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Essays on Researchers' Mobility in HE: Policies, Research Productivity, and Attractiveness

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TABLE OF CONTENTS

TABLES

Figures

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CHAPTER ONE

1. INTRODUCTION

1.1.Higher Educational Institutions: Mobilization, Attractiveness, and Productivity

Higher educational institutions (HEIs) play a crucial role in providing advanced education and training to students, and staff in pursuing academic, career, and professional goals (Gaebel & Zhang, 2018; Pleśniarska, 2019). Over the decades, universities have shown greater emphasis on their governance structure, offering a wide range of courses, creating an impact on society to eventually achieve their sustainable goals (Demele et al., 2021; Farooq et al., 2017; Leal Filho et al., 2018). Initially from 1960, there has been a good flow of academies towards tertiary education by awareness, institutional reputation, and culture, influential HE policies for both staff and students, high-income structure, the demand of skilled jobs, helps in decision-making in the selection to pursue HE (Cerych, 1989; UNESCO, 2022). The previous research topics like international student mobilities, management perceptions in HEI, Enhancing university employer attractiveness, spatial distance, research performances between countries, European policy implementation, etc, create awareness and attractiveness in developing and procuring institutional performances and show internationalization over global universities around the world (Castellacci & Viñas-Bardolet, 2021; Conard & Conard, 2000; CORDIS, 2022; Prakash et al., 2022; Spiess & Wrohlich, 2010). According to European Commission (EC) reports, student mobility opportunities are 13 times as high as the number of full-time researchers. In most economically advanced countries, the student-academic staff ratio ranges from 10:1 to 16:1 to UNESCO reports 2003-04. So, the academic mobility is varying high in case of Erasmus student mobility than for the staff opportunities. The achievements and policies (in developing the HE governance) have in relation to HEIs and mobility, and research opportunities are given importance.

The Lisbon Strategy and Bologna Process improve the European Commission's intervention in higher education for key goals like employability, mobility, and international institutional attractiveness (Sin et al., 2016). These are fundamentally impacted to respond to the needs and expectations of the academies (Negricea et al., 2014). The HEIs are seen as efficient, productive, and high knowledge spillovers collaborating with public-private sectors to create a high impact on societies and eventually gain international or global recognition, which is considered another essential factor in establishing a university reputation (Fajčíková & Urbancová, 2019; Royo-Vela & Hünermund, 2016). Internationalization is a term more popular ever since 1980s in tertiary education, which means

teaching or research or combined initiatives between two or more international HEIs (home and host) directly or through digital techniques. The UN Secretary-General stated in 2012 that education must fully assume its essential role of helping people forge more just, peaceful, and tolerant societies. During the initial stage, Internationalization has four main dimensions in HE: academic, social, economic, and political characteristics of the geographical position. Later, it is classified into four levels: individual, institutional, regional, and national level (Cassia et al., 2008; J. (Educator) Knight, 2008). In considering the above factors, each of the HEIs has contributions made to the regional growth and opportunities such as the academic staff mobility, and the HEIs performances in delivering research capabilities by considering the institutional and regional parameters conceptually followed by the empirical evidence in the individual and overall groups.

It looks similar to "Globalization," which is different from "Internationalization," which means expanding to multiple countries, while globalization means expanding globally (J. Knight, 2008). In today's interconnected world, being international is an advantage and a necessity. It embraces linguistic and international diversity dimensions in curriculum, teaching, learning processes, and support services. However, being global is a much broader ambition. It is about enabling students to gain a deeper understanding of the world they live in, so they can create a better, more peaceful future through intercultural understanding and respect. It's about helping them see the world as one nation, united in a common goal. By being international and global, we can equip our students with the skills they need to positively impact the world (Ayoubi M, 2019). Numerous governments and international organizations have expressed interest in fostering international relations at the academic, traditional, social, and political levels. On the one hand, the growing internationalization of tertiary education and the rise of cross-border provision present potential for enhancing the capacities, enhancing the quality of national tertiary education systems, and stimulating the creativity of academics. This involves encouraging international mobility of students and teachers via grants, academic exchange programs, and tertiary education institution partnerships. However, there are also risks associated with the globalization of higher education (Ewers et al., 2022). Regional factors also have an effect on economic conditions, and this leads to academic decision-making. A brief discussion is made on how academic mobilization creates mutual benefits for the institution (HE) through research performance, talent attractiveness, and higher education policies. Here, we took a specific term, so-called "Academic mobility," which suits internationalization between home and host universities in tertiary education.

The academic mobilization (for both students and staff) in HE may lead to increasing interdependence between nations and pressure for more coherence in national educational systems. Faculty/academic

collaborations take place between departments in HEIs at the international level which tend to a strategic move in professional development as a socially interactive and contextual process (Altbach & Salmi, 2011; Celis & Kim, 2018; Noben et al., 2022; Wullschleger et al., 2023). The collaborated staff tend to observe the institutional developments mutually and motivate themselves by teaching attributes, knowledge, and expertise. These may also raise difficulties in losing people between institutions and are formally so-called brain grain or brain drain (emigration of highly skilled personnel) networks (Ali et al., n.d.; Balmer et al., 2009; Fu et al., 2023; Kirss et al., 2014; Kitagawa, 2004). After scientific research conducted throughout periods from 1960, this phenomenon is named "Brain circulation". This might occur if the academies explore advantages with the university, society, career growth, and attractive policies from host universities such as economic considerations, skilled migration (depends on the competition for talent and excellence), revenue generation (based on unsubsidized rates like covering expenses) and capacity building (attraction of foreign institutions to build or improve tertiary educations). Academics are motivated to relocate for a variety of reasons, including improving career prospects, collaborating with exceptional faculty or research teams, and the reputation of foreign institutions.

1.2. Attractiveness in higher educational institutions

Higher education in Europe is facing long-term secular forces that require institutions to educate more diverse students in more subjects and flexible ways, produce more research, and contribute to global scientific discussions and local economic development. These forces have emerged due to the combination of massification and the new knowledge economy. Understanding student and academic staff's perceived needs and satisfaction by their socio-economic and cultural status, employability prospects, etc. is relevant. Apart from this, gender is a special factor for an HE institution (Prakash et al., 2022; Tavares et al., 2008). Several key factors determine university attractiveness, and these cannot be overlooked considering the reputation of the university, as well as its organizational culture, roles, and opportunities for growth and development (Abell & Becker, 2021). Physical characteristics, such as campus infrastructure and facilities, are also crucial to enhancing the overall appeal of the university. In the comparison between attractiveness and internationalization, distance also plays a crucial role (for educational quality and accessibility), particularly at the regional and national levels (study and teaching programs), where competitiveness is a decisive factor (Abramo et al., 2012; Leikuma-Rimicane et al., 2022; Sá et al., 2004; Spiess & Wrohlich, 2010; Widiputera et al., 2017). The internationalization of academic staff at universities is part of this larger trend. From the perspective of academic staff, opportunities for international activities and mobility could be viewed

as an essential part of the terms and conditions of academic employment and as an important means for professional development (Commission, 2023). The Eurydice report demonstrated a highly differentiated situation among European countries, with countries like Italy and Spain having less than 5% foreign academic staff, while the share exceeded 25% in the UK and 40% in Switzerland.

Attractiveness plays a role in scientific research and productive fields in HEIs. It typically refers to the level of interest or appeal that a particular area of research holds for researchers, institutions, funding agencies, and the broader academic or scientific community (Barrioluengo & Flisi, 2017; Janger et al., 2019; Schaer, 2022). It is a subjective assessment based on factors such as the potential for innovation, societal impact, feasibility, and the availability of resources at HEIs. By focusing on these key areas to attract the academic staff: reputation and image, organizational culture and identity, strategic vision, corporate social responsibility, and work and surrounding environment, institutions can confidently position themselves as an attractive and compelling choice for academic talent (Saurombe et al., 2017). Though not the primary factor, academic salaries also play a role in mobility decisions (long/short-term), along with research environment, intellectual challenge, autonomy, and career potential (Bonaccorsi & Biancardi, 2019). This involves disciplinary sectors, translational research, high-impact research, collaborative research, data-driven research, etc. may vary depending on HEIs reputation. This attractiveness leads to research mobilization where attracting the new talents in areas tend to generate more interest and attention from the broader scientific and academic community, as well as from the public. Indeed, it can lead to increased dissemination of knowledge through publications, conferences, and other forms of communication. The scholars can gain human and technical capital (access to the infrastructure) but also increase collaboration and integration within research networks (with elite scientists) (Koutsouris et al., 2022; Laudel, 2005). This eventually has a higher likelihood of influencing policy decisions that are relevant on an international scale such as Bologna strategies and Lisbon process. When comparing Italy and Spain to the UK, Germany, and France, it shows that they have a lower level of 3 percent attraction with foreign personnel. The latter countries have good levels of attractiveness and high graduation rates. Therefore, it is necessary to improve policies related to internationalization (Agasisti, 2011). Italy's tertiary graduation rate has historically been quite low. However, the bachelor's and master's degree reform that was introduced in 1999 is leading to better results. Specifically, if we look at the change in the tertiary graduation rate between 2000 and 2004, we can see that Italy has made significant progress compared to its competitors (OECD, 2008).

1.3. Research & Staff Mobility: In and Out

The academic sector is an incredibly vital aspect of society that depends on exchanging knowledge and cultural experiences, conducting pioneering research and scholarship to promote collaboration and address global challenges. The migration and mobility of academics play an indispensable role in this process. To progress in their academic careers, professors must excel in crucial domains like research and teaching. The way they carry out their academic duties is significantly influenced by the national and organizational contexts in which they operate. For instance, they must teach in the official language of the country or region where the university is situated. Furthermore, they must meet the expectations about research standards and outcomes shaped by national evaluation processes and institutional traditions. In addition to these responsibilities, professors must also work collaboratively with their colleagues to effectively participate in management and decision-making. This teamwork is necessary to achieve the goals of academia, which include knowledge transfer, cultural exchange, and addressing global challenges. Overall, the academic sector is essential for the betterment of society, and the work of professors is critical to its success.

Mobility and internationalization are key aspects of the Bologna process and Lisbon strategy, and staff mobility is integral to the overall objectives. Staff mobility improves higher education and research quality. National policies encourage staff to travel abroad and recruit foreign researchers for short/long periods (Mobility Scoreboard, 2023; Racké, 2013). Figure 1.1 illustrates the promotion of national mobility policies in various countries, Italy being one of them. Migration decision is an exercise of choice within a framework of resources and constraints associated with the host university (Carrozza & Minucci, 2014). It is associated with different emotional, intellectual, and strategic engagement levels between two institutions or geographic regions. Research mobility is a cornerstone of progress in higher educational institutions across and beyond Europe. Promoting knowledge exchange (high academic performances), cultivating cultural diversity (attracting foreigners), and enhancing institutional reputation (productivity and research), all together serve as a catalyst for innovation and excellence in HE (Van Der Wende, 2015) in an interconnected world, where the challenges we face are increasingly complex and global. The imperative for research mobility has never been greater and according to the European Commission's joint research center report in 2007, no more than 7% of R&D staff work abroad. It is expected to increase by 20 percent only with doctoral researchers by 2020 (Schiermeier, 2011).

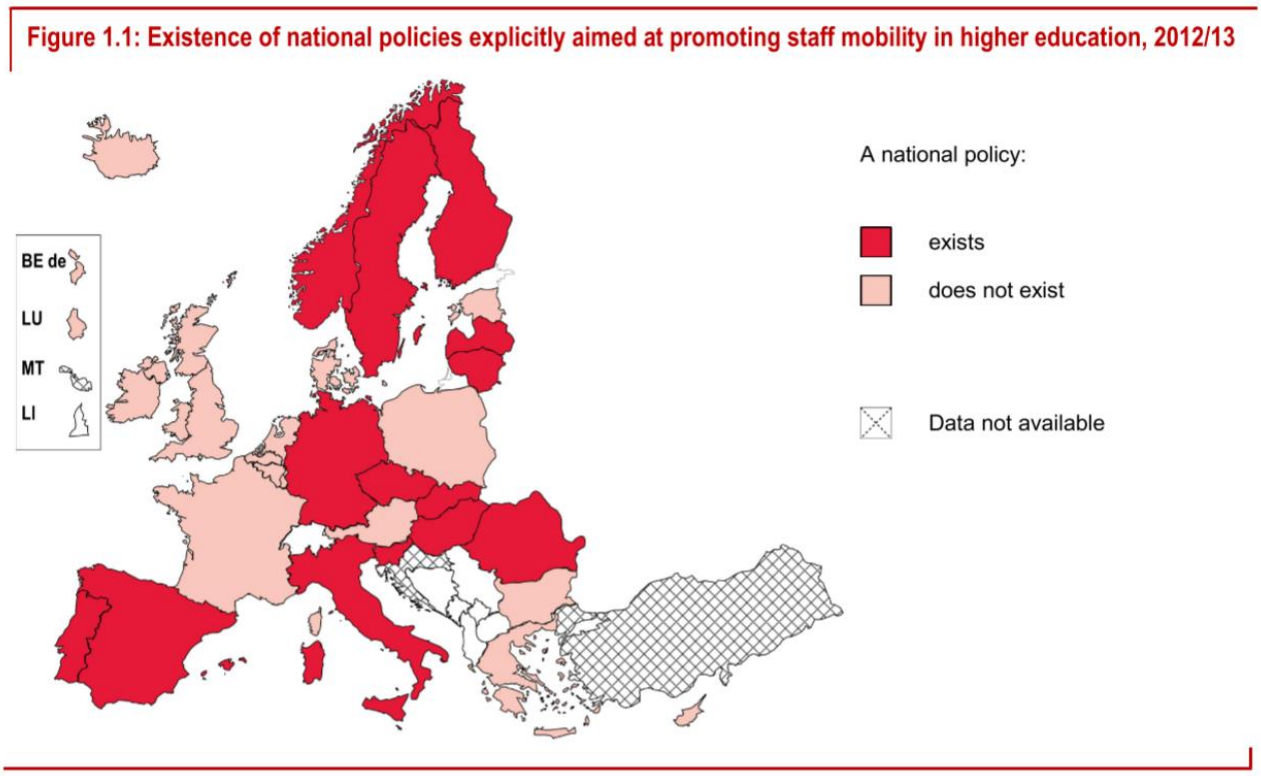

Figure 1.1 Countries with national policies explicitly promoting higher education staff mobility.

