

# DOCTORAL GRADUATES OF THE SOCIAL SCIENCES AND HUMANITIES CAREER PATHS: THE CASE OF PORTUGAL

Heloísa Perista, Pedro Perista & Dominique Vinck

---

## ABSTRACT

While it is said that the mobility of PhD graduates would be encouraged outside the academic environment, they continue to work mostly within higher education and research. This paper explores the professional life courses of 25 PhD Portuguese graduates in the Social Sciences and Humanities in order to understand the process according to which they move or not from one sector to another. A first dataset results from an online survey of SSH doctoral graduates. A second dataset is made of the transcripts of 25 in-depth interviews with doctorate holders. The paper sheds light on their motivation and expectation, among other expectation emerging over the course of their doctoral research.

## KEYWORDS

PhD; trajectory; career path; social sciences; Humanities; mobility

---

## INTRODUCTION

Doctoral graduates have high academic qualifications and specialised skills for knowledge creation. They could play an important role in terms of knowledge transfer (Herrera et al., 2010; Zellner, 2003) from research toward innovation and societal development especially when employed outside of Academia. Policy makers consider their contribution as relevant for development issues (Cheung et al., 2012) and have launched programmes to increase the stock of human research capital and to support their mobility (Cañibano Sánchez et al., 2011; Vinck, 1996) toward various sectors of society (Ackers & Gill, 2008). The midterm review of the “Lisbon Strategy for Growth and Jobs” further emphasised the need to face the crisis by training doctoral students and promoting research careers, including through business-academia collaboration (COM, 2011). By increasing doctorate holders mobility and boosting their career prospects, it should be possible to enhance their integration into different sectors (Cruz Castro & Sanz Menéndez, 2005; Fritsch & Krabel, 2012; Thune, 2009).

If public policies look for increasing the human capital stock of highly qualified people, their employment outside the academia is not always evident. The attractiveness of these jobs seems to be limited (Enders 2002), among others because doctorate holders suffer the frustration of being over-qualified for the job, especially in the field of SSH (Calmand & Giret, 2010). Thus, they are still mainly employed in higher education and public research sector (Auriol et al., 2013). When they drop out the academia, the main motivations are the high level of competition for a limited number of places (Fox & Stephan, 2001), the scarcity of tenured professorships (Barnacle & Dall’Alba, 2011), the

poor academic wages (Stephan & Levin, 1997), the limited attractiveness of an academic career (Huisman et al., 2002) and the increasingly insecure position (Horta, 2009).

When talking about doctorate holders mobility, decision makers and scholars generally think about natural sciences and engineering. Previous research considering they could work outside academia (Auriol, 2010; Cyranoski et al., 2011; Lee, Miozzo & Laredo, 2010; Yerkes et al., 2012) refer to them. There are however important differences between disciplines (Fritsch & Krabel, 2012). But what about SSH (Social Sciences and Humanities) doctorate holders? Until recently, little was known about their career paths because these disciplines are seen as being less critical to the economy. Furthermore, doctorate holders in the Humanities find working in the private sector to be less attractive than their colleagues from other disciplines. Furthermore, when they work for a private firm, they become more frustrated regarding the reward for their intellectual efforts (Canal & Wall, 2014). Working in an academic environment still generates a better job satisfaction.

Till recently, Portuguese doctorates, namely in the field of Social Sciences and Humanities (SSH) were traditionally clustered in the academia. It was common that the PhD consisted of the *pièce de résistance* of an academic career, the culmination of years (decades) of research.

However, the 2000s witnessed changes regarding this matter and a new university teaching profession career code, laid down in Decree-Law 205/2009, of 31 August, and established the PhD as the minimum requisite for acceding a teaching position.

Conversely, the world outside academia evidenced little signs of attention to the wealth of experience deriving from the enlargement of the number of doctorates in SSH. From 2000 to 2010, 5,164 people obtained the degree, more than doubling the 2,285 people who became PhD holders in SSH between 1970 and 1999. In 2011 and 2012, alone, 1,711 people obtained a doctorate degree in the field of Social Sciences and Humanities. Even so, it became more common to find SSH doctorates in sectors other than the academia than before.

This paper intends to explore the trajectory doctorate holders and to fill in the knowledge gap regarding SSH doctorate holders, their career path and the places where they intend to work. Following their trajectory, we also shed light on the process according to which they move from one perspective, expectation and place to another. We explore the evolutions taking place along their career paths, especially regarding their decision to work inside or outside academia and the reasons and conditions underlying moves.

## A SURVEY AND IN-DEPTH INTERVIEWS

This article is based on a research supported by the EU FP-7 for the POCARIM project (*Mapping the Population, Careers, Mobilities and Impacts of Advanced Research Degree Graduates in Social Sciences and Humanities*)<sup>1</sup>. By “SSH”, we consider the following disciplines: Archaeology, History, Languages, Literature, Philosophy, Ethics, Religion And Other Disciplines Classed Under The Humanities (H); Anthropology, Ethnology, Demography,

<sup>1</sup> More information is available in : <http://www.liv.ac.uk/law-and-social-justice/research/pocarim/>

Educational Sciences, Media And Communications, Political Science Including Public Administration And International Relations, Psychology, Social And Economic Geography, Human Geography, Sociology, and other disciplines belonging to the Social Sciences (SS); and, finally, economics, business, management science and law (EL).

