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## The Attractiveness of European HE Systems: A Comparative Analysis of Faculty Remuneration and Career Paths

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### ABSTRACT

The academic professoriate is a determinant of successful higher education systems. Yet, recently, worsening conditions of employment, deteriorating salaries, and threats to job security have made the academic profession less attractive, especially to young scholars, in several countries. This paper investigates the salaries as well as the recruitment and retention procedures in public higher education institutions from a cross country perspective. The UK, Germany, France, and Italy are adopted as case studies to determine the attractiveness of European higher education systems. The evolution over the last decade creates an extremely variegated picture.

**Keywords:** HE system attractiveness; remuneration; career structure; academic profession

Globalization has resulted in an international market for skilled workers and professionals (Hromcová & Agnese, 2019). The subsequent increasing awareness and demand for education in today's world has seen the growth of an international market for skilled educators (Altbach, 2008; Morley et al., 2018). This has facilitated the mobility of academic talents (Baruffaldi & Landoni, 2012, 2016). It follows then, that there should be a tendency for the price paid to these professionals to be equalized internationally.

The limited empirical evidence on the topic, however, shows that there exist significant differences in academic salaries internationally (Altbach et al., 2012; Ong & Mitchell, 2000; Stevens, 2004). And, in a globalized world, salaries in one country affect academe elsewhere, as professors are tempted to move where remuneration and working conditions are best (Abell & Becker, 2021; Janger et al., 2019).

The matters of concern include remuneration and the terms and conditions of academic work, namely the academic appointments. Without significant salaries and appropriate contracts and conditions of service, the profession cannot thrive. As with other public sector jobs, the higher education (HE) sector is perceived to pay lower wages than those available in the private sector (and other areas of the public sector) (Gyourko & Tracy, 1988). The labor shortages have emerged particularly in areas such as business, economics, and engineering. Without conditions that permit a secure career, competitive with

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alternatives in the labor market, the entire academic enterprise will falter. In most countries, academic staff supplement their base salary with added income earned by means of teaching overloads, research productivity, nonacademic work, teaching in multiple institutions, or administrative service. The contemporary university in most countries finds itself in crisis, in part based on the risks faced by the academic profession (Altbach, 2003).

Thus, the massification of higher education has led to expanded student enrolment and therefore urgency for universities to cover it. The need has generally been addressed with greater numbers of part-time or full-time, fixed-contract academic hires. This phenomenon at the beginning was specific to the US where half of the new appointments to academic posts are either part-time or full-time contract employees (Schuster & Finkelstein, 2006).

More recently, even systems with a strong tradition of hiring academic staff with permanent civil service hiring arrangements are moving toward the so-called tenure track system, according to which an assistant professor on a fixed-term appointment must be positively evaluated before being promoted and reaching the academic job security (Seeber & Mampaey, 2022). With the introduction of fixed-term contracts, the career becomes slow and tenured positions are achieved later in time. This has raised the concern that the age profile of academics in many disciplines was sharply skewed towards those close to retirement (Civera *et al.*, 2021). This has drastically damaged the perception of academic job as secure due to its civil service nature in several countries (Abbott, 2020).

There have been very few international studies of academic remuneration. This is unusual when one considers that the university sector labor market is one of the few that has a truly international dimension. One reason for the lack of international studies may be the difficulty in obtaining data from the HE systems. The international higher education sector is heterogeneous, made up of private and public sector organizations, dual system configurations, and with a strong vocational education component.

This has meant that the few existing studies have been based on earnings data from a small number of HEIs in different countries in order to obtain the required data on earnings (Stevens, 2004). In alternative, data are derived by surveys which may not be representative of the national population of academics, or by interviews, which often cover a single country (Abell & Becker, 2021). Otherwise, authors have relied on secondary data collected by national agencies and observatories, which may trace it back to different years, threatening the data comparability (Janger *et al.*, 2019; Janger & Nowotny, 2016).

To mitigate the issue, some scholars have focused their attention only on English-speaking countries, and the UK and the US have thus been disproportionately studied (Ong & Mitchell, 2000; Stevens, 2004). Whenever the data have been collected, it has been manifested that academic salaries are often a complex construction of basic salary and supplements, bonuses, allowances, and subsidies—subsequently, they are extremely difficult to compare internationally (Altbach *et al.*, 2012; Stevens, 2004). In addition, measuring the real academic salaries have required some adjustments like the conversion to purchasing power equivalents (Altbach *et al.*, 2012; Stevens, 2004) or the adoption of the Big Mac Index as correction factor (Ong & Mitchell, 2000).

The goal of this article is to contribute to this research gap by focusing on how academic remuneration policies are set in public higher education institutions in 4 European countries: Italy, France, Germany, and the UK. By complementing our analysis of remuneration policies with the systems' career norms and requirements, we illuminate how these specific features make systems attractive to national and

international candidates in junior and senior positions. In this way, we are able to give an overall picture in an international comparison of the attractiveness of HE systems in Europe.

The rest of the paper is organized as follows. The next section describes how the academic profession turns up today. Then the four cases are presented in detail and discussed in a comparative perspective. Some conclusions from the previous analyses are finally derived.

## **A. THE ACADEMIC PROFESSION TODAY**

Across the globe, the academic profession has lost its status and it is not considered anymore as a remarkably stable career nor one that provides considerable social prestige. Thus, the profile of the academic workforce has changed in recent decades.

Before the wave of New Public Management reform took place in Italy, the status of academic profession was regulated by law 382, introduced in 1980, when the academic profession underwent a substantial transformation, due to the needs following a first wave of massification in higher education. Such reform resulted in the creation of three positions conceived of as steps on a ladder (Moscati, 2001): from the bottom up there were researchers (a position similar to that on an assistant professors), associate professors, and full professors, all three categories with tenure.

The first big change in this system was the introduction of the tenure track model for academic appointments, through law 240 in year 2010. Typically, newly hired faculty were offered a term appointment at the rank of assistant professor or its equivalent and later may be promoted up the hierarchy. Academic hierarchies tend to be comprised in the three-to-five levels that may start with “lecturer” and advance to “professor,” often with several salary steps at each level. In the past, promotion tended to be earned most often on the basis of qualifications and seniority (Seeber & Mampaey, 2022).

Most recently, under the influence of New Public Management, hiring and the promotion processes have become more competitive and transparent in response to the growing pressures for accountability experienced by the HE institutions (Bleiklie & Michelsen, 2013; Paradeise & Thoenig, 2013). Candidates need to demonstrate compliance with quality standards, and advancement along the hierarchy at research universities is largely determined by research achievement determined by peer review (Civera *et al.*, 2020).<sup>1</sup>

At institutions devoted primarily to teaching, other criteria are applied, but academic staff can be promoted for merit based on a range of criteria from student evaluations to administrative service. The doctorate is a requirement for almost all academic appointments in Australia, Canada, Europe, and the United States. In certain European countries (Czech Republic, France, Germany, and Russia) a habilitation—similar to a doctoral dissertation—is needed, in addition to the doctoral degree, to achieve the rank of professor. In some others, like Italy, Spain, and France, candidates must be reviewed at the national level before they can be considered for a specific academic position (Pezzoni *et al.*, 2012). Moreover, in systems like Argentina, Germany, and the United Kingdom, there are a limited number of permanent senior academic positions within a university and a position must be vacated before it can be filled. In fact, where there are limited positions at each level of the hierarchy, internal candidates do not receive preferential consideration when a senior position is vacated and are obligated to apply in an open competition with external candidates (Altbach *et al.*, 2012).