Source: Eurydice overview report, (Racké, 2013).

"The Italian Ministry also seeks to increase the number of academics with teaching and/or research experience abroad, more specifically to encourage Italian academics teaching/researching abroad to return to Italian higher education institutions or research institutes as well as to promote international recruitment of young researchers, researchers, and professors. Moreover, the Italian Ministry aims to promote academic mobility in the context of cooperation agreements with other countries or between individual higher education institutions and to increase Italian participation in EU research initiatives".

By investing in and nurturing a culture of international collaboration, higher educational institutions in Europe are not only shaping the future of academia but also contributing significantly to the betterment of society as a whole (Cerna & Czaika, 2016; Lepori et al., 2015; Sin et al., 2016). The researchers are well-received by the host institutions, integrated, and bonded with the teaching staff, and consist of employment contracts (as part of continuing professional development) than the fellowships with involvement in teaching activities are seen as common (Seeber et al., 2022). The previous studies on the mobility period, peer number of academies (Ph.D.'s) at the host university, total collaborations (including academic activities at the host university) with gender classifications,

knowledge of global research, funding options, etc. at the research level (Djikhy & Moustaghfir, 2019; Trippl, 2013). The allocation of funds for research activities and infrastructure is controlled by the Ministry of Education and Research, irrespective of the country. For instance, Europe (countries like the United Kingdom, Germany, and France) has become the most competitive economy in the world through the increase in research expenditure and attractiveness. This created the belief that academic progression at HE is achieved through an increase in global rankings (Bauder, 2015; Horta et al., 2020; Teichler, 2015). Countries like Italy exhibit a low level of expenditure in the HE sectors with <0.9 percent (Agasisti, 2011).

The emphasis of the higher education policy debate has changed over the years, but the issues that were once in the public eye have not disappeared. Higher education research seems to be attracted to the topics that are currently in vogue, but it does not drop issues once they become less popular. According to the author of this article, between 12% and 20% of the articles published in the journal Higher Education between 2001 and 2004 focus on six thematic areas: quantitative and structural developments, knowledge and curricula, teaching and learning, staff and students, policy and administration, and international relations and contexts of higher education. This indicates that higher education research has achieved some consolidation in addressing a wide range of issues, despite short-lived higher education policy debates (Bleiklie & Michelsen, 2013; Gornitzka, 1999).

1.4. Research Gap Identification

Over the decades there have been several research based on quantitative and qualitative studies on talent attractions ad higher education depending on the data and additional information sources (Libarkin & Kurdziel, 2002; Lund, 2012; Reale, 2014). Apart, highlighting methodologies enhances understanding of epistemological issues in institutional research and helps grasp the research approach based on available data (Djamba & Neuman, 2002; Hathaway, 1995). The studies on HE state several gaps between research and network collaborations (Horta et al., 2021; Verginer & Riccaboni, 2021), research and gender identification (Abramo, D'Angelo, & Caprasecca, 2009; Jöns, 2011; Sagaria, 1988), research trends in HE (Hasgall & Peneoasu, 2022), key issues in brain circulation (Foadi, 2006), comparative research studies on scientific research productivity (Abramo et al., 2013; Ackers, 2005; Allison & Scott, 1990; Duarte et al., 2020; Heinze et al., 2009; Laudel, 2005) between nations, address key findings that project the current research system in higher educational institutions with economy based situations. For instance, the socioeconomic conditions of a certain geographic area support the regional institutions by obtaining reputation and prestige in the form of ranking and performance globally. Mainly the European nations like Italy, scientists played a major role in important scientific theories that made these inventions work in foreign countries irrespective of their local conditions (Abramo, D'Angelo, Di Costa, et al., 2009; Morano-Foadi et al., 2003). In Italy, graduates decide to remain in academia and advance their career activities because their interest towards their research orientation later comes teaching or guiding students and when it is related to a job outside academia is debated and primarily varies (Hnatkova et al., 2022; Morano-Foadi et al., 2003). Many authors identified research gaps between students and academic staff in the areas of mobility, attractiveness, mobility attitudes, digital competencies, push and pull factors over migration, attributes to become scientists, etc., and contributed some important findings over US, Europe, and Eastern countries (Borisov et al., 2020; Cattaneo et al., 2018, 2019; Szabó et al., 2021). The studies elaborate in terms of effectiveness or willingness to migrate to other countries for career growth, to see the better economic conditions when compared to the origin of their country.

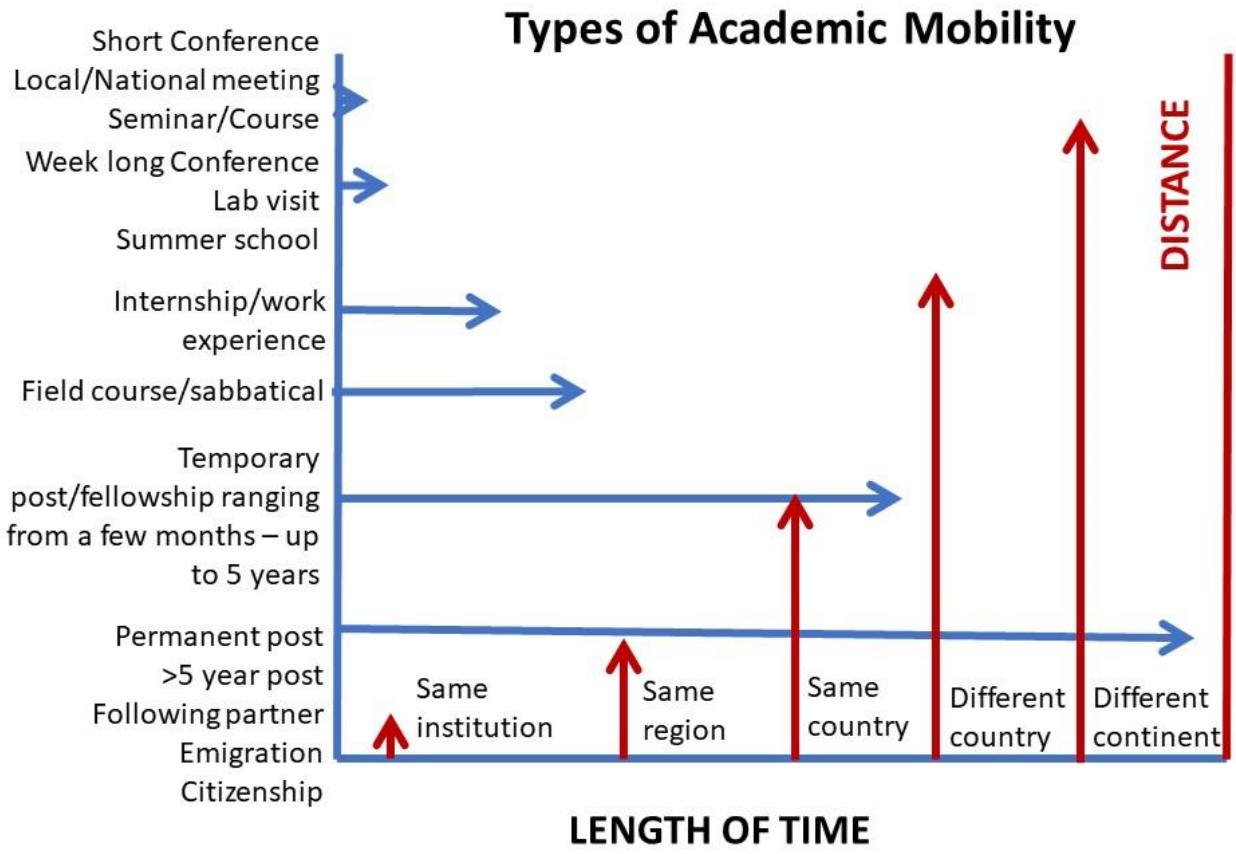

Fig 1.2 Projection of academic programs over distance and length of time

Talent refers to a combination of individual abilities, including skills, knowledge, and potential for growth. In the higher education sector, academic staff involved in teaching and research plays an important role at a national or global level (Abeuova & Muratbekova-Touron, 2019; Buracas & Navickas, 2017; Romiani & Farahbakhsh, 2024). The approaches differ depending on the program, financial arrangements, and structural or technical developments. Within departments or comparable industries both domestically and abroad, partnerships are prevalent.

Recent surveys of scholars and professionals in academia have been predominantly carried out in developed nations, with a particular focus on Europe. Short-term mobility, mobility for whole degree program, mobility for doctoral education training, professional mobiity in various stages, etc. are some examples that many universities provide opportunities to prolong academic and research work. In Figure 1.2, the duration and the type of mobility are explained by the intersections. The topic at hand is a fascinating one - we shall delve into the matter of mobility, exploring its significance in various institutions. In scientific research, mobility represents open-mindedness, novelty, and exploration, while also affirming your aspirations for independence and the ability to lead your

research team. Additionally, we shall examine the impact of mobility on academic careers, closely analyzing its effects and potential benefits. Depending on the opportunity, the contract type, geographic area, and region the mobility is obtained by the academic personnel. The duration varies on the type of academic program or opportunity available at the host or organized HE institution. The engagement of academic staff in various academic programs is projected in Table 1.1 for the university's advancement and to acquire career recognition for improved prospects.

Scholars and researchers know the immense importance of attending seminars and workshops. These events provide a unique opportunity to project their prospects and ideas towards regional development, both qualitatively and quantitatively. By attending such events, they can explore a wide range of technological, cultural, innovational, and political opportunities, and collaborate with other experts to enhance their reputation and recognition in their field of work. Additionally, these events provide valuable resources such as proficiency, knowledge acquisition, network growth, motivation, and moral support, which help understand the surrounding environment (Panigrahi, 2020). In order to maximize the effectiveness of their research and foster growth, researchers can choose to stay in a nonnative place for a certain period of time. By implementing appropriate policies and strategies, they can form partnerships with foreign institutions and work together to drive development in their region. Universities possess many resources that serve as an asset in promoting and sustaining economic growth while catering to the healthcare and educational requirements of the surrounding communities or regions. Additionally, universities also play a significant role in enriching the cultural landscape of society, thereby contributing to the holistic development of the community. This collaborative approach can help researchers gain new perspectives, access resources, and expertise, and achieve their research objectives more efficiently.

Mobility type	Description	Time length
Short conferences/ proceedings / Seminars	These are the academic conferences where papers written by researchers are collected and presented. It will subsequently be printed in scholarly journals.	2 – 7 days
Summer school (Short/Long)	Researchers and students enroll to follow the academic activities on specific topics related to their sector of interest. The project will be executed and evaluated accordingly. These are awarded with the electronic credit transfer system (ECTS).	Short: 3 – 4 days Long: 2 – 3 weeks
Internship (institution level) **Field course**	Internships are professionally supervised, structured learning opportunities that provide you the chance to obtain useful job experience in the subject of your choice.	120 hours
Temporary contract **Fellowship**	Academic staff members are appointed by or invited by the scientific committee to collaborate with the host university on projects that take the shape of publications or educational initiatives. Depending on the research project. There is a scope to convert to a fixed position.	Range: 3 months – 12 months

Permanent fellowship	It is a permanent academic job to carry out research and teaching at own university. Depending on the effectiveness of the academic involvement and work, the roles are altered.	Range: depends on the academic person of interest.

