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From Portugal to Europe: A Micro-Level Sociology of Scientific Migration in Times of Eurozone Crisis

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ABSTRACT

Academic international mobility and intra-European highly skilled migration are consolidated trends. Strongly stimulated by EU policies, the opportunities are highly dynamic, and circulation through different jobs and countries is a striking feature of the academic community. However, for a fragile economy and scientific system such as Portugal's these trends are synonymous with brain drain, particularly in times of Eurozone crisis. To study the role of the economic crisis in scientists' decision-making process, in terms of their own migration, five individual portraits are analysed, taking into account that academic mobility is often associated with individual career perspectives and encouraged by European policies.

Keywords: 1. individual portraits, 2. scientists' emigration, 3. brain drain, 4. Eurozone crisis, 5. Portugal.

De Portugal a Europa. La sociología de la migración científica a nivel pormenorizado en tiempos de crisis de la Eurozona

RESUMEN

La movilidad internacional académica y la migración intraeuropea altamente cualificada son tendencias consolidadas. Vigorosamente estimuladas por las políticas de la UE, las oportunidades son dinámicas y la circulación a través de diferentes puestos de trabajo y entre países es una característica destacada de la comunidad académica. Sin embargo, debido a que la economía y el sistema científico son frágiles en Portugal, esas tendencias son sinónimos de la fuga de cerebros, particularmente en tiempos de crisis de la zona euro. Con el fin de cuestionar el lugar de la crisis económica en el proceso de tomar decisiones de la migración de los científicos, se analizan cinco retratos sociológicos, considerando que la movilidad académica suele estar asociada con perspectivas de carrera individuales y es fomentada por las políticas europeas.

Palabras clave: 1. retratos sociológicos, 2. la emigración científica, 3. fuga de cerebros, 4. crisis de la zona euro, 5. Portugal.

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Introduction

The migration of scientists, primarily through intra-European mobility, is not a new phenomenon; however, it has been reshaped by the 2008 economic crisis (Peixoto 2001b; Beets & Willekens, 2009; Chaloff, Dumont, & Liebig, 2012). According to Ackers (2005a, 2005b), scientific migration happens primarily due to networks, career motivation, student mobility, and other professional-related factors. Have those factors changed due to the 2008 Eurozone crisis? Are scientists' dispositions to migrate subject to economic factors, or do they tend to be activated merely by professional ones?

Free-movement migration is part of the European Union (EU) plan (Chaloff, Dumont, & Liebig, 2012). In the years before the economic meltdown of 2008, the EU recorded a significant migration flow coming from the new member states in the east and southeast into older member states. In the course of the 2008 financial crisis—and subsequent economic and social one—that spanned the globe, the hardest-hit countries during the downturn, such as Portugal, went from being mainly migration recipient countries to sending ones. In fact, for a brief period of the country's history, Portugal was perceived as a receiving country¹ (Peixoto, 2004; Malheiros, 2011). However, from 2008 onward, the Portuguese migratory situation has changed back into a severe imbalance where emigration is predominant (Peixoto, 2014; Videira, 2013). Since 2009, Portugal has registered a decline in foreign immigration, reaching an overall net migration of 37 300 persons in 2012. The trend towards a decrease in the number of foreigners living in Portugal was consolidated after 2008 (Serviço de Estrangeiros e Fronteiras [SEF], 2015). Similarly, for the same period the country registered emigration figures similar to those during the late 1960s and early 1970s emigration cycle, reaching 53 800 long-term emigrants and 128 100 short-term emigrants in 2013, of which 93 percent were of working age (15-64 years old) (Organisation for Economic

¹ Peixoto (2004), in a paper entitled “Country of emigration or country of immigration? Change and continuity in the migratory regime in Portugal,” argues that the change of the migratory regime in Portugal has not been sufficiently addressed to produce solid conclusions. However, from 1980-1990, foreign immigration dominated scientific debates and the public imagination.

Cooperation and Development [OECD], 2016).² As Docquier and Marfouk (2007) state, since the 1990s Portugal has lost a fifth of the country's skilled workforce.

As in other southern European countries, it has been observed in Portugal that there have been an increasing number of highly skilled workers migrating to northern and central Europe (Bygnes, 2015; Gonzalez & Martínez, 2014; Triandafyllidou & Gropas, 2014). Portuguese skilled emigration grew by 87.5 percent between 2000-2001 and 2010-2011, according to data from the Centre for Emigration (2014) (OECD & United Nations Department of Economic and Social Affairs [UNDESA], 2013). Growing from a relative value of 6.2 percent of the total emigration to a figure of 9.9 percent in 2010-2011, the weight of Portuguese highly qualified migration on total migration has now reached 11 percent (OECD & UNDESA, 2013).³ Considering official statistics of some major receptor countries of Portuguese migration, this number seems undervalued. In fact, for the same period, the Office for National Statistics of the United Kingdom (Office for National Statistics, 2016), one of the main destination countries of the recent Portuguese migration, notes that 21.5 percent of Portuguese emigrants over 16 years of age arriving in that country are highly educated.