Hiring practices tend to follow a similar pattern across HE systems, often outlined in national legislation; opportunities are announced in the national press and open to all candidates. Typically, institutions maintain considerable autonomy in determining when they have openings and how they are promoted and filled. In many continental European countries (Italy, France, Spain, and Germany, among others), academics are considered to be public employees, and the faculty is appointed, evaluated, and often paid according to the rules and procedures of the civil service position (Pezzoni *et al.*, 2012). In some countries, salary steps are established by state or national governments for public institutions. By contrast, in all European countries, the salaries for the private sector are negotiated privately and confidentially between the staff member and the administration of the hiring institution, and little data are made public. Thus, discussing salaries in academia in a comparative perspective is rendered complicated (Altbach *et al.*, 2012).

Altbach *et al.* (2012) make an effort in this sense by quantifying, with the support of country experts, the variations in salary ranges from country to country as well as the large gaps that often exist between entry-level salaries and those paid to senior academic staff in public HE. According to their figures, China, Armenia, Ethiopia, Kazakhstan, and Russia are the countries offering the lowest average entry-level salaries, which do not exceed 1,000 US dollars purchasing power parity. Instead, the United Kingdom, Saudi Arabia, Italy, South Africa, and Canada offer the best average salaries to senior staff, ranging from 8,000 and 9,500 US dollars purchasing power parity (Altbach *et al.*, 2012, pp. 23).

The international comparison is difficult due to the fact that academic salaries are often a complex construction of basic salary and supplements, bonuses, allowances, and subsidies. The value of rewards, bonuses, and allowances differ enormously; examples include a frozen turkey at Christmas in Mexico; allowances toward housing in Ethiopia, India, and Japan; family allowances for marriage and children in Germany; an allowance to compensate for inflation in India (Altbach *et al.*, 2012). Many countries provide incentives to encourage research, especially in the top research-intensive sector (Bloch & Sørensen, 2015). For example, English scholars receive important bonuses for scientific excellence. Israeli faculty can increase their salary by more than 13 percent for achievements in research. South Africa has a similar award program that provides salary supplements, ranging from \$7,000 to \$18,000, depending on the achievements of the individual scholar. Top Chinese universities pay their academic staff a significant bonus for each article published in internationally recognized refereed journals (Altbach *et al.*, 2012).

Nonetheless, in almost half of the 28 countries in Altbach *et al.* (2012)'s study—Australia, Canada, Japan, Germany, India, Italy, Malaysia, the Netherlands, Norway, Saudi Arabia, the United States, and the United Kingdom—it is possible for most full-time academic staff to live comfortably on their base salary. This tends to be true, however, mostly for full-time senior scholars and less true for younger staff. Younger staff are also deterred by increased pressures that stem from greater teaching loads and an increased emphasis on the number of publications.

In most of the 28 countries considered in the Altbach *et al.* (2012)'s study, a middle-class income generally depends on additional employment, either within the same institution, at another academic institution, or in nonacademic employment. Academic staff accept extra teaching assignments for additional income. In some cases, this will be at the same institution but reflect a teaching overload beyond the hours specified in the contract or teaching in evening programs, professional seminars, or summer sessions; in other cases, faculty teach at different institutions. Others do consulting for industry or government, hold positions in research institutes or think tanks, write for newspapers, or have parallel careers as doctors, accountants, lawyers, or information-technology professionals (Rizzo, 2015).

There is some debate over the advantages and disadvantages of academic staff pursuing supplementary employment (Altbach, 2003). Some types of additional employment will undoubtedly contribute practical and relevant experience that will benefit classroom teaching and academic advising. However, when academic staff must pursue additional employment for economic survival, their attention will be divided, and it is unlikely that they will contribute their best work to their university (Musselin, 2007). Inevitably, the university will suffer diminished quality in the long run.

The factors that determine salaries tend to compose rank, seniority, academic qualifications, and publications; rank and seniority often carry the most weight (Johnes & Virmani, 2020). Another trend apparent in this research was the extent to which salaries vary by institution type, geographical location, and discipline. Salaries are often more beneficial in urban centers; working conditions almost always are favorable (Johnes & Virmani, 2020). Employment alternatives in the labor market are also influential. In most countries, academic salaries vary by discipline with salaries typically higher in medicine, law, economics, and accounting, where universities have to compete with other sectors of the labor market for talent (Gyourko & Tracy, 1988). Still, in some countries, salaries are determined almost exclusively by the government, either through civil service norms or the Ministry of Education. In these cases, salaries may not reflect market conditions, academic discipline, productivity, or any other factors (Civera et al., 2021).

## **B. METHODOLOGY AND DATA**

We conducted case studies of the public university systems of the UK, Germany, France, and Italy. These represent the largest academic job markets in Europe, affecting the overall capability of the EU to become a pole of attraction of human talent. In relation to research funds for instance, a recent article from Schiermeier (2020) about the allocation of the € 60 billion funds through the Horizon 2020 program over the period 2014-2020 illustrates that Germany receives €8.5 billion, the UK almost €7 billion, France €6.5 billion, Spain €5.5 billion, and Italy €4.5 billion. Yet, they present profound differences in the capacity of attract funds. Although Italy is 1.2 times more populated than Spain, it receives 22% less funds. Also, it is even more penalized when considering that Switzerland, which has the same population of Lombardy (8.6 million vs 59.5 million people in Italy) receives just under half of the Italian funding.

Such a situation could be detected also referring to the previous European competitive funding schemes (i.e. the European Framework Programs in the previous years).<sup>2</sup> Together with it, as reported in the ERC report 2021, during the last 3 years, Italian researchers have been awarded with 100 ERC consolidator grants, only 35 of which were placed in Italy. Vice versa, Germany, France, and the UK are countries able to attract scientific talents.

In regard to the ability to attract talent, Afonso (2016) considers eight major western European academic job markets and classifies France, Spain and Italy as systems closed to outsiders and relying on internal job markets, while Germany is a closed system relying on external job markets. By contrast, Denmark, the Netherlands and the United Kingdom are open systems relying on internal markets, while Switzerland is an open system relying on external job markets. Seeber & Mampaey (2022) starting from this classification investigate the system's career norms and requirements which privilege the hiring of national candidates and/or candidates within the same national university system, by deepening the reasons why candidates from other systems struggle to apply and compete for open job positions. They focus on the norms regulating access to senior academic positions.

We broaden our focus to include career norms and requirements existing for all the tenure positions within the systems. Focusing on a limited number of cases which still have a certain amount of differentiation allows us to discuss the distinctive features of each HE system also in relation to the academic profession. In Italy, France, and Germany, academics in public institutions are civil servants. For this reason, they are characterized by a high amount of bureaucracy, are subjected to national procedures for promotions, and are remunerated according to national salaries scale, with almost no university discretionary power. In this regard, Germany is the exception, where like in the UK, professors can negotiate their salary although their status of public employees.

