

WOMEN UNDERGOING INTERNATIONAL ACADEMIC MOBILITY: A DESCRIPTION OF THE BRAZILIAN FEMALE RESEARCHERS AT THE UNIVERSIDADE DO MINHO

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ABSTRACT

Science has made important strides in the debate about gender relations, although a non-level playing field between men and women is still evident, which leads to different choices and motivations with regard to academic and scientific careers. The internationalisation of education has led to new challenges for women, especially as regards the role they play in the political strategies adopted in the backdrop of the globalisation of education. Among these strategies is a drive to increase international mobility within academia by encouraging students and researchers to go to research centres abroad. The Brazilian Science and Technology system has been increasing investment in this sector, granting research scholarships for several degree levels. But what share of these scholarships is attributed to females and what significance is attached to this mobility? Based on a survey of 52 Brazilian women enrolled on post-graduate courses at the Universidade do Minho, this study aims to draw up the profile of these students and researchers, mapping their personal, social, cultural, and academic characteristics, as well as the underlying motivations behind their choice for this mobility.

KEYWORDS

Women and science; academic mobility; brazilian female researchers; Universidade do Minho

INTRODUCTION

The article is an excerpt of a post-PhD research project about academic mobility focusing on Brazilian women undergoing academic mobility in post-graduate courses at the Universidade do Minho (UMinho), enrolled between the years of 2013 and 2014. It should be pointed out that the goal of this paper is to present a general profile of the group that were researched, encompassing personal, social, cultural, academic and professional aspects. An effort was also made to find out the underlying motivations behind the option to go on an international exchange, so as to identify possible particularities and meanings behind this mobility decision among the scientists surveyed. The idea, therefore, is not to assess the gender relationship within the mobility context, but only to highlight some reflections about the profile of female Brazilian researchers who are undergoing academic mobility at the Universidade do Minho. Nevertheless, given that the gender relationship is somewhat intertwined with the debate about women's advancement in the Science and Technology (S&T) system and in academia, this issue will also be analysed, albeit peripherally.

With these goals in mind, the article is split into two parts: the first deals with the insertion of women in the S&T system and the academic mobility process; and the second

focuses on the analysis of the empirical data, mapping an overview of the Brazilian women undergoing mobility at the UMinho and the particular kind of mobility in question.

1. REFLECTIONS ON WOMEN IN SCIENCE

Before discussing the insertion of women in the academic mobility processes, some points should be mentioned about their academic and professional careers thus far, to understand how they got into the world of science and academic mobility. Inevitably, even if the gender debate is not the focus of this paper, the issue must be raised as it is impossible to understand female participation in science and in its institutions without looking at the conflict and power relationships that explain the scientific field.

In the Brazilian case, the S&T indicators point to a growing number of women in scientific activities. However, this female activity is still limited, above all when it comes to management roles and access to certain courses that are deemed of the male domain (Saboya, 2013). Typical gender career choices lead to an imbalance in opportunities and the future professional outlook of men and women, leading to forms of segregation that channel women to occupations considered female, which usually have less status in the job market. In addition to this kind of segregation (horizontal), another social mechanism is at play, vertical segregation, which tends to keep women in more subordinate positions, preventing them from progressing in their careers (Olinto, 2011). These differences lessen women's opportunities to occupy certain positions in the professional hierarchy, namely leading positions and jobs in the scientific world.

This state of affairs, in general, shows how the sexual divide continues to frame the spaces in science and education, contributing to the segregation of women in higher education and in scientific careers, as discussed in the "glass ceiling" concept (Williams, 1995). The concept represents an unseen barrier that makes it impossible for women to progress academically or grow in the job market. Meanwhile, for men the author states that there is a movement opposite to the "glass ceiling": this is a movement that pushes men to the top, creating privileged circumstances that channel them to more prestigious and higher salary positions. To describe this situation, Williams (1995) coined the "glass escalator" expression. The problem lies in the fact that even if they are capable, efficient and qualified, women end up occupying positions subordinated to men, making it difficult to progress in their careers.

Ascertaining the level of gender inequality in science is important to assess the lack of opportunities for women in knowledge production and in gaining access to the job market. Adopting public policies geared towards the professional qualification of women in order to furnish them with tools to battle in the job market with the same competitive opportunities as men is a way of guaranteeing their rights and the possibility of making progress in their career. But how has the Brazilian science and technology system absorbed the female participation in this background?