Table 1.1 Description of academic programs and time lengths

In this study, I determine the following research,

"How is academic attractiveness and research productivity achieved through "Mobility" and do they rely on institutional, regional, and socio-economic factors of a nation? Do the policies facilitate the attraction of talented individuals in academia?".

From Table 1.2, the perception of the following chapters is mentioned to give an easy look between the qualitative and quantitative sides. This research study confidently analyzes the factors that influence the attractiveness of higher education institutions within a country, along with the satisfaction levels of academic staff who switch between departments or institutions, with distance being a crucial consideration. Furthermore, it aims to determine the precise impact of mobility on research productivity, leaving no stone unturned. Chapter 2 of the report delves into a detailed analysis of the decision-making process in the context between HEIs, taking into account various factors that influence the process especially spatial distance matters in attracting. Additionally, the report also examines the institutional and environmental characteristics that contribute to the decision-making process. This analysis aims to provide a comprehensive understanding of the decision-making process that can help in making informed decisions in the future. In Chapter 3, we look at the productivity of Italian HEI academies with inter-institutional mobility by considering the one of the high performing departments. Their published curriculum, which is publicly available on institutional and social websites, is used for the screening. In Chapter 4, the policies are classified that encourage the mobilization of HEIs with skilled migrants and the idea of global brain circulation are examined. In Chapter 5, potential inferences are drawn, and projections are made on how mobilization and talent attraction are prioritized. And we draw the multiple conclusions that reflects the analysis and study from the chapters. In Table 1.3 the descriptive version and the summary are given for a better understanding of the work projected in this dissertation.

Perspective Projection of Papers	
Quantitative side	**Qualitative side**
Paper 1	Introduction
Paper 2 and Paper 3	Paper 3 (partial)

Table 1.2 Positioning of papers in this dissertation

	Paper 1	Paper 2	Paper 3
Focus area	**Italian universities**	**Italian universities**	**Educational policies**
Research design	Empirical quantitative	Empirical quantitative	Theoretical quantitative
Research question	1. How does the choice of mobility movement of academic personnel create attractiveness over spatial distance between two universities? 2. How do the institutional and environmental variables affect the decision-making process of mobility?	1. Does the shift in academic staff (research mobility) influence the department's research performance? How does the designation affect productivity improvement? 2. To test the scientific impact on mobility and research performance. To assess and evaluate the research productivity concerning geographical and social parameters.	How do the policies show the effect on Higher educational institutions?
Dependent variable	Transfer movements (Mobility)	Documents published Total Citations	Policies
Level of analysis	Institution/ University	Institution/ University	Policy level
Sample	7469 observations	5903 observations	Theory-based
Source	MUR, ISTAT, G-maps	MUR, SCOPUS, ISTAT	European Education Area

Table 1.3 Summary of the papers in the dissertation

References:

Abell, D., & Becker, K. (2021). Enhancing university employer attractiveness for the next generation of academics. Journal of Higher Education Policy and Management, 43(5), 457–473. https://doi.org/10.1080/1360080X.2020.1847241

Abeuova, D., & Muratbekova-Touron, M. (2019). Global talent management: Shaping the careers of internationally educated talents in developing markets. Thunderbird International Business Review, 61(6), 843–856. https://doi.org/10.1002/tie.22085

Abramo, G., Cicero, T., & D'Angelo, C. A. (2012). The dispersion of research performance within and between universities as a potential indicator of the competitive intensity in higher education systems. Journal of Informetrics, 6(2), 155–168. https://doi.org/10.1016/j.joi.2011.11.007

Abramo, G., Cicero, T., & D'Angelo, C. A. (2013). The impact of unproductive and top researchers on overall university research performance. Journal of Informetrics, 7(1), 166–175. https://doi.org/10.1016/j.joi.2012.10.006

Abramo, G., D'Angelo, C. A., & Caprasecca, A. (2009). Gender differences in research productivity: A bibliometric analysis of the Italian academic system. Scientometrics, 79(3), 517–539. https://doi.org/10.1007/s11192-007-2046-8

Abramo, G., D'Angelo, C. A., Di Costa, F., & Solazzi, M. (2009). University-industry collaboration in Italy: A bibliometric examination. Technovation, 29(6–7), 498–507. https://doi.org/10.1016/j.technovation.2008.11.003

Ackers, L. (2005). Moving people and knowledge: Scientific mobility in the European Union. International Migration, 43(5), 99–131. https://doi.org/10.1111/j.1468-2435.2005.00343.x

Agasisti, T. (2011). Performances and spending efficiency in higher education: a European comparison through non-parametric approaches. Education Economics, 19(2), 199–224. https://doi.org/10.1080/09645290903094174

Ali, S., Carden, G., Culling, B., Hunter, R., Oswald, A. J., Owen, N., Ralsmark, H., & Snodgrass No, N. (n.d.). Elite Scientists and the Global Brain Drain.

Allison, P. D., & Scott, J. (1990). Departmental Effects on Scientific Productivity. In American Sociological Review (Vol. 55, Issue 4).

Altbach, P. G., & Salmi, J. (2011). The Road to Academic Excellence.

Ayoubi M, R. (2019, April 6). What makes a university a "global university"? University World News.

Balmer, B., Godwin, M., & Gregory, J. (2009). The Royal Society and the 'brain drain': natural scientists meet social science. Notes and Records: The Royal Society Journal of the History of Science, 63(4), 339–353. https://doi.org/10.1098/rsnr.2008.0053

Barrioluengo, M. S., & Flisi, S. (2017). Student mobility in tertiary education: institutional factors and regional attractiveness. https://doi.org/10.2760/675338

Bauder, H. (2015). The international mobility of academics: A labour market perspective. International Migration, 53(1), 83–96. https://doi.org/10.1111/j.1468-2435.2012.00783.x

Bleiklie, I., & Michelsen, S. (2013). Comparing HE policies in Europe: Structures and reform outputs in eight countries. Higher Education, 65(1), 113–133. https://doi.org/10.1007/s10734-012-9584-6

Bonaccorsi, A., & Biancardi, D. (2019). Internationalisation of Academic Staff in European Higher Education.

Borisov, O. I., Karamova, O. V, Naidenova, E. M., Osipova, I. V, Pavlova, A. V, Gibadullin, A. A., & Sadriddinov, M. I. (2020). Development of digital competencies among students of higher educational institutions Development of digital competencies among students of higher educational institutions. Journal of Physics: Conference Series, 1–6. https://doi.org/10.1088/1742-6596/1691/1/012098

Buracas, A., & Navickas, V. (2017). Global Competitiveness of World Superpowers: Education, Talents and Innovations. Eurasian Studies in Business and Economics, 6, 129–147. https://doi.org/10.1007/978-3-319-50164-2_7

Carrozza, C., & Minucci, S. (2014). Keep on movin'? Research mobility's meanings for Italian early-stage researchers. In Higher Education Policy (Vol. 27, Issue 4, pp. 489–508). Palgrave Macmillan. https://doi.org/10.1057/hep.2014.23

Cassia, L., Colombelli, A., & Paleari, S. (2008). Regional Transformation Processes through the Universities—Institutions—Industry Relationship. Industry and Higher Education, 22(2), 105–118. https://doi.org/10.5367/000000008784139451

Castellacci, F., & Viñas-Bardolet, C. (2021). Permanent contracts and job satisfaction in academia: evidence from European countries. Studies in Higher Education, 46(9), 1866–1880. https://doi.org/10.1080/03075079.2019.1711041

Cattaneo, M., Horta, H., Malighetti, P., Meoli, M., & Paleari, S. (2019). Universities' attractiveness to students: The Darwinism effect. Higher Education Quarterly, 73(1), 85–99. https://doi.org/10.1111/hequ.12187

Cattaneo, M., Malighetti, P., Morlotti, C., & Paleari, S. (2018). Students' mobility attitudes and sustainable transport mode choice. International Journal of Sustainability in Higher Education, 19(5), 942–962. https://doi.org/10.1108/IJSHE-08-2017-0134

Celis, S., & Kim, J. (2018). The making of homophilic networks in international research collaborations: A global perspective from Chilean and Korean engineering. Research Policy, 47(3), 573–582. https://doi.org/10.1016/j.respol.2018.01.001

Cerna, L., & Czaika, M. (2016). European Policies to Attract Talent: The Crisis and Highly Skilled Migration Policy Changes. High-Skill Migration and Recession, 22–43. https://doi.org/10.1057/9781137467119_2

Cerych, L. (1989). Higher Education and Europe after 1992: The Framework. European Journal of Education, 24(4), 321. https://doi.org/10.2307/1503300

Commission, E. (2023). In Europe 2023 education and training systems Structural indicators for monitoring European Education and Culture Executive Agency Higher education. Higher Education. https://doi.org/10.2797/134369

Conard, M. J., & Conard, M. A. (2000). An analysis of academic reputation as perceived by consumers of higher education. Journal of Marketing for Higher Education, 9(4), 69–80. https://doi.org/10.1300/J050v09n04_05

CORDIS. (2022, November 28). RTD in relation to the EU's development cooperation policy. European Commission. https://cordis.europa.eu/article/id/8408-rtd-in-relation-to-the-eus-development-cooperation-policy

Demele, U., Nölting, B., Crewett, W., & Georgiev, G. (2021). Sustainability transfer as a concept for universities in regional transformation-a case study. Sustainability (Switzerland), 13(9). https://doi.org/10.3390/su13094956

Djamba, Y. K., & Neuman, W. L. (2002). Social Research Methods: Qualitative and Quantitative Approaches. Teaching Sociology, 30(3), 380. https://doi.org/10.2307/3211488

Djikhy, S., & Moustaghfir, K. (2019). International faculty , knowledge transfer , and innovation in higher education : A human resource development perspective. Human Systems Management, 38(4), 423–431. https://doi.org/10.3233/HSM-190614

Duarte, M. G. P., Gonçalves, E., Chein, F., & Taveira, J. G. (2020). Drivers of scientific-technological production in brazilian higher education and research institutions. Revista de Economia Contemporanea, 24(3), 1–41. https://doi.org/10.1590/198055272432

Ewers, M. C., Khattab, N., Babar, Z., & Madeeha, M. (2022). Skilled migration to emerging economies: the global competition for talent beyond the West. Globalizations, 19(2), 268–284. https://doi.org/10.1080/14747731.2021.1882816

Fajčíková, A., & Urbancová, H. (2019). Factors influencing students' motivation to seek higher education-a case study at a state university in the Czech Republic. Sustainability (Switzerland), 11(17). https://doi.org/10.3390/su11174699

Farooq, M., Othman, A., Nordin, M. S., & Ibrahim, M. B. (2017). Analysing the Relationship Between Sustainable Leadership, Talent Management and Organization Health As Predictors of University Transformation. Journal of Positive Management, 8(1), 32. https://doi.org/10.12775/jpm.2017.003

Foadi, S. M. (2006). Key issues and causes of the Italian brain drain. Innovation: The European Journal of Social Science Research, 19(2), 209–223. https://doi.org/10.1080/13511610600804315

Fu, Y. C., Vásquez, J. J. M., Macasaet, B. T., Hou, A. Y. C., & Powell, J. J. W. (2023). Game of Brains: Examining Researcher Brain Gain and Brain Drain and Research University Policy. Higher Education Policy. https://doi.org/10.1057/s41307-023-00303-6

Gaebel, M., & Zhang, T. (2018). Learning and teaching in the European Higher Education Area. European University Association.

Gornitzka, Å. (1999). Governmental policies and organisational change in higher education. In Higher Education (Vol. 38).

Hasgall, A., & Peneoasu, A.-M. (2022). Doctoral education in Europe: current developments and trends. www.eua.eu

Hathaway, R. S. (1995). Assumptions underlying quantitative and qualitative research: Implications for institutional research. Research in Higher Education, 36(5), 535–562. https://doi.org/10.1007/BF02208830

Heinze, T., Shapira, P., Rogers, J. D., & Senker, J. M. (2009). Organizational and institutional influences on creativity in scientific research. Research Policy, 38, 610–623. https://doi.org/10.1016/j.respol.2009.01.014

Hnatkova, E., Degtyarova, I., Kersschot, M., & Boman, J. (2022). Labour market perspectives for PhD graduates in Europe. European Journal of Education, 57(3), 395–409. https://doi.org/10.1111/ejed.12514

Horta, H., Birolini, S., Cattaneo, M., Shen, W., & Paleari, S. (2021). Research network propagation: The impact of PhD students' temporary international mobility. Quantitative Science Studies, 2(1), 129–154. https://doi.org/10.1162/qss_a_00096

Horta, H., Jung, J., & Santos, J. M. (2020). Mobility and Research Performance of Academics in City-Based Higher Education Systems. Higher Education Policy, 33(3), 437–458. https://doi.org/10.1057/s41307-019-00173-x

Janger, J., Campbell, D. F. J., & Strauss, A. (2019). Attractiveness of jobs in academia: a cross-country perspective. Higher Education, 78(6), 991–1010. https://doi.org/10.1007/s10734-019-00383-7

Jöns, H. (2011). Transnational academic mobility and gender. Globalisation, Societies and Education, 9(2), 183–209. https://doi.org/10.1080/14767724.2011.577199

Kirss, L., Kussk, K., Rozeik, H., & Haaristo, H.-S. (2014). National Policies for International Talent Attraction and Retention in Estonia. www.praxis.ee

Kitagawa, F. (2004). Universities and regional advantage: Higher education and innovation policies in English regions. European Planning Studies, 12(6), 835–852. https://doi.org/10.1080/0965431042000251882

Knight, J. (2008). Higher education internationalization: Concepts, Rationales and Frameworks. 13(1).