The International Monetary Fund (IMF), EU, and European Central Bank's joint support strategy for Portugal triggered a severe austerity program (European Union & Government of Portugal, 2011). In the current Portuguese context of economic stagnation, investment in science retraining, brain drain, and unemployment (Beine, Docquier, & Rapoport, 2008) are significant consequences, among others. Since 2008, unemployment in Portugal has been on the rise. In 2008, the unemployment rate was 7.6 percent, a value that grew steadily in the following years, peaking at 16.2 percent in 2013. In 2014, the unemployment rate decreased for the first time since 2008, even though it was still high (13.9 %). In 2014, youth unemployment was 34.8 percent. The unemployment rate among people with university degrees rose in the years after the onset of the crisis, from 6.8 percent in 2008

² If one considers the last value, which concerns the period 2011-2013, it is estimated that the skilled emigration flow reached a value of about 40 000 individuals (OECD & UNDESA, 2013).

³ The definition of a highly skilled migrant, in the scope of this research, is an individual possessing a "tertiary level of education or its equivalent in experience" (Salt, 1997, p. 5).

to a peak of 12.6 percent in 2013. In 2014, this figure was 10 percent (Instituto Nacional de Estatística, 2015).

Equally, the scientific field in Portugal displays several alarming signs. Investment in science dropped from 2 585 billion euros (1.45 % of GDP) in 2008 to 2 268 million euros (1.34 % of GDP) in 2013 (Direção-Geral de Estatísticas da Educação e Ciência, 2015). The number of academic staff members in higher education has decreased, and their age index has quickly grown in the years after 2008. After peaking in 2007 at 2 030, the number of Ph.D. scholarships granted by the Foundation for Science and Technology (FCT)⁴ consistently decreased in the following years. In 2012, this institution awarded only half grants. In addition, the results of the 2013 highly controversial evaluation of research units by the FCT resulted in extensive cuts in funding and the closure of half its research units after a “flawed evaluation process” (Moro-Martin, 2014, p. 1).

Despite what Castles, Haas, and Miller (2014) predicted, drawing from the 1930s crisis in *The Age of Migration*, the economic recession has not restricted international migration. In fact, since the 2008 financial meltdown, it is possible to observe a change and growth in the intra-European migration flows, mainly from the most severely impacted southern European countries to northern and central Europe.

Keeping in mind the deep, long-term economic crisis in Portugal, the consequent austerity program, and the current socioeconomic situation, we seek to understand the importance of the Portuguese economic context in the activation of academics' disposition to migrate, taking into account that academic mobility is often associated with individual career perspectives and encouraged by European policies (Mahroum, 1998) and that scientists tend to be considered knowledge migrants rather than economic migrants (Ackers, 2005a, 2005b; Casey, Mahroum, Ducatel, & Barré, 2001). Therefore, from a micro-sociology point of view (Lahire, 2002; King, 2002), this paper aims to address the intrinsic relationship among the decision-making processes, the effects of the crisis in Portugal, academics' individual career aspirations, and opportunities for mobility created by national and European policies. Five individual portraits (Lahire, 2002) of Portuguese scientists

⁴ FCT is the main Portuguese science state-funding institution.

who migrated to a European country since the outbreak of the 2008 economic crisis were selected among 52⁵ to be considered.

First, the importance of academic mobility and how it is perceived as something desirable by both academics and policy makers are discussed. Then we focus on the relationship between the economic crisis and highly skilled emigration. The chosen methodology is presented—the individual portrait—and the theoretical implications of such an approach is discussed. We then present our data, discuss the results, and offer concluding remarks.

Scientific Mobility in Times of Crisis

International mobility is intrinsically linked to the management of academic careers (Beaverstock, 2010; Ackers, 2005b). In fact, mobility became an essential aspect of an academic career, and as such, has to be addressed within the scope of the specificities of a scientific career (Peixoto, 2001a).

Academic mobility, when seen in the context of circulation (Meyer, 2001), is generally perceived as something desirable and proficient in producing positive outcomes. For Meyer (2001), the circulation paradigm of highly skilled migration brings to the debate positive aspects, such as scientific cooperation or knowledge and technology transfer, which arguably would compensate the sending countries for brain-drain effects.

However, when the flows tend to be strongly asymmetrical (with a negative balance between arrivals and departures), intense, permanent, and long-term, scientific mobility is perceived as brain drain, which has negative effects on economic growth and the return of investment in human capital training in the country of origin (Miyagiwa, 1991; Haque & Kim, 1995). Thus, the return on educational investment can be lost due to the effect of emigration of human resources, measured through the return losses of capital or through lost development potential (Rosenbaum, Kariya, Settersten, & Maier, 1990). The brain drain results in a subsidy to the rich countries (Hamilton, 2003), because the growth

⁵ This paper draws on the results of the *Brain Drain and Academic Mobility from Portugal to Europe* (Bradramo) research project, which aims to understand and analyze skilled emigration from Portugal to other European countries.

of most developed countries also stems from the concentration of human capital (Castles et al., 2014).