First, we constructed a dataset from an online survey, deployed in English and in other national languages using SelectSurvey.Net software, on SSH doctoral holders in 13 European countries (France, Germany, Hungary, Italy, Latvia, Norway, Poland, Portugal, Slovakia, Spain, Switzerland, Turkey and the UK). The survey targeted a sample of SSH doctorate holders having graduated between 2000 and 2012 and was balanced in that it covered a variety of SSH disciplines, sectors of employment, educational establishments and regions. The response dataset was recoded, checked and cleaned. For Portugal, we produced 175 valid responses.

Second, we performed 25 in-depth interviews for Portugal, representing a sample of doctorate holders having agreed into the survey to be interviewed. The interview guideline covers various topics regarding the shaping of their career path and the processes involved: the pre-doctoral situation and its relation to the doctorate, the doctoral training and their expectations, the work done after the doctorate including the methods used to find a job, the relevance of doctoral skills, the motivation, various form of mobility and networking, language issues, inter-disciplinarity, impact of work, family issues, etc. Lasting around one hour, each interview was recorded, fully transcribed and encoded using NVivo.

For this paper, the analysis of the data focuses on the participants' sector of employment, their professional life trajectory path, when and how they set up ties with the world outside academia and which were their moves. The objective is to understand the dynamics underlying these moves. Each respondent's path is qualified and codified in order to translate them as a series of steps and branches. The results were entered into tables and processed using Excel, Gephi and TraMineR to produce a summarised view.

#### CAREER PATHS AND MOVE DRIVERS

In the survey, 53,5% of the respondents were men and 46,5% were women. Most of the PhD holders who responded (54,3%) graduated between 2009 and 2012, giving the sample a young PhD holder bias. Roughly 90% graduated in the last ten years. The disciplinary composition of the sample slightly is the following (table 1).

DISCIPLINES	SURVEY PERC.
Economics and business	18,9
Sociology	15,4
Educational sciences	11,4
Languages and literatures	9,7
Psychology	9,7
History	8,0
Law	5,7

Social and economic geography	4,0
Philosophy, ethics and religion	3,4
Archaeology	3,4
Other	10,4

Table 1: Composition of the sample in the survey

Economics and Business, Sociology, Educational Sciences, Languages and Literature and Psychology accounted for about two out of three respondents. Female respondents were majoritarian in Economics and Business (56,3%), in Sociology (69,2%), in Languages and Literature (58,8 %) and in Psychology (81,3%). Only in sub-discipline Educational Sciences male respondents were majoritarian (55%).

Regarding employment, the vast majority (96%) of the doctorate holders surveyed were in paid employment (including fellowship). Among them those having a job, 84,1% were employed in the public sector and 12,9% in the private sector. Over 90% (92%) were employed in HER sector. The Portuguese situation is similar to the one registered by the European survey (87% in the public sector, 7% in the private sector and 2% in the third sector), though the ‘reinforcement’ of the private sector should be noted.

Regarding their career paths, following their graduation, 53, 6% of the respondents were offered permanent first employment. Male respondents enjoyed a permanent first employment slightly more easily than female respondents (56,8% compared to 52,7%). In both cases the current situation was less stable (56,1% compared to 50%) though it should be noted the more significant change in women’s situation, situation to which the instability caused by the economic and financial crisis is deemed to be relevant.

The major differentiating factor regards the time the PhD degree was obtained. If approximately two out of three of those graduating till 2009 were offered a permanent first employment, this proportion decreases to less than 37% among those graduating between 2010 and 2012.

Curiously, among those obtaining the degree between 2000 and 2009 more women (69,2%) than men (63%) obtained a permanent first employment while for those obtaining the PhD between 2010 and 2012 the situation was opposite – 30,8% of women compared to 46.4% of men.

In most cases there have not been moves between sectors. The vast majority of respondents (91,8%) always held a job in a higher education or research organisation. Only 1,8% of respondents moved between sectors. 97,1% of those whose first job after the PhD was in the public sector remained in the public sector.

However, even if the majority of those who first worked in the private sector remained in the sector, approximately one out five moved into the public sector. The combination of these results demonstrates that, within a scope of immobility, the few changes regarded, most of all, professionals who moved from a private higher education or research organisation to a public one.

## UNDERLYING DYNAMICS

From the interviews, we got greater insight into the paths details and their expectations before and during the PhD thesis, as well as during their first and current job. Looking at each of these steps, the analysis of the interviews allowed qualifying the direction of the intended move, the reasons to engage or to stay into an academic career of the expected changes in direction. The analysis also qualifies the reality of the moves. This allowed us to generate a table (table 2) and a graph (figure 1) summarising the career paths for all the interviewed SSH doctorate holders graduated in Portugal, regarding the following steps:

### Step 1. Four types of pre-thesis situation observed:

- In academia: as a student, the participant had already decided to pursue a career in academia; embarking on a doctoral thesis was thus an obligatory point of passage.
- On the margins of academia: as a student, the participant did not have a clear view of their career plan; they started a doctorate because they thought they might like to work in research or simply have the opportunity to do research without any specific expectations.
- Outside academia: as a working individual, the participant wanted to change his/her prospects but did not see academia as a possible future.
- Not in research: as a working individual (outside academia and possibly in parallel with or in between their studies), the participant wanted to improve his/her skills without necessarily expecting to work in academia.

### Step 2. Confirmation or branching off during the thesis:

- In academia: the participant discovered or confirmed his/her penchant for research and expected to pursue a career in academic research.
- On the margins of academia: the participant discovered a different world outside academia but continued to pursue an academic career.
- Research outside academia: the participant discovered a different world outside academia and began to think seriously about pursuing a non-academic career.
- Not in research: the participant confirmed his/her wish to work outside academia.