Knight, J. (Educator). (2008). Higher education in turmoil : the changing world of internationalization (Vol. 13).

Koutsouris, G., Stentiford, L., & Norwich, B. (2022). A critical exploration of inclusion policies of elite UK universities. British Educational Research Journal. https://doi.org/10.1002/berj.3799

Laudel, G. (2005). Migration currents among the scientific elite. Minerva, 43(4), 377–395. https://doi.org/10.1007/s11024-005-2474-7

Leal Filho, W., Pallant, E., Enete, A., Richter, B., & Brandli, L. L. (2018). Planning and implementing sustainability in higher education institutions: an overview of the difficulties and potentials. International Journal of Sustainable Development & World Ecology, 25(8), 713–721. https://doi.org/10.1080/13504509.2018.1461707

Leikuma-Rimicane, L., Baloran, E. T., Ceballos, R. F., & Medina, M. N. D. (2022). The Role of Higher Education in Shaping Global Talent Competitiveness and Talent Growth. International Journal of Information and Education Technology, 12(11), 1211–1220. https://doi.org/10.18178/ijiet.2022.12.11.1741

Lepori, B., Seeber, M., & Bonaccorsi, A. (2015). Competition for talent . Country and organizational-level effects in the internationalization of European higher education institutions. Research Policy, 44(3), 789–802. https://doi.org/10.1016/j.respol.2014.11.004

Libarkin, J. C., & Kurdziel, J. P. (2002). Research Methodologies in Science Education: The Qualitative-Quantitative Debate. Journal of Geoscience Education, 50(1), 78–86. https://doi.org/10.1080/10899995.2002.12028053

Lund, T. (2012). Combining Qualitative and Quantitative Approaches: Some Arguments for Mixed Methods Research. Scandinavian Journal of Educational Research, 56(2), 155–165. https://doi.org/10.1080/00313831.2011.568674

Mobility scoreboard: Higher education background report 2022/2023. (2023).

Morano-Foadi, S., Foadi, J., Morano-Foadi, S., & Foadi, J. (2003). Italian Scientific Migration: from Brain Exchange to Brain Drain. https://www.academia.edu/1997869/Italian_scientific_migration_from_brain_exchange_to_brain_drain

Negricea, C. I., Edu, T., & Avram, E. M. (2014). Establishing Influence of Specific Academic Quality on Student Satisfaction. Procedia - Social and Behavioral Sciences, 116, 4430–4435. https://doi.org/10.1016/j.sbspro.2014.01.961

Noben, I., Brouwer, J., Deinum, J. F., & Hofman, W. H. A. (2022). The development of university teachers' collaboration networks during a departmental professional development project. Teaching and Teacher Education, 110. https://doi.org/10.1016/j.tate.2021.103579

OECD Reviews of Tertiary Education: Mexico 2008. (2008). OECD. https://doi.org/10.1787/9789264039247-en

Panigrahi, S. (2020, February 19). Importance of Seminars and Workshops for Students in Higher Education. Higher Education Review. https://others.thehighereducationreview.com/news/importance-of-seminars-and-workshops-for-students-in-higher-education-nid-1261.html

Pleśniarska, A. (2019). Monitoring progress in "quality education" in the European Union – strategic framework and goals. In International Journal of Sustainability in Higher Education (Vol. 20, Issue 7, pp. 1125–1142). Emerald Group Holdings Ltd. https://doi.org/10.1108/IJSHE-10-2018-0171

Prakash, C., Yadav, R., Singh, A., & Aarti. (2022). An Empirical Investigation of the Higher Educational Institutions' Attractiveness as an Employer. South Asian Journal of Human Resources Management, 9(1), 130–148. https://doi.org/10.1177/23220937221078118

Racké, C. (2013). Staff mobility in higher education – National policies and programmes.

Reale, E. (2014). Challenges in higher education research: the use of quantitative tools in comparative analyses. Higher Education, 67(4), 409–422. https://doi.org/10.1007/s10734-013-9680-2

Romiani, Y., & Farahbakhsh, S. (2024). Toward a comprehensive model for talent identification of faculty members: a qualitative study for regional universities. Journal of Applied Research in Higher Education, 16(1), 169–181. https://doi.org/10.1108/JARHE-07-2022-0230

Royo-Vela, M., & Hünermund, U. (2016). Effects of inbound marketing communications on HEIs' brand equity: the mediating role of the student's decision-making process. An exploratory research. Journal of Marketing for Higher Education, 26(2), 143–167. https://doi.org/10.1080/08841241.2016.1233165

Sá, C., Florax, R. J. G. M., & Rietveld, P. (2004). Determinants of the regional demand for higher education in the Netherlands: A gravity model approach. Regional Studies, 38(4), 375–392. https://doi.org/10.1080/03434002000213905

Sagaria, M. A. D. (1988). Administrative Mobility and Gender. The Journal of Higher Education, 59(3), 305–326. https://doi.org/10.1080/00221546.1988.11778330

Saurombe, M., Barkhuizen, E. N., & Schutte, N. E. (2017). Management perceptions of a higher educational brand for the attraction of talented academic staff. SA Journal of Human Resource Management, 15(0). https://doi.org/10.4102/sajhrm.v15i0.831

Schaer, M. (2022). From mobility attractiveness to mobility fatigue: The impact of repeated transnational mobility on the lives and aspirations of early-career academics. Population, Space and Place, 28(5). https://doi.org/10.1002/psp.2536

Schiermeier, Q. (2011). The mobility imperative. Nature, 563–564. https://doi.org/10.1038/nj7335-563a

Seeber, M., Debacker, N., Meoli, M., & Vandevelde, K. (2022). Exploring the effects of mobility and foreign nationality on internal career progression in universities. Higher Education. https://doi.org/10.1007/s10734-022-00878-w

Sin, C., Veiga, A., & Amaral, A. (2016). European Policy Implementation and Higher Education. Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-50462-3

Spiess, C. K., & Wrohlich, K. (2010). Does distance determine who attends a university in Germany? Economics of Education Review, 29(3), 470–479. https://doi.org/10.1016/j.econedurev.2009.10.009

Szabó, J., Révész, H. G., & Van-Dyke, D. J. (2021). The most important attributes for talented students who want to be scientists. Gifted Education International, 37(3), 241–254. https://doi.org/10.1177/0261429420947092

Tavares, D., Tavares, O., Justino, E., & Amaral, A. (2008). Students' preferences and needs in Portuguese higher education. European Journal of Education, 43(1), 107–122. https://doi.org/10.1111/j.1465-3435.2007.00331.x

Teichler, U. (2015). Academic mobility and migration: What we know and what we do not know. European Review, 23, S6–S37. https://doi.org/10.1017/S1062798714000787

Trippl, M. (2013). Scientific Mobility and Knowledge Transfer at the Interregional and Intraregional Level. Regional Studies, 47(10), 1653–1667.

UNESCO. (2022). Academic mobility in higher education.

Van Der Wende, M. (2015). International academic mobility: Towards a concentration of the minds in europe. European Review, 23, S70–S88. https://doi.org/10.1017/S1062798714000799

Verginer, L., & Riccaboni, M. (2021). Talent goes to global cities : The world network of scientists ' mobility. Research Policy, 50(1), 104127. https://doi.org/10.1016/j.respol.2020.104127

Widiputera, F., De Witte, K., Groot, W., & van den Brink, H. M. (2017). The attractiveness of programmes in higher education: an empirical approach. European Journal of Higher Education, 7(2), 153–172. https://doi.org/10.1080/21568235.2016.1275976

Wullschleger, A., Vörös, A., Rechsteiner, B., Rickenbacher, A., & Maag Merki, K. (2023). Improving teaching, teamwork, and school organization: Collaboration networks in school teams. Teaching and Teacher Education, 121, 103909. https://doi.org/10.1016/j.tate.2022.103909

CHAPTER TWO

2. Domestic Mobility among Italian Universities over the Period 2001 – 2020

Abstract

In the academia, mobility is common for scholars (the academic staff) to transfer between departments and universities within a nation or across countries. Academics often adopt this practice to escalate the career ladder, gain diverse experiences, or research various fields. This study examines the national mobility patterns and effects inside Italian universities, focusing on characteristics such as geographical distance (migration between various sites), research direction, and economic and environmental indices. In order to do this, we use the Poisson Pseudo Maximum Likelihood (PPML) gravity equation regression model to analyze the impact of geographical distance on 87 Italian institutions, both public and private, from 2001 to 2020. The results of our study indicate that the distance between host institutions has a detrimental effect on the choice of universities, particularly when considering their research inclination.

Keywords: spatial distance, HEIs, gravity model, PPML, academic mobility

2.1. Introduction

The changes in the academic sector (higher education) were carried out over the past decades from the concepts like the regulations of quality in education (such as academic or educational developments) to fetching worldwide scholarly knowledge by creating impacts through academic mobilizations (like academic departments, knowledge spillovers, etc.), there is significant research conducted in all aspects of academic sector such as policy reforms in EU nations, scientific mobilities in EU nations, impact of inbreeding on scientific productivity, etc. (Ackers, 2005; Allison & Scott, 1990; Bleiklie, 2000; Cañibano et al., 2017; Chatterton & Goddard, 2000; Morichika & Shibayama, 2015; Raagmaa & Keerberg, 2017; Ryan, 2010; "The State and Education Policy," 1990; Trippl, 2013; Uhlbach et al., 2022). The research concepts focus on developing scientific knowledge spillovers, the quality of tertiary education in geographic areas, the importance of higher education and policy measures in internationalization, economic and social trends, talent retention, and human resource management inside universities. Apart from this, there is a lack of research, especially regarding local academic performances between students and staff (mostly) from across nations. The following are: research efficiency scale (Fu et al., 2023; Glass et al., 1995), productivity/teaching comparisons between one or more geographic nations (Iorio et al., 2017; Jonkers, 2011; D. Kim et al., 2012; Morichika & Shibayama, 2015), international student mobility (Barrioluengo & Flisi, 2017; Petzold & Bucher, 2018; Tocchioni & Petrucci, 2021), institutional collaborations (Cejda, 1994; Koksharov et al., 2021), academic spinoff (Muscio et al., 2016), gender performance (Cohen et al., 2020; Gustafson, 2006; Jöns, 2011; Nokkala et al., 2020), economic developments (Liang et al., 2022; Popov et al., 2017; Yuret, 2023), etc. The research performance at a tertiary institution gives ideas for the contribution and growth of society by considering social, economic, and institutional factors in many studies. There is a similar empirical study on university spatial competition, taking distance as a factor in attracting many students between universities and their native residing places (Cattaneo et al., 2017; Gu, 2012). The concept of knowledge transfers through academic staff started in the early 1960s and is considered to have a trending scope in knowledge spillovers internationally. Research-based tertiary institutions are working on developing essential academic spillovers and getting recognized globally. Similarly, the trend in academic staff mobilizations for short periods is an interesting phenomenon, where distance is considered the critical factor with all other institutional and socio-economic factors.

The primary role of the Italian HEIs is to develop competitiveness towards European economies (Nifo & Vecchione, 2014; Paleari et al., 2015). Italy has an interesting academic structure with universities (68 public; 19 private) ranked among the top worldwide and relatively run with high levels of public

funding (Times higher education, 2022); long-standing with high centralized governance structure holding a decisive role by the central state (Abramo et al., 2022). The HE influences drastic changes in the regional economic system between traditional university missions of research, teaching, and general policies (Drucker, 2016). HEIs are involved in many bilateral agreements and often include provisions for academic staff exchanges, allowing professors and researchers to spend a specific period teaching or conducting research at a partner institution. Moreover, universities support the environment and provide regional services to faculty members to help them adapt to their environment. The academic community encourages collaboration and mobility (a part of the sustainable development goal, SDG), and universities often strive to attract talented and accomplished researchers and professors from other institutions to enhance their academic programs and research capabilities (Cappelletti et al., 2021; Columbu et al., 2021; Nascia et al., 2021).

