ACADEMICS' PROFILE IN PORTUGUESE HIGHER EDUCATION INSTITUTIONS

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Abstract

The promotion of continuous improvement in Higher Education Institutions (HEI) constitutes a primary objective of the national Portuguese Agency for Assessment and Accreditation of Higher Education (A3ES), namely in what concerns quality assessment and accreditation of institutions and study cycles [1]. With such concerns in mind, the models that analyse the legal compliance of these objectives are pondered according to several indicators based on data collected from the academics of all national HEI. In this context, while at the university level the Statutes of the University Academic Career (ECDU) prevails [2], at the polytechnic level the Career Statutes for Teaching Staff in Higher Polytechnic Education (ECPDESP) [3] is the reference document. Motivated by the empirical evidence on Portugal provided by the first and only ever conducted national census on degrees' accreditation, the present study describes and analyses the academics of all Portuguese HEI based on the current legislation. The data involves a total of 34,902 academics, 105 institutions and 22 scientific areas. The indicators used in this analysis encompass personal, academic, scientific research and professional experience profiles. To allow for a more specific knowledge of each study area, the Portuguese National Classification of Education and Training Areas (CNAEF) [4], was additionally consulted. Therefore, besides the global characterization of academics, this study is also organized according to CNAEF reference categories in 2 digits, i.e. one for each of the 22 existing areas, identified by the highest degree accomplished by the academic. The collected elements were based on the information found in the academics' curricular files of the Study Cycles Self-Assessment Script [5] provided by A3ES. Globally, the results concerning the different profiles highlighted that some statutes' requirements are still far from being accomplished and the collected data seem to reinforce HEI's need to overcome this issue. Results from this data analysis generate additional considerations on the multidimensional facets of the changes currently taking place in higher education and on the need to reassess the ideal conception of a Portuguese academic profile. We also consider that the social implications of this work may echo in higher education officials by calling attention to the potential impact caused by the models and legal formalities envisaged for this sector. On the other hand, although the academic career issue may be oriented by a common thread in each scientific area, current circumstances encourage diversity of competences, leading to a reformulation of scientific areas by a broad number of academics.

Keywords: Higher Education, Academics, Education and Training Area, Quality Process, Portugal, CNAEF.

1 INTRODUCTION

The promotion of continuous improvement in Higher Education Institutions (HEI) constitutes a primary objective of the national Agency for Assessment and Accreditation of Higher Education (A3ES), namely in what concerns quality assessment and accreditation of institutions and study cycles [1]. With such concerns in mind, the models that analyse the legal compliance of these objectives are pondered according to several indicators based on data collected from the academics of all national HEI. In this context, while at university level the Statutes of the University Academic Career (ECDU) prevails [2], at polytechnic level the Career Statutes for Teaching Staff in Higher Polytechnic Education (ECPDESP) [3] is the reference document. Motivated by the empirical evidence on Portugal provided by the first and only ever conducted national census on degrees' accreditation, the present study describes and analyses the academics of all Portuguese HEI (regardless of sector or sub-system) based on the current legislation. The indicators used in this analysis encompass personal,

academic, scientific research and professional experience profiles. To allow for a more specific knowledge of each study area, the Portuguese National Classification of Education and Training Areas (CNAEF) [4] was additionally consulted. Therefore, besides the global characterisation of academics, this study is also organized according to CNAEF reference categories in 2 digits, i.e. one for each of the 22 existing areas, identified by the highest degree accomplished by the academic.

The practical implications of this study include contributing to the definition of academics' profile in Portuguese HEI (as a whole and by specific area), shedding light into the debate regarding quality and assessment of teacher training in Portugal, as well as offering HEI the possibility of evaluating their position when compared with national peers. As a result, this analysis may be converted into a twofold tool for macro-level diagnosis of quality improvement at HEI and micro-level detailed assessment of each training area. In a broader scope, we consider that the social implications of this work may echo in higher education officials by calling attention to the potential impact caused by the models and legal formalities envisaged for this sector.

The collected elements were based on the information found in the academics' curricular files of the Study Cycles Self-Assessment Script [5] provided by A3ES.

This paper is organized into seven fundamental parts. After introducing and contextualizing quality and accreditation issues in higher education, the Portuguese example in particular, a description of the methodological construction of the study is presented. In the fourth part, we outline the Portuguese academics globally, followed by its characterisation by CNAEF areas in the fifth part. In the sixth part, there is a comparative analysis between the CNAEF areas, followed by some final considerations in the last part.