We complement this analysis with consideration of remuneration, which is one of the main drivers for talent attraction (Baruffaldi & Landoni, 2012, 2016) which should be equalized at the international level (Ong & Mitchell, 2000). But it is not the case (Altbach et al., 2012; Ong & Mitchell, 2000; Stevens, 2004). Focusing on a limited number of cases, without giving up cross-country differentiation, we are able to calculate the exact average annual net salary for young and senior academic staff in order to make a more precise comparison and measuring the salary gaps between countries. Gross salaries may be thus misleading at a first sight, and one may be better off going to a country which pays slightly lower salaries, but which has lower taxes, than moving to a country with high salaries but higher tax rates. Moreover, also in case of no mobility, the net salaries ensure the better comparability of national system attractiveness.

The case studies were developed via the analysis and triangulation of qualitative and quantitative sources, namely: (a) scholarly sources, such as scientific articles describing the organization and evolution of academic career rules as well as inputs from national experts via interview or email; (b) official documents from national authorities and buffer agencies;<sup>3</sup> and (c) data retrieved through the statistical offices of each HE system.<sup>4</sup>

As conditions change over time, we show how the academic tenure-track staff has evolved in the last decade. Our aim is to illustrate how recent and current practices in terms of access to positions and career advancement as well as remuneration schemes today may explain the different level of attractiveness of the HE systems under consideration.<sup>5</sup>

## C. EMPIRICAL ANALYSIS

### *The UK*

The permanent academic positions in the UK encompass 3 levels: Lecturer, Senior Lecturer/Reader/Associate Professor, and Professor. The tenure track system does not exist. Therefore, Lecturer is the entry level permanent academic position after a few years of fixed term research or teaching positions. A lecturer is analogous to an assistant professor in the US. They are responsible both for teaching undergraduates and conducting research. They usually have an initial probation period of three to four years after which their appointment becomes permanent.

The typical requirement for securing a lectureship is a Ph.D. In general, but not always, postdoctoral training of at least one year is a benefit when applying for a Lecturer position. After 5 years of service as lecturer, an academic member can apply to become senior lecturer. The lecturer must submit an application. A committee of academics appointed by the specific institution evaluates and awards promotions. Teaching and research achievements are at the center of the evaluation. Each university provides a list of documents that each candidate must consider to provide in order to be promoted. The typical method for moving up the job ladder is to submit an application. This is possible inside one's own

institution, but it's crucial to keep in mind that there is a significant level of mobility among UK universities, making promotion more likely when seeking for a higher job at another school.

Senior Lecturer or Reader are equivalent, with Senior Lecturer being a teaching-focused position and Reader being a research-focused position.<sup>6</sup> Associate Professor has been adopted recently in place of Senior Lecturer or Reader to improve international recruitment (according to the University of Oxford Style Guide). UK Associate professors are initially appointed for five years after which they go up for review. If they are successful, they are reappointed and can hold the position until retirement. Candidates for promotion to Professor are expected to have made a major contribution in one of the three categories (teaching, research or social service) at an outstanding level, and an effective contribution in one other category. Each institution makes available specific guidelines for such requirements.

The Head of Department (Dean of School of Management) will consult senior staff within the Department on whether candidates' submission for promotion should be supported. If the Head of Department (Dean of School of Management) supports candidates' case, it will be submitted to the Faculty along with the Head of Department/Division assessment; the names and details of at least two independent referees as recommended by the Head of Department/Division. The suggested referees are external and of professorial standing. At least one must also be of international standing.

Heads of Department/Division must seek the agreement of suggested referees to provide a reference before submitting the case to the Faculty. The faculty will consider candidates' application, supporting evidence, Head of Department/Division assessment and suggested referees and decide whether a prima facie case for promotion exists. If a prima facie case is not established, the candidates will be advised of this by their Head of Department (Dean of School of Management).

If a prima facie case is established, the Dean will provide their assessment of the case as a separate document as well as the minutes from the Faculty/School Promotions Committee along with the information above to Human Resources. Human Resources will contact the suggested referees by sending candidates' full application (not including the Head of Department/Division and Dean's assessment) and the criteria requesting their comments. The referees will also be asked to provide the names of other referees who can be contacted by HR for a reference. Once at least four references are received, two of which must be second stage referees (i.e. from referees recommended by the first stage referees), candidates' case will be considered at the next Academic Staff Committee.

The Head of Department and Dean of Faculty/School will be invited to attend to answer any questions the Committee may have to decide. There is the option for the Head of Department and Dean of Faculty/School to bring with them an expert in the discipline of your subject matter. Academic Staff Committee will decide whether to confirm the promotion, or decline the promotion, or interview the candidates before a decision is made. The Head of Department (Dean of School of Management) will be able to notify the candidates of the outcome immediately after the Committee meeting. Promotion will take effect from the 1st of the month following the Committee decision.

Professor is the most senior academic position in the UK and is equivalent to a full professor or even an endowed chair in the US. In addition to research and teaching, UK professors are expected to take on an academic leadership role in the department or faculty. Professors hold a "chair" in a subject which can be either established or personal. Established chairs exist independently of the person who holds it, and if they leave the chair can be filled by someone else. A personal chair is awarded to a specific individual in



recognition of high levels of achievement. If they leave, there is no guarantee the chair will be available for someone else.

In 2020, the academic staff is 222.453, of which only 18.395 (8%) hold a position as Professor. The rest is distributed between Lecturer and Senior Lecturer positions. The academic personnel have expanded in the last ten years by more than 40,000 (+23%) units. The academic personnel under 40 is 43.5% of the total and it has slightly increased since 2010 when it set around at 42% (data elaborated by the Higher Education Statistical Agency). In general, the UK system has maintained its attractiveness over time, as the academic staff increased over time and the percentage of them under 40 was not damaged at all, meaning that no issues in entering and in advancing career have been detected.

The remuneration of academic staff can be divided into a fixed and a variable component. The fixed component is based on a nationally agreed single pay spine which covers the majority of HE institutions within the UK. It is led by University and College Union (UCU) which negotiates salaries, pay structure and employment conditions on behalf of higher education (HE) and further education (FE) institutions. It involves 48 steps. According to the 2020-21 framework agreement on the single pay spine, the average possible salary for university staff in the UK is: £40,761 for a Lecturer, £51,590 for a Senior Lecturer, £64,356 for an Associate Professor and £90,891 for a professor (data retrieved from the Office for National Statistics).

Progression in the salary steps within the same position (band) or to be advanced in the following position is based on seniority, productivity, and excellence. A positive decision is required to progress from one pay point to another within a band. A further positive decision is required to consider promotion to a higher band. For both within band salary increase and promotion, the candidates apply to their Head of Department. In the first case, the application must provide clear evidence of achievements. There is normally a 4-year period between salary increases.

In the second case, the application will consist of the applicant's executive summary, statement, CV (including citation data) and referee listing. It must detail achievements realized since the individual's last successful case for promotion and also how the case aligns with the band descriptor. External referees will be identified who may be approached to comment on the applicant's contribution to, and impact on, their discipline. The final decisions on entry will be made by the appropriately constituted Chair sub-committee.

The fixed component can vary due to the so-called market supplement, adjustments taking into accounts the alternative job opportunity a candidate can receive from the private sector as well as from other universities. For instance, in Accountability, Finance and Economics, the starting salaries are 10-15% higher than they potentially would be for an equivalent member of staff starting in another department due to the international marketplace where the staff operate. Universities in UK also consider retention payments to avoid the staff leaving for another job offer.

