, or career path opportunities — moving away from a strictly economic perspective.

The fieldwork was conducted between September 2014 and October 2015. Based on preliminary survey conducted in 2013 and on facts and trends from the literature review, a questionnaire was developed

4 Although scientific mobility can refer to also to short experiences, for example less than three months or even one week. As the study aims to give broader panorama of scientific mobility in Portugal, we understood that stays inferior to a year would lack of some important elements of analyses.

to be applied an on-line. The survey was available for six months and it targeted non Portuguese scientists and scholars in the country, with the intention to draw their profile, including their socio-demographic characteristics and overall aspects of their scientific international mobility such as motivation for choosing Portugal, trajectory, links and engagement with their country of origin, plans for the future, among others. Data was analyzed in light of the SPSS/PAWS using descriptive and correlational analysis.[5]

The survey was available in Portuguese and English and it was hosted on the Lime platform. First it was tested with a Portuguese-speaking control group and after their comments were considered, adjustments were made. Afterword, it was translated to English and reviewed by two English native speakers familiar with the jargon of the academia, and tested on an English-speaking control group. Once again, after their suggestions, corrections and adjustments were introduced. Finally, both versions were compared and reviewed by the research team, before uploading the final versions into the platform.

As there is no official list of international scholars and researchers in Portugal, it is not possible to have a complete sampling frame, thus the identification process of possible candidates to respond the survey was performed using different techniques. The first one was to send the survey link directly to our contacts at FCT and ask the institution to circulate it on its members list. Following, the centers, faculties and institutions listed on FCT's webpage were also contacted and invited to send the survey to their mailing list. And finally, a manual scanning of the same institution's staff list was conducted aiming to identify other potential participants. In the invitation e-mail it was clearly described the participation criteria — international scientists and scholars (including PhD students) working in Portugal for more than one year, in a public or private university funded by FCT, European or home country institutions or privately. Even if sampling frame remains unknown, due to the variety of channels used to contact people, the survey was answered by a total number of 173 respondents.

The qualitative methodology included two different types of in-depth interviews: to foreign scientists and to authorities in science

5 As this chapter aims to draw a general overview of the results of the project, no deep correlation analysis will be performed.

institutions. In total, 80 non-Portuguese scholars and scientists who develop their activities in Portugal (42 men and 38 women) were conducted. The interview guide was composed by open-ended questions type and encompassed several topics (personal information, academic career development, international experiences, evaluation of the experience in the Portuguese academic-scientific environment, contact with the country of origin, plans for the future). The interviews were transcribed and analyzed based on the theories of Critical Discourse Analysis (CDA), understanding discourse as social practice (Fairclough, 2008).

Again a combination of different strategies was used to construct the sample of scholars and scientists interviewees. The first one was snowball sampling (Biernacki & Waldorf, 1981) — starting from our extended network of personal contacts, individual interviews were conducted and afterwards we would ask them to recommend another person who fits our criteria — international scientist and scholars working in Portugal for at least a year, under diverse funding condition and including those who have a previous commitment to return to their home country. The second, once more, involved a manual scanning of the institutions' webpage to spot international scientists and scholars working there through their curricula reading. All the potential interviewees were contacted via e-mail before to explain the project and confirm availability.

Although we are aware that these two techniques may introduce some bias (snowball samples cannot be considered representative of a population, and a manual scanning of webpages may miss unlisted individuals), due the specificity of our target population, random sampling was not an option. Thus, combining the two techniques produced a more suitable strategy to reach a satisfactory number of individuals within our profile requests. Moreover, as a result of its qualitative nature, the most important of in-depth interviews is reaching its saturation point, which means the threshold at which discourses started to be redundant and present constant repetition.

The interviews were carried out across the country, between January and August 2014, lasted about 90-110 minutes and took place at the interviewees' place of preference, thus some were at their offices, other chose their homes or public spaces — as cafes or parks. They were conducted in English, Spanish or Portuguese according to the

interviewers preference. A list of questions inquiring about their previous academic experience in their home countries and other countries they maybe have studied or worked before, the process of choosing to move to Portugal, their expectations, the advantages and disadvantages of being in the Portuguese academia, relation with the country of origin and future plans were used to guided the interviews. However, the questions were not rigid or fixed, aiming to allow some discourse fluidity and promote a dialogue.

After completing the in-depth interviews with foreign scholars, a second set of semi-structured interviews were conducted with 20 institutional actors: Directors or authorities of Portuguese universities, faculties, research centers and laboratories, and public officials at immigration-related agencies. The scientific and academic institutions were selected based on FCT's Researcher and Development list. Again, first contact with the organization was made via e-mail to introduce the project and to check availability. Interviews lasted around 50-60 minutes and were conducted in their institutional office.

All the interviews were audio-recorded and transcribed. To ensure anonymity and confidentiality, scientists, scholars and institutional actors' names and institutional affiliations have been changed and are presented here using fictional ones. According to the grounded theory (Ackers, 2004; Keddy, Sims, & Stern, 1996), after the transcription, the interviews were coded using inductive and deductive processes; for analytical and comparative purposes the data was organized in categories structured around the mains topics covered. Some of the categories created were: region of origin, family structure, strategy to arrive in Portugal, period of time living in Portugal, gender relations, inclusion-/exclusion perception, career development path, relation with country of origin.

Preliminary results

Quantitative Analysis

Data from the survey made possible to draw a profile of our sample of foreign researchers' in Portugal, based on the following variables: sex, age, family condition, nationality, immigrant status, field of expertise/area of interest, year of arrival, 1st and current held position, reasons to come to Portugal, advantages and disadvantages of being in

Table 1.2 Survey International Scientists and scholars' profile (in %)

Variable		%
Sex	Men	56.6
	Women	43.7
Age	21-30	6.4
	31-35	25.0
	36-40	31.5
	41-45	13.7
	46-50	12.1
	51-55	5.6
	56-60	4.0
	61-70	1.6
Field of work	Natural Sciences	36.5
	Social Sciences	27.0
	Technology and Engineering	15.7
	Humanities and Arts	8.7
	Medicine and Health Science	2.4
	Agriculture	0.8
	Others	7.1
Position	PhD	21.5
	Post-Doc	27.6
	Research fellow	16.9
	Principal Investigator	14.9
	Coordinator Investigator	3.4
	Assistant Professor	4.5
	Associate Professor	6.9
	Full Professor	1.3
	Invited Assistant Professor	2.0
	Invited Associate Professor	1.0

the country, evaluation of overall experience, integration level and contact with origin country.