### Step 3. First job following the doctoral thesis:

- In academia: the participant worked in academia with the intention of staying there.
- On the margins of academia: the participant worked in academia but held an insecure or marginal position and aspired to a more full-time or permanent position.
- Research outside academia: the participant worked in research outside academia.
- Not in research: the participant worked outside academia but possibly maintained links with the academic world.

### Step 4. Current job (same categories as in step 3).

	BEFORE PHD	DURING PHD	1ST JOB	CURRENT JOB
Not in research	12% (3)	4% (1)	16% (4)	20% (5)
Outside academia	4% (1)	4% (1)	8% (2)	4% (1)
On the margins of academia	28% (7)	36% (9)	68% (17)	40% (10)
In academia	56% (14)	56% (14)	8% (2)	36% (9)
<b>TOTAL</b>	100% (25)	100% (25)	100% (25)	100% (25)

Table 2: Moves between career steps

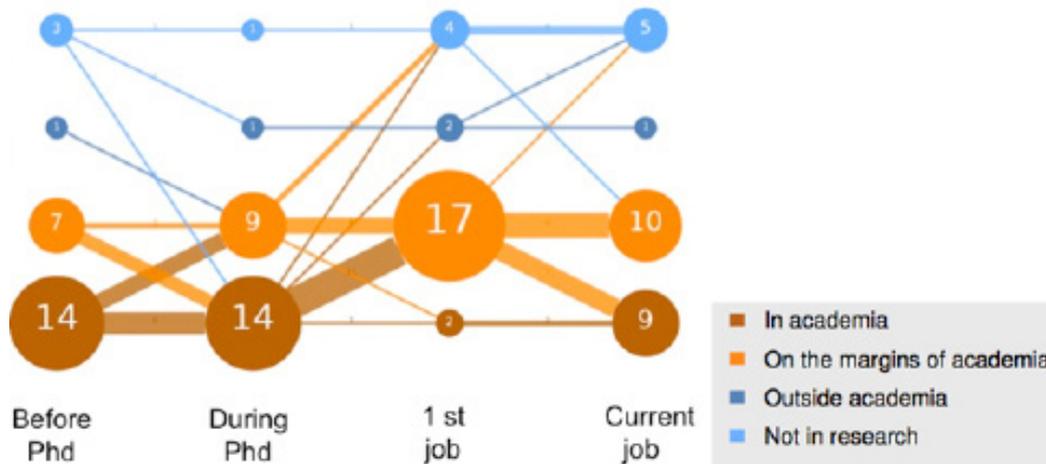


Figure 1: Moves between career steps

Before their PhD thesis, only 56% of the respondents expected to embark on a PhD in order to enter or progress the academia. For them, a doctoral thesis was seen as an obligatory point of passage.

Q: You chose to undertake doctoral study or was it more like an imposition of your career at the university?

A: It was a bit of both. It was a choice, not as much for the PhD but rather for the career. The PhD was instrumental in order to be able to progress in the career. (PT1 – in academia, male, age 45)

The PhD came as an obligation of my career. I had to complete a PhD or I would have to leave the university. (PT5 – in academia, female, age 43)

This means that an important minority (44%) who embarked on a PhD did not expect to pursue an academic career. Those who had studied without any clear career plan represent another significant group (28%). These doctorate holders started a doctorate because they were interested in research or they were good students and a professor suggested they do a PhD thesis. This was the case of a woman doing her master’s degree in France:

When my master thesis was just about to be examined the main supervisor told me I had the capability to do a PhD. It's not like in Portugal where people apply for a PhD. There, the PhD results from invitation. That was how I got the PhD because initially the idea was to do a master. (PT3 – not in research, female, age 37)

For some others, their interest in research coupled with the possibility to participate in a research project opened the door for the PhD:

When I was taking my degree, I liked all the research works and it thrilled me. When I finished the degree, I was interested in doing a masters degree (...). The idea of a master's degree came to my mind because I wanted to learn more and I got thrilled with the idea of investigating in the master's degree extent. Meanwhile, when I entered into the master's degree, [name of supervisor] had an FCT project approved and there were two scholarships for researchers. (...) When I entered the project it arose the possibility of doing a master's degree dissertation in the extent of the project. Things started very well and I was thrilled with that project. At a certain time it came the idea of passing, as a matter of fact I never finished the master's degree, I made the first year and I asked for equivalences for the first year of PhD and I jumped into the PhD. (...) I didn't justly have the intention of being a university teacher, in fact, for a while, it was not an aim. The thing was that I wanted to do some research and to learn more. When I was in my degree, I thought I needed to know more; when I was in the master's degree I thought I could do more and then in the PhD I thought I could learn more and I kept going. (PT16, in academia, female, age 37)

In other cases they were interested in the topic they were working on and wished to study it further without necessarily having any specific expectations in terms of career. Their motives were intellectual; they were spurred by their enthusiasm and passion for a research topic, and by their background. This was the path followed by an Italian man who came to Portugal to pursue his studies in Philosophy, in his case with a view of enter the academia some day; at the moment of the interview he was doing a post-doc:

Well, it was the interest by the discipline and the will to continue working in the area of Philosophy that is my area. This is not an area offering much more paths... as preparation, it can open paths for other careers but if someone wants to continue studying Philosophy, to work in this field, is almost obliged to pursue an academic career. When I graduated I was still very motivated to continue in the field. Thus the idea to engage in doctoral studies was the idea of continuing and deepening what I had started in my graduation thesis. (PT6 – on the margins of academia, male, age 42)

The third group (16%) covers those already in employment (sometimes in parallel with or in between their studies). The participants in this group had different motivations

to do the PhD but had no academic aspirations. One woman working in research outside academia pursued her PhD in order to comply with the requirements of research career and national funding bodies:

Q: What were your main motivations for doing a PhD?