Regarding the variable component, every Senior Lecturer and every Professor has a personal fund called Personal Research Account which is fed by fund-raising activities or by remuneration linked to the results of the research (for example, with publications in top-tier journals like those in the Financial Times 50 list). Some other benefits are regulated within the university, such as the sabbatical year (usually accrued every 6 years), benefits for health and dental insurance, for an additional pension plan or for the purchase of subscriptions. Other benefits are negotiable on the basis of the productivity and reputation of the

individual professor. Reputable academics can be supported by researchers hired on the purpose of supporting them to in turn enhance the reputation of the university.

### **Germany**

In Germany, the permanent academic positions encompass 3 levels as well: Junior professorship (W1, non-permanent), W2 professorship, and W3 professorship. The W salary regulates the salary of appointed professors and was introduced in 2002 as a successor to the C salary.<sup>7</sup>

There are two main career tracks in the German university system. The traditional track consists of 6 years of PhD, during which candidates work for the university as employees and prepare their dissertation.

Once they have been entitled, they have to find a position as post-doc (*wissenschaftliche Mitarbeiter*). If they find the position in the same institution where they get their PhD, they can stay for a maximum of 6 years, after which they must search for another position in another institution.

During the post-doc period, some prepare the habilitation. The habilitation is a sort of second PhD and can be either a thesis (*opus magnum*) or a collection of scientific publications (*cumulative habilitation*). The habilitation traditionally includes the production of a habilitation treatise and an examination process that certifies the ability to teach in an academic subject. A habilitation commission of the faculty decides whether to accept the habilitation, granting the academic title of private lecturer (*Privatdozent*), the teaching license (*venia legendi*), and the right to apply for tenured professorial positions (W2 and W3 professorship). The habilitation is not compulsory anymore since 2002 but in humanities and social sciences it is still often the norm.

Thus, in 2002, an alternative career track was introduced to facilitate early independence and make careers less uncertain (Hüther & Krücken, 2018). A junior professorship is a temporary position and a stepping-stone towards W2 and W3 positions. The focus here is on early independence in research and teaching. Junior professors have the same rights and responsibilities as a senior professor: this includes administrative responsibilities, advising doctoral students, and participating in committee work. The teaching load is lower —five to seven contact hours per week—in order to dedicate more time to research, on which junior professors are evaluated.

The junior professor (W1) positions have a fixed duration of six years and are divided into two phases. In the first phase, junior professors undergo an evaluation after three years. If successful, they are eligible to apply for W2 or W3 positions. Following a positive evaluation, junior professors often choose to extend their W1 positions to the full six-year duration. In the second phase, while applying for W2 or W3 professor positions, they can use the additional time to develop teaching experience or to publish papers. Typically, junior professors have to apply for the W2 or W3 professorship at a university other than their starting institution. Yet, since 2016 the German government has introduced the tenure track option for junior professors. Tenure-track junior professors at the end of six years and after the two positive evaluations are guaranteed to achieve a permanent W2 or W3 position at the same institution. Over time, the number of new junior professorship positions has grown and in 2013 they equal the number of professors habilitated (Hüther & Krücken, 2018).

W2 professors are usually associated with a particular chair and carry out research in the same field. These are not chaired positions, but they do involve many of the same tasks and duties. W2 professors have their own research focus and conduct their research independently. The greatest difference is that there is less personnel management compared to chaired positions. W2 professors can also be tenure-track professors. If W2 professors have fixed-term positions, they may also have the option of tenure. They usually undergo several assessments and performance reviews throughout their appointment, ending

with a final evaluation. A successful evaluation can lead to a tenured W2 position, or promotion to a W3 professorship.

W3 professors lead their own chair (Lehrstuhl in German). Chaired professors are responsible for teaching and research in a specific subject area at a university. Chairs have their own academic and administrative staff who support the professors with technical and organizational tasks. While W3 professors generally have a larger research budget than W2 professors, both are in charge of research associates, advise doctoral candidates, teach, and produce new research.

To appoint professors, a committee of the faculty makes a shortlist of three candidates with comparative evaluations. External reviewers are asked to send a review of the short-listed candidates, in order to have also an international external validation of the short list created. The list is sent to the faculty and the university senate, which can modify the list before submitting to the ministry, which makes the final decision, usually according to the proposed rank. In both tracks, it is not necessary to have been W2 professor to become W3 professor.

It is the case to say that, due to the federal system in which Germany is organized and due to the high autonomy that each Land enjoys in terms of managing higher education systems, since 1998, there is extreme variability between the Länder and some rules may be applied in some and not in other (typically the possibility of tenure after a junior professorship).

In 2020, W3 professors are 13,825, W2 professors are 21,802, and Junior professors are 1,704, of which roughly one in five involved in a tenure track. A joint federal and state government program is providing one billion euros for 1,000 additional tenure-track appointments until 2032. In the system there are still C2, C3, and C4 professorship positions (the equivalent for the W2 and W3, but the categories used for the professorship before 2002), the first two comparable to W2 professorship and the latter to W3. The number of W3 professors and equivalent are equal to 16,292 whereas W2 equivalent professors raise to 31,751. In the last decade, the academic staff in total reach the 49,747 units. The personnel have grown since 2010 by 21%. According to the age class however the growth is due to the variation of over 40 (+23%) rather than of under 40, whose contribution is limited (+7%) (data elaborated from data retrieved by German Federal Statistical Office).

The professors' salary consists of their basic salary, a family allowance and additional performance bonuses. There are three levels of pay: W1 applies to junior professors, whereas grades W2 and W3 apply to all other professors with civil servant status.

The basic salary is determined by the federal states and is based on the salary group W1. In most federal states, the basic salary remains the same for the duration of the junior professorship. Only Baden-Wuerttemberg and the Saarland initially pay a smaller amount and increase a professor's salary to the actual W1 level after three or two years. Saxony has a second salary grade for junior professors after a successful interim evaluation (Wilde, 2018). Junior professors are required to pay income tax on their salary. Although no social contributions are charged, junior professors are responsible for arranging their own health and long-term care insurance.

The average annual salary for a junior professor is 55,000 €. The basic salaries for W2 and W3 professors vary greatly depending on the state. In most states, no salary levels are specified. On average the salary for W2 professors range from 68,000 to 76,000 and for W3 professors from 76,000 to 86,750. Only the German State, Bavaria, Hesse and Saxony take the seniority of professors into account when determining

their salaries and reward professional experience as a professor with a regular salary increase after five or seven years.

Professors' salaries can be boosted with additional performance bonuses. First, appointment and retention benefits may be granted if a university has a particular interest in attracting or retaining a professor. They can be paid on a single occasion or monthly. They are agreed during the course of the appointment or retention negotiations. Second, performance bonuses are also included in the appointment and retention negotiations. These are granted for special services, such as high external fundraising, publications in professional journals, a high number of exams. The maximum level of these additional benefits is governed by the salary legislation (*Besoldungsgesetz*), the national benefits regulations (*Leistungsbezugverordnungen*) and the respective guidelines of the universities. Third, functional performance bonuses are in turn paid to those in senior positions within the context of academic self-government, such as rectors, presidents and deans. Some universities specify fixed rates, while others freely negotiate the level of these functional performance bonuses.