The results from table 1.2 shows that in our sample the majority of scientists and scholars are men 56.6% while women stand for 43.7%. This is in accordance with the global literature (Ackers, 2004, 2010; França & Padilla, 2013; Jons, 2011), which points that men are more likely to take part in mobility program than women. In Portugal, as in other countries, due to society's patriarchal and androcentric social arrangements, family duties (domestic work; child and elderly care) are still women's responsibilities (Hochschild & Machung, 2003). Therefore,

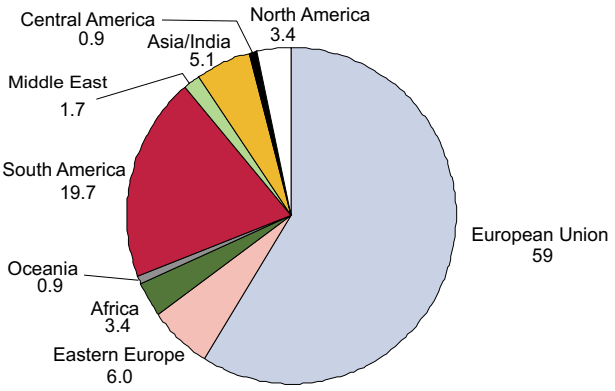

Figure 1.1 Region of Origin

Source: "Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration" data base.

women are less mobile than men because an international move implies the reorganization not only of women's personal life, but also of their families' routine. In addition, if married or with children, they may have less bargain power to negotiate. In turn, as scientific mobility becomes more important for academic career development, the fact that women are less likely to be involved in this kind of programs, directly affects their career prospects and progression (Ackers, 2004, 2010; França & Padilla, 2013; Jons, 2011; Leemann, 2010).

Another important characteristic of our overall sample is its youth, as the age interval between 31-40 years old represents 56%. Scholars and scientists between the age of 41 and 55 formed the second most representative group accounting for 32% of the responses. Literature has shown (Ackers, 2010; Bauder, 2015) how career stage and family dynamics shape interests in taking part in scientific mobility programs, in the sense that young researchers and scholars would move easier between different countries as they are still in an early career stage and have less family obligations. Furthermore, the fact that in our sample 21.5% of the respondents were doctoral students (table 1.1) may have contributed to reinforce this result.

Regarding family status, 58% of the sample has a partner with 55% not having children. As it was mentioned before, having a family of their own has a great impact in scientists and scholar's participation

in scientific mobility programs. Considering respondent's average age, it was expected that they would have stable relationships, which was confirmed by our data. The lack of support offered by scientific mobility programs to family issues gives some important insight to analyze the reasons why the majority of the respondents have no children.

Adding gender as a variable of analysis shows that men represent 59% of the population who has a partner and women count for 41%. Yet, a further element that can be considered to illustrate how gender differences shape academic mobility experiences is children. In our sample, 56% of the respondents who have children are men, while 44% are women. This trend supports the discussion about how conventional family roles shape men and women's academic mobility projects differently. It is more likely that women give up their careers or pause them for a while to follow their partners in their international academic mobility opportunities. In the case of men who join academic mobility programs with their children, they tend to have a female partner at home, taking care of them, while they dedicate fully to their career.

Looking at region/country of origin, figure 1.1 illustrates geographical distribution by continent.

More than half of the respondents come from European Union countries, 58%, followed by Latin Americans 22%, with little representation from other world regions. This supports the idea that Portugal has strong relations with countries of the European Union, closely tied to EU policies fostering intra-European mobility and a common research area within the Schengen space, through actions and programs such as Erasmus, Sklodwska-Curie Action and the European Research Area (Giorgi & Raffini, 2015; King & Ruiz-Gelices, 2003). This is reflected in policies, as for example, while EU citizens cannot be excluded to receive Portuguese public funding, third country citizens (non-EU) need to meet certain requisites and be sponsored by their hosting institutions.

Within the scholars from the EU in our sample, Spain represents 31.3% of the researchers and Italy 16.4%. The high percentage of EU researcher can be associated to a combination of factors, one being the economic crisis spread in the European Union, imposing severe cuts on higher education and research (although Portugal also shares that constrain), and the other to prevalent endogamous practices in other

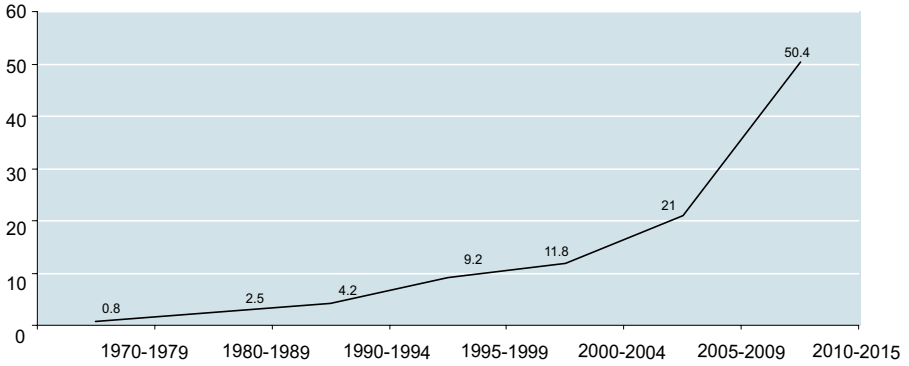

Figure 1.2 International academic and scientific mobility to Portugal evolution (1970-2015-%)

Source: "Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration" data base.

EU countries, mainly in Southern Europe, both obliging scholars to look for opportunities somewhere else.

If considering Latin Americans, Brazil stands for 77.8% of the researchers. Portugal and Brazil share important past and present links including a common language, which undoubtedly contribute to the significant presence of Brazilians in the international scientific mobility dynamic in Portugal. In addition, in the last decade, many agreements have been signed between Portuguese and Brazilian governments and higher education institutions, strengthening bilateral relations. The scientific and academic relation between Brazil and Portugal results from a complex interaction of historical, geopolitical, economic and social aspects that have been structured asymmetrically throughout time. Portuguese colonialism has played a key role in this process, and has been revisited in more neocolonial practices more recently. Portugal, as the ex-metropolis tries to take advantages of the colonial past, defending the need to groom colonial relations. This neo-colonial discourse aims to attract Brazilian scholars and scientists, increase the number of cooperation agreements, maintain the intellectual influence in the local academia and profit financially from it, as at that time Brazil was investing largely in internationalizing the national science (França & Padilla, 2016; Padilla & Cuberos 2016).

Table 1.3 Sources of funding

Source of funding	%
FCT	55.7
Portuguese Institution - except FCT	19.7
Home Country	12.1
European Union	7.5
Personal Funding	2.8
Others	1.9

Source: "Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration" data base.

When analyzing the year of arrival in Portugal some important remarks can be made from the figura 1.3. According to our data, scientific mobility to Portugal has increased linearly during the years with the interval between 2010-2015 showing a strong acceleration and corresponding to more than 50% of our answers. This result could be associated either to investments increase by the Portuguese government or institutions to promote international scientific mobility to the country or to an improvement of Portuguese academic and scientific reputation internationally do its recent developments and achievements.

Although we cannot disregard this trend, these numbers have to be analyzed very carefully. The data presented above can be the result of a sample bias, the fact that scientists and scholars who arrived in previous years had already left the country, or the existence of a gap between the openings of the call and the actual start of the contracts. Lastly, in this analysis, it is also important to take into account the consequences of the international economic and financial crisis from 2008 in the Portuguese scientific and higher education funding. Although it was not so evident (Soeiro & Campos, 2011) some cuts were already performed. Following this, in 2011, due to the intensifying of the crisis, the intervention of the TROIKA (European Central Bank, European Commission and International Monetary Bank), imposed severe austerity measures (Soeiro & Campos, 2011) leading to even more drastic cuts in public expenses in science, technology and higher education.