The European Commission calls mobility “an essential element of lifelong learning and an important means of enhancing people’s employability and adaptability” (Council of the European Union, 2009, p. 3). International mobility at different stages of academic careers is encouraged by several programs (e.g., Marie Skłodowska-Curie Actions and Erasmus+) (Council of the European Union, 2009). Particularly after the Bologna Process,⁶ it stresses the significance of mobility to the establishment of the European Higher Education Area (Powell & Finger, 2013) and a knowledge-based society—“The more mobility, the better” is Bologna’s maxim (Powell & Finger, 2013, p. 278). However, Musselin (2004, p. 72) considers that mobility incentives in Europe may not be enough to create a true European academic labor market, because recruitment of foreign staff by higher education institutions faces some major obstacles. First of all, there are different formal and informal structures regarding regulations, recruitment, and academic careers among the diverse national markets (Powell & Finger, 2013). Second, mobility is frequently instrumentalized by both receiving institutions and academics: the former do not use academic mobility as a recruitment tool but as a means to access cheap and temporary labor, and the latter perceive mobility as an advantage to secure a career in their home country. When this happens, ties between institutions in different European countries are reinforced, but it does not contribute to a European academic market (Musselin, 2004; Ackers, 2005a).

Nevertheless, individual career ambitions are not the only factor behind scientists’ to migrate. Other aspects of academia and larger societal characteristics also act as pull factors. Employment features such as earning improvements, access to better funding schemes, and collaboration with research centers of excellence are obvious ones (Guth

⁶ According to the European University Association, the Bologna Process aimed to create a European Higher Education Area (EHEA) by 2010. Signed in 1999 by the ministers of education of 29 countries, it has been expanded to 46 countries. The Bologna Process aims to provide tools to connect the national educational systems and facilitate the recognition of degrees and academic qualifications, mobility, and exchanges between institutions. The most significant achievement was the creation of a comparable three-cycle degree system: bachelor’s, master’s, and doctoral degrees (European University Association, 2004).

& Gill, 2008). Likewise, personal development and broader economic and quality of life issues related to integration in cosmopolitan societies should also be addressed (Ryan & Mulholland, 2013; Weenink, 2008). Other factors should also be examined, such as social status (Martin-Rovet, 2003), scientific curiosity (Mahroum, 1998), or even self-realization (King, 2002).

Especially for southern European scientists, transparent and meritocratic environments are strong pull factors, as they are perceived as fairer loci for advancement and for being rewarded for excellence. Indeed, Bygnes (2015), while analyzing the post-2008 economic crisis migration of highly skilled Spaniards to Norway, discusses the argument that people from southern European countries migrate to run away from anomic societies (Durkheim, 2003). Bygnes (2015) argues that the main push factor for these highly skilled Spaniards was not the economic crisis. These migrants apparently left their home countries as a form of career development, not because they were unemployed. Thus, the contexts activating a disposition to migrate seem to be the same before and after the Eurozone crisis. Bygnes (2015) and Gonzáles and Martínez (2014) have begun to outline a new type of refugee, one who tries to escape from a life with no future prospects, corruption, lack of meritocracy, political disorganization, and apathy—they could be called civic refugees. However, those are pre-2008 southern European problems that are exacerbated by the deep Eurozone crisis. Further research conducted before 2008 supports this argument. Bulgarian scientists seemingly opt for a more nomadic lifestyle in order to succeed professionally, “instead of being frozen at home” (Sretenova, 2003, p. 8). Guth and Gill (2008), researching east-west doctoral mobility, stress the idea that scientists move for professional and socioeconomic reasons centered on career development. It has also been noted that Italian scientists “have to leave their home country not so much for the wages but rather to seek an environment in which they can work effectively with enthusiasm and support” (Dickson, 2003, p. 1). Triandafyllidou and Gropas (2014) present the same argument that knowledge migrants, especially from countries such as Greece, Italy, Spain, and Portugal, seem unenthusiastic to declare in their migration narratives the economic crisis as their main motivation to migrate. Therefore, a

deeper understanding of the social significance of the crisis as motivation for migration is necessary.

Individual Portraits for a Micro-level Sociology of Migration

Given our interest in understanding the social significance of the economic crisis, EU mobility, and career development as push factors, we drew on individual portraits as a research technique.

Bernard Lahire's (2002, 2011, 2015) theory of pluralistic determination and inter/intra-variation in social behavior offered a new vision on the limits of Bourdieusian schemes of social constraint on individuals. The individual portrait can be used as a methodological device capable of capturing a double plurality in individual life trajectories: first, unequal *strength* and systemic internal dispositional plurality; and second, the outside contextual plurality, that is, the multiple associated processes, agencies, and contexts or the worlds of life (Habermas, 1981).

In a genealogy of practice theory, Lahire (2011) developed a series of assessments. Lahire proposes the concept of *plural actor*, in which each individual is exposed to multiple socialization principles, updated along the life course, and strongly related to the areas of activity, situations, and contexts (family, friends, school, work, leisure, etc.). Indeed, Lahire even suggests abandoning the concept of habitus,⁷ replacing it with the concept of *heritage of individual dispositions*. The emphasis of the *heritage of individual dispositions* is on the dispositions' stocks with different origins, degrees of activation, and strengths. Indeed, extensive research by Lahire (2003, 2011, 2015) and, in Portugal, by Lopes (2014), for instance, has shown that dispositions are transferred under a number of conditions. There are situations that trigger some dispositions by mobilization, while other dispositions disappear or are inhibited. The dispositions have unequal degrees of robustness, in close association with their genesis.⁸ Therefore, it is necessary to grasp the details of

⁷The concept of habitus, as proposed by Pierre Bourdieu (1994), refers to an incorporated and coherent set of world visions and dispositions, which, resulting from the individual's position and trajectory in the social space, structures his or her social practices.