Some states pay additional basic benefits to ensure that they remain competitive in the science system. These are specified in the state's salary legislation, together with the amount to be paid. No additional services are as yet associated with these additional payments. One exception is the legislature in the case of junior professors – they rarely benefit from such a salary increase. Professors who are married or live in a registered partnership also receive a family allowance. The mothers and fathers among the professors also receive a further, child-related supplement for each child.

Full-time professors pay wage taxes, but they are not required to make social security contributions to the statutory health insurance funds. Instead, they arrange private health and long-term care insurance. The pension or retirement pay received later in life is calculated on the basis of the last paycheck received by a civil servant before retiring. Not all components of the professor's salary are pensionable and are therefore not considered in the calculation of their future pension. Because the pension is paid by the Land where the professors had their last position, mobility has to happen before the last years before pension, as the Land where the professors end their career is not keen on paying the whole pension for professors that have been active only a few years in one of its universities.

In principle, the basic salary and married portion of the family allowance are pensionable, but not the additional performance bonuses. These must first be declared as pensionable and can usually only be accounted for in the pension up to a maximum of 40%. The actual percentage and pensionability in general are determined during the negotiations on performance bonuses, i.e. in the case of appointment and retention negotiations (Wilde, 2018).

#### *France*

In French universities, the academic profession consists of two main levels: *Maître de conférences* (MCF), which is equivalent to associate professor (or permanent assistant professors), and *Professeur des universités*, equivalent to full professor. The first category outnumbers the second almost by a factor of two, implying that only some of the MCFs will become professors (Musselin, 2019).

Holding a PhD is a necessary but not sufficient condition for an academic career. First, one must obtain a qualification for MCF from one of the 81 discipline-based national committees of the *Conseil national des universités* (CNU), which allows one to be included on a national list of those qualified for the position. The assessment occurs once a year, and the applicant must submit a detailed application form to two 'rapporteurs' nominated by the CNU by mid-December (and eventually, concomitantly defend the PhD).

The application includes the doctoral thesis, and in given fields a translation of the thesis in French is mandatory. In humanities, it is also preferable that candidates have obtained the *agrégation du secondaire* and are hence able to teach as *professeur agrégé (PrAg)* (Seeber & Mampaey, 2022).

The decisions on the application are communicated in January and the qualification is valid for 4 years. The success in the rate varies considerably across fields, from 35 per cent to 90 per cent (Musselin, 2019). Qualified candidates can apply for job openings. New positions are announced mostly by the Ministry of Education (Crosier *et al.*, 2019), by general calls yet, additional calls can be found on the websites of each university, or are diffused by disciplinary associations or lists. They are more and more detailed and linked to the specific needs of each institution. The selection is run by ad-hoc committees, specific to each position, that can have up to 12 members. Half are members of the recruiting universities and half are professors from other universities, with at least 40% of each gender. The selection committee invites potential candidates and ranks them (maintaining the possibility to rank only one of them, or even none of them). The ranking is submitted to a university body (*conseil académique*) that may refuse it but the conditions allowing to refuse are so narrow that it rarely happens. The ranks are published on the ministry portal and successful candidates can decide to accept or not, in order of ranking.

Concerning applications for *professeur des universités*, in the fields of law, political science and management, the access to professorship mostly depends on a national exam, the *agrégation du supérieur*: a national selection committee of professors in the discipline interview and select the candidates through a series of tests that last about 6 months. The tests include evaluation of the dissertation and publications, and after a positive evaluation, an oral exam focused also on very idiosyncratic criteria (Seeber & Mampaey, 2022). Successful candidates to this national exam are ranked by and can choose, in order of ranking, a position from the list of available full professorships in their field. For these three disciplines, the *habilitation* is not required. Part of the vacant positions in both cases are filled by transfer (*mutation*) of people who are MCFs and PUs at another university rather than by new recruitment.

In 2020, the academic personnel are composed of 20,100 PUs and 35,269 MCFs, which have decreased in the last decade by 5% and 8% respectively. The most substantial drop occurred for academic personnel under 40, who has decreased since 2010 by 54% and 50% respectively for the *Maîtres de conférences* and for *Professeur des universités* (data retrieved from the French Ministry of Higher Education and Research).

Both MCF and PU are civil servant positions, so their salaries are set by national legislation and don't vary between institutions or disciplines. There are two ranks of MCF which determine the compensation level: *classe normale* and *hors classe*. Within these classes are different tiers which correspond to seniority. The basic salary for MCFs is 46,428 € while the variable component is 8,628 €. There are three ranks of PU which determine the compensation level: *2e classe*, *1re classe*, and *classe exceptionnelle*. Within these three ranks are different tiers that correspond to seniority. The average salary is 71,900, of which 8.800 € represents the variable part (data retrieved from the French Ministry of Higher Education and Research).

The variable component of the salary includes the *indemnité de résidence (IR)* and the *supplément familial de traitement (SFT)*. IR is a residence allowance. The residence allowance was introduced in the civil service to take account of variations in the cost of living depending on the geographical area. The additional salary due to IR can be 0%, 2% or 4% of the basic salary. The SFT is a supplement to remuneration paid to any civil servant who has at least 1 dependent child under 20. The amount of the SFT varies according to the number of dependent children. It consists of a fixed element and an element proportional to the basic salary within the limits of floor and ceiling amounts.

### **Italy**

Academic careers and recruitment rules have been reformed several times over recent decades; the latest major changes having occurred with law 240 in 2010. Currently, there are four senior career steps. A non-tenured researcher position of 3 years that can be renewed for 2 years (Researcher type A, or RtdA), followed by a non-tenured position of 3 years (Researcher type B, or RtdB). After this period and if the national habilitation for associate professorship has been obtained, a commission evaluates the scientist and can grant a tenured position of associate professorship. De facto, RtdB positions almost always lead to an associate professorship position. The last stage of the career is Professore Ordinario (full professor). To become full professor, a national habilitation similar to but more demanding than the one required for associate professorship is necessary, as well as access to resources at department level.

The recruitment procedure dictates that the department proposes a call for new tenured or non-tenured positions to the university's central decision-making bodies and the institution puts out a job offer, which must specify the disciplinary recruitment sector (out of a list of 190 sectors) for the new hire. An ad hoc evaluation committee composed of a minimum of three academics in the sector and with most members external to the institution evaluates the applications. Finally, the university can hire the successful candidate.

Law 240 tried to address criticisms about nepotism and the alleged lack of meritocracy in academic recruitment (Durante *et al.*, 2011; Foadi, 2006; Pezzoni *et al.*, 2012), primarily through two mechanisms. First, the law included a norm (article 18) preventing departments from hiring relatives of their faculty. This norm has been effective in curbing nepotism (Grilli & Allesina, 2017). Second, the law established a national habilitation procedure (Abilitazione Scientifica Nazionale), which was intended to add an additional quality control.

Unlike other countries, in Italy, a less accentuated pyramidal structure is in place. In 2020, full professors are 14,178, associate professors are 23,146, RTDB are 4,916 RTDA are 5,160 (data retrieved from the Ministry of the University and Research). The structure of the academic staff has changed considerably relative to 2010; the Italian system has started to change going toward the so called 3L (less staff, later career, lower salaries) according to the recent study from Civera *et al.* (2021). In the last ten years, the academic staff has decreased by 3%. Yet, the most dramatic drop involved the youngest (under 40), who reduced by 28%. Moreover, staff turnover was tightened from 50% (the quota since 2009) to 20% (Ministerial Decree 95/2012) and turned back to 100% only in 2018 after a decade. These figures testify the lengthening of the academic career as well as the concept of entering later in the system due to the blocking entrance causing a negative delta percentage in the initial age class.