As a consequence, during the TROIKA years (2011-2014) the number of scholarships funded by the Science and Technology Ministry diminished significantly as well as funding for supporting centers

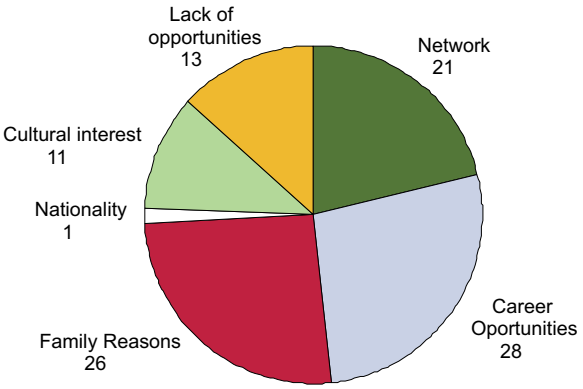

Figure 1.3 Reasons for coming to Portugal

Source: "Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration" data base.

and laboratories research activities. In 2007, the number of scholarships awarded by FCT to PhD students and post-doctorate fellows was 2945, in the following year this number dropped to 2358 and in 2013, a very critical crisis year, only 1395 scholarships were granted by the Foundation, a lower numbers than in the year of 1994 (FCT, 2016). However, in 2013, to compensate for such reduction of fellowships, FCT started granting scholarships directly to Doctoral Programmes (although it implies less scrutiny about the selection process).

As table 1.3 shows FCT has been the major source of funding for international scientists and scholars who come to Portugal. Regarding the sources of funding of the respondents scientific mobility to Portugal in our sample table 1.3 shows that FCT is the main source of funding, followed by other Portuguese Institutions (Instituto Camões, Fundação Calouste Gulbenkian), home country's institutions, European Union funding and personal funding.

These numbers attest to the relevant role of FCT in the internationalization of the Portuguese science and academia. Between 1995 and 2008, Portugal, to reach the European Union scientific indicators and standards, invested heavily on its scientific and technological development and begun a period of blooming that led the country to become a scientific powerhouse in the EU context. In consequence, the number of national and international researchers and scientists

Table 1.4 Advantages of Choosing Portugal (%)

Career Opportunities	30
Career Internationalization	26
Family Reasons	25
Quality of Portuguese Science	19

Source: "Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration" data base.

Table 1.5 Disadvantages of Choosing Portugal (%)

Work Conditions	43
Academic and Scientific Culture	30
Labour Precariousness	27

Source: "Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration" data base.

multiplied during these years. FCT grew and consolidated itself as the main Portuguese funding agency, proved to be able to attract leading researchers and to sponsor high quality and competitive projects.

Concerning the reasons for coming to Portugal, figura 1.4 summarizes the responses. Opportunity for career development appears as the main reason, 27%; followed by family reasons 26% and pre-existing networks 21%. This data shows that although career opportunities are the main reason for scientists and researchers to move to Portugal, family aspects are also very important, and therefore should not be disregard.[6]

The tables 1.4 anda 1.5 summarize scientists and scholars' perceptions and impressions about their scientific mobility experience in Portugal, considering what they define as advantages and disadvantages.

If focusing on the advantages of being in Portugal, career opportunities appear as the main one. Once again, the Portuguese potential for developing a scientific and academic career is mentioned. It is important to highlight that in 2006 FCT launched its Programa Ciência, targeting to hire 1000 PhD researchers under a 5 years contract through public competition by 2009. In 2012, the Programa Investigador FCT came out targeting

6 França and Padilla (Forthcoming), in accordance with the recent literature (Ackers, 2004; Jons, 2011; Leemann, 2010) shows how family reason is even more important in women's decision to take part or nor in a international scientific mobility scheme.

to hire 1000 PhD researchers under a 5 years contract until 2016, but foreseeing three different levels (starting, development and consolidation). Both programs aimed at national and international scientists and scholars and have been conceived as temporary positions. However, they presented significant differences regarding the evaluation board, criteria and contract clauses. The Program Welcome II also targeted European researchers who were abroad for at least 3 years and interested in working in Portuguese institutions. Therefore, the availability of these scientific hiring schemes, at a first glance, portrays Portugal as an attractive country to where develop academic careers.

However, the three types of contracts presented above implied temporality without any certainty regarding the continuation of employment or opportunity for career progression, illustrating how contradictory and uncoordinated Portuguese scientific polices are. After a massive investment made by FCT to attract international scientists to the country, no extra efforts have been made to develop long-term links with their hosting institutions. Moreover, it also demonstrates a lack of dialogue between FCT and the higher education institutions that are responsible for hiring researchers and scientists under permanent contracts. Notwithstanding, universities and faculties are more interested in hiring lecturers and professors, than investing in the research sector in the long term. Thus, after the "Science Contracts" contracts finished no attempts to retain the scientists or researchers were made. However, at present, new conversations are taking place to assess some continuity to FCT Investigator and other types of fellowships/contracts over three years, but the centre of discussion has been displaced from FCT to the University and Research centres and the Unions.

Family reasons were also mentioned as one of the main advantages of being in Portugal, 25%, reaffirmed the importance of family dynamics to scientific mobility. Partners' career opportunities, partner's responsibility for elderly parents, relatives or extended family members living in Portugal and the recognition of Portugal as an ideal environment for raising children due to security and quality of life are some of the elements related to family reasons. The literature on international mobility of Portuguese scientists and scholars (Delicado, 2008, 2010a) also points how family reasons are considered a fundamental aspect on the decision to return to Portugal after a period abroad. Scientists and researchers cannot be understood as individuals isolated from their social context. On the contrary of what happens

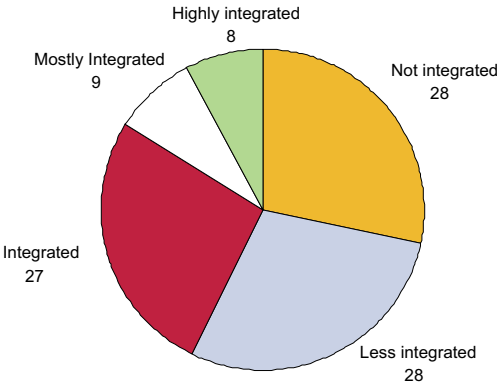

Figure 1.4 Self-perception of integration level

Source: "Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration" data base.

to most of the programs for expatriates, scientific mobility programs rarely consider family issues. Overall there are not programs in universities that support family visas, spouse hiring and child care.

It is important to highlight that when analysing family reasons as an advantage to be in Portugal, if considering gender, there are important aspects to be taken into account. Women represent 59.2% of the respondents who considered family as an advantage to be in Portugal, while only 40.1% of men gave the same answer, illustrating how family has a greater impact on women's academic career choice than men's.