A: Motivations were rather professional than personal. I had never thought about going into doctoral studies. However, at a certain moment, more and more imperatives started to come up, mainly in what regards national funding, for grant applications to include doctorate holders. (PT2 – in research outside academia, female, age 49)

Another respondent, a 51 years old man took a PhD in 2011. This improved his opportunities to continue doing some teaching at a private university but he had no other expectations related to the completion of the thesis regarding his main professional activity, as a self-employed in the private sector, not related to research. In any case the PhD was an opportunity to expand his scientific knowledge and skills.

Self-fulfilment and personal development was also a motivation for other respondents, such as a male secondary school teacher who completed his PhD in 2007 in his late 40's:

I am a secondary school teacher, so the decision of doing a PhD was only for a matter of personal accomplishment. It was not a decision which had to do with my professional career. (...) In my area, which is history, the odds of joining any [Polytechnic] institute even for a short period of time are very few. Therefore doing a PhD was a matter of personal fulfilment. (PT 21 – not in research, male, age 54)

This group, therefore, did not necessarily embark on a PhD with a view to pursuing an academic career. These results are consistent with previous research on SSH PhD students and what motivates them (Brailsford, 2010; Guerin et al., 2014; Leonard et al., 2005; Roach & Sauermann, 2010).

Some changes in direction occur during the PhD thesis. During this period some of the PhD students surveyed (24%) began to think about pursuing an academic career, either discovering or confirming their desire to continue to do research in an academic environment. The case of a woman who had a stable position as a consultant on regional planning but who decides to embark on a PhD illustrates this kind of changes during the thesis:

I never had the ambition of pursuing an academic career, never! I am very pragmatic and research was not something fitting my way of being. My graduation was on planning and that was I learnt to do, to provide quick answers to real problems. As such, this thing of researching, of wanting to know, a lot of theory was something that did not even fit my way of being, as a person. Thus, in the beginning, I had a lot of problems trying to match

things. (...) Now, I learnt to love research and I'm pity that I do not have the opportunity to do it. (...) indeed, I became in love with research for research. For theory, for scientific development. I became to be what I wasn't before, even as a person. I became much more curious. (PT11 – not in research, female, age 36)

Another 32% thought about pursuing an academic career while doing their thesis even if they had discovered a different world and were ready to move outside academia if necessary. Thus 56% of the participants seriously thought about an academic career during their thesis period. The remaining respondents (only 44%) either discovered another world outside the university environment and started to think seriously about a non-academic career (36%) or had already planned to work outside HER (8%). There are only 4% of the PhD students who had expected to work in business, engineering or health before moving into SSH but who changed their mind during their thesis.

However, following PhD graduation, only 4% obtained permanent positions in academia and wished to pursue this path. The majority of the respondents (68%) found themselves in unstable positions in academia owing to the reality of the labour market. Keen to pursue an academic career, they found jobs in academia but of a more insecure (e.g. research contracts or temporary teaching positions) or marginal nature (e.g. HER administrative positions). The PhD though led to some improvement regarding job security and payment in academia. This was the case of a respondent teaching in a large private university:

Before, during and after the PhD I always taught in the same university. The only thing is that when I finished the doctorate, less than a year ago, the faculty offered me a somewhat better contract than the one I had before. I worked with 'recibo verde' [green receipt, a form of bogus self-employment] for about eight years. This was precarious and so I had to do other things, in the field of music, besides developing the PhD. This was difficult in terms of time management. When I finished the PhD and as a consequence of that or perhaps not only because of that, I was offered a temporary contract. But still, a temporary contract, not permanent. But, at least, now I have a monthly salary. (PT4 – in academia, male, age 31)

Very few found a position in research outside academia or discovered the existence of a non-academic public research sector or the private research sector. Others stayed in a job in secondary education, business, consulting, public administration or an NGO. However, when participants from this group were interviewed, most were found to have maintained contacts with the academic world: teaching at the university; continuing to do collaborative research with academics; recruiting PhD students in their business and co-supervising their theses; publishing articles, sometimes as co-authors alongside academics, even if research was not part of their job.

Several years after their PhD, 36% of the respondents found stable positions in academia.

When I finished the PhD [in 2005] I automatically became auxiliary professor with a contract for five years. When this ends I may ask for a permanent contract. This is the step I am at. I just got in definitive appointment, based on CV analysis and on two opinions and after approval of the Scientific Committee of the University. (PT10 – in academia, female, age 40)

Other 40% remained with marginal and insecure positions in academia but continuing to aspire to a career in this environment, in spite of their waning confidence. Some persevered in academic environment even when the employment conditions and prospects were poor. There 20% who finally work outside research; only 8% of them were always outside academia; the others move from position and expectation to stay in academia but changed alongside their career path.

Those who left academia said that their contract had finished or that they were looking for better career opportunities. However, their reasons for leaving academia varied according to their work experience outside academia during or after their PhD. For instance, those with experience in industry or public administration were more likely to drop out of academia.