The 2010 census by the Brazilian Institute of Geography and Statistics (IBGE) recorded Brazil's population at 190,755,799, of which 51% are women and 49% men. The

data also shows that females study more and have a bigger presence in the job market, yet their qualifications and the positions they occupy lead to lower wages. The number of women responsible for families and households grew, whereby out of a total of 50 million families living in private households in 2010, a woman was the head of the household in 37.3% of them. In terms of families made up of a single parent with a child or children, women made up the majority, accounting for a total of 87.4%. Furthermore, among this segment big regional and colour differences are evident, which accentuates the gender inequalities and increases the vulnerabilities of Brazilian women (IBGE, 2015).

Broadening this analysis to female participation in education, the 2010 census confirmed that women continue to be more highly educated than men, and that the majority of university students and PhD graduates were female. Although in Brazil women are in the minority when it comes to university teachers and occupy fewer positions of management, prestige and power in academia and in science, one can glean a more open attitude to the entrance of women into the S&T system. One also has to take into account that the institutionalisation of Brazilian science is part of the recent history of the country and this is reflected in the late insertion of females into the scientific community:

Up to the 20th century, the number of institutions geared towards science was very limited and it was at the end of the 1960s, upon the implementation of the Strategic Plan for National Development, that the question of science and technology came to the fore as a pressing issue in national planning. Despite the recent institutionalisation of Brazilian science, it was also in the 1980s and 90s that Brazilian women increased their participation in the sector. (Leta, 2003, p. 274)

Therefore, the appearance of institutions driving research forward went hand in hand with an increase in women entering the scientific and academic field. The research agencies funded by the federal government such as CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico - National Council for Scientific and Technological Development) and CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Organisation for Enhancement of Top-Level Personnel) play an important role today in training the country's human capital, and their records show an upward trend in the number of scholarships given to female researchers.

Moreover, and although the feminisation of access to the different types of research scholarships is visible, and more women are entering the S&T system in Brazil, it can also be seen that female scholarships go down for a higher hierarchical level. The difficulties in gaining the most important and prestigious scholarships in the scientific and academic fields, such as productivity scholarships, appears to be a strong reason for the weak professional growth of these women. Hence:

This is a strong indication that a proportion of women who go through the first stages of obtaining skills and training for scientific activities get "lost" along the way or simply do not get the recognition from their peers through the granting of scholarships. (Leta, 2003, p. 276-7)

According to the author, this may confirm there is a level of gender discrimination in the scholarship granting system, above all for productivity scholarships that comply with criteria of excellence. Recent CNPq data reveal that female participation in research productivity scholarships accounts for 36% of the total scholarships granted in 2013, which works out as 4,970 scholarships for women and 8,994 scholarships for men. Therefore the under-representation of the female sex remains a reality in Brazilian science, and to a large extent in the economically developed countries. Although the data vary in line with the particularities of each country, a common denominator is the fact that in general women continue to have less representation in leadership positions and senior roles in the S&T system.

According to Leta and Martins (2008), there is also unequal distribution of the sexes in Brazil when it comes to teaching and academic activities, thus leading to less experience in research and publications. Female scientists have an unequal accumulation of scientific capital compared to men as a consequence, which will have serious implications for their career advancement. Moreover, women are culturally destined to have a greater involvement with the family, playing a bigger role in organising the home and caring for the children, which directly interferes with their professional lives. In truth, the Brazilian panorama described here is a good reflection of the challenges faced by women even in developed countries, which have long-standing universities and research centres. This situation extends to all the entities and activities that involve women in the scientific workplace, and international mobility.

The under-representation of women in the areas of the exact sciences and engineering proves the depth of the gender split that prevails in Brazil, whereby the development of skills and tastes are based on one's sex. This sexual division is also reflected in the mobility paths, as generally the most sought-after receiving countries are those considered benchmarks in the fields of engineering, technologies and mathematics, precisely the areas that females have most difficulty gaining access to. Therefore, it is important to find out which women are involved in international mobility and what their main motivations are in choosing the university and country where they will study, and which meanings of mobility have helped them progress.

An international research project on mobility (MOBEX), cited by Delicado and Alves (2013), which includes some analyses focusing on gender as an important variable, reveals that:

[...] the under-representation of women in science leads to the under-representation of women in mobility, although it is evident that women are held back by specific constraints to mobility (family and children). Less mobility implies, in turn, slower career advancement, fewer opportunities to exercise supervisory and management roles ("glass ceiling") or even the abandonment of science (one of the causes of the "leaky pipe"). (Delicado & Alves, 2013, p. 10)

For female scientists in a family environment, for example, it is more difficult to organise a geographical absence for a long period of time than for men. If we consider

mobility as a requirement for the internationalisation of education, and therefore a requirement for professional qualification, the participation in mobility programmes may be a great opportunity lost for better career advancement among women. Science itself and its institutions, still centred on an androcentric view of the world, sometimes does not furnish the most favourable conditions for the international exchange of women, leading them either to stagnate or to completely abandon their scientific career.