The salary of the academic staff was affected as well. The Legislative Decree 78/2010 established a block of the turnover, stopping all salary adjustment mechanisms of public sector employees, including the normal pay grades, the contracts, and adjustments from the National Institute of Statistics (ISTAT). The situation lasted until 2016, when academic staff found themselves with the salary they had in 2010, as if they did not serve during the previous five years. In 2010, there were 14 salary classes with biennial salary steps. Afterwards, age classes reduced from 14 to 11 for full professors and to 12 for associate professors, and salary increases converted from two-year to three-year steps, subordinated to the positive evaluation of an internal panel (Presidential Decree 382/1980). The average salary for a full professor is 88,327 €, for an Associate professor 60,354 €, for RTDB 39.628 €, and for RTDA 36,344 €.

## D. RESULTS

All European countries under analysis distinguish between a fixed and a variable component, except from Italy which has only the fixed component. Whereas the variable component is established by law in France, it can be negotiated in Germany and UK, where on average it is 20% of the base salary but reaches the whole amount eventually. In France and Germany, welfare policies in favor of families and the geographical location are of prominent importance. In the former those who live in the metropolis receive an increase ranging from 1% to 3% of the salary (accounted in the variable component); in the latter the basic salary is different region by region to consider diverse living costs. By contrast, what is relevant in UK to the salary determination is the academic discipline. In all three countries a monetary bonus is expected for outstanding research production, which makes the commitment to research a clearly incentivized behavior.

Looking at the gross salaries in Table 1, UK and Germany are the most competitive systems followed by Italy, which establishes higher salaries than France despite the complete absence of the variable remuneration. To make a comparison, due to the profound differences existing among German states and the discretionary amount of variable compensation in both Germany and UK in virtue of the private negotiations between professors and universities, some assumptions have been taken.

First, for Germany we select the most populous state, North-Rhine Westphalia, which is in the north of the country, and Bayern, which is in the south and the most economically advanced state. In this way, two rather different situations can be caught within the same national HE system. Second, according to official Labor Act, 20% of the gross salary is the average amount of the variable component of the gross salary for an academic (Hoffmann-Martinet & Wollmann, 2006).

Of course, the university can vary this amount according to the contingencies in the respect of the institutional budget. For this reason, we refer to the figures in the table as average numbers. A similar reasoning has been done for the UK. In virtue of the private negotiation and the discipline differences related to the market supplement, the percentage variation of the gross salary ranges between 10% to 100%. For this reason, 50% is the assumed amount of the variable component of the gross salary for an academic in the UK.

When adjusting by taxation and considering the net salary of associate professor position, the situation changes. Italy is at the tail end and is characterized by profound differences with the other systems, ranging from 9% in France, to 69% in UK and Germany (North-Reine Westphalia), and to 72% in Germany (Bayern region). In the case of full professors, UK and Germany still dominate the market with a net salary which is 31% and 45% higher in Germany, respectively in North-Reine Westphalia and Bayern, and 61% higher in the UK than in Italy. Italian and Franch full professors' net salary is instead aligned.

What we are missing in this last case is the relevant differences which exist between average age in the two systems. In France the average age for MCF is 46 and for PU is 54 years, lower than the Italian counterparts, which are 52 and 58. By simulating the average net salary for Italian associate and full professors at 46 and 54 years old, it is 18% and 7% lower respectively. The picture is even more dramatic when considering the entry-level, whose net salary should be increased from a minimum of 74% to a maximum of 86% to be comparable to those in the UK and in Germany (Bayern).

In countries where the top-level salary is high and the gap between entry level and top level is small, salaries overall are clearly attractive. Where entry-level and top-level averages are both low, it is easy to

see that an academic career may be less attractive and that these countries can be vulnerable to brain drain.

**Table 1.** Annual gross and net average salary per academic position in 2020. The gross salary is broken up into the basic and the variable component.

	UK	Germany		France	Italy
		Bavaria	North-Reine Westfalia		
	<i>Lecturer</i>	<i>Junior professor</i>			<i>RTD-B</i>
Gross salary (basic)	48.175	62,142	57.516		39.638
Gross salary (variable)	10-100%	-	-		-
Net salary	49.168	52.689	50.006		28.256
	<i>Senior Lecturer/ Reader/ Associate Professor</i>	<i>W2 professor</i>		<i>Maître de conférences</i>	<i>Associate Professor</i>
Gross salary (basic)	76.062	77.136	75.692	46,428	60.354
Gross salary (variable)	10-100%	20%	20%	8.628	-
Net salary	69.385	70.333	69.328	44.522	40.988
	<i>Professor</i>	<i>W3 professor</i>		<i>Professeur des universités</i>	<i>Full Professor</i>
Gross salary (basic)	107.434	94,800	83,609	63.132	88.327
Gross salary (variable)	10%-100%	20%	20%	8.800	-
Net salary	91.973	82.627	74.838	56.335	57.178

Source: Authors' calculations based on data from ministerial websites. For France (MESRI, 2022); for Germany (Destatis, 2022); for the UK (HESA, 2022); for Italy (Ministerial Decree on March 12 2022 published on Gazzetta Ufficiale G.U. n. 120 on May 24 2022). Data about taxation are retrieved from (Mistura, 2020).

Some assumptions have been done to allow a comparative analysis. For France, the UK, and Italy it is effective gross annual remuneration, for Germany it is a re-elaboration basing on the nominal gross annual remuneration and the age distribution of staff per position. The average tax rate for each country was considered (excluding the effects of deductions). We focus on public HE institutions. All private institutions are excluded by the analysis. In France, public universities encompass the établissement public à caractère scientifique, culturel et professionnel. In Germany, University of Applied sciences are excluded. In Italy ITS are excluded.

Figure 1 summarizes the level of remuneration and the level of remuneration variability in the 4 HE systems described above. In the UK, remuneration level is high and there is large variability in remuneration due to the private negotiation with the institution as well as to the market supplement to take into account of discipline differentiation. Such variability is greater than in Germany, where the