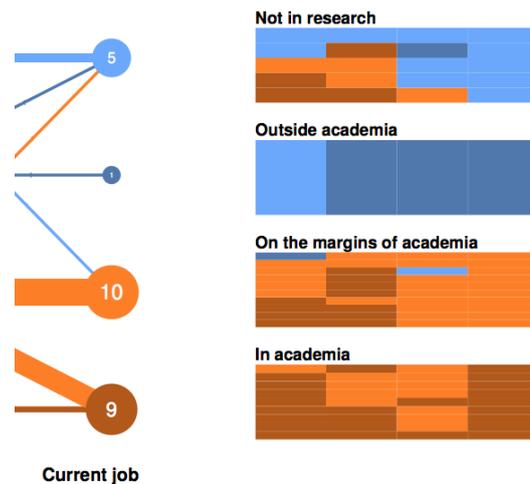


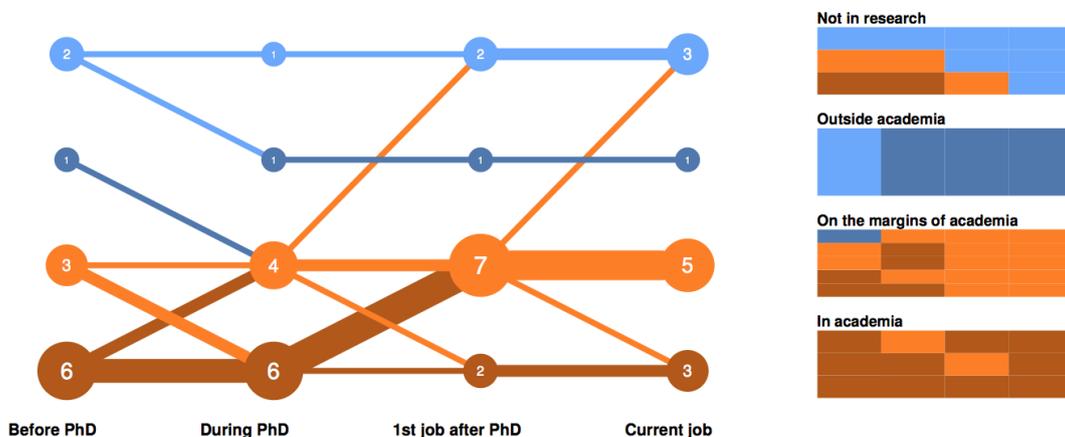
Figure 2: Moves between career steps for respondents classified from their current job.

The case of a woman who started her career working as a private consultant, moved to university for several years with the aim of pursuing a doctorate, and finally left academia after having completed her PhD deserves specific mention:

I defended my PhD thesis on the 10th of May 2010, a Friday afternoon. The next Monday I was told that I had become a resource too expensive for the institution that had grant me the degree. Naturally, I talk about this with sorrow. So, I had to choose. One option was staying and waiting for better times, being subject to tasks not compatible with my degree and I did not accept that because I knew the institution from the inside and I thought that conditions were gathered to offer me more. The issue was not really my

degree but probably other things that were not explained to me. Curiously, I got an invitation from a professor, with whom I had been in contact during the PhD but not recently, to integrate the research group you mentioned. I found that to be too much coincidence but I accepted. That was in May 2010 and till February 2011, when I started here, I had no formal professional activity there. I integrated the centre as collaborating member because I was a doctorate and that is the only way to enter. I was interested because I was attached to a centre and they were interested because they had one more doctorate and that is important in terms of budget allocation from the Ministry. Only as collaborating member, I repeat. I collaborated in three or four applications without getting paid. In the meanwhile I acted as a consultant for a municipality and I elaborated applications for a company in [name of town], and that was where I got my income. I got pregnant and my son was born in August and I decided that this was too unstable and thus I decided to search for other options. My application here [a higher education-related public body] resulted from an ad in a newspaper. I made the application, got through the regular procedures – two interviews and one exam – and I got in. And here I am! (PT11 – not in research, female, age 36)

Regarding the trajectories of Portuguese SHS doctorate holders, we observe that most (89%) of those who got a permanent position expected to get it but opened their mind to other possibilities during the theses and started by an unsecure position. Those whose still are in unsecure academic position or stay at the margins of academia either had no specific expectation regarding an academic career but (50%) or expected to pursue with an academic career (40%). Among those who are working outside academia or out of research were already working but wanted to change their prospects and saw the research or academia as a possible future (50%) which finale didn't materialize. A minority (20%) of those who are working outside academia or out of research expected to do an academic career but changed during the thesis or when facing their first job. There is a clear difference between three patterns of career path.



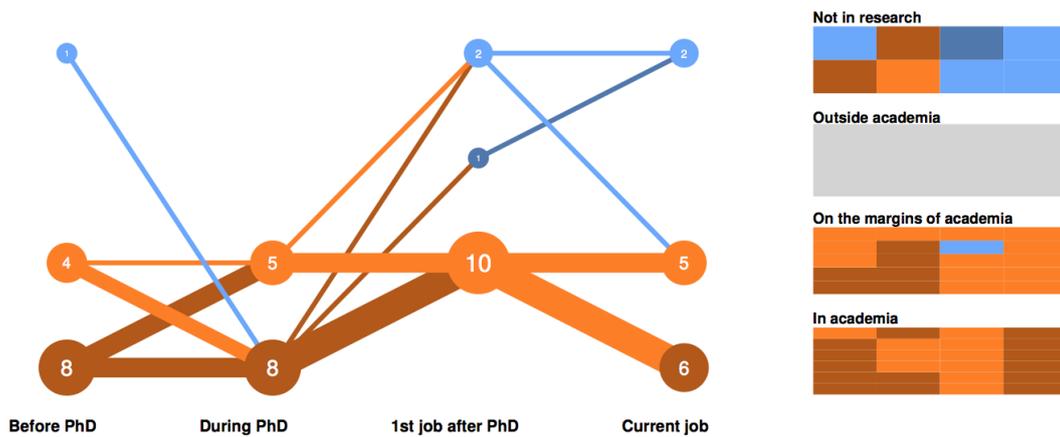


Figure 3: Moves between career steps for male and female respondents

Regarding gender differences, men and women respondents had similar profiles in terms of their expectations before their PhD thesis, except there were more men outside academia (figure 3). During their doctorate, there is no change, while for the first job only men got a permanent academic position (8%). A few years after graduation, more women doctorate holders (24%) obtained a permanent position in academia.