2 QUALITY AND ACCREDIATION ISSUES IN HIGHER EDUCATION

The debate around quality assurance (QA) systems in higher education is not new [6]. Over the last two decades there have been efforts to develop formal systems to improve its management; however, the feeling of incompleteness seems to remain: "something very important is still largely missing: that is methodologically more comprehensive and empirically more reliable knowledge about the effects and mechanisms of action of QA measures in higher education" [7].

The recent significant growth of the system has demanded a double check of QA in higher education, since the connection between QA systems and improvement of teaching quality [8] is not yet clear, despite the widespread use of external quality auditing. In fact, higher education systems were driven into two opposite directions: expansion and efficiency on one side, and strict standards control on the other [9].

The appearance of accreditation regimes implemented by external accreditation agencies was a natural consequence of former teaching quality auditing reports led by individual institutions recognized for their prestige in higher education [10]. This new approach affected academic work and started a new audit culture in HEI [11]. While academic work used to be perceived as a trustworthy and autonomous professional activity, now it is subject to controlled structured monitoring and rigid management work procedures [12] [13] [14] [15]. The concept of qualified faculties emerged, as competition for rankings turned into an important impact factor. Academics became unsettled with the possibility of changes in their status and uncertain regarding a professional stratification that ranked those at the top as an elite [16] [17]. The idea of a qualified faculty is now a common criterion defined across accreditation standards in Europe, including Portugal [1], as stated in the Standards and Guidelines for QA in the European Higher Education Area - ESG [18].

3 PORTUGUESE TEACHING AND CAREER STATUTES

The analysis conducted by [19] illustrates the way national and institutional characteristics may impact on quality policies and quality improvement practices. The first attempts of quality assessment implementation in Portuguese higher education date back to 1994 and resulted in rather poor outputs, since no degree courses resulted from the initiative. A new legislative impetus emerged in 2007 with the OECD (Organization for Economic Co-operation and Development) review of higher education in Portugal [20] and the European Network for QA in Higher Education (ENQA) review of QA [21]. In that same year, the Standards and Guidelines for QA in the European Higher Education Area [22] provided the necessary support for the creation of A3ES. From then on, all institutions complying with the

standards legally in force were subject to the assessment of this new agency, responsible for evaluating all degrees and accreditation plans.

Complying with minimum legal requirements, the agency conducted a preliminary accreditation of all study cycles in 2010 and 2011. One of the specific aims of the process was qualification of academics and postgraduate studies research quality. Additionally, new study programs had to be approved before being launched, and the ground for auditing of internal quality control systems was established.

4 METHODOLOGY

4.1 Objective and Research Questions

The purpose of this paper is to describe and analyse the academics profile in all HEI (regardless of sector and sub-system), based on the current legislation. In this context, the first research question is: what is the profile of the academics that teaches at Portuguese HEI? The second research question is connected to educational policies focused on higher education QA systems: to what extent is the academics profile in Portuguese HEI aligned with the current standards? Finally, and to allow for a more specific knowledge of each study area, both at individual and scientific levels, a third research question was formulated: to what extent do the different education and training areas become closer or more distant from each other when it comes to their academic's profile?

4.2 Database Description

The data used in this study were based on the elements contained in the Curricular Files retrieved from the Study Cycles Self-Assessment Guide [5] that was proposed by A3ES. The data refer to the academic year 2010/2011, when the first and only ever conducted national census on degree accreditation was concluded.

Having as background the dimensions collected from the analysis of curricular files' content, a battery of indicators translated into qualitative variables was constructed. The data was made available by A3ES on a SPSS file format. To comply with the objectives of this research, we considered the study areas defined by CNAEF (2 digits) [4] of the highest degree (see Table 1).

Table 1. CNAEF study areas (2 digits).

14 - Education, teacher training	52 - Engineering
21 - Arts	54 - Manufacturing sciences
22 - Humanities	58 - Architecture and construction
31 - Social and behavioural sciences	62 - Agriculture, animal husbandry and fisheries
32 - Information sciences and journalism	64 - Veterinary medicine
34 - Business studies and management sciences	72 - Medical sciences
38 - Law	76 - Social work
42 - Life sciences	81 - Personal services
44 - Natural sciences	84 - Transport services
46 - Mathematics and statistics	85 - Environment protection
48 - Informatics, computer science	86 - Security services

Underpinned by the available data, profiles were organized into 4 categories: personal, academic, scientific research and professional experience.