Mobility is a hallmark of the scientific field and a factor for research and development, discovering new knowledge and flow of ideas to generate positive spillovers over infra and interregional scientific mobility for developing research systems in HEIs (Abramo et al., 2022). Indeed, mobility has increased significantly over the last decade in various aspects of physical/virtual presence by moving from one place to another and continuing their attachment to previous institutions between student's researchers (Jonkers, 2011; T. Kim, 2010; Schaer, 2022; Sugimoto et al., 2017). First, the adoption periods and preconceptions connected to conflicts could limit a researcher's or academic staff's potential benefits (Gopaul & Pifer, 2016; T. Kim, 2010). Second, the relationship between domestic and international mobility with the help of research performances regarding international mobility shows improvements in academic performance (Baker et al., 2014; de Filippo et al., 2009; Ejermo et al., 2020; Lindberg, 2009; Sá et al., 2004). Third, the differences in male and female classification in academics as the constraints and benefits alter, which leads to the argument that female researchers tend to take more time to be promoted. This classification extends to personnel age (from early-stage career) and institutional prestige (Leisyte & Rose, 2017; Marginson, 2017; Shen et al., 2022). It is argued that consecutive political and economic changes might affect the academic system, significantly affecting other functions in the academic structure. Academics engaging in mobility are not only embedded in academic contexts and career processes. Their mobility also involves other domains of their lives and intersects with biographical, social, and structural circumstances and gendered dynamics. This paper attempts to articulate mobilities over institutional, economic, and regional indicators and understand the effects imposed on origin and destination Italian universities. We adopted a gravity model PPML analysis as the parameter of geographical distance between the origin and destination universities (Cattaneo et al., 2017; Santos et al., 2011). These are calculated according to the academic movements over cumulative 20 periods from 2001-2020.

The paper is organized as follows: Section 2 illustrates the literature review connected with the theoretical background of mobility opportunities, the comparisons with other European and extra-European nations through research performance, and how distance relates to mobility. The cost structures, etc. follow it. Section 3 focuses on the data structure and methodology; Section 4 concentrates on the analysis shown with the regression results, followed by Section 5 with a conclusion and future implications.

2.2. Literature review

From the early 1970s to the present, the shift in governance has expanded the scope beyond government policies alone. This includes integrating strategies and management practices within higher educational institutions alongside the decentralization of state power (Rebora & Turri, 2009). Studies conducted during the 1980s revealed a growing preference for decentralized, bottom-up approaches to address academic staff mobility. The promotion of academic staff gained momentum with the advent of ERASMUS and COMET. Barriers to staff mobility were effectively addressed at the institutional level, with national governments and regional authorities stepping up to provide the necessary support. The 1990s witnessed a remarkable upsurge in research activities that helped shape the academic mobility and international cooperation agenda in higher education (Enders, 1998).

Academic transfers to the destination universities might boost the agenda of personnel motives. It might be interesting to perform research activities or move towards teaching activities. It also depends on prestige and ranking over facilities. Some have state-of-the-art research equipment and contribute more or have interests in national development. It is seen from the analysis that academics show a slight interest in moving out of their original universities as they feel more comfortable with their decisions. They might step where the post-docs and professors hold definitive activities in publishments and teaching. According to the national legislation, each academic staff must provide 350 hours of teaching, supervision, and thesis assistance (Abramo et al., 2020). We observe that the publication rates at the destination university are less effective than those at the home universities. It can be said that the importance of research is more significant at home universities than at destination universities, concerning the average age of each academic personnel. This importance is related to national-level development. Moreover, Norwegian-Spanish universities' scientific research and efficiency are higher than Italian universities (Agasisti et al., 2011; Agasisti & Pérez-Esparrells, 2010; Agasisti & Ricca, 2016).

2.3. Diversity in Higher Education Mobility

HEIs must ensure equitable access and opportunities to current and prospective participants from all backgrounds. This depends on the quality of research and career progressions, which help them to fit into the correct position at the respective university. Positions depend on the hierarchy structure of the department connected with the new selection of courses or the opportunities. Researchers and professors may travel to other institutions or countries to collaborate on research projects, attend conferences, or participate in academic exchange programs. These opportunities can enhance diversity by introducing different perspectives and approaches to teaching and research. The perspectives and approaches are driven by policies that promote mobility among personnel to attract talent (national or international) to support professional development, which might foster a diverse and dynamic academic environment (Speed & Kulichyova, 2021).

2.4. Research performance in HEI

European Research Area (ERA) aims to remove barriers to the mobility of researchers and create a more open and attractive research environment. It is a part of the European Union (EU), where Italy plays a crucial part. Mobility is an important manifestation (inside ERA) of educational globalization, and it has become one of the critical policy objectives (Abramo et al., 2019; Braconier et al., 2014; Pherali, 2012). Domestic mobility is considered or seen as the regional brain-drain or brain-gain program and depends on academic movements because the sharing of skills or knowledge leads either to the development of an academic career or becomes the attraction center of a region through university performance (Cattaneo et al., 2019; Kaplan, 2019). The researchers move to the destination universities to prove their capabilities over the previously consumed knowledge. They may want to proceed to new sectors as they cannot stay at the original university due to low opportunities or career growth measurements (Bäker, 2015). Therefore, in the decision to move from one institution to another, the academic personnel should not only calculate performance from a personal point of view. Instead, it should also be focused on the area closest to the institution or region where it is located (Haley, 2017). The view is also drawn from a non-academic perspective to measure the strength of origin and destination universities. The number of positions of doctorate students is measured over the student population, which determines the research orientation of a university, which also increases the reputation of HEIs. This measure is suitable for knowing the status of the Ph.D. ratios (non-academic) in determining low-quality and high-quality performance, irrespective of discipline. The study was conducted to check whether personnel is more affiliated with research or teaching in sectors like engineering or medicine.

Production of new knowledge is a crucial objective of conducting research activity, and this has specific inputs like adequate human resources with both tangible (materials, equipment, etc.) and intangible (knowledge and social capital) resources to give efficient output (publications, presentations, databases) performances. Academic personnel have more research performance than foreign Ph.D. holders. It is mainly evaluated with the citation score; all similar pre-publication citations and research demonstrations presented through conferences are considered significant indicators to measure the research performance of academic personnel (Abramo et al., 2020). (Andrea D'angelo & Abramo, 2015) conducted research analysis in 192 research fields by Italian professors and found the intensity of publications remarkably varied, and the research performance was equally distributed in academic and non-academic universities. (Abramo et al., 2020) conducted performance analysis using a bibliometric database between Norwegian and Italian Universities and found that 34,000 Italian academic personnel (full professors and associate professors) have better productive research in multi-disciplinary fields. It showed significant results that Italian professors have better scores in research performances.

2.5. Spatial distance: HEIs

Spatial spillovers across neighboring regions indicate a relatively flat spatial gradient of university impacts. The research performance receives perfect opportunities with industries and ties the relationships, especially with academic staff (Professors). The greater the research opportunities, the greater the scope of mobility, and therefore, it lavishes the performance growth of the university by looking at measures like research, policies, and economic, political, and geographic indicators. Lacking even one of the indicators affects the selection process (De et al., 2008; Zhao et al., 2020a). (Cullinan & Flannery, 2021) conducted studies with academic migration (students) at HEIs in Ireland through the gravity model and exhibited that distance matters in decision-making for academics and policymakers. (Cattaneo et al., 2017) Performed spatial PPML (Poisson Pseudo Maximum Likelihood) regression with Italian HEIs from 2003-2012 and found that the university competition (located in the different regions) is essential for human capital (students) attraction, which influences career growth and competitiveness over time. The selection of high-distance universities compared with their residence place has a partial effect but also boosts the development of their career opportunities in the research field (Henningsson & Geschwind, 2022). Here, we can assume that mobility will substantially impact regional development. However, we cannot conclude that academic staff mobility shows satisfactory results when distance is considered an indicator.

2.6. Research design

A comprehensive analysis is made to determine the attractiveness through the transfers between universities. This analysis involves a detailed classification of both origin and destination universities. To ensure our results are accurate, we consider various performance factors such as socio-economic and institutional development indicators. To determine the spatial distance between the origin and destination universities, I use a sophisticated methodology that takes into account their geographical locations and the performance indicators mentioned above.

This approach provides us with a more complete picture of the factors that influence academic transfer mobility. It is important to note that our analysis covers both public and private universities, and we take great care to ensure that our results are unbiased and fair. We have used the same set of universities for our analysis over the last twenty years, from 2001 to 2020. This consistency allows us to monitor trends and identify any changes that may occur over time.

Overall, our analysis provides valuable insights into the factors that influence academic mobility. By understanding these factors, we can work towards creating an educational system that is more accessible, equitable, and effective. The aim of this analysis is to determine how academic transfers are affected by spatial models, as well as the impact of home/host institutions and individual personnel, institutional factors (such as rankings, registrations, and publications), and socio-economic factors (such as GDP and housing).

2.6.1. Competing the destination model

The data like Institutional information was extracted from the Ministry of University and Research (MUR) by using the National statistical data (ISTAT) as per the geographical (distance measured through the coordinates) location of the origin (i) and destination (j) universities are used during the analysis. The Poisson pseudo maximum likelihood (PPML) is used to estimate gravity model equation (1) with dummy importers and exporters (Pfaffermayr, 2019; Sá et al., 2004). X_{ij}, where i is the number of mobilities/personnel in each year; j is the number of mobilities from j^{th} university in each year, and Y_i are the positions open at the host university, or the total number of personnel attracted at the university i, E_j represents the potential flow between two universities (increase/decrease).

$$X_{ij} = \frac{Y_i E_j}{d_{ij}^2} \qquad \text{(1)}$$

A spatial interaction model is estimated as a gravity equation to analyze university competition's effects on mobility attractiveness. The following equation (2) models the mobility behavior of academies as a positive function of the attractive mass of the origin province (by location) and destination university with the function of the distance between them.

$$T_{i,j,t} = S_{i,j,t} + I_{i,j,t} + G_{i,j} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where $T_{i,j,t}$ represents the mobility flow from the regions of i^{th} university to j^{th} university in year t; $S_{(i,j,t)}$ represents social, economic characteristics (GDP per capita income, housing costs, HD index at regional level), $G_{(i,j)}$ is the Euclidean (linear) distance from i^{th} to j^{th} university coordinates in the region. The equation (2) is transformed and linearized to the following equation (3) with loge-thermic expression,

$$T_{i,j,t} = \ln(S_{i,j,t}) + \ln(I_{i,j,t}) + \ln(G_{i,j}) + \epsilon_{i,j,t} \ldots\ldots\ldots (3)$$

2.6.2. Competition indices

The model described in Equation (2) consists of competitive indices, such as institutional and economic factors, which are made hierarchically in the analysis to test the significance of mobility. There are definite cases in the regression model that need precise attention and can be drawn in three cases.

First, clustered alternatives in the regional area may not significantly impact a specific destination, and a non-significant coefficient for the competition index is likely. Second, the distance might affect in such a way the level of attractiveness of academies between origin and destination regions (might be the same, when considered i, j are in the same region) in positive and negative. This is due to the mass level of regional and institutional parameters. Third, the level of attractiveness could be accepted if it indicates positiveness due to the proximity of competition that exists directly (institutional and regional levels) and indirectly (context levels).

2.7. Data and sources

We analyze the data of 98 Italian higher educational institutions (HEIs), where 87 universities, 68 are public (state), and 19 are private (non-state). We exclude 11 long-distance institutions (research-based) for only doctoral and foreigners (e.g., IMT School of Advanced Studies, Foreigners University of Siena, etc.). The data is aggregated from Ministero del Università e della Ricerca (MUR), provides specific data on each university over academic years. All the HEIs are grouped regionally and aggregated to the regional coordinates (northern, central, and southern parts). We use each indicator to check how they show the effect on the transfers—the reason to consider the selected variables is because they directly affect decision-making.

The Ministry of Education, university, and Research (MIUR) allocates these funds by student enrollment, research output, and institutional quality (by size). The grants are used to develop the infrastructure and procure research activities and courses. The greater the output, the more prestige a university has, which provides opportunities for academic personnel. (Abramo et al., 2009, 2020, 2022; Agasisti et al., 2011; Breschi et al., 2007; Perrotti et al., 2007) Research to check the productivity of Italian academic personnel with mobility and performance revealed that they show more performance irrespective of their departments and university locations.

The regional indicators are the indirect measures taken by the national statistic platform (ISTAT) to check if there is an effect on the decision-making of academic personnel in accepting transregional movements. This research also examines the economic developments (by region), such as the house cost structure by region, the GDP performances over the years, and the human development index (HDI). The Human Development Index (HDI) is a helpful tool for comparing and evaluating national policies by questioning why countries with the same GNI per capita end up with different human development outcomes. This comparison can spark discussions about government policy priorities. However, it is essential to keep in mind that the HDI only captures a part of what human development means. It does not account for inequalities, poverty, human security, empowerment, and other essential factors.

2.7.1 Variable description

Table 2.1 briefly describes the dependent and independent variables we used during the analysis. All the variables in the following table are arranged based on the analysis.