When analysing the disadvantages of being in Portugal, 43% of the respondents pointed to the poor working conditions as the main one. Responses mentioned: difficulty in accessing international journals database, inadequate funding for organizing and participating in international events, limited support to acquisition of equipments and material. Additionally, Portuguese academic and scientific culture was also mentioned as a negative aspect among 30% of the sample. The negative aspects of scientific and academic culture encompassed bureaucracy, high level of hierarchy and formality in professional relations, classes overload, lack of teamwork and unclear rules in competition/selection process for career progression opportunities. Finally, labour precariousness was also mentioned by 27%, mainly related to the fact that most of the respondents were still

under temporary contracts or scholarship regimes, without any perspective of having a permanent position.

Hence, if on the one hand FCT investments were able to attract a significant number of highly qualified scientists and scholars in the last years, on the other hand the Portuguese host institutions were not able to offer good physical working conditions or a sociable and receptive working environment where recruited international researchers and scientists could satisfactorily develop their work.

The respondents' evaluation of their self-perceived integration as a scientist into of their institution is illustrated in the figura 1.5.

It is clear that the majority of our sample consider their integration level into their hosting institutions as poor or unsatisfactory as 28% affirmed not feeling integrated and 29% declare to be little integrated, that is 57% feel some degree on alienation. Only 8% see themselves as highly integrated and 9% mostly integrated. These numbers shed some light on the imaginary of Portugal as a country open to diversity. The Migration Integration Police Index (MIPEX) (2015) considers Portuguese integration Polices as one of the best in the world, just behind Sweden. Specifically, according to MIPEX analysis Portugal also proved a solid foundation for labour market integration over time. Therefore, it would be expected that scholars and scientists would feel well integrated to their working environment, however based on our results, this was not confirmed.

The high levels of endogamy in the academic sector is a fundamental aspect to interpret in relation to the low levels of integration (Horta, 2013; Horta, Veloso, & Grediaga, 2010; Santiago & Carvalho, 2012; Tavares, Cardoso, Carvalho, Sousa, & Santiago, 2014). The hierarchical, traditional and self-centred characteristics of the Portuguese academia tend to benefit local scholars and scientists, who have being working for many years in the same centre or with the same supervisor, who is responsible for opening a space for career development. Therefore, those coming from abroad have difficulties in being integrated in the institution's dynamic, as they lack this social capital.

Furthermore, the respondents pointed out that teamwork and collaborations are very rare in Portuguese academic dynamics. In most of the cases, the dominant rule is individual work, with few or no interaction with colleagues, resulting in a feeling of isolation, as reported by our respondents. Overall, all these factors lead to professional disappointments from not being able to advance their careers as expected.

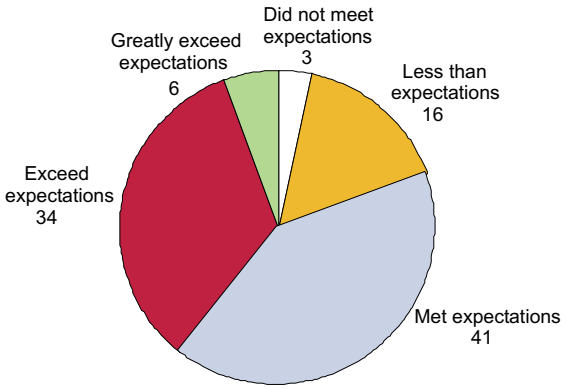

Figure 1.5 General evaluation of the scientific mobility experience in Portugal

A high statistical correlation was found between integration level, gender and country of origin. Women reported lower level of integration than men. And researchers and scholars coming from countries outside of the European Union, except the USA and Canada, also reported feeling less integrated than their colleagues.

One last important remark from the quantitative survey to highlight is the respondents' general evaluation of their scientific mobility experience in Portugal.

On the contrary to what would be expected, on average, the experience of mobility in Portugal was evaluated positively, reaching 81%. More specifically 41% considered to have met their expectations and 40% that it exceeded the expectations. On the other end of the spectrum, 19% declared that it did not meet their expectation. Although these numbers may seem contradictory with the reported high level of disadvantages and low level of integration in the academic environment, alternative explanations may include that their initial expectations were low based on their previous assessment of the Portuguese academia, or that due to their performance they were able to shine, or that other factors such as quality of life or personal aspects compensated for the negative aspects of the experience.

Thus, despite all the problems that experiences of scientific mobility in Portugal may present, its positive aspects overcome the negative ones. Thus, Portugal may be overall considered a potential market for developing an academic and scientific career, where other assets

can be positively accessed: good quality of life for self and family, opportunities for staying in the academic sector while in other countries that is not an option, high level of internationalization if compared with other Southern EU countries, namely Spain and Italy.

Qualitative Analysis

The qualitative data gathered through interviews offer both complementary and new elements to analyse international scientific mobility to Portugal. As presented in the methodology, in-depth interviews were conducted to scientists and scholars working in Portugal and semi-structured interviews were carried out with institutional authorities and directors of Portuguese research institutions. The interviews were analysed based on grounded theory approach. Thus the purpose was to inductively identify trends and patterns to later produce an original contribution to the literature considering the Portuguese case. The interviews were transcribed and relevant general topics emerging from the data were identified. Along the process of reading and coding the interviews, new elements and categories surfaced leading to a constant rethinking of our results and assumptions. The categories and concepts created were analysed together and compared, helping us to explain the phenomenon.

Therefore, the analysis process started early when the data were being collected and continue throughout the coding of the interviews. Categories were emerging, leading to more complex recoding and new categories, to then identify trends, connections and explanations.

This section on qualitative data is divided in two parts. The first one regarding the interviews carried with official representatives of Portuguese higher education institutions (universities, faculties and research centres), who present their institutional vision on international scientific mobility to Portugal. The second part is dedicated to the analysis of the interviews conducted with scientists and scholars working in Portugal.

a) Institutional Vision

The three discourses below allow us to draw a picture of the institutional vision on international scientific mobility to Portugal.

A rector of a public University declared:

> Foreign researchers are just as important as foreign students. It's been shown that there is a strong correlation between the quality of an institution and the level of internationalisation. Therefore, having more foreign students and researchers or professors is always a factor that helps to qualify the university, not only because it brings new perspectives but it also opens new possibilities in establishing further relationships abroad. There is an extra benefit in bringing a foreigner into the institution in the way he/she interacts with his or her home country and eventually other networks. Recruiting a foreigner is always with the objective of bringing someone highly qualified to work in an area that we would very much like to develop (University Rector, male)

This statement illustrates a positive interpretation of international mobility perceived as a win-win situation, in which both institutions and researchers profit from it. In accordance with the more popular discourse about scientific mobility, the Rector highlights some of the benefits of international scientific mobility: an increase of institutions' internationalization, the promotion of international cooperation in the form of agreements and scientific networking, among others. Such affirmation shows a clear institutional opening of Portuguese academic and scientific units towards scientific mobility.