With respect to personal profile, the variables considered were: affiliation, gender, professional category, including non-tenure and equated positions (by sub-system[1]), and employment regime. Pertaining to the academic profile, the following variables were contemplated: highest degree, decade in which the PhD was awarded, internationalization[2], decade in which the licentiate degree was awarded (as age proxy), licentiate degree area (CNAEF), last degree inbreeding[3] and graduation inbreeding[4] . As for the academic research profile, the selection of categories to be analysed were based on indications mentioned by the academic when providing 1 to 5 research references[5] . Similarly, and regarding the professional experience profile, we considered the categories obtained through indications mentioned by the academic when providing 1 to 5 academic[6] and extra-academic[7] references.

4.3 Specification of Statistical Analysis

The analysis that sustains this study belongs to descriptive statistics and was accomplished through the use of SPSS (version 23).

The organization of the analysis will follow CNAEF areas in 2 digits, each for one of the 22 existing areas, identified by the highest degree completed. Further to the 4-level analysis (personal, academic, academic research and professional experience), the teaching sector dimension (public or private) and the teaching sub-system dimension (university or polytechnic) of each academic will support the analysis in each of the 22 areas.

Previous to the analysis of each CNAEF, we present a global characterization of Portuguese HEI academics.

5 GLOBAL CHARATERIZATION

The information contained in the present section intends to characterize academics of Portuguese HEI, regardless of CNAEF area.

5.1 Personal Profile

The collected data retrieved 34,902 academics, 61% (21,409) from university education and 71% (24,616) from public education. Within university education, 70% (14,927) identified themselves as teaching at public education institutions, while at polytechnic education institutions we reached 72% (9,689) of respondents. Having as base the gender variable, we observed that the majority of academics at Portuguese HEI are men (57% - 19,856), and this majority is validated regardless of sector - public education (58% - 14,163) and private education (55% - 5,693) - or sub-system - university education (60% - 12,747) and polytechnic education (53% - 7,109).

Concerning the distribution of academics by professional category, and due to the different classification associated to the two teaching sub-systems, a separate analysis was accomplished for this variable.

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[1] University education: full professor, associate professor, assistant professor, assistant, lecturer, and other. Polytechnic education: coordinating professor, adjunct professor, assistant 1st triennium, assistant 2nd triennium, specialist, other.

[2] Measured by the attainment of the highest degree completed: in Portugal or abroad.

[3] Measured by the concurrence of the institution that awarded the highest degree and the institution where the academic works.

[4] Measured by the concurrence of the institution that awarded the licentiate degree and the institution where the academic works.

[5] The categories considered were: national and international books, chapters in national and international books, papers in national and international journals, papers in national and international proceedings, artistic activities, theses/dissertations, and other.

[6] The categories considered were: top management positions, intermediate management positions, scientific and pedagogical management, committees/work teams, teaching at other HEI, teaching at other non-HEI, participation in research projects, coordination of units/research teams, and other.

[7] The categories considered were: central government agencies, local and regional government agencies, public or private non-profit institutions, international institutions, private profit-seeking organizations, consultancy, research and development, and other.

Therefore, in university education (public and private, globally), the categories that occupy the first three positions are assistant professor (31% - 6,492), followed by non-tenure assistant (16% - 3,351) and assistant (14% - 2,873). In point of fact, article 84th from ECDU stipulates that the sum of full professors and associate professors of HEI should represent from 50% to 70% of the total amount of tenure-track professors. However, the data revealed that only 22% (4,449) of academics from public education institutions belong to one of those two categories, indicating a clear mismatching with legislation. Since career prospects imply higher salaries, this situation will most likely not be overcome in the near future, especially due to the national context of high financial constraints. By comparison, we observe that, and complying with article 15th of ECDU, the maximum number of full professors, associate professors, non-tenure assistant professors and visitor professors at each institution does not exceed one third of the number of tenure-track full-professors, associate professors and assistant professors, respectively.

A more detailed analysis shows that, while in public education the categories of assistant professor (38% - 5,352), non-tenure assistant (16% - 2,297) and associate professor (14% - 1,920) comprise the largest number of academics, in private education we have assistant (27% -1,710), assistant professor (18% - 1,140) and non-tenure assistant (17% - 1,054) as representing the majority of academics. This identifies a clear need to reassess government policies so as to comply with what is currently stated for the public sector at the ECDU [3]. In reality, with the extinction of assistant and trainee assistant categories, the ones covered by the current legislation contemplate only full professor, associate professor or assistant professor. These circumstances require specific measures: once dismissed specifically hired academics (non-tenure professor, non-tenure assistant, lecturer or monitor) foreseen in article 3rd of ECDU, there would be a need to reassign at least 8% of the academics in public education and 34% of academics in private education who do not fit into the categories presently available, in an attempt to shorten the disparity between reality and the public regime legal requirements.