	Variables	Description	Source
Dependent variable	Transfers	Some transfers each year include intra-department, origin-to-destination universities within and beyond regions.	Ministry of University and Research (MUR).
Independent variables	Distance	Geographical distance between origin and destination university. This is measured as 0 if the transfers are within the same university.	Google Maps: Calculations are based on the university's latitudinal and longitudinal coordinates.
	Ranking	This is a factor measured each year as the university ranking changes.	Ranking published in the Times Higher Education 2021
	Student enrollment	Total students enrolled at specific year and university	MUR, ISTAT
	Ph.Ds. over students	The research orientation describes the total number of Ph.D.'s—student population in each university.	
	Publications/Citations	Number of publications by origin and destination universities each year. The overall publications per year show the performance factor.	Scopus

Human Development Index (HDI)	The human development index is measured through the health dimension and standard of living.	Human development reports
GDP per capita	GDP per number of populations is calculated by region each year.	National Statistics Institute (ISTAT)
Housing costs	The average living expenditure spent by citizens is calculated based on the regions and cities.	Organization for Economic and Cost Development
Academies Average age	Age is considered for each type of academic personnel (Researcher, Associate professor, and Full professor).	MUR
Size by staff	The number of academies in each university is measured each year.	MUR

Table 2.1 Description of dependent and independent variables as per the regression analysis.

- Academic transfers: In each university, based on the requirement (research mission or teaching commitments, novel course), the scholars can re-localize between departments or universities and is defined by the mobility program. The higher education committee or university board members govern this admission criterion.
- Spatial distance: The relocation tendencies of academic graduates and early-career professionals, irrespective of their field of work, are predominantly driven by the aspiration of career and social progress. The mentioned progress comprises the likelihood of an elevated income, an improved standard of living, and an enhanced social status (Hilmer & Hilmer, 2012; Kosztyán et al., 2021). Moving far away from home depends on economic, career, and social conditions, whether temporary or permanent. Academic mobility generally occurs between universities located in the same or different regions, and the distance is measured by the coordinates (longitude and latitude positions) of the origin and destination university. The location of academic staff is difficult to measure as this type of information is disclosed. To make it easier, the distance is measured between the circle of origin and the circle of destination universities and is considered by road.
- Institutional determinants: Mobilization takes place by looking into some specific criteria. The size is measured by the number of enrollments that took place and is evaluated (as per the analysis) by the total number of doctoral students. This indicator evaluates the research orientation in each HEI. Despite the information available on open sites, it is feasible to check the university's size in economic performance (Lehmann et al., 2018). The more significant the ratio, the more remarkable the size. University reputation is also seen in ranking and research activities (publications). It is judged by five metrics: teaching, research, research influence (citations), industry income, and international outlook. The unranked universities are neither positive nor negative and are treated as 0 in the analysis.
- Regional determinants: The Human Development Index (HDI) provides a broad assessment that helps in decision-making for academic staff in relocation to the destination universities, especially in selecting projects and resource allocations. When considered only in a research environment, HDI may not have a substantial effect; instead, when considering mobility, this effect changes from a personal point of view. The HDI lies between 0.85-0.90 (Table 2.2), which means Italy invests more in research and development. However, HDI affects the socio-economic conditions in a country, which means the effect is seen through the regions itself. Housing costs also have a minor effect that should be considered when making mobility decisions.

Variable	Obs	Mean	Std. Dev.	Min	Max
Transfers	7469	0.92	0.77	0	47
Distance (KM)	7469	451.8	253.2	0	1244
Student registrations* (M)	7469	0.017	0.016	0	0.081
Student registrations** (M)	7469	0.032	0.029	0	0.139
Size by staff*	7469	1071	966	1	4812
Size by staff**	7469	1106	1008	1	4812
ST ratio*	7469	17.75	10.71	0	324
ST ratio**	7469	32.72	20.29	0	385
Ranking*	7469	352	260	0	1000
Ranking**	7469	340	258	0	901
Ph.D.*	7469	618	622	0	3298
Ph.D.**	7469	650	661	0	3298
Publications*	7469	457	693	0	5155
Publications**	7469	490	728	0	5155
HDI*	7469	0.87	0.028	.81	0.92
HDI**	7469	0.87	0.028	.81	0.92
GDP* (M€)	7469	23.33	10.83	0.016	39.32
GDP** (M€)	7469	24.02	10.98	0.016	39.32
Housing costs* (€)	7469	304.14	50.55	180	412
Housing costs** (€)	7469	308.75	50.33	180	412
Average age*	7469	48	2.96	0	63
Average age**	7469	48	3.18	0	63

*Origin; **Destination; M = millions; M€ = million Euros; KM = Kilometer

Table 2.2 Descriptive statistics of institutional, economic, and geographic indicators

A high standard deviation indicates a higher degree of variability in a data set, suggesting that the data points are not concentrated around the mean but are dispersed across a wider range of values. From the table 2.2, I have the cluster of standard deviations which are close to the mean values and are within the expected range. It is seen the total number of Ph.D.'s (doctorate students) at the origin and destination universities are slightly wide spread and the research publications for the universities are largely wide spread.

2.8. Results

Post-doctoral employment (research position) is considered the first step in an academic career, and research fellows have a better chance of getting a job at a university (Teichler, 2017). The research was conducted chronologically to examine the influence of mobility (transfers) from institutional and geographical factors on origin and destination universities. As a result of the job opportunities at small to large universities, academies are moving towards host HE institutions. According to observations, individuals prefer massive institutions, and admission to mega universities is challenging due to management criteria or a lack of requirements. It has been noticed that while there are fewer vacancies or recruitments across institutions each year, there are more transfers between departments. Table 2.3 and Table 2.4 exhibit the overall registrations of academies between small and mega universities. These small (< 10,000), medium (between 10,000 – 20,000), hefty (between 20,000 – 40,000), and mega (> 40,000) are classified with the student enrollments of each university at it varies each year. Table 2.5 examines the mobility of academies inside departments and outside of institutions, as well as their desirability. The spatial distance between universities shifts with huge change from positive to negative observations by increasing the determinants. The housing costs also influence our results in table 2.5. the urban cities have more housing costs and moving far from urban areas there is a trend in decrease of the cost due to the low demand. Many other institutional and regional factors affect mobility movements and among them the age of the staff and size (staff size) at the destination universities. These can be found in Table 2.5.

Size Origin	Freq.	Percent	Cum.
Large	2178	29.16	29.16
Medium	1713	22.93	52.10
Mega	1944	26.03	78.12
Small	1634	21.88	100.00
Total	7469	100.00	

Table 2.3 Universities present by size at the origin.

Size Destination	Freq.	Percent	Cum.
Large	2204	29.59	29.59
Medium	1492	20.03	49.62
Mega	2070	27.79	77.42
Small	1682	22.59	100.00
Total	7448	100.00	

Table 2.4 Universities present by size at destination.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	(ln)transfers	(ln)transfers	(ln)transfers	(ln)transfers	(ln)transfers	(ln)transfers	(ln)transfers	(ln)transfers	(ln)transfers	(ln)transfers
(ln) Distance	2.307	2.308	.204	.58***	.131	.028	-.004	-2.226***	-1.413***	-1.12**
	(0)	(0)	(.212)	(.224)	(.236)	(.238)	(.24)	(.424)	(.471)	(.471)
Ranking O		.004	.028	.022	.014	.025	.025	.012	.014	.021
		(0)	(.02)	(.019)	(.019)	(.019)	(.019)	(.018)	(.019)	(.018)
Ranking D		.115	.103*	.071	.071	.101	.101	.088	.091	.126*
		(0)	(.062)	(.063)	(.064)	(.064)	(.063)	(.063)	(.063)	(.066)
(ln) student registrations O			1.951***	.956***	1.397***	1.461***	1.472***	1.745***	1.501***	1.284***
			(.091)	(.111)	(.149)	(.146)	(.148)	(.155)	(.192)	(.194)
(ln) student registrations D			-1.406***	-.584***	-.429***	-.333***	-.335***	.397**	.342*	.282
			(.093)	(.103)	(.115)	(.115)	(.116)	(.187)	(.186)	(.188)
Ph.D.'s over students O				.69	1.843	4.5	6.292	-83.628***	-78.42***	-68.966***
				(9.42)	(9.696)	(9.575)	(9.935)	(15.256)	(16.739)	(16.848)
Ph.D.'s over student D				-55.703***	-56.304***	-78.901***	-80.415***	-78.979***	-83.286***	-78.531***
				(9.856)	(9.926)	(10.355)	(10.599)	(11.138)	(11.284)	(11.328)
(ln) publications O					-.089***	-.089***	-.092***	-.171***	-.133***	-.107***
					(.023)	(.022)	(.022)	(.027)	(.029)	(.029)
(ln) publications D					-.025	-.432***	-.432***	-.339***	-.368***	-.29***

	(.042)	(.055)	(.055)	(.055)	(.056)	(.056)
Human Development Index O		.866	1.677	-4.803**	-3.739	-5.609**
		(2.219)	(2.237)	(2.388)	(2.401)	(2.441)
Human Development Index D		17.205***	16.167***	7.472***	8.897***	9.391***
		(2.346)	(2.365)	(2.653)	(2.683)	(2.697)
(ln) gross domestic per-capita O			.006**	.003	.003	.001
			(.003)	(.003)	(.003)	(.003)
(ln) gross domestic per-capita D			-.008***	-.011***	-.012***	-.012***
			(.003)	(.003)	(.003)	(.003)
(ln) housing cost O				8.8***	7.937***	6.848***
				(1.391)	(1.616)	(1.639)
(ln) housing cost D				-5.482***	-5.033***	-4.07***
				(1.105)	(1.239)	(1.262)
(ln) Average age O					1.717	2.028
					(2.562)	(2.567)
(ln) Average					-3.86	-3.22

age D										
									(2.363)	(2.363)
Size by staff O										1.492***
										(.175)
Size by staff D										.159***
										(.054)
_cons	-.639	-.645	-7.521***	-6.836***	-10.089***	-24.483***	-24.153***	-25.202***	-18.393***	-20.234***
	(0)	(0)	(1.289)	(1.295)	(1.605)	(2.053)	(2.064)	(2.344)	(2.933)	(2.954)
R-squared	.31	.31	.373	.416	.423	.437	.438	.446	.447	.453

Standard errors are in parentheses.

**** p<.01, ** p<.05, * p<.1*

Table 2.5 The PPML regression measures the attractiveness of mobility over institutional, regional, and economic indicators.

O = University origin; D = University destination

2.9. Discussion

The choice to move between institutions has both positive and dire consequences and is always one-sided (Table 2.5). Transferring to a different institution may allow researchers to change their research emphasis or explore new research fields, followed by teaching possibilities. They may have access to new resources or skills more aligned with their changing research interests, allowing them to pursue more relevant and meaningful initiatives. Eventually, they will have access to superior research facilities, financing possibilities, specialist equipment, or collaboration networks, which will help them improve their research capabilities (Gill, 2005; Greek & Jonsmoen, 2021). However, working with other colleagues at a different institution creates an understanding of the capabilities involved in the research or teaching environment (Bonaccorsi & Biancardi, 2019; Schiermeier, 2011). Moreover, collaborative networks can help researchers expand their professional network and collaborate with different experts in their field, leading to new collaborations and publications with diverse perspectives (Lawson & Ana, 2015; Van Der Wende, 2015). Mobility transfer can disrupt ongoing research projects. The researcher may need to discontinue or transfer their existing projects, potentially causing delays in data collection, analysis, or publication timelines. (Rørstad & Aksnes, 2015) showed that the publication criteria are different for different academic positions irrespective of the field of study. And he showed that the gender does not matter. The publication percentage is quite low for Ph.D. researchers, followed by associate professors, and professors. So, if a person decides to migrate to the host university there it takes enough time to adjust to local characteristics and people which indeed affect the career performance (publications).

Several factors can influence the process of domestic mobility for academic staff in Italy, including the availability of positions at other universities, the reputation and research focus of the destination university, personal connections and collaborations, funding opportunities, and the individual's academic achievements and qualifications (Ciriaci, 2014; Donina et al., 2015). In general, academies look for academic progress in both ways for institutional and personnel growth. Despite initiating their career, there will be many opportunities to look for better universities in collaborations or direct opportunities. In the same way, the opportunities in the research or teaching field will attract academics to the university's reputation and give it a better ranking. Here, mobility occurs through either research or teaching opportunities, and the positions are enormous, which depends on their scientific ranking (Franzoni et al., 2015; Ponomariov & Boardman, 2010; Zhao et al., 2020b). Collaborative research projects or funding opportunities can also facilitate mobility between universities, as researchers often need to work closely with colleagues from different institutions.