Regarding discipline differences, in Humanities, there are two distinct patterns: a marginal one outside academia and the dominant one around expectation to do an academic career but which results for only one third who expected it before or during the thesis (figures 4a).

For social sciences, the dominant flow is around expectation to do academic career before or during the doctorate but with a progressive flow of drop-out toward employment outside research and a pattern of graduates getting a first unsecure job in academia before stabilizing in academia.

For economics, business and law, the four respondents had four distinct career paths but all finishing in academia (weather or not in a permanent position).

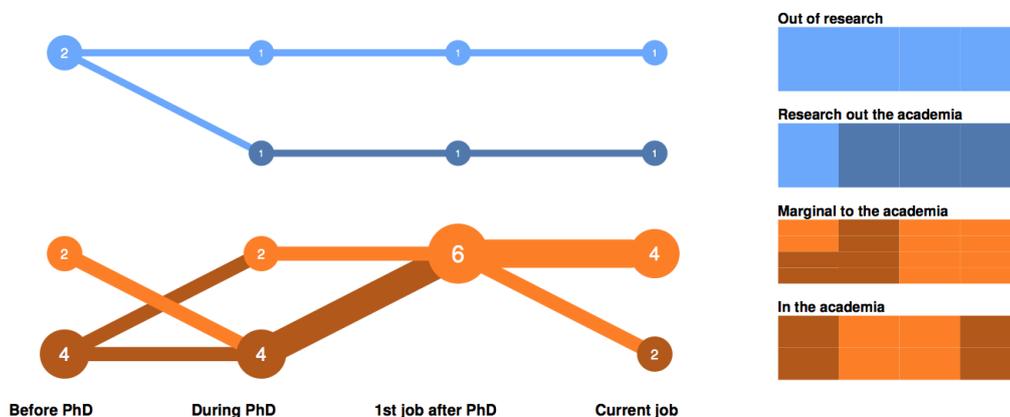


Figure 4a: Moves between career steps for Humanities respondents

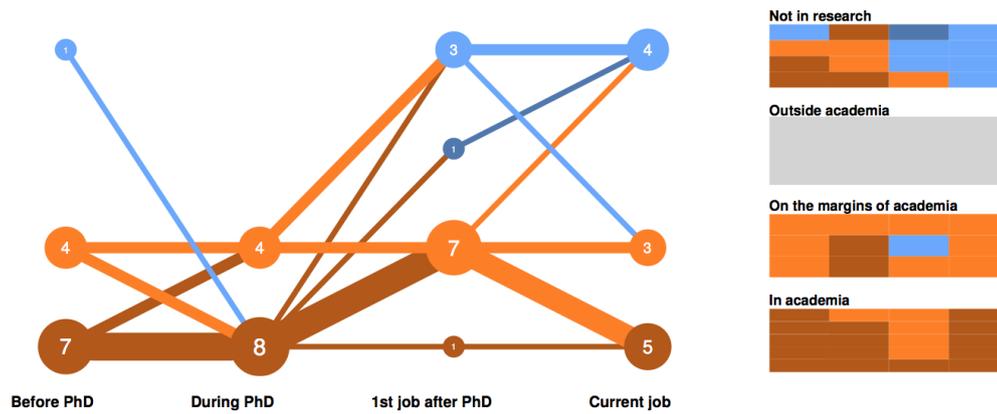


Figure 4b: Moves between career steps for Social Sciences respondents

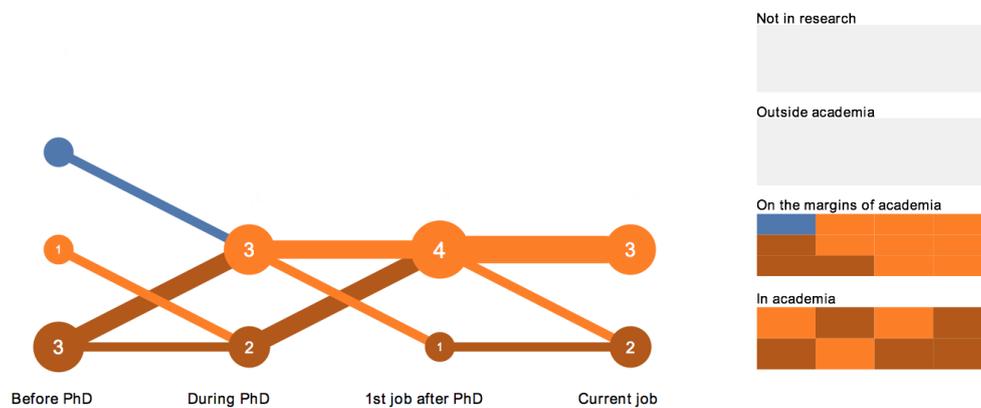


Figure 4c: Moves between career steps for economics, business and law(c) respondents

Looking in-depth to interviews, we also better understand career paths and their internal dynamics. Learning and networking, among others, appears relevant to understand the shaping of the career paths. For part of the doctorate, the interest in research emerged either during master’s course or during the PhD itself but facing to the uncertainty of employment in academia, many are forced to think about their career. However, not so many move towards another sector or seem to prepare themselves to work in another sector.