⁸How the socialization process takes place in a particular way in a particular individual. This process is always plural, more or less contradictory, and driven by multiple agents, including the family context.

intra-individual variations in order to realize the importance of understanding how each individual unfolds in multiple metamorphoses and commits in different contexts of action.

In this context, Lahire (2002) proposes the individual portrait as a methodological device. Contrary to a somewhat widespread idea, the author's goal is not to reveal an individual exempt from social constraint, dissocialized or fragmented. On the contrary, he proposes the analysis of the individual's complex social production; after all, he is multi-socialized and multi-determined. The individual, a socialized and socializing body, reflects on his or her life path the invisible architecture of social forces, developing ways of relating to him or herself and to the contexts and situations in which he or she moves (e.g., economic crisis, family migratory history, student mobility) (Baláz & Williams, 2004). This form of self-producing incorporates the heaviest social constraints and is unrelated to the enchanted and illusory theories of free will. Lahire (2002) refers to this process as the formation of natural social folds, advocating the autonomy and complementary relevance of a range of observations and a level of analysis that sociologists cannot abandon, lest they become analytically myopic.

According to Lahire (2013, p. 16), "there is no possible existence for individuals outside the social fabric [...] the fibers of this tissue, which intersect and cross each other, are constitutive of each individual," thus forming a kind of singularity coefficient. It is the singularity coefficient of each interviewee in *Brain Drain and Academic Mobility from Portugal to Europe* (Bradramo) that we look for on a micro-level sociology of migration.

Sociodemographic Characterization

Using a multiple case methodology, the Bradramo research project has described and compared the circumstances, the modalities, and the characteristics of four migration mobility profiles of high skilled Portuguese in Europe: 1) migration to a European country to exercise a profession in higher education or scientific systems; 2) long-term migration to a European country to work in the primary or secondary segment of the employment system; 3) European student mobility of the first, second, or third cycle that leads to entering the primary or

secondary segments of the receiving countries' employment systems; and 4) mobility and transient movement or commuting through European networks of science, production, services, or culture.

Considering the data collected⁹ within the Bradramo project (Cabrito et al., 2014; Ganga, Lopes, & Gomes, 2014; Gomes et al., 2014), this paper analyzes five individual portraits (Lahire, 2002) that allows us to explore the heterogeneity and singularities of scientists who migrate from Portugal to Europe (profile A). The five individual portraits were selected according to the following criteria:¹⁰ 1) heterogeneous life stages (age from mid-20s to mid-40s), 2) heterogeneous cultural and socio-economic backgrounds (from traditional working class to elite), 3) heterogeneous academic career stages (from Ph.D. students to mid-career professionals), and 4) heterogeneous contexts of migration dispositions activation (student mobility, scientific career, economic crisis, and romantic ties).

Of the 52 portrayed individuals, two-thirds (64.2 %) are female, 56.6 percent are between 30 and 39 years old, 50 percent are single, and 80.8 percent do not have children (Graph 1).

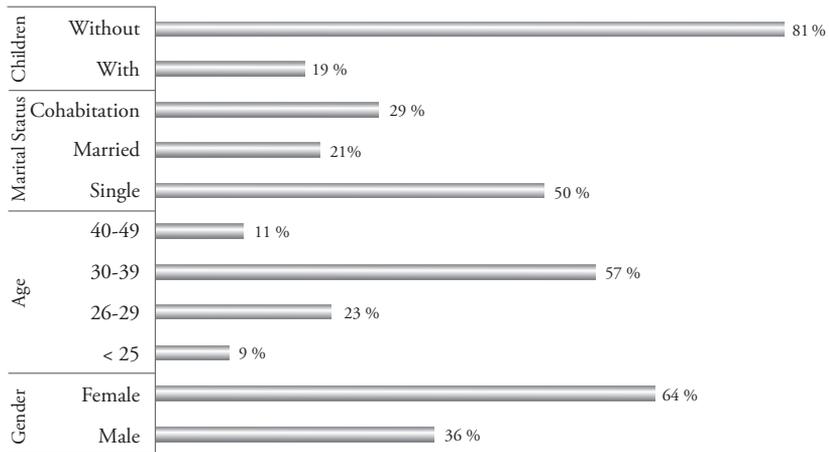
Germany, Belgium, and the United Kingdom are the countries most often chosen as new living places, with 11 (20.8 %) of the portrayed individuals leaving Portugal to live and work in one of those three nations.

The qualifications of these individuals are rather high¹¹ (Graph 2). A minority, albeit a significant one (27.5 %), completed their education in a foreign country. Germany, with four cases (7.8 % of all individuals who completed their education outside Portugal), was the country most chosen for studying abroad.

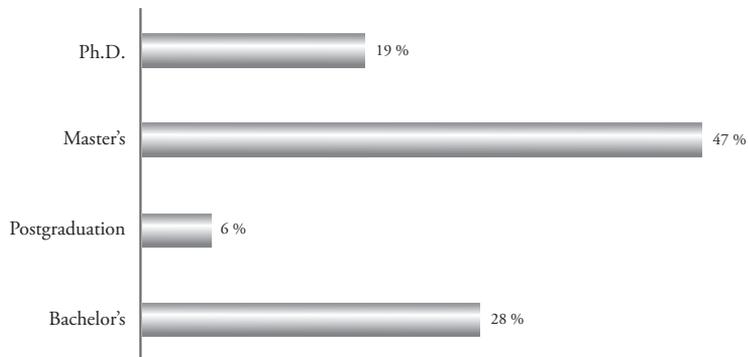
⁹ Bradramo developed a mix-method research approach: an online survey questionnaire (n=1011); 8 focus groups (2 for each case study), in a total of 27 participants; and 52 individual portraits (13 for each case study) were built from in-depth life course interviews. Data was collected between November 2013 and December 2015.