We significantly impact destination regions because the HDI is significantly higher than in origin regions, and housing costs are unacceptable due to the high negative significance, implying that academics see greater possibilities for qualities related to education, health, and high living standards. Regions or cities with higher HDI have higher disparities between communities (Sheth & Bettencourt, 2023). In highly populated areas, the cost of housing is generally higher due to the higher value of the human development index. This index measures the level of economic and social development in a country, which includes factors such as income, education, healthcare, and life expectancy. This is evident from the analysis of housing costs in various cities. When choosing a city to live in, various factors need to be considered, such as living conditions, transportation, healthcare, social life, and the availability of daily resources. For instance, a city with good public transportation and healthcare facilities might be more desirable than one without these amenities. Similarly, the availability of daily resources such as groceries, schools, and entertainment options can also play a significant role in the decision-making process. Therefore, when considering the choice of city to live in, it is important to carefully weigh all these factors to make an informed decision. To attract and retain talented academics, universities and research institutions located in high-GDP regions may offer housing assistance or subsidies. This can include anything from providing temporary housing during the transition period to offering long-term housing support. Some institutions may also offer assistance with finding suitable housing or provide information on affordable neighborhoods. Despite such support, however, housing costs can still be a significant consideration for academics considering a move to these regions. This is especially true for those in fields where salaries may not be as high as the cost of living in these regions. As a result, some institutions may offer additional benefits or incentives to help offset these costs and make the move more feasible for prospective academics. We examine an academic staff's age and see they prefer to stay at home university. Here, age is another factor that separates academies in the decision-making process. (Ates & Brechelmacher, 2013), In many countries, around 80 percent of the staff hold junior positions aged between 35 to 45 years. This indicates a significant difference between junior and senior staff. However, in Italy, the percentage of junior staff is 60 percent, and those above 45 can advance their careers to senior staff positions (Teichler et al., 2013). It is worth noting that academic housing arrangements can indirectly affect their academic performance by influencing their mental state. Therefore, it is essential to provide students with the means to improve their psychological well-being. One way to do this is to offer private housing options that cater to each student's unique needs. It is observed from the analysis that the expenses at the host university region are highly negatively significant when compared with their home university. The correlation between a parent's high-ranking professional designation and their child's academic performance is a well-documented phenomenon. When parents migrate or leave

their families, it can significantly impact their children's schooling and overall academic achievements (BACHE & MAASSEN, 1994; Carrozza & Minucci, 2014). The distance is quite detrimental if the academic transfer (importantly related to career advancement if the position is permanent) to the destination university. This is due to a shortage of roles, inadequate infrastructure, and excessive living costs, which result in insufficient wage structures. Academic positions are more plentiful at the origin institutions, implying that academic staff do not choose or relocate to destination universities due to the infrastructure (inadequate research or teaching resources) and strong HDI effect in the destination regions.

2.10. Conclusion

International student migration has received more attention than scholar and researcher mobility in policy discussions. However, the latter is often thought to have profound implications on society's development and distribution of structured knowledge (Teichler, 2017). If this is seen with a set of policies in higher education, policymakers tend to make it more convenient for private institutions than public ones. Political preferences and political-economic conditions are the main dynamic sources for designing a regional policy (Dar, 2012). Policy dynamics in various contexts include fiscal policy, policy gridlock, abortion, and health care policy, which are very much associated with spatial models set by the toolset of economists and political scientists from generations. We believe that the interactions between academic staff (board members), stakeholders, ministries, practitioners, and policymakers (involved with the national educational agencies) understand the problems associated, possible developments in the area department or organizations, more over the national research interest in innovation and technologies (1984; Jacob & Kearney, 2020). In our view, fostering a more effective and mutually beneficial interaction between research and policymakers is crucial to advancing the state of higher education. By facilitating a two-way flow of information, insights, and recommendations, we can help produce more relevant, evidence-based policies and research agendas that are better attuned to the evolving needs and challenges of the higher education landscape (UNESCO, 1997). This requires creating new channels for dialogue and collaboration, building trust and transparency among stakeholders, and promoting a culture of continuous learning and improvement. Ultimately, our goal is to drive positive change and impact in higher education by leveraging the best available knowledge and expertise from both the research and policy communities.

In the context of national mobility, policies designed for internationalization also apply. This means that when a researcher moves to a different institution, regardless of whether it is within the same country or not, the internationalization process is still considered. The ranking system used by

platforms such as Times Higher Education is determined globally, which means that if a university is listed or ranked globally, any researcher moving to that institution will add to the institution's overall internationalization efforts. This is regardless of the location or size of the university, as the ranking system is based on comparisons made on a global scale. From the ranking parameters, Italy holds few positions in the ranking criteria. When it comes to academic careers, the choice of university can make a significant difference in terms of research opportunities and professional advancement. As a result, many academic staff members weigh their options carefully before deciding to relocate to a different university. While some may be drawn to destination universities with strong reputations in their field, others may choose to stay at their home university due to factors such as family ties, geographic location, or other personal considerations. It's worth noting that academic departments can also play a crucial role in attracting and retaining staff. Depending on their area of expertise, researchers may be drawn to universities with strong programs in their field, or they may prefer to join a department with a more interdisciplinary focus. Ultimately, the decision to relocate or stay put often hinges on a complex set of factors, including career goals, personal preferences, and the needs of their families and communities. Therefore, even if the university is smaller or located in a less populous area, the researcher's move will still contribute to the internationalization process.

The mobility transfers are affected by institutional and regional indicators diversly. The academic personnel decide to move to the destination university, hoping for a high quality of life, networks, collaborative research, career advancements, and proximity to research opportunities. Other than that, regional factors, regional policies, and spatial distance between the two institutions make a difference in decision-making; from a personal view, age, position, and prestige matter when selecting the institution, one may want to enter. The research outlines that the strongly negative significance of distance makes the academic personnel think and remain at their home universities. Suppose the personnel decide to move to the destination HEI. In that case, the positions at the origin institutions increase, and the possibilities for new academics tend to increase opportunities for teaching and research.

Overall, the policies designed to assist researchers in choosing from mobility opportunities to publication rates are influenced by various institutional, organizational, and regional factors. From the policies designed, there are little and minute and unfavorable to the researchers (Curaj et al., n.d.; Jacob & Kearney, 2020). From the practitioner view, it is quite recommended to influence the policies as per the practical condition observed from the researchers. From the results, this is completely observed that from the regional, geographic, and economic conditions the research point is better associated with the home universities than with the host universities.

Appendix I

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) (ln) Transfers	1.000																					
(2) (ln) Distance	0.278*	1.000																				
(3) (ln) Rank O	0.018	0.022	1.000																			
(4) (ln) Rank D	0.036*	0.037*	0.280*	1.000																		
(5) Public/Private O	0.032*	0.043*	0.436*	0.182*	1.000																	
(6) Public/Private D	0.051*	0.063*	0.122*	0.503*	0.382*	1.000																
(7) (ln) Student enrollment O	0.467*	0.612*	0.022	0.031*	0.067*	0.054*	1.000															
(8) (ln) Student enrollment D	-0.013	0.321*	0.004	0.029*	0.049*	0.043*	0.408*	1.000														
(9) (ln) Research percent O	-0.713*	-0.215*	-0.026*	-0.033*	-0.022	-0.051*	-0.381*	0.166*	1.000													
(10) (ln) Research percent D	-0.684*	-0.171*	-0.025*	-0.035*	-0.015	-0.051*	-0.316*	0.212*	0.974*	1.000												
(11) (ln)	0.165	0.246	0.007	-0.006	0.066	0.022	0.640	0.395	-	-	1.000											

Publications O	*	*			*		*	*	0.216*	0.174*										
(12) (ln) Publications D	-0.392*	-0.362*	-0.013	-0.001	-0.067*	-0.032*	-0.746*	-0.241*	0.449*	0.380*	-0.889*	1.000								
(13) (ln) HDI O	-0.217*	-0.164*	-0.023*	-0.006	-0.158*	-0.081*	-0.365*	-0.113*	0.288*	0.257*	-0.412*	0.468*	1.000							
(14) (ln) HDI D	-0.228*	-0.192*	0.013	0.011	-0.086*	-0.134*	-0.376*	-0.095*	0.302*	0.275*	-0.418*	0.481*	0.570*	1.000						
(15) (ln) GDP O	0.025*	0.018	-0.059*	0.005	0.044*	0.028*	0.077*	0.019	0.022	0.009	0.068*	-0.057*	-0.039*	-0.050*	1.000					
(16) (ln) GDP D	0.030*	0.027*	-0.023*	-0.060*	0.019	0.036*	0.093*	0.011	0.004	-0.009	0.081*	-0.077*	-0.040*	-0.045*	0.346*	1.000				
(17) (ln) House cost O	-0.660*	-0.254*	-0.027*	-0.031*	-0.035*	-0.059*	-0.517*	0.042*	0.952*	0.919*	-0.412*	0.611*	0.371*	0.383*	0.021	-0.001	1.000			
(18) (ln) House cost D	-0.650*	-0.310*	-0.027*	-0.029*	-0.033*	-0.061*	-0.529*	0.081*	0.935*	0.908*	-0.426*	0.616*	0.367*	0.384*	0.016	-0.007	0.991*	1.000		
(19) (ln) Average age O	0.548*	0.568*	0.022	0.031*	0.028*	0.054*	0.491*	-0.047*	-0.687*	-0.675*	0.386*	-0.525*	-0.270*	-0.285*	-0.033*	-0.027*	-0.702*	-0.741*	1.000	
(20) (ln) Average age D	0.466*	0.531*	0.021	0.031*	0.030*	0.055*	0.460*	0.001	-0.661*	-0.646*	0.450*	-0.562*	-0.291*	-0.305*	-0.041*	-0.032*	-0.702*	-0.735*	0.976*	1.000
(21) (ln) New entrants O	0.702*	0.138*	0.008	0.024*	0.014	0.047*	0.396*	0.074*	-0.445	-0.444	0.042*	-0.205	-0.110*	-0.135	0.091*	0.109*	-0.416	-0.420	0.159*	0.083*	1.000

									*	*		*		*				*	*				
(22) (ln) New entrants D	0.762*	0.078*	0.011	0.030*	0.019	0.045*	0.403*	0.117*	-0.482*	-0.480*	0.047*	-0.203*	-0.125*	-0.143*	0.093*	0.111*	-0.448*	-0.435*	0.124*	0.061*	0.966*	1.000

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 2.6 Pairwise correlation between the variables used in the analysis.

References

Abramo, G., Aksnes, D. W., & D'Angelo, C. A. (2020). Comparison of research performance of Italian and Norwegian professors and universities. Journal of Informetrics, 14(2). https://doi.org/10.1016/j.joi.2020.101023

Abramo, G., Andrea D'angelo, C., & Di Costa, F. (2022). The effect of academic mobility on research performance: The case of Italy. Qualitative Science Studies. https://doi.org/10.1162/qss_a

Abramo, G., D'Angelo, C. A., & Di Costa, F. (2019). A nation's foreign and domestic professors: which have better research performance? (the Italian case). Higher Education, 77(5), 917–930. https://doi.org/10.1007/s10734-018-0310-x

Abramo, G., D'Angelo, C. A., Di Costa, F., & Solazzi, M. (2009). University-industry collaboration in Italy: A bibliometric examination. Technovation, 29(6–7), 498–507. https://doi.org/10.1016/j.technovation.2008.11.003

Ackers, L. (2005). Moving people and knowledge: Scientific mobility in the European Union. International Migration, 43(5), 99–131. https://doi.org/10.1111/j.1468-2435.2005.00343.x

Agasisti, T., Dal Bianco, A., Landoni, P., Sala, A., & Salerno, M. (2011). Evaluating the Efficiency of Research in Academic Departments: An Empirical Analysis in an Italian Region. Higher Education Quarterly, 65(3), 267–289. https://doi.org/10.1111/j.1468-2273.2011.00489.x

Agasisti, T., & Pérez-Esparrells, C. (2010). Comparing efficiency in a cross-country perspective: The case of Italian and Spanish state universities. Higher Education, 59(1), 85–103. https://doi.org/10.1007/s10734-009-9235-8

Agasisti, T., & Ricca, L. (2016). Comparing the Efficiency of Italian Public and Private Universities (2007–2011): An Empirical Analysis. Italian Economic Journal, 2(1), 57–89. https://doi.org/10.1007/s40797-015-0022-7

Allison, P. D., & Scott, J. (1990). Departmental Effects on Scientific Productivity. In American Sociological Review (Vol. 55, Issue 4).