Concerning public polytechnic education, the categories that occupy the first three positions are adjunct professor (25% - 2,364), equated to assistant (20% - 1,905) and equated to adjunct professor (17% - 1,621).

Such evidence intensifies the need to rethink current policies, especially when compared to the demands of the ECPDESP (DGES, 2009b) for the public sector. In effect, with the extinction of the assistant category, the ones foreseen by law contemplate only adjunct professor, coordinator and major coordinator, the latter created by the current legislation. Once dismissed specifically hired academics (invited professor, invited assistant or monitor), a condition lawfully approved by article 8th of ECPDESP, and in an attempt to get closer to the legal determinations that regulate public regime, it would be necessary to reassign at least 63% of current academics in public education and 57% of current academics in private education, comprising precisely academics who do not fit into any of these new categories.

In what concerns the employment regime, two situations were observed: whereas in public education the majority of academics has a full time without exclusivity position (42% - 6,276 at university and 41% - 3,925 at polytechnic institutions), in private education the part time regime prevails (57% - 3,659 at university and 67% - 2,529 at polytechnic institutions).

Since the university career [3] and polytechnic career [4] legislation recommends as a rule in point 1 of articles 67th and 34th, respectively, an approximation to a full time with exclusivity regime (with no penalties for those who opt for a full time without exclusivity position), the data seem to reinforce HEI's need to overcome this issue, clearly inconsonant with the legal determinations that regulate public regime, especially in the private sector.

5.2 Academic Profile

A global quantitative analysis of data revealed that the highest degree completed by the majority of academics who participated in the survey is doctorate (see Table 2). A more detailed analysis indicates that this is the highest degree achieved by the majority of academics in university education. However, the majority of academics from public polytechnic education hold only a master's degree, whereas the majority of academics from private polytechnic education hold only a licentiate degree. This fact may be interpreted as an alert for the need of a substantial improvement in academics training, especially in polytechnic education, since, according to the current legislation [3] [4] doctorate is the entry level degree for a career in higher education. In addition, point 1 of articles 19th and 15th of the transitory regime of both statutes (university and polytechnic, respectively) emphasises the

importance institutional agencies have in promoting the necessary conditions to support the qualification process of academics.

Table 2. GENERAL: Academics according to highest degree.

Academic degree n, %	University		Polytechnic		Total
	Public	Private	Public	Private	
Doctorate	10 196, 68,5%	2 491, 38,5%	2 117, 22,0%	759, 20,1%	15 563, 44,8%
Master's	2 095, 14,1%	2 093, 32,4%	4 348, 45,2%	1 472, 38,9%	10 008, 28,8%
Licenciate	2 585, 17,4%	1 845, 28,6%	3 066, 31,9%	1 510, 39,9%	9 006, 25,9%
Bachelor	6, 0,0%	14, 0,2%	51, 0,5%	32, 0,8%	103, 0,3%
Other	6, 0,0%	19, 0,3%	32, 0,3%	11, 0,3%	68, 0,2%
Total	14 888, 100%	6 462, 100%	9 614, 100%	3 784, 100%	34 748, 100%

Regarding internationalization, again in both sectors and sub-systems transversely, it is possible to conclude that the clear majority of academics completed the highest degree in Portuguese HEI (see Table 3). Despite that fact, private HEI present the highest number of academics who has completed the highest degree abroad.

Table 3. GENERAL: Internationalization of academics according to place where last degree was awarded.

n, %	University		Polytechnic		Total
	Public	Private	Public	Private	
Last degree in Portugal	11 911, 80,2%	5 067, 78,8%	8 657, 90,4%	3 316, 87,8%	28 951, 83,6%
Last degree abroad	2 941, 19,8%	1 366, 21,2%	924, 9,6%	461, 12,2%	5 692, 16,4%
Total	14 852, 100%	6 433, 100%	9 581, 100%	3 777, 100%	34 643, 100%

As the database does not include the age variable, we considered the decade in which the licentiate degree was completed as age proxy, since, as a rule, the majority of academics currently engaged in the profession are between 30 and 40 years of age (42% - 9,748), assuming that they completed the licentiate degree in their early twenties. Data pertaining to the decade in which licentiate degree was completed presents a weak negative asymmetry (-0,433), indicating rather recent graduation completion years and, consequently, rather young academics.

Inbreeding was also analysed. As the polytechnic sub-system cannot award doctorate degree and has not awarded, for a long time, master's degree, we opted for a discriminant analysis for the two sub-systems. At university level, the majority of academics work at the same institution in which the last degree was completed (61% - 9,075), whereas in private HEI the majority of academics come from a different institution (54% - 3,466). As expected, at polytechnic level the majority of academics (88% - 11,754) completed the last degree in a different institution from the one they currently work for.