¹⁰ Due to the aim of this paper, only a comprehensive analysis of five individual portraits is presented. The 52 produced individual portraits within the Bradramo research project can be consulted at: <http://www.bradramo.pt/>

¹¹ In order to be integrated into our sample, a person had to possess a university degree or, at least, a professional occupation compatible with the former.

Graph 1. Sociodemographic Characterization

Source: Compiled by the authors based on Gomes et al. (2014).

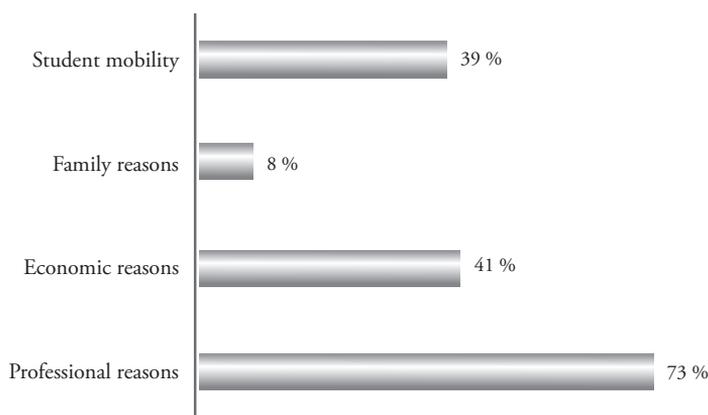
Graph 2. Academic Qualifications

Source: Compiled by the authors based on Gomes et al. (2014).

Focusing our attention on individuals' occupations before emigration, there are two activities that stand out from the data. First, almost one-third of the subjects (32.6 %) were students. Second, a sizable group (18.6 %) was composed of researchers, most of whom were awarded a research grant, although some had enrolled in doctoral programs. This

group is the focus of this paper. Regarding the occupation in the receiving country, 31.7 percent were researchers, the most common occupation in a diversified group of professional activities. Emigration improved some aspects of the professional situation of the portrayed individuals: 98 percent were employed, and a large majority of individuals (83.7 %) were able to find a job compatible with their qualifications, with emigration leading to higher wages than they were earning while working in Portugal. About two-thirds of the individuals were employed before emigrating. Concerning the reasons for emigration, the majority (72.5 %) emigrated for the mentioned professional reasons (Graph 3).

Graph 3. Reasons for Emigration



Source: Compiled by the authors based on Gomes et al. (2014).

The Scientists' Portrait

The analysis of these five individual portraits is broken down into eight items: geographic mobility, academic trajectory, family, professional trajectory, romantic relationships, social ties and friendships, reasons for emigration, and perspectives of return.

*Table 1. Case A.1, 34 years old: I was born unrooted*¹²

Geographic mobility

Born and lived in Maputo (Mozambique). Lived in Santa Comba Dão, Campo de Besteiros, Lisbon, Viseu (Portugal), and Heidelberg (Germany). Currently living in Berlin (Germany), since 2006.

Academic trajectory

Graduated (biochemistry) from the University of Beira Interior (1998–2004). Internship at the University of Lisbon. Ph.D. in biology (Heidelberg University).

Family (social origins)

Multicultural family, with origins in India, Portugal, Mozambique, and Cape Verde. Parents with high cultural capital: Mother is a veterinarian (BA), father is a customs broker (BA); both lived in two countries (Portugal and Mozambique).

Professional trajectory

Two-year hiatus after graduation, trying to get a Ph.D. grant. Worked one year as a researcher under a grant. Works as a lab manager at the Max Planck Institute since she completed her Ph.D. Happy with the job and salary, although she misses the research routine.

Romantic relationships

Emigrated with a Portuguese former boyfriend. Meanwhile, formed a family and had one child with the current partner.

Social ties and friendships

Contact with family and friends in Portugal mainly by computer communication technologies, but also by traveling. Friends in Berlin are mostly emigrants from multiple countries. Belongs to an association of Portuguese postgraduates in Germany.

Reasons for emigration

Push factors in the destination country (Germany). Mobility as a necessity in the context of an academic career.

Perspectives on return

Considers returning to Portugal a long time from now, possibly after retirement.

Source: Compiled by the authors based on Gomes et al. (2014).

¹² For this paper five individual portraits were selected, among the 13 from profile A. The cases will be addressed by the code used within Bradramo research project, namely Cases 1, 7, 9, 10, and 12.

Table 2. Case A.10, 25 years old: Between the scientific career abroad and affection at home

Geographic mobility

Born in Porto (Portugal). Lived in Maia (Portugal). Currently living in Canterbury (United Kingdom), since 2012.

Academic trajectory

Master's degree (physical engineering) from the University of Porto and Ph.D. candidate at Kent University (physical engineering).

Family (social origins)

Parents with high cultural capital, both working in academia. Mother is a museum curator (BA) and father is a university professor (Ph.D.).