> In research, we have a significant number of foreigners in mobility programs and I recognise this as an important aspect for the faculty. In teaching, however, for instance the bachelor courses, language may be a problem. As a result, we try to use them more in MA and PhD courses. I do however recognise that foreign researchers, despite the language challenges, are very important for BA students who write their projects in laboratories. The opportunity of these students to be exposed to foreign professors or researchers is very important as it opens new horizons and opportunities for the students. I think that the most important aspect about having foreign researchers and professors in our faculty is that the approaches and strategies that they use are, in most cases, not those that we are used to. And this is something quite positive as they will interact with the Portuguese and in the end new lessons are learnt and exchanged by all (Health Science Faculty director, female).

The statement above also shows an optimistic view about international scientific mobility schemes. Using a strategic involvement of the international researchers and scholars in MA and PhD courses, the Faculty's director overcomes language problems that they may

face and offer students the experience of working with highly-qualified scientists in labs and specific projects. Moreover, she positively values the presence of international scholars and scientist as an important exchange opportunity for the Portuguese team to learn different techniques.

Thus, both institutional discourses presented so far are in accordance with the understanding of international scientific mobility as a positive experience for all the parts involved. However, despite these good examples, it is also possible to find among some heads of research institutions, discourses that are less positive.

> This institute, if we include post-doc fellows, for a few years was made up of almost 20% international researchers and scientists. In some areas, having foreign researchers is fundamental to developing these areas. For the areas where we lacked suitable skills or knowledge, we recruited from abroad. When Portugal was not facing an economic crisis and funding for sciences was growing, we recruited 'group leaders' actively from abroad. Now unfortunately, the foreigners are usually the first to depart. This is one of the least positive aspects as not having as many ties to the country and not necessarily relishing living in a country with such economic constraints, they quickly find much more suitable positions in other countries. We therefore have a significantly smaller population of foreign researchers as a result. (Research Center of Technology Director, male)

On one hand the centre's director highlights the important role that international scientists played in scientific institutions, pointing out their relevant contribution towards the development of strategic research areas in which Portugal is behind or less developed. On the other hand he shows some uncertainty about the international researchers and scientists' reliability, as they are the first to leave when periods of crisis affect Portugal, as it is happening at present. However, what he does not reflect upon is all the other aspects that may induce researchers to leave the country, as the structural lack of career perspectives, the high level of social isolation experienced by many scientists, the selection processes' dimness and the instability of projects and scholarships calls and renovations. Also, the statement above, disregards any reason that could contribute to the decision of international scientists and scholars to stay, as for example, family reasons, having a working team and all the personal and professional investments made by them while in the country. Furthermore, it does not take into account the fact the Portuguese researchers and scientists also leave the country during a crisis, as has

been the case with the emigration of highly qualified scientists. Thus, according to this perspective international scientists and scholars might be stimulated to develop their activities only because of career reasons and economic aspects, reproducing the old stereotype of scientists and scholars as economic subjects, driven only by career goals, alienated from families and without personal or private ties, which we have seen, is not the case, and differs between men and women. Also, it may point out the fact that there is a communicational gap between directors and foreign scholars about how they feel.

b) International Scholars and Scientists' personal experiences

Now, we move on to assess scholars' personal experiences. The analysis of the discourses of researchers and scientists offers important elements to understand the complexity brought by international scientific mobility to the Portuguese academic and scientific dynamics. Knowing more details of the experiences of foreign scholars, enable to grasp information about career issues that had not been acknowledged or explored before, that is, from a different perspective. In total 80 interviews were carried. The number allowed us to reach a saturation point, at which the discourses started to repeat constantly the same elements. The table 1.6 shows a general profile of the interviewees.

Due to the large number of interviews conducted, it is not possible to analyse all of them individually. Thus, we selected some cases, extracting illustrations and experiences, aiming at building a broad picture of the main discussions brought by the investigation. Table 1.7 presents a summary of the analysed interviewee's profile.

Esteban is Swiss, 40 years old, married to a Portuguese woman with whom he has two kids. Currently he holds a Principal Investigator position under an Investigator FCT contract. Esteban graduated in chemistry in Switzerland and moved to the United Stated for graduate studies with a PhD scholarship, there he got married to a Portuguese female scientist. After completing his PhD he found a position as a researcher in a project in a different institution in the USA. As his and his wife's contracts were getting to an end, they decided to look for new opportunities for both of them. At that time, FCT had just launched the Welcome II Program aiming at attracting scholars who had been abroad for at least 3 years. Their application processes were successful and in

Table 1.6 Interviewee's general profile (%)

Variables	Categories	%
Gender	Men	57.5
	Women	42.5
Region of Origin	European Union	35.0
	Eastern Europe	11.3
	Latin America	33.8
	North America	1.3
	India/ Asia	5.0
	Middle East	3.8
	Africa	8.8
	Oceania	1.3
Field of work	Natural Sciences	36.5
	Social Sciences	27.0
	Technology and Engineering	15.7
	Humanities and Arts	8.7
	Medicine and Health Science	2.4
	Agriculture	0.8
	Others	7.1
Position	PhD	17.5
	Post-Doc	24.6
	Research fellow	15.9
	Principal Investigator	11.9
	Coordinator Investigator	2.4
	Assistant Professor	4.0
	Associate Professor	5.6
	Full Professor	1.0
	Invited Assistant Professor	1.6
	Other	15.1

2012 they moved to Portugal, in 2013 he applied to the Investigador FCT call and was awarded a five year contract.

> At the start of my appointment, it was risky as I had only my salary, which was not much for a researcher, so I needed to apply for FCT and European Union grants in the current tough funding environment. Hence I was not sure if I would gain sufficient funding to start my research; however it all worked out well. Now I feel I have all the resources that I need in order to do exactly what is required. Whether here or anywhere else, I doubt that there is a difference now, I can really say that I have everything I need here. It's a big institute with a lot of groups, a lot of expertise, a lot of equipment and you tend to know that should

Table 1.7 Analysed Interviewee's profile

Name	Nationality	Age	Field of work	Arrival year
Esteban	Swiss	40	Chemistry	2012
Fabian	British	42	Biology	2012
Henry	Argentina	43	Physics	2008
Rose	Belgium	37	Political Sciences	2007
Lucy	Australian	40	Anthropology	2008
Elis	Cape Verde	38	International Relation	2005
Eva	Argentina	53	Sociology	2002
Ana	Romania	40	Archaeology	2008

you need anything that you will find it. (Esteban, 43 years old, Swiss, Principal Investigator — Chemistry)

Esteban analyses his experience in Portugal as positive, he feels his workplace offers him all the resources needed to develop his work adequately. He points that despite the lack of research funding during his first year, he was able to succeed later on, achieving everything that was essential for his job. This case illustrates a very positive scientific mobility experience in Portugal. According to him Portugal offers satisfactory conditions for international scientists to develop their activities. However, in a very subtle way he mentioned a certain level of instability at his arrival in Portugal, as his contract did not foresee initial research funding and his institution did not offer any primary financial support opportunity, thus, he found some difficult to start his projects. This situation happens very often in Portugal, the institutions hire the scientist and researchers but do not offer enough conditions to develop their work.