This exclusion may manifest itself in several ways. In a study carried out with Latin American academics on scientific mobility in Portugal, França and Padilha (2013) noted that sexist and racist mechanisms are present in this international experience:

The case of Southern researchers in scientific mobility going to Northern centres results in a social dynamic in which the geopolitical asymmetries are added on top of the race, ethnic and gender markers, directly contributing to exclusion and oppression affecting not only the personal experience of these subjects, but also the legitimisation and recognition of their academic production. (França & Padilha, 2013, p. 02)

In effect, these issues interfere with their career development and their professional recognition. It is clear that, as has been said before, today women often hold their positions thanks to their fight for legitimate rights, but also because they have become useful in a capitalist economy set up for productivity and competitiveness. What we need to better understand is how the woman's identity is being built in this context, how female researchers have been attributing subjective meanings to their choices, and in this case their choice for academic mobility.

In the light of the new challenges of the globalised world, the Brazilian scientific and technological system has invested in the internationalisation of knowledge to strictly comply with the political and economic strategies of the central countries. In the background of these strategies, based on competitiveness and productivity, it is up to those involved in the academic and scientific world to increase the number of international publications and create international collaboration and research networks. It is accepted that scientific careers, with their individual progression paths, incorporate mobility as the main driving force to obtain scientific knowledge and qualifications, and therefore policies and programmes to stimulate exchange have been encouraged. As such, the international mobility circuits obey, for the most part, the idea of moving from the periphery towards the major science and technology centres, although mobility also takes place in multiple directions. According to worldwide data, 62% of foreign students around the world come from "southern" countries (developing countries) and head for "northern" countries (usually developed countries), whereas 30% of student mobility is north-north and only 8% south-south (Nogueira, Aguiar & Ramos, 2008, p. 362). According to the *Compendio Mundial de la Educación 2010*, the United States was the number one destination for international mobility (Castro & Neto, 2012). Brazil is no exception, and the preferred country for mobile Brazilian students is the United States, followed by France, and in third place Portugal.

There are fewer women than men involved in international exchange, mainly because of family reasons (Ackers, 2004). Therefore, it is common to have more single female researchers undergoing mobility than men, possibly because as such they are able to dedicate themselves more to the scientific work. Likewise, women undergoing mobility are less likely to have children than their male counterparts, and are also sometimes faced with difficult reproductive decisions, such as whether to abandon science to have children or to delay motherhood. Also within the scope of mobility, they tend to delay their own career in line with their partner's professional progress (Ackers, 2001). They end up, for cultural reasons, more likely to be tied down by the family, even in moments of mobility, as is the case with female researchers who, in general, and unlike the male researchers, tend to live abroad with a partner and/or their children (Delicado, 2013). These data confirm that family life is a very important factor in the female decisions with regard to their academic careers, which we can understand as a result of the historically constructed gender relations.

The debate about the dynamics of qualified immigration, above all in relation to the specific category of the international mobility of female researchers, is still not widely discussed, although it is very necessary. Considering that the mobility of students and scientists is inseparable from an academic career, it is relevant to analyse female experiences in mobility in the academic and scientific context, both to deconstruct the stereotypes and to give visibility to women's different forms of acting in this field, constructing and reconstructing meanings and actions that contribute to their professional paths.

2. BRAZILIAN WOMEN IN MOBILITY AT THE UMINHO

The empirical data of the study presented here were collected from the application of an online questionnaire, in November and December 2014 and January 2015, sent to the Research Centres and other relevant e-mail addresses of the Universidade do Minho. A *Google Docs* tool was used to collect the data, which was processed using the *SPSS* program. In total, 52 questionnaires were answered by Brazilian women surveyed at the UMinho. In order to map an overview of the respondents' profile, a wide range of aspects were identified, such as age, place of birth, sex, marital status, family income, the Brazilian university the woman was from and the respective courses, as well as details about their address, work and income in Brazil. In an attempt to establish the educational level of the respondents, questions were asked about their social and cultural baggage, not only based on their schooling and higher education, but also based on the development of skills and knowledge that were not necessarily learned in the classroom but which significantly contributed to their academic path. Likewise, an effort was also made to identify the educational background of both parents of the Brazilian women surveyed. The study also looked at the academic mobility through the prism of the course taken at the UMinho, the research area, the start year and expected end year, and also the reasons for choosing the institution and Portugal, the cost of the mobility and the support given by research funding agencies. Considering academic integration a crucial aspect to