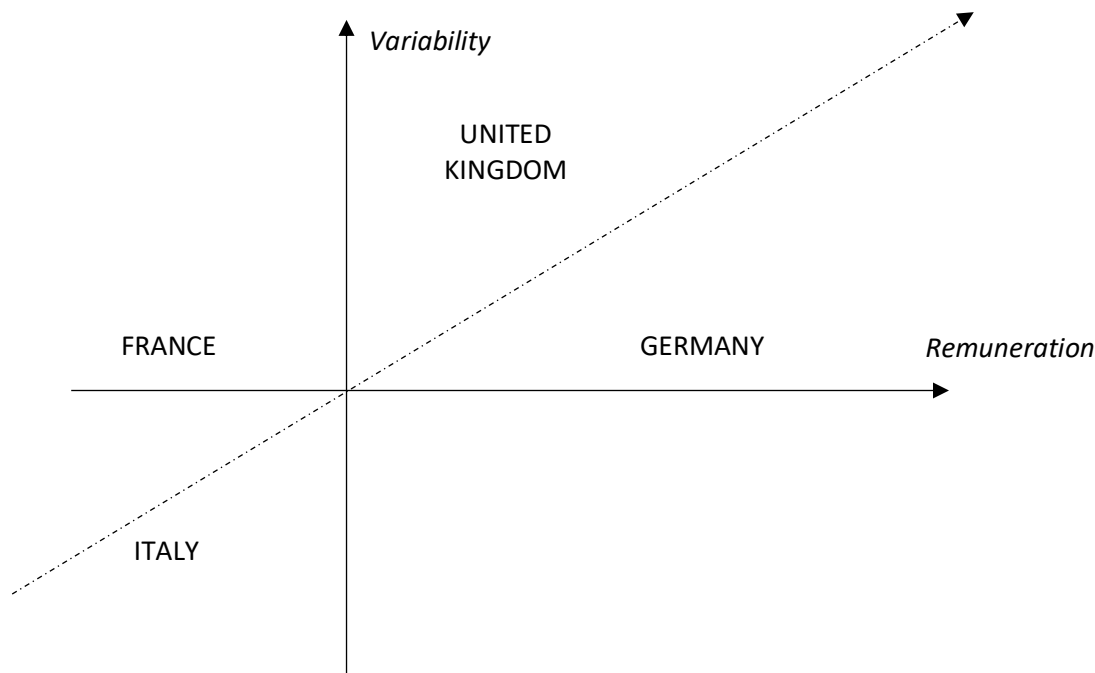


remuneration level is evenly high. In Germany, the regional differences are established by law and countless in the definition of the final salary than the UK case. In France, the variability is similar to the one in Germany because both the residence allowance and the family supplement are established by law. Differently, the remuneration level is lower than in the UK and in Germany. Italy is characterized by low remuneration level and null remuneration variability as the salary consists only of the basic component.

The discrepancies in salary are not justified by a higher number of academic personnel compared to the student body. Italy is indeed understaffed and exhibits a student-to-staff ratio equal to 33, far greater than France where the indicator is approximately 21 and Germany and the UK where it is lower than 13.<sup>8</sup> High salaries and a good balance between students and academic staff are positive aspects attracting scholars, especially the youngest who are less inclined to move to a place where the teaching burden is high (Altbach *et al.*, 2012). Therefore, it is undeniable that early-career scholars find themselves very much penalized in a university system like the Italian one.

Together with the salary level and the teaching burden, the academic contracts make Italy the less attractive country. Italian associate and full professors are the eldest, as in Germany they are 47 and 52 years old whereas in the UK the average age is 43 and 55. In Italy the academic career takes longer than in any other states.

**Figure 1.** Representation of the 4 HE systems according to two dimensions: the level remuneration on the x-axis and the remuneration variability on the y-axis



**Table 2.** Academic staff and student-to-staff ratio in 2020.

	UK	Germany	France	Italy
<i>Academic staff</i>	224,140	217,538	79,072	55,503
<i>Student-to-staff ratio</i>	12.28	12.74	20.68	33.13

*Source: Authors' calculations based on data from ministerial websites. For France (MESRI, 2022); for Germany (Destatis, 2022); for the UK (HESA, 2022); for Italy (Ministerial Decree on March 12 2022 published on Gazzetta Ufficiale G.U. n. 120 on May 24 2022).*

**Table 3.** Average age of the academic staff in 2020.

	UK	Germany	France	Italy
<i>Associate professors</i>	43	47	34	52
<i>Full professors</i>	55	52	54	58

*Source: Authors' calculations based on data from ministerial websites. For France (MESRI, 2022); for Germany (Destatis, 2022); for the UK (HESA, 2022); for Italy (Ministerial Decree on March 12 2022 published on Gazzetta Ufficiale G.U. n. 120 on May 24 2022).*

## E. DISCUSSION AND CONCLUSION

As a main result of the analysis, we are able to identify best practice and directly pinpoint areas where policies to improve attractiveness can make a difference.

In terms of academic career prospects, the four countries are extremely different. The UK and Germany are characterized by an academic staff population in expansion, where the youngest (under 40) have increased by 3.5% and 7% respectively (data elaborated from the Higher Education Statistical Agency and from the German Federal Statistical Office). During the last decade, the possibility of entering and advancing the career has increased. This may be due to the fact that they can benefit from advantageous conditions in terms of salary. The level in both systems is high and there is possibility of negotiation. In the UK, this allows to have a large pool of candidates and to be able to select those with outstanding research profiles, which in turn allows universities to receive more funds either from international research projects (such as ERC) or from the national system itself through great assessment during the Research Exercise Framework (REF).

Germany instead is a closed system. German chairs typically recruit PhD students from graduates they have taught, and postdocs from their own pool of PhD graduates (Seeber & Mampaey, 2022). Network connections and having a highly respected mentor are also important predictors of appointment at professorial positions (Jungbauer-Gans & Gross, 2013; Plümper & Schimmelfennig, 2007). While the system tries to avoid institutional inbreeding and to keep high standards of quality through deadlines, pressure and mobility, there may be unintended barriers to attracting candidates from other systems.

Tenured positions are in fact obtained at a relatively late age. At that age, most scientists in other systems have either left academia or obtained a tenured position, or they might be reluctant to move to a new country. Hence, while the habilitation is not required for candidates from other systems, those willing to apply will often be younger than the national competitors and, similarly to the French system, they will

need to outcompete national candidates that have been formally habilitated for the job and that can rely on the networks of their mentors.

Therefore, offering high salaries allows German HE system if not to attract foreign candidates at least to be attractive in the eyes of the national candidates, who can count on some supplement on the salary when they move, which is of a great support when working in expensive areas. Nonetheless, Germany with policies such as the Excellence Initiative is striving to gain international visibility in order to be attractive also toward the international academic market.

The situation is completely different for the other two countries. The French system is contracting by almost 7% when considering the combination of the two tenured positions, and the youngest have been cut in half. For France, the contraction may be due to the fact that there are very well established private HE systems involving Business Schools which offer far higher salaries (at least in Management) but at the expense of demanding teaching loads.

Moreover, France can benefit from a competing research system composed of research centers, such as the National Centre for Scientific Research (CNRS) which is among the world's leading research institutions. It is also to consider that the average age of entry in the system is not damaged by the reduction of academic staff under 40, which makes French MCFs the youngest academics (with the exception of UK). Moreover, in French HE system the basic salary is integrated by supplements based on household and geographical location and in virtue of the civil servant status, being an academic is still attractive even if only for local candidates.

Thus, foreign scientists from other systems may be reluctant to embark on a demanding qualification procedure like the French one, and when they do, compared to national candidates they are less likely to know the functioning of the evaluation procedures and French academia in general, to which of the 81 disciplinary panels they should apply, and what the evaluation criteria consist of. Moreover, the evaluation in certain fields requires that thesis and articles be written in or translated into French, and the website of the CNU is only in French.

Second, while the calls are announced centrally, the ranks for MCF are made by a local committee and, since there is no rule or informal norm that prescribes scientists to change institutional affiliation, internal careers are very common. For example, Godechot & Louvet (2008) found that local applicants are 18 times more likely to obtain a position than external applicants. Regarding candidates from other systems, they can be exempted from the requirement to be accredited by the CNU under demonstrated qualifications, yet this implies convincing a selection committee to pass over a long list of accredited French candidates. As a recent development to this system, law 24 of 2020 has introduced new positions that are tenure-track positions leading in 6 years to a potential civil servant professor (Chaire de Professeurs junior), with higher salaries and reduced teaching load. Like Germany, France is trying to enhance the international visibility of its own HE system by its own Excellence Initiative policy.