Fabian's statement presents a different view of an international researcher in Portugal. He is a 43 years old British who, since 2012, holds a Principal Investigator position in marine biology under the Investigator FCT Program. Fabian graduated in biology in England, went to Scotland for his Masters and PhD. After that, he got a research position in a centre in the United States for three years, followed by another one in London. In 2007 he was awarded with the FCT Ciência contract. Because he did not know much about the centre's reputation where he was going to work, he visited it before moving and had a meeting with its director who guaranteed him good infrastructure

and enough funding for his research. However, this was not the case:

> I eventually came here as 'Group Leader' doing my own research, so I was expecting at least an office, however, the centre was relocating so they had no idea who was going where, there wasn't really anything and the centre gave me minimal support, actually considerably less support that I was originally told I would receive when I accepted the position. I flew down here to see what job I was going to get before I moved to the country so I spoke with the head of the centre and spoke about what kind of financial support I could expect. They gave me a number, which of course turned out to be much less when I actually arrived. "Financial restrictions, we don't have the money so you can't have that". That was kind of difficult. It was even more difficult because I had no one to report the situation to, as my contact was with the Institution and FCT would only provide my contract. And this was also tricky for me and hard to understand. FCT would pay me, but my relation was only with the center. The advantage for me is the opportunity to lead a group and do my own research and this is why I came here, if I had been a post-doc or under anyone else's direction, I wouldn't have taken the job. It was purely the fact that I could do my own research here. (Fabian, 43 years old, English — Principal Investigator — Marine Biology)

Fabian reports a frustrated experience in Portugal. His statement points to a delicate situation regarding the lack of commitment and attention that many research centres and laboratories have with their international scientists and scholars. According to him there is a big gap between what is promised sometimes to the researchers and what they actually are able to receive. In his analysis, the contracts, the funding puzzle and complex guidelines make unclear to the international researchers which resources and financing they actually have available.

This case needs to be understood within the context of cuts that affected Portugal even before the financial crisis. Right after the program FCT Ciência 2007 was launched, the government imposed a significant cut on the science and research national budget. For a country that aims to be well positioned in the international scientific and academic sector, the instability and uncertainty involving funding for academic and scientific research contracts show limited commitment, compromising scientists' productivity.

The following statement reinforces these critics regarding the low level of commitment, clarity and certainty that international researchers may find in the Portuguese scientific and academic institutions.

> Here in Portugal, the rules change from one year to the next and no one knows how they will evaluate the proposal in the following year. (…) The Argentinian research system has less than 30 years of existence, but it has a structure and operation that everyone is familiar with. The predictability regarding the rules and the evaluation criteria in a selection process I think is very important. What may change is the amount of money, and, of course, this can change according to the country's economy, but the coherence in predicting the evaluation and what is requested for funding a project is fundamental and this does not happen here. This is one of the main disadvantages I see here. (Henry, Argentinian, 43 years old, Principal Researcher, Physics)

Henry is another example of a highly qualified international scientist who moved to Portugal in 2008 under the Ciência FCT Program. His career started in Argentina, moving to Sweden for this PhD then to Germany for two post-docs. One of the main reasons that prompted him to accept the Ciência FCT contract was the promise of a future permanent position when the initial contract finished. However, in the meantime a new program to attract international scientists and researchers was released (Investigador FCT) undermining the possibility of having a permanent position. There are plenty cases like Henry's that could be brought to this discussion, inclusively the lack of link or connection between the two programs: Ciência and FCT Investigator.

What this situation points clearly is a high level of job instability and insecurity that many international researches face during their mobility experience in Portugal. It is true that national researchers may also face similar conditions, however it is necessary to bear in mind that for non-Portuguese researchers an international move affects not only their career but also their personal lives and their migration status. At a professional level, the negative effects do not only involve the stress of finding a new contract but all efforts investmented into build a working team, laboratories, networks in a new country. Furthermore, at the personal level, the impossibility of having the contract renewed in the same country may lead to a new move to another country, which may not be in the researchers' partner's career plans, for example.

Overall, contracts unpredictability, selections process and funding rules needs to be pointed out as a great challenge to international scientists and scholars in Portugal.

However, not all international scientists' experiences in Portugal are negative. Rose's may be presented as a positive one. Rose is Belgian, 37 years old with two children and is currently divorced. She did

her masters and her PhD in Italy, and worked there as an assistant researcher. She moved to Portugal in 2007 because she was unsatisfied with her position in Italy and because her husband had a good job offer in an EU entity. Rose arrived to Portugal unemployed and through her husband network, she was offered a temporary contract as a researcher in a research center to replace someone who had left. Shortly after, in 2008 she got her own Contrato Ciência and in 2012 she got a position as assistant Professor in a Portuguese public University. Rose's husband had a well paid position in the Portuguese labor market, thus when they had children, he could afford paying a full time nanny, while Rose would go to work.

> One thing that helped my career development here in Portugal was the fact that we could afford to have a full time nanny. I would come back home at 17.30, and if they were sick, they would stay with her, during these more critical periods, when they are young and are sick very often she was the one who took care of them. And to be honest, I did not suffer much damage in my career. I lived motherhood twice and would restart my academic activities a bit earlier than my colleagues. And because I did not have to teach, I had enough free time and could build a strong CV. (Rose, Belgium — 37 years-old, Assistant Professor, Political Science)

Rose's statement shed some light on women scientists and scholars' situation during their experience abroad. In her case, she was able to strategically use her family economic situation to the benefit of her career. It has been heavily discussed the negative impact of family duties on women's professional career. However, as it was mention before, in Rose's case, due to her comfortable financial situation she was able to hire a nanny to take care of her children and therefore continued investing in her career. Because her path is considered a successful experience, as she was able to find a permanent position as assistant Professor. Rose's case could be used as example of how maternity is not necessarily an obstacle to academic career development. However, it is worth to note, that her confortable was based on her husband socio-economic status in Portugal, which is not the rule within the academic environment, thus social class played a relevant role in freeing Rose from family and mothers' duties.

Yet, a deeper consideration of Rose's experience shed a more complex reading of how maternity can be lived and enjoyed due to career expectations. She mentioned that regardless of the privilege status that

allow her to have a full time nanny, she sacrificed part of maternity leaves in the name of her professional career, as she returned to work earlier in order to cope with the academic demands: publishing, doing research, etc. Although maternity leave is assured by law in research and teaching contracts in Portugal, the pressure for high levels of productivity and the instability of the contracts are obliging some women to give up on full maternity leave and restart working earlier. Though this situation affects not only the international scientists but also Portuguese scholars who do not have permanent positions.

Apart from institutional problems, there are other features, which also negatively shape the experience of international scientists in Portugal.