Professional trajectory

Works as an assistant professor at the University of Kent. Happy with the job. Anticipates an academic career.

Romantic relationships

Social ties and friendships

Calls Porto *his city*, as he has old friends and family there. Contacts older acquaintances through computer communication technologies. Friends in Canterbury are mainly other Ph.D. students. Member of an association of Portuguese researchers and students in the United Kingdom.

Reason for emigration

Conscious of the advantage of mobility for an academic career. Under the Erasmus student exchange program, he found that the University of Kent had better working conditions and better access to funding than the University of Porto.

Perspectives on return

Admits the possibility of returning to Portugal in case of favorable conditions to continue his scientific career. He believes this will be possible in the long term.

Source: Compiled by the authors based on Gomes et al. (2014).

Table 3. Case A.12, 39 years old: For scientists, the world is ours

Geographic mobility

Born in Beja (Portugal). Lived in Ferreira do Alentejo, Lisbon (Portugal) and Heidelberg (Germany). Currently living in Berlin (Germany), since 1999.

Academic trajectory

Graduated (physical technological engineering) from the Higher Technical Institute of Lisbon. Ph.D. from the European Molecular Biology Laboratory (Heidelberg).

Family (social origins)

Parents with high cultural capital. Mother is an economist (BA) and father is a university professor (Ph.D.).

Professional trajectory

After graduation, taught at the Higher Technical Institute of Lisbon and worked in Santa Maria Hospital (both in Lisbon, Portugal). After the Ph.D., worked as a postdoctoral researcher at the European Molecular Biology Laboratory (Heidelberg). She is currently a researcher in Berlin (Germany).

Romantic relationship

Met her husband, a German, in Heidelberg. The couple has two children. They have chosen to live in Berlin because they perceive it as a good city to raise children.

Social ties and friendships

High occupational rotation is an obstacle to the preservation of ties with friends from the university. Some neighbors have become friends. The closest friends are the oldest ones, from her youth in Alentejo.

Reason for emigration

International mobility is seen as a necessity in the context of an academic career.

Perspectives on return

Case A.12 is trying to reactivate her connections with Portuguese academia, currently without success.

Source: Compiled by the authors based on Gomes et al. (2014).

Table 4. Case A.9, 25 years old: That was the scariest decision I had to make in my life

Geographic mobility

Born in Alcochete (Portugal). Emigrated to London in 2013, is now living in Cambridge (United Kingdom).

Academic trajectory

Graduated in clinical analysis and public health. The course was chosen after failing entrance in pathological anatomy and after experiencing a nursery. Did an internship in a laboratory in Sweden under the Erasmus program. Master's student at the University of Cambridge (translational cardiovascular medicine).

Family (social origins)

Blue-collar family with scarce cultural capital and few economic resources. Mother is a factory worker (secondary education) and father is a construction worker (secondary education).

Professional trajectory

The family suffered economic stress, and she had to work while studying. Worked in several precarious jobs in Portugal after graduation in diverse fields: clinical analysis (sometimes part-time), employee at a clothing store, and event organization. Worked in an *M&M's* store in London. Currently works at the University of Cambridge as a research assistant. She is happy with her job.

Romantic relationship

Her Portuguese boyfriend decided to emigrate to the United Kingdom, reinforcing her commitment to leave the country after him. They now live together.

Social ties and friendships

The most significant friends are in Portugal. She has made some friends in London, and many of them are Portuguese. Believes that there has not been enough time to forge significant social ties in Cambridge.

Reasons for emigration

Dissatisfaction with working experiences in Portugal (precariousness, organizational culture, low wages, lack of recognition). Positive experience in a Swedish laboratory under the Erasmus program. Accompanying her boyfriend when he decided to emigrate to the United Kingdom.

Perspectives on return

Returning to Portugal is not in her plans for now. The United Kingdom offers better working conditions and is considered an advantageous place to have children and form a family.

Source: Compiled by the authors based on Gomes et al. (2014).

Table 5. Case A.7, 43 years old: Portugal is a great place to live and to spend holidays, but it is not a good place to work

Geographic mobility

Born in Lisbon (Portugal). Currently living in London (United Kingdom), since 2013.

Academic trajectory

Graduated in biochemistry (Lisbon, Portugal). Studied Pharmaceutics (Lisbon) but did not complete graduation. Master's in biochemistry (Lisbon). She is already placed in the labor market.

Family (social origins)

Parents with high social capital. Mother is a housewife and father is an engineer (BA).

Professional trajectory

Worked as a researcher at the Institute Ricardo Jorge under a grant. Worked 13 years in a Lisbon hospital in the area of genetic diagnosis (public service worker). Currently works in a London hospital in the same occupation. Although she went backward in terms of work recognition and cannot be as creative in her occupation as she was in Portugal, she stresses the importance of trust relationships as a positive trait of her new job.

Romantic relationship

Long-time marriage with three children.

Social ties and friendships

Emigrated with her husband and three children. Receives occasional visits from friends from Portugal. She is making an effort to forge new friendship ties in London, both with Britons and with people from other countries, including Portugal.

Reasons for emigration

As a result of austerity policies, progression in public service worker careers in Portugal is paralyzed. Moreover, Case A.7's husband, a civil engineer, was facing a stressful situation in his job (wage arrears).

Perspectives on return

Considers returning to Portugal after retirement.