If, on one side, the inbreeding phenomenon can be related to the possible difficulty or easiness in obtaining specialized qualification in an institution different from the one the academic works for, on

the other side it may bring into question academics selection and recruitment processes. In the present case, and considering the collected data, academics who want to achieve qualification apparently find a better offer in public HEI.

The same situation applies when we analyse the graduation inbreeding. In fact, the majority of academics working at public HEI also completed there their licentiate degree (56% - 6,280), whereas those working for private HEI (59% - 2,536) or public polytechnic institutions (63% - 3,875) obtained licentiate degrees in the public institution.

Clearly, the data collected evidence a strong presence of inbreeding in public university education: most academics who work in a public institution obtained at least one degree in the same institution, and this situation is even more notorious as far as the last degree is concerned. Moreover, polytechnic institutions cannot award doctorate degree; therefore, academics working for the polytechnic institution that awarded the degree cannot have more than master's, licentiate or pre-Bologna bachelor studies.

5.3 Scientific Research Profile

Table 4 presents the number and percentage of academics who indicated at least 1 reference of scientific research in each category, taking into account the sector (public or private) and the education sub-system (university or polytechnic).

From observation of Table 4 we conclude that the research conducted by academics from Portuguese HEI has a more international than national projection. As observed, the majority of academics indicated at least one international paper, with the exception of private polytechnic institutions, where the majority of academics referred at least one national paper.

Table 4. GENERAL: Academics according to scientific research reference categories.

n, %	University		Polytechnic	
	Public	Private	Public	Private
National Books	1 886, 12,8%	1 025, 16,0%	553, 5,8%	355, 9,4%
International books	8, 9,6%	457, 3,1%	193, 3,0%	63, 0,7%
Chapters in National books	927, 6,3%	381, 5,9%	249, 2,6%	93, 2,5%
Chapters in international books	1 018, 6,9%	231, 3,6%	197, 2,1%	42, 1,1%
Papers in national journals	2 147, 14,5%	1 201, 18,7%	1 322, 13,8%	650, 17,2%
Papers in international journals	7 272, 49,0%	1 157, 18,0%	1 666, 17,4%	485, 12,9%
Papers in national proceedings	1 004, 6,8%	728, 11,3%	1 260, 13,2%	447, 11,9%
Papers in international proceedings	2 472, 16,7%	822, 12,8%	1 643, 17,2%	365, 9,7%
Artistic activities	253, 1,7%	259, 4,0%	447, 4,7%	140, 3,7%
Theses/ Dissertations	590, 4,0%	719, 11,2%	720, 7,5%	366, 9,7%
Other	1 487, 10,1%	669, 10,4%	640, 6,7%	281, 7,5%

Concerning the second most referred scientific research, papers in international proceedings in public HEI and national books in private HEI are the leading categories. The second most referred scientific research category at polytechnic level was papers in international proceedings for public institutions and international papers for private institutions.

5.4 Professional Experience Profile

Table 5 represents the number and percentage of academics from Portuguese HEI who indicated at least 1 reference in each category of academic experience, considering education sector (public or private) and sub-system (university or polytechnic).

Table 5. GENERAL: Academics according to academic experience reference categories

n, %	University		Polytechnic	
	Public	Private	Public	Private
Top Management Positions (university, polytechnic)	271, 1,8%	94, 1,5%	116, 1,2%	40, 1,1%
Intermediate Management Positions (faculties, schools, departments)	1 181, 8,0%	305, 4,8%	597, 6,2%	180, 4,8%
Scientific and pedagogical management (degrees, pedagogical and scientific councils, etc.)	3 602, 24,4%	984, 15,3%	2 393, 25,0%	635, 16,8%
Committees/ work teams (quality, assessment, etc.)	2 419, 16,4%	409, 6,4%	972, 10,2%	228, 6,0%
Teaching at other HEI	2 585, 17,5%	2 130, 33,2%	1 640, 17,2%	1 104, 29,3%
Teaching at other non-HEI	790, 5,3%	722, 11,3%	1 897, 19,9%	732, 19,4%
Participation in research projects	6 569, 44,4%	2 528, 39,4%	3 851, 40,3%	1 318, 35,0%
Coordination of units and/or research teams	3 179, 21,5%	603, 9,4%	803, 8,4%	219, 5,8%
Other	1 345, 9,1%	200, 3,1%	536, 5,6%	173, 4,6%

In all sub-systems/sectors, the majority of academics from Portuguese HEI indicated, at least, one participation in research projects. On the other hand, the second most cited academic experience in the public sector, either university or polytechnic, was one position at scientific and pedagogic management levels (courses, pedagogical council, and scientific council, among others). In the case of the private sector, the second most cited academic experience was teaching at another institution.