I do not know if I have a future in this university career because we reached a point where the stability of people is threatened. There is the threat of the dismissal of civil servants, of the diminishing of the social State. Thus, I do not know about the future.

Q: Is the change of sector part of your plans?

A: No, it’s not part of my plans. The university was my option. If I wanted to leave, I would have left before and I would have embraced a life in politics. (...) Otherwise, there is no chance of changing sector. (...) I see

no other chances of changing sector in the current conjuncture. And I don't think I'm a particular situation. (PT1 – in academia, male, age 45)

As another respondent said, due to current labour market constraints but also to skills recognition related issues, intersectoral mobility might be easy elsewhere, but not in Portugal:

(...) once in a while I think about “What if ...”, but there aren't many alternatives for change. Firstly, because the working opportunities do not allow an easy change at this time. Secondly, because I know my skills and I know what I am capable of, but I don't think that other people are able to look to a higher education professor and realize his potential in other areas, besides teaching. So, I think it won't be easy, in Portugal, for a higher education professor to switch areas. Elsewhere yes. (PT 20 - in academia, male, age 41)

## DISCUSSION AND CONCLUSION

This article studies the career path of SSH doctorate holders in Portugal. Globally, it confirms the fact that a majority of them prepare graduate doctors for an academic career but only 36% got to stabilize in academia. After several years after graduation, another 40% still stay on unsecure academic position or at the margins of the academia. 24% stabilize outside research activities or into research outside academia. Part of the respondents got, during the PhD, the expectation to pursue an academic career but, after graduation, they were confronted with the reality of the labour market. A significant number of graduates remains in precarious positions but progressively achieve greater academic stability while some move towards research outside academia or move outside research altogether. There are no major differences between men and women graduates. Conversely, there are differences according to the scientific areas. Expectations are higher in Social Sciences than in Humanities. In between Social Sciences, they are also higher in Economics, Business and Law, then in other areas. New investigation would be of high interest in order to study career paths, career success and job satisfaction (Canal & Wall, 2014) for the other disciplines.

As it has been observed that there are not so many to move toward another sector, further research would be helpful to understand how PhD holders move outside the academy, if they develop relationship outside academia (Mangematin, 2000), for instance through an agreement with a public or a private partner, and how do they manage their learnings on different professional contexts.

## BIBLIOGRAPHIC REFERENCES

Ackers, L. & Gill, B. (2008). *Moving people and knowledge. Scientific mobility in an enlarging European Union*. Edward Elgar: Cheltenham.

- Auriol, L. (2010). Careers of doctorate holders: employment and mobility patterns. *Science, Technology and Industry Working Papers*, 4. Retrieved from <http://dx.doi.org/10.1787/5kmh8phxvfv5-en>
- Auriol, L.; Misu, M. & Freeman, R. A. (2013). Careers of Doctorate Holders: Analysis of Labour Market and Mobility Indicators. *Science, Technology and Industry Working Papers*. Retrieved from <http://dx.doi.org/10.1787/5k43nxgs289w-en>
- Barnacle, R. & Dall'Alba, G. (2011). Research degrees as professional education? *Studies in Higher Education*, 36 (4), 459–70.
- Brailsford, I. (2010). Motives and aspirations for doctoral study: Career, personal, and inter-personal factors in the decision to embark on a History PhD. *International Journal of Doctoral Studies*, 5, 15-27.
- Calmand J. & Giret J.-F. (2010). *L'Insertion des docteurs: Enquête Génération 2004, interrogation 2007*. Rapport d'enquête Céreq. Retrieved from <http://www.cereq.fr/index.php/publications/L-insertion-des-docteurs-Enquete-Generation-2004.-Interrogation-2007>
- Canal-Domínguez, J.F. & Wall, A. (2014). Factors determining the career success of doctorate holders: evidence from the Spanish case. *Studies in Higher Education*, 39(10), 1750-1773.
- Cañibano Sánchez, C.; Otamendi, F. J. & Solís, S. (2011). International temporary mobility of researchers: a cross-discipline study. *Scientometrics*, 89(2), 653-675.
- Cheung, C.; Guillemette, Y. & Mobasher-Fard, S. (2012). *Tertiary education: Developing skills for innovation and long-term growth in Canada*. OECD Economics Department Working Papers, 991. Retrieved from <http://www.oecd-ilibrary.org/docserver/download/5k92pghq4247.pdf?expires=1461705338&id=id&accname=guest&checksum=E620BAF8439DF812009DA98E997EE5AC>
- Cruz Castro, L. & Sanz Menéndez, L. (2005). The employment of PhDs in firms: trajectories, mobility and innovation. *Research Evaluation*, 14(1), 57-69.
- Cyranoski, D.; Gilbert, N.; Ledford, H.; Nayar, A. & Yahia, M. (2011). Education: The PhD factory. *Nature*, 472, 276-279.
- European Commission. (2011). *Supporting Growth and Jobs – An Agenda for the Modernisation of Europe's Higher Education Systems*. Retrieved from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0567:FIN:EN:PDF>
- Fox, M. & Stephan, P. (2001). Careers of young scientists: preferences, prospects and realities by gender and field. *Social Studies of Science*, 31(1), 101-122.
- Fritsch, M. & Krabel, S. (2012). Ready to leave the ivory tower? Academic scientists appeal to work in the private sector. *Journal of Technology Transfer*, 37(3), 271-296.
- Guerin, C.; Jayatilaka, A. & Ranasinghe, D. (2014). Why start a higher degree by research? An exploratory factor analysis of motivations to undertake doctoral studies. *HERDSA - Higher Education Research & Development*, 34(1), 89-104.
- Herrera, L.; Munoz-Doyague, M. & Nieto, M. (2010). Mobility of public researchers, scientific knowledge transfer and the firm's innovation process. *Journal of Business Research*, 63(5), 510-518.
- Horta, H. (2009). Holding a post-doctoral position before becoming a faculty member: does it bring benefits for the scholarly enterprise? *Higher Education*, 58(5), 689-721.
- Huisman, J.; Weert, E. & Bartelse, J. (2002). Academic careers in Europe. The declining desirability of the faculty position. *Journal of Higher Education*, 73(1), 141-160.