Source: Compiled by the authors based on Gomes et al. (2014).

Discussing a Micro-level Sociology of Scientific Migration

The trajectories of Cases A.7, A.1, A.12, and A.10 (Tables 5, 1, 3, and 2) in the education system can be described as top-route paths, as they confirm the expectations of a long, successful student career associated with the amount of economic and educative resources of their families. Case A.9 (Table 4), on the contrary, has drawn a trajectory

of ascending counter-tendency in the sense that her passage through the education system was successful despite her family's humbler cultural and economic capital (Costa & Lopes, 2010).

Despite the common traits, these five migratory paths differ essentially in terms of the weight the Eurozone crisis had on the individuals' decisions to emigrate.

Cases A.1, A.10, and A.12 show that they had, early on, a desire to pursue academic careers and that the individuals seriously invested in that. All three have had long careers as students, motivated by an ambition to work in research, sometimes overlapping their entrance into the labor market with their transition into adulthood. For these three cases, international mobility, first as students and later on to progress in their careers, is perceived as desirable and a necessary step.

Case A.1 is from Maputo and currently lives in Berlin with her boyfriend and 18-month-old daughter. After failing to obtain funding for her Ph.D. in Portugal, she left for Germany. She completed a Ph.D. in 2011 after an academic mobility experience of three months and currently works as a manager of science. Emigration has been present throughout her personal, academic, and professional life.

Case A.12 was born in a rural but privileged sociocultural context and had a very stable academic path. She started her doctoral course in Heidelberg, where she later developed her first postdoc. Later in 2006, Case A.12 emigrated to Berlin to start her second postdoc, this time motivated by affective reasons once she married a German colleague. She does not anticipate returning to Portugal anytime soon.

Case A.10, who has a master of science in physical engineering, has been accumulating academic and social capital, modeling his father's academic career. Case A.10 emigrated to the United Kingdom in 2012 to earn a Ph.D. after a student mobility experience in Canterbury, and he admits that his life course will depend on where he can find professional opportunities.

Cases A.1, A.12, and A.10 left Portugal to enroll in postgraduate research programs, taking advantage of official recruitment opportunities. Nevertheless, it is also possible to identify heterogeneous push factors: Case A.1 went to Germany because she was not able to acquire funding for her Ph.D. project in Portugal after two years of unfruitful applications. Case A.12 also went to Germany in order to pursue doctoral

studies, but in a joint Ph.D. program between a Portuguese university and a German university and with Portuguese funding. Case A.10's decision to pursue a Ph.D. in England is related to his mobility experience under the Erasmus program at a British university, where he found better funding conditions and different ways of working. The Erasmus program was a way of taking advantage of his university's international networks, and it also allowed the establishment of his first transnational contacts. Being able to opt between a Portuguese grant and a British grant, he chose the latter. This allowed him to work as an assistant professor and set the foundation for his next career step.

The social origins of these individuals should be addressed. The three cases (A.1, A.12, and A.10) saw their decision to pursue a career in science supported by their families, which is chiefly manifest in the cases of A.10 and A.12, whose parents are academics. All of them are offspring of families with fairly good levels of social, cultural and economic capital. From early on, international mobility was perceived as a prerequisite for a successful scientific career, so all of them invested in short-term mobility opportunities while students. Equally, with the exception of A.1, all of them seem to perceive migration as more related to vocational ambitions than as a way out of a shortage of funding or unemployment.

Therefore, it is not surprising that, for three of the individuals' trajectories grouped in this case (Case A.1's, A.12's, and A.10's), migration is perceived as an intrinsic part of an international career in science, and the direct result of their student mobility experiences. The choice of the destination country is related to pull factors of a scientific nature: working conditions, access to funding, research institution reputation, network extension, recognition of individual scientific merit, and evaluation models. These three cases' decisions to emigrate were motivated by scientific career-oriented reasons, which distinguishes them from A.9 and A.7.

Cases A.9 and A.7 differ from the other three, since they seem to have left the country as a direct consequence of the economic and social aftermath of the 2008 Eurozone crisis. As Atkinson (2013) says of the issue of economic recessions and employment, class and occupational resources are fundamental to shape the perceptions of the economic crisis. Therefore, individuals who have privileged social

positions are less likely to suffer the impact of economic crises, which is not the case of A.9.

Coming from a blue-collar family that was hit hard by the crisis, forced to look for a job in her teenage years, and having several short-term, unsatisfying experiences with uninteresting, underpaid, and/or precarious jobs, when Case A.9's father lost his job because of the impacts of the economic crisis, she decided to leave the country. Accompanying her boyfriend to London, Case A.9 emigrated in search of an occupation compatible with her professional aspirations. After a short period of labor market research and experiences in inadequate and precarious jobs, Case A.9 seems to have found a somewhat stable occupation that is compatible with her qualifications, which is something she could not find in Portugal. This sense of stability encouraged her to pursue postgraduate studies at the so-called *golden triangle* (Oxford, Cambridge, and London). It should be stressed that Case A.9's decision was also leveraged by a mobility experience in Sweden under the Erasmus program, where she found a different model of work organization and better working conditions. After a few precarious jobs, she found a position as a research assistant at the University of Cambridge, where she is also enrolled as a master's degree student. In case A.9, we can observe a confluence of several push factors; these include economic and romantic ones and student mobility.