Concerning the extra-academic experience, Table 6 represents the number and percentage of academics from Portuguese HEI who indicated at least 1 reference of each extra-academic experience category, considering the education sector (public or private) and the sub-system (university of polytechnic).

Table 6. GENERAL: Academics according to extra-academic experience reference categories

n, %	University		Polytechnic	
	Public	Private	Public	Private
Central government agencies	285, 1,9%	234, 3,6%	62, 0,6%	50, 1,3%

Local and regional government agencies	234, 1,6%	319, 5,0%	261, 2,7%	118, 3,1%
Public or private non-profit institutions	3 474, 23,5%	1 735, 27,0%	2 457, 25,7%	1 294, 34,3%
International institutions	1 222, 8,3%	484, 7,5%	400, 4,2%	217, 5,8%
Private profit-seeking organizations	2 740, 18,5%	3 024, 47,1%	3 641, 38,1%	1 781, 47,2%
Consultancy	986, 6,7%	780, 12,2%	911, 9,5%	521, 13,8%
Research and Development (coordination and/or research at private companies or agencies)	613, 4,1%	315, 4,9%	705, 7,4%	106, 2,8%
Other	398, 2,7%	641, 10,0%	158, 1,7%	169, 4,5%

The majority of the Portuguese HEI academics in the public sector mention at least one extra-academic experience at non-profit public or private institutions.

As far as the remaining sub-systems/sectors are concerned, the majority of academics refer extra-academic experience at profit-seeking private organizations.

6 COMPARISON OF CNAEF AREAS

The information obtained from comparing CNAEF areas intends to highlight the main similarities or differences that were observed regarding education and qualification. It is possible to identify the three most representative areas: health area (CNAEF72), social sciences and behaviour area (CNAEF31), and engineering and technical area (CNAEF52). When comparing CNAEF areas, it was decided to analyse only the variables directly mirrored in the current legislation for the different sub-systems.

6.1 Personal Profile

Concentrating on the compliance of the legislation that regulates both educational sub-systems, one of the aims was to understand which areas are closer in reaching the percentages foreseen by law, and which are more distant.

Concerning public university education, article 84th of ECDU requires that the sum of full professors and tenure-track associate professors of each institution should represent from 50% to 70% of the total amount of tenure-track professors; however, it was observed that only the areas of law (CNAEF38), health (CNAEF72) and transportation services (CNAEF84) reach those percentages: 55%, 52% and 50%, respectively.

As for public university education, article 15th of ECDU requires that the maximum number of full professors, associate professors and invited assistants, and visitors, cannot, at each institution, exceed a third of the number of tenure-track full professors, associate professors and assistants, respectively; notwithstanding, it was evidenced that the several areas exceed the required limit: arts (CNAEF21), business sciences (CNAEF34), law (CNAEF38), health (CNAEF72), social services (CNAEF76) and transportation services (CNAEF84) register 40%, 34%, 36%, 84% and 67%, respectively, further to 150% in the category of invited assistant professor. The health area alone accumulates the percentage of invited associate professors, with 78%.

Concerning public polytechnic education, point 1 of article 84th of ECPDESP requires that the total amount of tenure-track professors should represent, at least, 70% of the number of faculty members in each institution; still, it was noted that none of the areas reaches the stipulated percentage.

In turn, and concerning public polytechnic education, point 4 of article 84th of ECPDESP specifies that the number of tenure-track coordinating professors cannot exceed 50% of the number of tenure-track professors in each institution; our observation concluded that the area of vet sciences (CNAEF64) is the only one that exceeds the stipulated percentage.

Regarding employment regime, full time with exclusivity is the rule in both sub-systems (ECDU and ECPDESP). In this respect, the area featuring the highest number of academics in a full time with exclusivity (TIEX) employment regime is engineering and other technical areas (CNAEF52), while the area which evidences the highest number of full time without exclusivity (TP) positions is health (CNAEF72).

6.2 Academic Profile

Regarding academic qualifications, the doctorate appears as mandatory for entering a teaching career in both sub-systems (ECDU and ECPDESP). Having as base the highest degree, research indicates engineering and other technical areas (CNAEF52) and social and behaviour sciences area (CNAEF31) as the ones comprising the largest number of PhDs academics. Similarly, business studies (CNAEF34), social and behaviour sciences (CNAEF31) and health (CNAEF72) are the ones which evidence the largest number of master's degrees. Lastly, it is also possible to identify that the health area (CNAEF72) is the one that, among all others, shows the largest amount of academics with a bachelor/licentiate degree.