- Lee, H.; Miozzo, M. & Laredo, P. (2010). Career patterns and competences of PhDs in science and engineering in the knowledge economy: The case of graduates from a UK research-based university. *Research Policy*, 39, 869-881.
- Leonard, D.; Becker, R. & Coate, K. (2005). To prove myself at the highest level: The benefits of doctoral study. *Higher Education Research & Development*, 24(2), 135-149.
- Mangematin, V. (2000). PhD job market: professional trajectories and incentives during the PhD. *Research Policy*, 29(6), 741-756.
- Stephan, P. & Levin, S. (1997). The critical importance of careers in collaborative scientific research. *Revue D'Économie Industrielle*, 79, 45-61.
- Thune, T. (2009). Doctoral students on the university–industry interface: a review of the literature. *Higher Education*, 58, 637-651.
- Vinck, D. (1996). The dynamics of scientific intellectuals within the integrative trend in Europe: the case of cooperation networks. In A. Elzinga & C. Lanström (Eds.), *Internationalism and Science* (pp. 162-198). London: Taylor Graham.
- Yerkes, M.; van de Schoot, R. & Sonneveld, H. (2012). Who are the job seekers? Explaining unemployment among doctoral recipients. *International Journal of Doctoral Studies*, 7, 153-166.
- Zellner, C. (2003). The economic effects of basic research: evidence for embodied knowledge transfer via scientists' migration. *Research Policy*, 32(10), 1881-1895.

## ACKNOWLEDGMENTS

This article is based on research supported by the EU FP-7 for the POCARIM project (Mapping the Population, Careers, Mobilities and Impacts of Advanced Research Degree Graduates in Social Sciences and Humanities; <http://www.liv.ac.uk/law-and-social-justice/research/pocarim/>). We are particularly grateful to Andréas Perret for the visual design and data processing using Gephi and TraMineR.

## BIOGRAPHICAL NOTES

Heloísa Perista is a sociologist and a senior researcher at CESIS –Centre for Studies for Social Intervention. Her current research interests include: gender equality, time use and work-family articulation, working conditions, research careers, ageing, gender-based violence, and human rights. She is acting as the national focal point for Portugal in FRANET, for the FRA - European Union Agency for Fundamental Rights; and in EurWORK – European Observatory of Working Life and EMCC – European Monitoring Centre on Change, for Eurofound - European Foundation for the Improvement of Living and Working Conditions.

E-mail: [heloisa.perista@cesis.org](mailto:heloisa.perista@cesis.org)

CESIS – Centro de Estudos para a Intervenção Social, Av. 5 de Outubro, n° 12 - 4° Esq.-Lisboa – Portugal

Pedro Perista is a sociologist and researcher at CESIS –Centre for Studies for Social Intervention and co-coordinator of the working group on Poverty, Social Exclusion and Social Policies of the Portuguese Sociological Association. Besides the participation in national and international research projects he currently represents Portugal in the European Social Policy Network and in different expert networks for the evaluation of the European Social Fund. He also acts as national social expert within the national focal point for Portugal in FRANET, for the FRA – European Union Agency for Fundamental Rights. Recently he co-organized the publication *Pobreza e exclusão social em Portugal: contextos, transformações e estudos* (Húmus, 2015).

E-mail: pedro.perista@cesis.org

CESIS – Centro de Estudos para a Intervenção Social, Av. 5 de Outubro, nº 12 - 4º Esq.-Lisboa – Portugal

Dominique Vink is Full Professor at the University of Lausanne (UNIL), member of the Institute for Social Sciences and director of the Laboratory for digital cultures and Humanities (LaDHUL). His investigations focus on science and innovation studies. He is currently working on the engineering of digital cultures and Humanities. He is director of the Revue d'Anthropologie des Connaissances ([http://www.cairn.info/revue.php?ID\\_REVUE=RAC](http://www.cairn.info/revue.php?ID_REVUE=RAC)). He has notably published: *Everyday engineering, An ethnography of design and innovation* (MIT Press, 2003), *The Sociology of Scientific Work. The Fundamental Relationship between Science and Society* (E. Elgar, 2010), *L'équipement de l'organisation industrielle. Les ERP à l'usage* (Hermes, 2008), *Comment les acteurs s'arrangent avec l'incertitude* (EAC, 2009), *Les Masques de la convergence* (EAC, 2012), *Ingénieurs d'aujourd'hui* (PPUR, 2015), *Sciences et technologies émergentes. Pourquoi tant de promesses?* (Hermann, 2015).

E-mail: dominique.vinck@unil.ch

Institut des Sciences Sociales – Geopolis, Université de Lausanne, CH- 1015, Lausanne, Switzerland

\* **Submitted:** 16-11-2015

\* **Accepted:** 20-11-2015