Confronted with a stalled professional career (no wage raises or professional category advancement) because of a suspension in the progression of public service careers at the onset of 2008 crisis and with her husband facing wage arrears, Case A.7 and her family decided to emigrate to the United Kingdom in order to avoid a decline in their standard of living. In the destination country, Case A.7 found an occupation that allowed her to resume her career.¹³ Leaving behind a 13-year position in a Portuguese state hospital, Case A.7 considers that she took a temporary step back in terms of professional recognition, but her family gained financial stability.

Though divergent from Case A.9, Case A.7 was also in a situation where the financial and social repercussion of the crisis was more important to her emigration decision than the development of a scientific

¹³ She is a diagnosis technician in a hospital.

career. In both cases, emigration motivations are undoubtedly related to the economic and social effects of the 2008 crisis.

As mentioned above, geographic mobility acts as a reagent of professional, cultural, and personal experiences, reinforcing personal development, individualizing and diversifying lifestyles, and expanding the social networks of individuals. This generates broad networks of weak social ties (Granovetter, 1973). New networks in the receiving countries are mainly composed of individuals placed in similar life contexts with whom these scientists share some significant common traits, such as other researchers and postgraduate students, as well as other emigrants, whether from Portugal or other countries. Simultaneously, the network is extended to home-country contexts. Some of these individuals have joined Portuguese associations in their receiving countries. Besides, these individuals are seen as a new wave of Portuguese migration to Europe in comparison with the late 1960s and early 1970s one. These newer highly qualified migrants do not follow the traditional emigrant stereotype and practices and fit better into mobility-structured identity profiles.

At the same time, strong social ties are kept (Granovetter, 1973) with people still in Portugal; there is an active effort to keep in touch with Portuguese friends and relatives through the use of computer-mediated communication and occasionally receiving visitors or traveling to Portugal—ranging from one to three trips a year. However, this does not mean that professional connections at home are being built or that such connections will be instrumental in a possible future return in the sense that Meyer (2001) argues. It seems the Portuguese scientific system is unable to attract back or retain the brains it trains.

Most of these individuals would like to return to Portugal if they could have the same working conditions. However, in general terms, it is unlikely for this to happen.

Final Comments

King (2002) argues for the need to recognize the dual embeddedness of migration, meaning that methodological approaches to research on migration should address the issue at the macro and micro levels of analysis. This article is concerned with the latter, as it focuses on the

individual, and it reveals the specific portrait as an effective technique to explore the personal level of analysis and to understand how the uniqueness of each person's life is inevitably related to the scope of action of macro-level social forces. Using this methodology, we were able to address the singularity coefficient and to analyze the life trajectories of five Portuguese emigrants who have professional scientific occupations in foreign European countries. By contrasting their idiosyncrasies with their common characteristics, we aimed to understand how their social backgrounds and resulting advantages (or disadvantages), together with life contingencies, produced five different personal, professional, and migration stories in times of Eurozone crisis.

Before emigration, the majority of these scientists experienced precarious labor situations, almost without exception in the form of research grants, regularly associated with strategies to secure funding to proceed with their postgraduate training and research development. In the destination countries, they apparently have been recognized as full-rights workers, as they have work contracts and contribute to social security plans, which allows them to experience the necessary security to grow in their careers and other spheres of their lives.

Four of the five researchers were still young when they left Portugal, transitioning into adulthood and beginning their professional careers abroad. The receiving countries are generally represented as offering better living conditions, not only because of higher wages but also because of stronger social protections, incentives for families, and a wide range of opportunities and cosmopolitan environments, which are interesting for scientific, cultural, and social reasons (Weenink, 2008).

The dispositions to migrate are activated in different situations, mainly in the context of student mobility. The incentives for academic mobility are promoted by national and international institutions. We observe that three of these five individuals took advantage of the possibility of studying abroad sometime in their trajectories as university students. If Cases A.12 and A.1 first embraced transitory mobility as a means to build their career in science (enrolling in foreign doctoral studies programs), Cases A.10's and A.9's experiences studying abroad under the Erasmus program were absolutely decisive in developing the will to leave Portugal. Engaging in student mobility

programs is a decisive lever of forthcoming emigration experiences. Nevertheless, as Powell and Finger (2013) stress, these programs are socially selective, and primarily appeal to students who have privileged social positions. This shows how “if the European model of mobility is to be achieved, social selectivity must be addressed” (Powell & Finger, 2013, p. 271).

The economic crisis and its effects are still present in these individuals’ life decisions; they did not have a significant importance in driving three of these individuals from the country, but they prevent all of them from returning to Portugal. Cases A.1, A.10, and A.12 observe with disappointment the current Portuguese scientific system, where the diminishing state investment in science and higher education will result in an increased difficulty to find stable positions and funding opportunities, leading to a precariousness in scientific professions. These factors are deterrents to their eventual return to their home country.

In addition, Portuguese science policies seem to lack focus on brain drain—no return or retain policies have been designed—having obvious implications for the fragile southern European Portuguese economy. This shows that in the case of Portugal, academic mobility programs encourage brain drain. Even those who do not leave immediately after academic mobility show a strong latent predisposition to depart. For these reasons, but also due to personal and familial ties formed abroad, these five scientists who have invested heavily in settling in a destination country are not expected to return, at least not before retirement.

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