6.3 Scientific Research Profile

Being aware of the importance legislation attributes to scientific research in both sub-systems (ECDU and ECPDESP), we considered it relevant to also include this item in the comparative analysis. Research references were assembled in two groups, national and international, to analyse the internationalization status of scientific research accomplished by Portuguese academics. The first group includes all references identified at national level: national books, chapters, papers and papers in proceedings; the second group includes the references classified as international: books, chapters, papers and papers in proceedings. The categories of artistic actives, theses/dissertations and other were not included, since they do not have a national or international reference.

The distribution of the references was organized in two groups according to CNAEF areas. From data, we may conclude that the areas of social and behaviour sciences (CNAEF31), humanities (CNAEF22) and health (CNAEF 72) stand out as the most relevant within the framework of national scientific research. Additionally, the international scientific research is best represented in engineering and other technical areas (CNAEF52), health (CNAEF72) and social and behaviour sciences (CNAEF31).

7 FINAL REMARKS

This study intended to describe and analyse the academics profile in all Portuguese HEI (regardless of sector and sub-system), based on the current legislation.

Globally, and concerning personal profile, it was highlighted that, although article 84th from ECDU stipulates that the sum of tenure-track full professors and associate professors of each institution should represent from 50% to 70% of the total amount of tenure-track professors, this requirement is still far from being accomplished. Career prospects imply higher salaries, and that condition is quite difficult to attain in a context of severe financial constraints. In addition, what is claimed by article 15th of ECDU - the maximum number of full professors, associate professors, non-tenure assistant professors and visitor professors at each institution should not exceed one third of the number of tenure-track full-professors, associate professors and assistant professors, respectively - is not always respected. Concerning public polytechnic education as a whole, there is also the need to reassess current policies, especially when compared to what is demanded by ECPDESP [4]. In fact, the legislation on university [3] and polytechnic [4] careers recommends as a rule in point 1 of articles 67th and 34th, respectively, an approximation to a full time with exclusivity regime (with no penalties for those who opt for a full time without exclusivity position). The collected data seem to reinforce HEI's need to overcome this issue, clearly inconsonant with the legal determinations that regulate public regime, especially in the private sector.

As for the academic profile, it was documented that, according to the current legislation [3] [4], doctorate is the entry level degree for a career in higher education. In this respect, there seems to be

a strong need for improvement in academics training, especially in polytechnic education. As referred in point 1 of articles 19th and 15th of the transitory regime of both statutes (university and polytechnic, respectively), institutional agencies play an important role in promoting the necessary conditions to support the qualification process of academics. Furthermore, there is evidence of a strong presence of inbreeding in public university education: the majority of academics who work in public HEI obtained at least one degree in the same institution, an even more notorious situation in last degree awarding. Since polytechnic institutions cannot award doctorate degree, academics working for the polytechnic institution that awarded the degree cannot have more than master's, licentiate or pre-Bologna bachelor studies.

Globally, and in what concerns the scientific research profile, data analysis confirms that, in the case of public education, research is essentially witnessed in international papers, whereas in private education national papers prevail. Depending on the specificity of each CNAEF area, research may assume a bigger international (CNAEF52, engineering and other technical areas) or national (CNAEF31, social and behaviour sciences) emphasis.

In relation to the professional experience profile, the majority of academics working in the public sector refer participation in research projects and performance of duties at scientific and pedagogic management levels. In the case of academics working for private HEI, there are references of participation in research projects in one institution, and teaching positions in another one. Lastly, concerning the extra-academic experience, there is a strong evidence of positions in private profit-seeking organizations (stronger in the private sector) and/or in public or private non-profit institutions.

Results from this data analysis generate additional considerations on the multidimensional facets of the changes currently taking place in higher education and on the need to reassess the ideal conception of a Portuguese academic profile. In particular, and benefiting from the ongoing national evaluation process, it would be important to perceive what changes occurred over the last years and if those changes are clearly following the legal requirements.

To finalize, and because there has been an extensive amount of discussion around the importance of scientific research in higher education, it would be equally relevant to consider some additional elements to be obtained from academics curricular files. For example, the average teaching load of each academic and to what extent the teaching load may or may not be related to the quantity and quality of scientific research. On the other hand, although the academic career issue may be oriented by a common thread in each scientific area, current circumstances encourage diversity of competences, leading to a reformulation of scientific areas by a broad number of academics. This particular context constitutes a highly limitation aspect when applying for positions in the public sector, interfering in career prospects and resulting in highly skilled academics being recruited for different areas from the ones they specialized in, namely in polytechnic education.