The figure for Italy is cause of concern as well but at a first sight less dramatic than that of France, as the system is shrinking by 3% and the youngest have been reduced by 25%. However, the Italian HE system is known as the main example of brain drain due to the high number of people leaving the country after completing doctoral study (ISTAT, 2018). A fiscal policy which encompasses tax reduction has been introduced starting from 2010 with the aim of reverting such a phenomenon and opening to the international market. However, the Italian selection and career system disadvantages scientists from other systems and/or institutions in several ways.

First, there are very few tenured professorial positions that can be accessed by outsiders from other institutions or countries because almost all new (permanent) associate professor positions result from positive evaluations of RtdBs from the same institution. Also, most RtdBs result from 'upgrading' of RtdA positions and possessing a habilitation is an important informal factor for obtaining a RtdB position.

Second, while the habilitation was introduced to avoid non-meritocratic local recruitment, at the same time it is a much greater hurdle for scientists from other systems. In fact, a candidate aspiring to a permanent professorship should possess a habilitation at the national level precisely in the scientific sector of the position (or an equivalent position abroad). Since there is a very large number of scientific sectors (190), each habilitation gives access to few positions, and each habilitation requires a very specific profile (Donina *et al.*, 2017). Scientists nurtured within the Italian system tend to grow within a disciplinary sector, meaning that they will fit well in one sector while they rarely must waste their time in multiple habilitation attempts.

On the contrary, potential candidates from other systems will rarely fit one specific sector and could be more reluctant to invest time to obtain a habilitation that grants the right to apply to few positions. Additionally, the situation is not mitigated by the fact that Italy is the only system offering basic salaries with no supplements. This is a strong competitive disadvantage toward systems which are not that different from the Italian one, for instance France.

Taking Italy as a benchmark, and by focusing on remuneration, we are able to quantify in monetary terms, the cost of the eventual implementation of some reforms dedicated to fill the gap in its attractiveness.

First, the level of the basic salary should be aligned to the main international competitors. For Italy, this would be achieved through a one-off recovery of the salary block implemented over the period 2010-2015. By assuming a € 2,000 salary increase for the staff who suffered the block, which equals to 40,000 units, the investment would be € 80 million per year.

Second, a variable component based on research performance like in the UK and in Germany should be introduced as the supplement to the basic salary as it plays a key role in being an attractive system. An eventual maneuver would include the introduction of a reward component up to 20-30% of the fixed component financed through competitive funds and the allocation of resources destined to accelerating salary steps movements. If we assume 20% of the fixed component for one tenth of the academic staff, it turns to be 60 million (6,000 people receiving 10,000 € each). Since these funds would come from competitive funds assigned by the Ministry of University (in the case of PRIN projects) and Research or by international organization (i.e. European Union in the case of European research grants, ), they should not be consolidated in the university balance sheets.

Third, a geographical differentiation like in Germany and France would imply a salary increase for the academics residing in regions characterized by a high cost of living. Considering a supplement of maximum 10% of the salary for roughly half of the academic personnel would cost € 150m per year.

Finally integrating some benefits, like a supplementary health policy like that offered in the UK would include a € 1,500 scheme for the tenure staff which lead to a € 90 million per year investment. Altogether these reforms would cost less than the German and French Excellence Initiatives, which cost respectively € 400 and €1,500 million per year respectively.

With different amounts, these policy recommendations could be suitable also for those other countries, starting for example from those included in the study of Altbach *et al.* (2012), which suffer from brain drain problems and in general lack of attractiveness. It is worthy to point out that the policy proposals would be beneficial for the attractiveness of a country also from the point of view of national academics. Too often, the literature and the national policies have focused on attracting people from outside, without considering the national high-skilled workforce who prefers to apply for a job in the private sector.

The current study can be adopted as a starting point for different comparative analysis, where specific dimensions mentioned like net salaries, average age, the structure, and the evolution of the academic career can be studied as determinants of attractiveness in the eyes of both national and international staff as well as of both young and senior scholars.

There is a disproportional attention devoted by extant literature to the attraction of early careers scholars only because they are those who move more frequently (Laudel, 2005). Nonetheless, there is evidence that mobility patterns do depend on the career phase (Cañibano *et al.*, 2008; Laudel & Bielick, 2018) and looking at (international) mobility determinants of young scholars is just a part of the story about attractiveness of the academic career. In addition, the topic could be investigated by applying a more quantitative approach where statistical inferences are detected. This would imply however a numerical definition of what attractiveness is. These promising and also challenging research venues are left for future investigations.

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## FOOTNOTES

<sup>1</sup> Teaching and service are part of the evaluation as well. Yet, due to the incentives specifically dedicated to research productivity which have caught on, research achievements are globally considered as determinant for hiring talents.

<sup>2</sup> See the Horizon dashboard <https://webgate.ec.europa.eu/dashboard/sense/app/eaf1621c-67ce-4972-a07b-dddba31815c1/sheet/ccaaf16a-84cd-4766-926f-3d930f231b77/state/analysis>

<sup>3</sup> France (MESRI, 2022); Germany (Destatis, 2022); the UK (HESA, 2022); Italy (Ministerial Decree on March 12 2022 published on Gazzetta Ufficiale G.U. n. 120 on May 24 2022). Data about taxation from (Mistura, 2020).

<sup>4</sup> For the UK the HESA portal <https://www.hesa.ac.uk/>; for Germany the DESTASIS portal

<https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Publikationen/publikationen-innen-hochschulen-personal.html>; for France the Ministry of Education portal <https://www.enseignementsup-recherche.gouv.fr/fr/l-etat-de-l-enseignement-superieur-de-la-recherche-et-de-l-innovation-en-france-84954>; for Italy the Ministry of Education portal <http://ustat.miur.it/> and the direct interaction with the personnel in the minister statistical offices.

<sup>5</sup> Some assumptions have been done to allow a comparative analysis. For France, the UK, and Italy it is effective gross annual remuneration, for Germany it is a re-elaboration basing on the nominal gross annual remuneration and the age distribution of staff per position. The average tax rate for each country was considered (excluding the effects of deductions). We focus on public HE institutions. All private institutions are excluded by the analysis. In France public universities encompass the établissement public à caractère scientifique, culturel et professionnel. In Germany, University of Applied sciences are excluded. In Italy ITS are excluded.

<sup>6</sup> In other universities, a senior lecturer can be promoted to a reader--the more senior rank. In these cases, the senior lecturer can be seen as an associate professor and the reader as a full professor without a chair.

<sup>7</sup> Before the introduction of the W salary scale in 2002, professors' salaries were based on the C salary scale. The W salary scale abolished the seniority and lowered the basic salary. The benefit principle now applies in its place, and the additional performance bonuses have been introduced accordingly. These performance bonuses will be included in Appeal and leave negotiations and are the reason for immense differences in the salary of professors.

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<sup>8</sup> In Germany doctoral students are taken into account as part of the teaching staff, with formalized teaching duties. In France, in addition to MCF and PU has been considered also the category of the enseignants contractuels, who are fixed-term contract staff entirely dedicated to teaching activities. In the UK, from the HESA database it is not possible to disentangle between Lecturers and Senior Lecturers.