> Lack of teamwork, I have never seen anything like this before. Actually, I would not even consider that there is any teamwork here. People don't ask what you are doing, what kind of project are you working on. Inviting you to write a paper together? Forget this. It's such an individualistic atmosphere, who would dare to ask for help, or for feedback? I always learnt so much from my colleagues' critics, comments and suggestions. But here, such a thing doesn't happen at all. My biggest career's achievement before here was because of friend's collaboration, invitation and incentive. Since I got here, I have never had this again. (Lucy, Australian, 40 years old, Post Doctor, Anthropology)

Lucy, Australian, 40 years old, moved to Portugal with her husband in 2008 under the post-doc FCT scholarship program. She graduated in anthropology in Australia and did her PhD also there. She was working as a researcher and a lecturer before she moved to Portugal. Her main concern is the social isolation she has experienced since she arrived. Actually, after the second year as a member of her center, because she never felt integrated and was never taken into account, she decided to move away from Lisbon. So, she went to live in a smaller city with her husband and stopped going to the center on a daily basis. In fact, her interview took place at her house and not at her office, during the last year of the fellowship, and after six years, she still felt no integrated into her research group.

It is usual that right after the arrival in a new organizational culture, the integration process would take some time while social and professional rules are learned and negotiated. However, after almost 6 years working in the same place, it is expected that integration would have taken place. When this does not happen, the experience becomes

negative, hindering both productivity and psychological well-being.

Studies (Ibarra, 1993, 1997) have shown the importance of professional and social integration in a working team to have good productivity level as it is connected to: information circulation about call for papers, conferences, scholarships and funding; invitation to participate in projects, publications and teaching activities as well as feedback, comments and critics on their work. It can involve also network building and mentoring opportunities. Besides, learning new techniques, analytical schemes, theories, languages and culture are pointed as one of the biggest advantages of scientific mobility. However, if social integration does not happen, none of these gains will occur, especially when the hosting institution does not value or recognize the potential and contribution of the newcomer. In Lucy's case, it can be implied that the benefits of participating in a scientific mobility scheme were not achieved.

Elis' experience sheds some light on the suspicion surrounding international scientists in Portugal. Elis is from Cape Verde and came to Portugal in 2005 to do a master degree in International Relations. Right after, she started a doctoral program in the same institution. As she did not always have a scholarship, she worked as a researcher on different projects. Currently she holds a position as associated researcher.

> I always had the feeling that we immigrants have to work harder than the Portuguese. Like there was a mistrust relative to immigrants, if we are going to remain here or not, we have to show loyalty. (…) Thus in some cases there are more opportunities offered to nationals, because they think that "one day the foreigners will have to go back to their home country", therefore it is better to be prepared for this situation, investing more in nationals. It seems that all the time they are testing us. (Elis, Cape Verde — 38 years-old, associated Investigator, International Relation)

Elis built her academic life in Portugal, but still she highlights how non-Portuguese researchers and scientists are seen as less trustworthy than nationals, because they are expected to leave to return to their home country of origin someday. Under this excuse, in Portugal, less opportunities and investments are given to some international scholars. In addition, it can also be added that high inbreeding levels of Portuguese academia (Horta, 2013) contributes to create practices that favors national scholars while excludes international

In many cases, just like it happens in other migration experiences, what is expected to be a temporary experience abroad becomes a life project. Elis now is married to a Portuguese and has one child. But, just like other international scientists, she is still seen as someone who can leave the country at any moment, just like the Research Center Director expressed in the statement presented above. The discourse that international scientists and researchers career projects are more unpredictable carries prejudice, upholding stereotypes about immigrants as always willing to leave.

However, Rose's statement presents a different perspective on how not being a Portuguese national, depending on the country of origin, may contribute to promote more or less inclusion/exclusion dynamic.

> And during the last years that I was there, I don't know what happened, but they started believing in me. They gave me a lot of responsibilities. From one day to the other I joined the scientific committee, I was director of a PhD Programme and responsible for a research line. Suddenly I was so well integrated (…) they were talking about opening a position for me. (…) Not being Portuguese was a positive aspect, as they wanted to attract foreigners. It was an advantage for me.

Rose declares that the change towards her happened without her doing any special effort or anything different from what she had been doing since the beginning. However, her credentials and the fact that she comes from a EU country could have played a part in her benefit. Thus, when Rose mentions that Portugal is interested in attracting "foreigners", it is not mean that the interest includes all kind of foreigners. The country of origin geopolitical position plays an important role in this dynamic, as it can be seen from the next statement.

In general, scientists from less developed countries or from countries whose academia is not internationally recognized do not have the same opportunities as those from the EU or other developed countries. The formers tend to have to struggle more than the latter to be able to develop their careers, as it seems that the quality of their curricula and work and their qualifications are not enough to guarantee them a successful career path.

> In many of the selection processes for lecture/research candidates that I participated in Portugal (naively but also by principle) either I was excluded or "informed" that the position available was not for me, as it was to promote someone

> who was already in the lecturing path or to incorporate some protégé. (…) However, in the Portuguese and European selection process for project funding, which involves the evaluation of international boards reviewing the curricula and the quality of the proposals, I have always been positively evaluated and have had numerous projects selected and funded. (Eva, Argentina, 53, Senior Researcher, Social Sciences)

Eva is Argentinian and has been living in Portugal since 2002. She had previous important international experience as her master and PhD were done in the United States of America. Since she arrived to Portugal she has had only temporary scholarships and contracts and although she has been applying successively to job vacancies, she has never been selected. In spite of the excellence of her curriculum, which can be attested by her projects selection for national and international funds, her experience is very much different from Rose's The fact that the academia from Latin America seems to be less recognized, even if her training was done in the United States, seems to be a strong element to explain the differences in these two different situations.

The next statement also shed some light on the discussion on the relevance of the country of origin in the academic career path in Portugal.

> Yes, I think that there is a difference because I am not Portuguese. I think this made everything more difficult for me. Specially, when I come from Romania. Romania is not seen as a serious country. (Ana, Romenia — 40, associated Investigator, Archaeology)

Ana is from Romania; she arrived to Portugal in 2008, to a research centre located in Lisbon, under the FCT Ciência 2007 scheme. She did not have any personal or professional contact before moving to the country. After that, in 2011 she had a three years investigation project approved by FCT in which she was the principal investigator. Since 2014 she has a post-doctorate scholarship sponsored by FCT, which meant downward mobility for her.

Her career trajectory in Portugal has been marked mainly by temporary positions and contracts/scholarships with lack of linearity. Actually, Ana has experienced a deskilling process along the 9 years she has been living in Portugal, from a researcher with a full contract and prospects, she went to a post-doctorate position with a scholarship.

As it can be noticed, Ana's career trajectory is very different from Rose's. When Rose arrived was offered a contract and after that had a

professor position was created for her, while Ana had been jumping from one temporary position to another all on her own. They also have different perceptions about the influence of not being Portuguese and their career development. While Rose sees it as an advantage, Ana considers it a disadvantage. These two different interpretations reinforces the view of existing differences based on geopolitical asymmetries, mainly based on the country of origin. Belgium and Romania are placed differently in the academic world, while. Belgium is pictured as a developed, civilized and modern country part of European Union's core dynamics, house of the European Commission and many EU institutions, Romania is seen as a traditional, and poor country marked by corruption and its communist past (França, 2016). Therefore, if on the one hand it is true that Portugal needs to attract international scientists, on the other, not all of them are value similarly not offered the same opportunities

Final considerations — Preliminary Results of the project Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration

As mentioned above, several factors have led to the intense development of the Portuguese educational and training sector in Portugal: joining the EU in 1986, the expansion of its university and scientific system expansion in the late 90's and the creation of FCT in 1997. During the last decades, to internationalize its science and academia, Portugal substantially increased the number of international scientists and researchers in its national institutions, by taking important actions: participatiing in the EU scientific and academic mobility programs and projects (Erasmus, Marie Curie Action, Life long learning program), promoting international mobility programs funded by FCT and other national institutions such as Gulbekian Institute, Champalimaud Foundation and Camões Institute, being involved in cooperation agreements with countries outside the EU (i.e. Brazil-CAPES/FCT; Morocco-CNRST/FCT; USA-MIT/Portugal Programme).