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REFERENCES

[1] A3ES. Agência de Avaliação e Acreditação do Ensino Superior. 2015. Retrieved from http://a3es.pt/

[2] DGES. "Decreto-Lei n.º 205/2009 de 31 de Agosto - Estatuto da Carreira Docente Universitária". *Diário Da República*, *1ª série*(nº 168), 31 de Agosto, 2009.

[3] DGES. "Decreto-Lei n.º 207/2009 de 31 de Agosto - Estatuto da Carreira do Pessoal Docente do Ensino Superior Politécnico". *Diário Da República*, *1ª série*(nº 168), 31 de Agosto, 2009.

[4] DGES - Ministério das Actividades Económicas e do Trabalho. "Portaria nº 256/2005 de 16 de março - Classificação Nacional das Áreas de Educação e Formação". *Diário Da República*, *1ª série*(nº53), 16 de março, 2005.

[5] A3ES. “Guião para a autoavaliação”, 2014. Retrieved from http://www.a3es.pt/sites/default/files/Guião_ACEF_2014_2015_Univ_Polit_PT.pdf

[6] D. Westerheijden, B. Stensaker, M. Rosa, & A. Corbett, “Next generations, catwalks, random walks and arms races: conceptualising the development of quality assurance schemes,” *European Journal of Education*, *49*, 3, 421–434, 2014.

[7] T. Leiber, B. Stensaker, & L. Harvey, “Impact evaluation of quality assurance in higher education: methodology and causal designs,” *Quality in Higher Education*, *21,* 3, 288–311, 2015.

[8] M.J. Rosa & A. Amaral, “Is there a bridge between quality and quality assurance?” In B. Stensaker, J. Välimaa, & C. S. Sarrico (Eds.), *Managing reform in universities: the dynamics of culture, identity and organisational change*, 114–134. Basingstoke: Palgrave, 2012.

[9] M. Cave, *The use of performance indicators in higher education: the challenge of the quality movement*. London: Jessica Kingsley Publishers, 1997.

[10] M.J. Rosa & C.S. Sarrico, “Quality, evaluation and accreditation: from steering , through compliance, on to enhancement and innovation?” in *Higher Education in Portugal 1974-2009. A Nation, a Generation* (A. Amaral & G. Neave (Eds.)), 249–264, Dordrecht: Springer, 2012.

[11] M. Strathern, “The tyranny of transparency,” *British Educational Research Journal*, *26*, 3, 309–321, 2000.

[12] D. Hayes, “Intellectuals and education: the role of the university,” *Critical Review of International Social and Political Philosophy*, *64*, 4, 123–138, 2003.

[13] M. Parker & D. Jary, . “The McUniversity: organization, management and academic subjectivity”, *Organization*, *2*, 2, 319–338, 1995.

[14] H. Willmott, “Managing the academics: commodification and control in the development of University education in the UK,” *Human Relations*, *48*, 9, 993–1027, 1995.

[15] T. Wilson, “The proletarianisation of academic labour,” *Industrial Relations Journal*, *22*, 4, 250–262, 1991.

[16] C.S. Sarrico & A. Melo, “Let the devil choose: frustration or anxiety in the wake of performance measurement in universities” in *Managing reform in universities: the dynamics of culture, identity and organisational change* (B. Stensaker, J. Välimaa, & C. S. Sarrico (Eds.)), 81–97, Basingstoke: Palgrave, 2012.

[17] C.S. Sarrico & M.M. Pinheiro, “The characteristics of Portuguese management academics and their fit with teaching accreditation standards,” *Management Decision*, *53*, 3, 533–552, 2015. Retrieved from http://www.emeraldinsight.com/toc/md/53/3.

[18] ENQA. *Standards and Guidelines for Quality Assurance in the European Higher Education Area* (3rd ed.). Helsinki: European Association for Quality Assurance in Higher Education, 2009

[19] C.S. Sarrico, A. Veiga & A. Amaral, A, “The long road - how evolving institutional governance mechanisms are changing the face of quality in Portuguese higher education,” *Educational Assessment, Evaluation and Accountability*, *25*, 4, 375–391, 2013.

[20] OECD. *Reviews of national policies for education: tertiary education in Portugal, organisation for economic cooperation and development*. Paris: OECD Publications, 2007.

[21] ENQA, *Quality assurance of higher education in Portugal: an assessment of the existing system and* recommendations *for a future system*. Helsinki: ENQA Publications, 2006.

[22] ENQA, *Standards and guidelines for quality assurance in the European higher education area*. Helsinki: ENQA Publications, 2005.