undergo mobility, the study aimed to identify aspects of the student's relationship with the UMinho's administrative services and academic or research entities. Data was also compiled with respect to the respondents' social and cultural integration inside and outside the university, as this is considered a relevant aspect to better understand the mobility path of these Brazilian researchers. Finally, the survey also asked questions about the students' assessment of the institution they had chosen and the issue of mobility in general. The physical facilities, administrative services, teaching staff, supervisors and research centres that are or were linked to the UMinho were all evaluated. Furthermore, the respondents were asked to assess their academic production throughout the mobility and their social and cultural integration and about their main difficulties during the mobility.

Of an exploratory nature, this study analysed 52 Brazilian women undergoing mobility at the Universidade do Minho. The percentage of women between 20 and 30 years of age was 25%, from 31 to 40 years old was 35%, between 40 and 50 was 17%, and 23% were over 50 years old. Breaking down the sample into their places of birth in Brazil, it was seen that the Southeast accounted for the largest proportion (36%), followed by the Northeast (29%). The percentage of respondents from the Southern region (23%) is practically double the sum of those from the Northern and Centre-West regions (12%) of Brazil. Most of the respondents are young and single, 21% have children and among this sub-group of mothers, the majority (73%) are over 40 years old. Most have an income of between 3,000 and 6,000 reais a month. It is noteworthy that none of the women have an income of more than 10,000 reais/month. The data also show that a significant percentage of women (19%) have a family income lower than 5 minimum wages (minimum Brazilian wage: 788 reais), just under half (48%) have a scholarship, out of which 44% consider the scholarship insufficient to cover their expenses. Among the women awarded scholarships, 76% do not have children and most of them are in the 30 to 40 year-old age bracket. The youngest women who also do not have children are funded by a research support institution to carry out their studies, which is not the case among the older researchers.

Most of the respondents (58%) have a professional tie to Higher Education institutions in Brazil and come from Brazilian public schools, and they also completed their graduation in public universities. With regard to the educational level of the respondents' parents, the biggest percentage had both mothers and fathers who had completed higher education. 71% said they had poor verbal English skills and only 12% said they spoke it fluently. As for the number of books read per year, the largest proportion (31%) said they read between 5 and 8 books. In terms of scientific publications, 23% (the biggest share) said they publish just one per year. Among the respondents who have published work, all of them did so in an international environment. 79% of the sample had travelled abroad previously, but only 29% had done an exchange before. The majority (52%) are doing an Integrated PhD at the Universidade do Minho, which can, among other factors, be explained by the fact these courses are highly competitive in Brazil. A large percentage is tied to the UMinho through degree courses in the Humanities and Social Sciences area.

Among the main reasons for choosing Portugal are the following factors, in order of prevalence: that fact that *Portuguese is the official language* (81%), *the reputation of the chosen university* (58%) and *the low cost of living* (56%). The language does indeed make it easier to socially integrate, as it presupposes an approximation and cultural familiarity with the country of origin, as well as an alternative for international mobility for Brazilians who cannot speak English. In any event, the requirement for proficiency in a foreign language is recurrent in science and education, both within the scope of universities and international research centres, and at national level. Kaplan (2001, p. 12) emphasises the overriding role of the English language in the international scientific system:

Not only is English the undisputed language of science, but because of the importance of the computer in the internationalisation of English, the English-speaking nations may hold a virtual cartel on scientific information because the international information systems are organised according to an English-based sociology of knowledge.

The preponderance of English in the S&T system is extremely significant, mainly because investment in mobility to English-speaking countries is on the rise. The Brazilian Programme for Scientific Mobility, for example, is currently one of the main channels to send Brazilian students and researchers abroad, especially to universities of North America where they come into contact with technological advances and innovation, obtain financial support for research and enhance their reputation within the scientific system. Portugal, however, is outside this circuit of major hegemonic centres of excellence, although it accommodates well-reputed institutions. The Portuguese language does little to help Portugal be seen as an attractive country for the new internationalisation of education model, which is highly influenced by the domination of English as the universal language. However, for the group under analysis the Portuguese language is extremely important because it functions as a mechanism of integration, both in the academic world and within the context of extra-academic social interactions. We can also point to the possibility that the Brazilians' choice for mobility to Portugal, as a semi-peripheral country (Videira, 2013), aims to conciliate the needs for integration and socialisation with the demands of scientific communication in English, given that in Portugal proficiency in English is also required in the context of scientific production.