Furthermore, legislative changes were introduced by Law 23/2007 and Law 29/2012 to facilitate highly skilled migration, foreseeing specific admission regimes for skilled migrants, transposing to the national regime the 'European Blue Card' Directive 2009/50/CE, thus updating the obsolete previous regime (Padilla and França 2016).

From a broader perspective, the project Scientific Mobility to Portugal: Production and circulation of knowledge in highly skilled migration intended to closely screen the latest trend in Portugal, focusing on institutional practices and discourse and personal experiences. In other words, its main objective was to investigate how scientific mobility dynamics take place in Portugal in order to make suggestions for improvements and policy recommendations.

Based on the analysis presented here, an overall evaluation shows that international scientific mobility dynamics to Portugal reproduce much from what has been highlighted in the literature: career development opportunity, importance of social and personal network, mobility of young researchers, internationalization of institutions, promotion of international cooperation, gender blindness, precariousness, racism dynamics and geopolitics asymmetries among others. On one hand Portugal was able to promote and develop international scientific mobility schemes in a positive way, however, on the other hand was not able to overcome shortcomings and negative aspects both for institutions and researchers.

Our analysis based on the qualitative interviews, the survey and the policies implemented suggests a combination of three different aspects of the international academic mobility to Portugal between the late 1990s up to present days:

1. The advance of Portuguese science during the late 2000 years attracted more international scholars and scientists.
2. A more active recruitment of international scientists and scholars took place hoping to improve the level of internationalization of the Portuguese academia and science during the years 2000.
3. The two-folded features of the Portuguese academic sector: high level of opportunities in a close European market and low level of competitiveness if compared with other markets (UK, Germany, The Netherlands, USA) contributed to attract mainly early career researchers, without guaranteeing opportunities for gaining seniority or steadiness.

It also highlights the importance of FCT for the internationalization of the Portuguese science. Under strong EU investments and regulations, the foundation increased its credibility and consolidated itself as the main Portuguese funding agency, responsible for the attracting and

sponsoring the majority of the international scholars and scientists in the country. However, if its importance is undeniable, it is worth to reflect on the excessive dependence of Portuguese science development on FCT funding without fostering other strategies to fund their own research. As it was mentioned, during the economic crisis and austerity measures, investments in science and technology were reduced dramatically. From 2011 to 2014 there was a 14% cut in the government budget for FCT. While in 2009 FCT's budget was euros 654,1 millions, in 2012 FCT registered the lowest budget in the last six years, euros 3945,4 millions (Público, 2012; Roque, 2014). Only in 2016, FCT financial situation started to improve again, for this year the government budget foresee euros 502 million to the institution (Público, 2016). Throughout these years, the Portuguese researcher centers, laboratories and universities struggled to adapt to the new reality — including how to attract and keep international scientists and scholars — as they had on FCT their main sponsoring source.

Furthermore, more specifically, regarding to the international scientists and scholars in Portugal, based to the survey, the body of international researchers and scientists working in Portugal is composed of a majority coming from European Union countries, specifically Spain, Italy and Germany; while South Americans occupied a second place, among them Brazilians constitute de dominant nationality. Because of EU policies and dynamics, it was expected that EU researchers would occupy a relevant position within international mobility schemes, especially Spaniards, due geographical, historical and cultural proximity. The importance of Brazil is explained by a combination of factors that include colonial past and present links between Brazil and Portugal, Portuguese active policies favouring international mobility through academic networks, bilateral cooperation agreements and exchange programmes, as well as Brazilian policies to promote internationalization though programs such as Science without Borders among others.

Other features of their profile indicate that they tend to be relatively young, the majority are men, the average interval of age is between 31 and 40 years old, have a partner but no children, holding PhD and postdoc positions in natural science or social science, under temporary contracts or scholarships of 4 to 6 years of duration.

Their first perception of Portugal was an attractive scientific mobility destination with great potential to develop an academic and

scientific career. However, in many cases, a few years after working in the country, their perception changed in a negative way, mainly because of the impossibility of improvement in their careers and the low level of development of science. Most researchers complain about social and professional isolation, shortage of working resources, bureaucracy overload, contract instability, lack of clarity in promotion and selection process rules as some of the main problems they faced while working in Portugal.

There is a double down situation involving international mobility to Portugal. On the one hand, the high level of endogamy within institutions is an obstacle for scientists and researchers coming from abroad to find real opportunities to develop their career. On the other hand, the institution's low level of internationalization — measured in low involvement in international conferences, international projects, association and networks, partnerships or cooperation with prestigious centres abroad — contributes to increase their isolation from the main international scientific and academic communities.

The experiences of international women scientists and scholars in Portugal reaffirm gender inequalities, hierarchies and asymmetries denounced in previous studies about international scientific mobility and gender and about gender hierarchy in the Portuguese academic and scientific sector. They point to the reduced number of women as host professors, the lack of childcare infrastructure or not so friendly family policies, glass ceiling, social harassment, exclusion from formal and informal social networks, rigid working environment and discrimination based on gender and origin (mainly in the case of third country nationals) as some of the obstacles they faced during their stay in the country.

At the institutional level, although the official discourse highlights the importance of scientific mobility, this is not reflected across the board. There is an implicit assumption that sooner or later international scholars will return to their home country. Because they are not seen as reliable as nationals, international scientists have to work harder to prove not only their productions' quality and merits, but also and mainly to prove their loyalty and engagement with the host institution. Moreover, this mistrust together with high endogamy level lead to having less promotion opportunities or invitations to join projects, to lecture, to write papers or to assume representative positions. The frequent exclusion of these activities reflects negatively on their

career, and there seems to be a different path for national scholars to move forwards.

The main contributions of the project "Scientific Mobility to Portugal: Production and circulation of knowledge in highly-skilled migration" to the discussion about scientific mobility has been, on the one hand to recognize the potential of Portugal as a spot for scientific mobility schemes, and on the other hand to highlight aspects that usually are not addressed such as the precariousness and instability in the academic sector, the poor working conditions, the shortage of infrastructure, the lack of social and work integration, the limited career development opportunities under the label of internationalization, the negative consequences of endogamic practices, gender inequalities and geopolitical asymmetries.

Therefore, if Portugal hope to have an academic sector recognized globally, with high standards, well developed and up to date infrastructure, it is necessary to take into account some of the aspects emphasised in this study, restructuring its international scientific mobility rules and dynamics that considers scholars, men and women, both at the professional and personal level.

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