As for the reasons behind choosing the UMinho, the respondents stated that they did so because they wanted: *to improve their academic curriculum* (77%), *a personal change* (55%), *to develop skills related to the profession* (54%) and *to get to know another country and its culture* (48%). It is possible to affirm that the choice of Portugal and the Universidade do Minho brings together two sentiments in relation to mobility: one is the desire to settle and to socially integrate and the other is to seek prestige and academic and scientific recognition. The Universidade do Minho caters for this possibility for the internationalisation of education, which means that within the group researched this mobility also represents a competitive model of education that can positively impact on their careers.

As for academic integration, the research revealed that the majority of the respondents (67%) received academic support from the UMinho, 37% enrolled in the university's departments, 43% received an invitation to take part in the inaugural lesson and 42% received the institution's regulations. Among the respondents, the majority (87%) attended lessons at the UMinho, 37% took part in research groups and 35% published academic texts with their supervisors at this university. The proportion of respondents who live alone in Portugal (36%) is practically the same as those who live with their partners and/or children (35%). They manage, for the most part, to create friendships with the Portuguese inside and outside the academic environment. 23% of the respondents involved themselves in romantic relationships with Portuguese outside the academic environment with a lower percentage (7.7%) having relationships with UMinho colleagues. It is added that the respondents mainly have relationships with their compatriots, which may on the one hand be a reflection of a usual situation in mobility, but on the other hand may be linked to a stigma in Portugal, albeit in decline, concerning Brazilian women, leading to problems of social integration. The majority of the respondents (96%) visited cultural activities and amenities in Portugal such as museums, the cinema and so on, as they would in Brazil.

In general, the respondents have a positive evaluation of the exchange with regard to the physical facilities, the administrative services, the teachers, the supervisors and the research centres, with the "Supervisor" category obtaining the most assessments of "Excellent". It is pointed out, nevertheless, that despite the large percentage of positive assessments in the *social and cultural integration* category during the exchange, the respondents are or were not without significant difficulties during the mobility. The aspects that caused difficulties that had the highest percentages were *socialisation* (50%), *financial problems* (29%), *transport* (23%), *culture* (21%), *accommodation* (21%), *administrative problems* (19%), *academic problems* (15%), *food* (10%) and the *climate* (4%).

FINAL CONSIDERATIONS

This study provides, albeit only initially, some indicators about the particular kind of mobility under analysis, given the choice of the destination country, with all its implications, and the sample profile under investigation – Brazilian female researchers who were undergoing an academic international exchange. In comparison to the hegemonic forms of academic mobility, Portugal is a semi-peripheral mobility destination, since its universities are not among the world's major ones in the S&T system. Therefore, we can surmise that the country is outside the competitive template one would expect in the great research centres, whose bright lights attract the "brilliant minds" and where the largest investments for international mobility are also channelled to, especially in the areas of the exact sciences and technologies. Furthermore, the growing importance of English as a universal language of science is further legitimised in these major research centres, and progressively perpetuated in the peripheral centres. The other particularity refers to the surveyed group, which is restricted to females, which in turn is reflected in

their mobility options where we can say that their motivations are heavily influenced by aspects of a social nature. This suggests there are correlations between gender, the research field and the mobility destination countries. However, in this exploratory study it was not possible to confirm these correlations, with a broader and more in-depth future analysis required.

The subjective meanings underpinning mobility are extremely revealing as regards how women manage their careers and how they take on board the objective demands of the market and their profession. Competitiveness and productivity are factors that explain the new educational dynamic, geared towards the internationalisation of education and which encourages academic mobility. In these terms, experience of international mobility provides the opportunity to have a more competitive curriculum. However, this opportunity is far greater when the mobility is to the major research centres and such vacancies are must sought-after in the academic and scientific world, such as opportunities in the United States, which today is the number one destination chosen by people from other countries undergoing academic mobility.

The new globalised and competitive educational panorama brings to the fore the power relations that affect the S&T system as a whole, both as regards the relationships between countries and their education and market models, and in terms of the ethnic, age and gender relations. Without neglecting the domination and power structures in place in science and academia, and without embracing conclusions, this study draws attention to the fact that the mobility under analysis, among Brazilian female researchers on post-graduate courses at the UMinho, is characterised by a non-hegemonic form of internationalisation of education, marked by the need to attain visibility and greater professional recognition, plus a set of subjective meanings of a social nature, which lead to this specific kind of mobility, in order to try and build new paths of action in science.

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