Andrea D'angelo, C., & Abramo, G. (2015). Publication Rates in 192 Research Fields of the Hard Sciences. www.iasi.cnr.it/laboratoriortt/TESTI/Altro/ISSI-ANNEX%202_P.pdf,

Ates, G., & Brechelmacher, A. (2013). Academic Career Paths. In The Work Situation of the Academic Profession in Europe: Findings of a Survey in Twelve Countries (pp. 13–35). Springer Netherlands. https://doi.org/10.1007/978-94-007-5977-0_2

BACHE, P., & MAASSEN, P. (1994). Higher Education Policy in Denmark. In Higher Education Policy: an International Comparative Perspective (pp. 83–103). Elsevier. https://doi.org/10.1016/b978-0-08-042393-7.50011-0

Bäker, A. (2015). Non-tenured post-doctoral researchers' job mobility and research output: An analysis of the role of research discipline, department size, and coauthors. Research Policy, 44(3), 634–650. https://doi.org/10.1016/j.respol.2014.12.012

Baker, J. A., Vassar, D., & Barrett, B. (2014). US-MEXICO ACADEMIC MOBILITY: TRENDS, CHALLENGES, AND OPPORTUNITIES.

Barrioluengo, M. S., & Flisi, S. (2017). Student mobility in tertiary education: institutional factors and regional attractiveness. https://doi.org/10.2760/675338

Bleiklie, I. (2000). Policy regimes and policy change: Comparing higher education reform policy in three European countries. Comparative Social Research, 19, 101–138. https://doi.org/10.1016/s0195-6310(00)80022-8

Bonaccorsi, A., & Biancardi, D. (2019). Internationalisation of Academic Staff in European Higher Education.

Braconier, H., Nicoletti, G., & Westmore, B. (2014). Policy challenges for the next 50 years: OECD economic policy paper. 9, 1–67. https://doi.org/10.1787/5jz18gs5fckf-en

Breschi, S., Lissoni, F., & Montobbio, F. (2007). The scientific productivity of academic inventors: New evidence from italian data. Economics of Innovation and New Technology, 16(2), 101–118. https://doi.org/10.1080/10438590600982830

Cañibano, C., Vértesy, D., & Vezzulli, A. (2017). An inquiry into the return mobility of scientific researchers in Europe. https://doi.org/10.2760/54633

Cappelletti, G. M., Grilli, L., Russo, C., & Santoro, D. (2021). Sustainable mobility in universities: The case of the university of foggia (italy). Environments - MDPI, 8(6). https://doi.org/10.3390/environments8060057

Carrozza, C., & Minucci, S. (2014). Keep on movin'? Research mobility's meanings for Italian early-stage researchers. In Higher Education Policy (Vol. 27, Issue 4, pp. 489–508). Palgrave Macmillan. https://doi.org/10.1057/hep.2014.23

Cattaneo, M., Malighetti, P., Meoli, M., & Paleari, S. (2017). University spatial competition for students: the Italian case. Regional Studies, 51(5), 750–764. https://doi.org/10.1080/00343404.2015.1135240

Cattaneo, M., Malighetti, P., & Paleari, S. (2019). The Italian brain drain: cream and milk. Higher Education, 77(4), 603–622. https://doi.org/10.1007/s10734-018-0292-8

Cejda, B. D. (1994). Reducing transfer shock through faculty collaboration: A case study. Community College Journal of Research and Practice, 18(2), 189–199. https://doi.org/10.1080/1066892940180207

Chatterton, P., & Goddard, J. (2000). The Response of Higher Education Institutions to Regional Needs. In European Journal of Education (Vol. 35, Issue 4). Stakeholder Society.

Ciriaci, D. (2014). Does University Quality Influence the Interregional Mobility of Students and Graduates? The Case of Italy. Regional Studies, 48(10), 1592–1608. https://doi.org/10.1080/00343404.2013.821569

Cohen, S., Hanna, P., Higham, J., Hopkins, D., & Orchiston, C. (2020). Gender discourses in academic mobility. Gender, Work and Organization, 27(2), 149–165. https://doi.org/10.1111/gwao.12413

Columbu, S., Porcu, M., Primerano, I., Sulis, I., & Vitale, M. P. (2021). Geography of Italian student mobility: A network analysis approach. Socio-Economic Planning Sciences, 73. https://doi.org/10.1016/j.seps.2020.100918

Cullinan, J., & Flannery, D. (2021). Distance Matters: Geographic Accessibility and Higher Education Participation Decisions. In Centre for Economic Research on Inclusivity and Sustainability (CERIS) Working Paper Series.

Curaj, A., Matei, L., Pricopie, R., Salmi, J., & Scott, P. (n.d.). The European Higher Education Area Between Critical Reflections and Future Policies.

Dar, L. (2012). The Political Dynamics of Higher Education Policy. The Journal of Higher Education, 83(6), 769–794. https://doi.org/10.1080/00221546.2012.11777269

de Filippo, D., Casado, E. S., & Gómez, I. (2009). Quantitative and qualitative approaches to the study of mobility and scientific performance: A case study of a spanish university. Research Evaluation, 18(3), 191–200. https://doi.org/10.3152/095820209X451032

De, M., Au, R., & Jonkers, K. (2008). MIREM Project A Comparative Study of Return Migration Policies Targeting the Highly Skilled in Four Major Sending Countries. http://www.eui.eu/RSCAS/Publications/

Donina, D., Meoli, M., & Paleari, S. (2015). Higher education reform in Italy: Tightening regulation instead of steering at a distance. Higher Education Policy, 28(2), 215–234. https://doi.org/10.1057/hep.2014.6

Drucker, J. (2016). Reconsidering the Regional Economic Development Impacts of Higher Education Institutions in the United States. Regional Studies, 50(7), 1185–1202. https://doi.org/10.1080/00343404.2014.986083

Ejermo, O., Fassio, C., & Källström, J. (2020). Does Mobility across Universities Raise Scientific Productivity? Oxford Bulletin of Economics and Statistics, 82(3), 603–624. https://doi.org/10.1111/obes.12346

Enders, J. (1998). Academic Staff Mobility in the European Community: The ERASMUS Experience. Comparative Education Review, 42(1), 46–60. https://doi.org/10.1086/447478

Franzoni, C., Scellato, G., & Stephan, P. (2015). International mobility of research scientists: Lessons from GlobSci. In Global Mobility of Research Scientists: The Economics of Who Goes Where and Why (pp. 35–65). Elsevier. https://doi.org/10.1016/B978-0-12-801396-0.00002-8

Fu, Y. C., Vásquez, J. J. M., Macasaet, B. T., Hou, A. Y. C., & Powell, J. J. W. (2023). Game of Brains: Examining Researcher Brain Gain and Brain Drain and Research University Policy. Higher Education Policy. https://doi.org/10.1057/s41307-023-00303-6

Gill, B. (2005). HOMEWARD BOUND? Innovation: The European Journal of Social Science Research, 18(3), 319–341. https://doi.org/10.1080/13511610500186698

Glass, J. C., McKillop, D. G., & Hyndman, N. (1995). Efficiency in the provision of university teaching and research: An empirical analysis of UK universities. Journal of Applied Econometrics, 10(1), 61–72. https://doi.org/10.1002/jae.3950100106

Gopaul, B., & Pifer, M. J. (2016). The Conditions of Movement: a Discussion of Academic Mobility between Two Early Career Scholars. Higher Education Quarterly, 70(3), 225–245. https://doi.org/10.1111/hequ.12092

Greek, M., & Jonsmoen, K. M. (2021). Transnational academic mobility in universities: the impact on a departmental and an interpersonal level. Higher Education, 81(3), 591–606. https://doi.org/10.1007/s10734-020-00558-7

Gu, J. (2012). Spatial recruiting competition in Chinese higher education system. Higher Education, 63(2), 165–185. https://doi.org/10.1007/s10734-011-9429-8

Gustafson, P. (2006). Work-related travel, gender and family obligations. Work, Employment and Society, 20(3), 513–530. https://doi.org/10.1177/0950017006066999

Haley, A. (2017). Defining geographical mobility: Perspectives from higher education. Geoforum, 83, 50–59. https://doi.org/10.1016/j.geoforum.2017.04.013

Henningsson, M., & Geschwind, L. (2022). Recruitment of academic staff: An institutional logics perspective. Higher Education Quarterly, 76(1), 48–62. https://doi.org/10.1111/hequ.12367

Hilmer, M. J., & Hilmer, C. E. (2012). On the relationship between student tastes and motivations, higher education decisions, and annual earnings. Economics of Education Review, 31(1), 66–75. https://doi.org/10.1016/j.econedurev.2011.09.004

How do Educational Research and Policy-making affect each other? (1984). In Educational Research and Policy: How Do They Relate? (pp. 48–62). Elsevier. https://doi.org/10.1016/B978-0-08-030820-3.50010-0

Iorio, R., Labory, S., & Rentocchini, F. (2017). The importance of pro-social behaviour for the breadth and depth of knowledge transfer activities: An analysis of Italian academic scientists. Research Policy, 46(2), 497–509. https://doi.org/10.1016/j.respol.2016.12.003

Jacob, M., & Kearney, M.-L. (2020). Higher Education and Research Policies. In Building Higher Education Cooperation with the EU (pp. 15–34). BRILL. https://doi.org/10.1163/9789004445420_002

Jonkers, K. (2011). Mobility, productivity, gender and career development of Argentinean life scientists. Research Evaluation, 20(5), 411–421. https://doi.org/10.3152/095820211X13176484436177

Jöns, H. (2011). Transnational academic mobility and gender. Globalisation, Societies and Education, 9(2), 183–209. https://doi.org/10.1080/14767724.2011.577199

Kaplan, R. (2019). Italy counts the cost of its brain drain _ Financial Times.

Kim, D., Twombly, S., & Wolf-Wendel, L. (2012). International Faculty in American Universities: Experiences of Academic Life, Productivity, and Career Mobility. New Directions for Institutional Research, 2012(155), 27–46. https://doi.org/10.1002/ir.20020

Kim, T. (2010). Transnational academic mobility, knowledge, and identity capital. Discourse, 31(5), 577–591. https://doi.org/10.1080/01596306.2010.516939

Koksharov, V. A., Sandler, D. G., Kuznetsov, P. D., Klyagin, A. V., & Leshukov, O. V. (2021). The Pandemic as a Challenge to the Development of University Networks in Russia: Differentiation or Collaboration? Voprosy Obrazovaniya, 2021(1), 1–17. https://doi.org/10.17323/1814-9545-2021-1-52-73

Kosztyán, Z. T., Csányi, V. V., Banász, Z., Jakobi, Á., Neumanné-Virág, I., & Telcs, A. (2021). The role of higher education in spatial mobility. Applied Network Science, 6(1). https://doi.org/10.1007/s41109-021-00428-w

Lawson, C., & Ana, F.-Z. (2015). Academic mobility. Global Mobility of Research Scientists.

Lehmann, E. E., Meoli, M., Paleari, S., & Stockinger, S. A. E. (2018). Approaching effects of the economic crisis on university efficiency: a comparative study of Germany and Italy. Eurasian Business Review, 8(1), 37–54. https://doi.org/10.1007/s40821-017-0091-7

Leisyte, L., & Rose, A.-L. (2017). Academic Staff Mobility in the Age of Trump and Brexit? International Higher Education, 89, 3. https://doi.org/10.6017/ihe.2017.89.9758

Liang, W., Gu, J., & Nyland, C. (2022). China's new research evaluation policy: Evidence from economics faculty of Elite Chinese universities. Research Policy, 51(1), 104407. https://doi.org/10.1016/j.respol.2021.104407

Lindberg, M. E. (2009). Student and early career mobility patterns among highly educated people in Germany, Finland, Italy, and the United Kingdom. Higher Education, 58(3), 339–358. https://doi.org/10.1007/s10734-009-9198-9

Marginson, S. (2017). Do Rankings Drive Better Performance? International Higher Education, 89, 5. https://doi.org/10.6017/ihe.2017.89.9761

Morichika, N., & Shibayama, S. (2015). Impact of inbreeding on scientific productivity: A case study of a Japanese university department. Research Evaluation, 24(2), 146–157. https://doi.org/10.1093/reseval/rvv002

Muscio, A., Quaglione, D., & Ramaciotti, L. (2016). The effects of university rules on spinoff creation: The case of academia in Italy. Research Policy, 45(7), 1386–1396. https://doi.org/10.1016/j.respol.2016.04.011

Nascia, L., Pianta, M., & Zacharewicz, T. (2021). Staying or leaving? Patterns and determinants of Italian researchers' migration. Science and Public Policy, 48(2), 200–211. https://doi.org/10.1093/scipol/scab007

Nifo, A., & Vecchione, G. (2014). Do Institutions Play a Role in Skilled Migration? The Case of Italy. Regional Studies, 48(10), 1628–1649. https://doi.org/10.1080/00343404.2013.835799

Nokkala, T., Bataille, P., Siekkinen, T., & Goastellec, G. (2020). Academic Career, Mobility and the National Gender Regimes in Switzerland and Finland. 262–286. https://doi.org/10.1163/9789004422582_012ï

Paleari, S., Donina, D., & Meoli, M. (2015). The role of the university in twenty-first century European society. Journal of Technology Transfer, 40(3), 369–379. https://doi.org/10.1007/s10961-014-9348-9

Perrotti, R., Ichino, A., Gagliarducci, S., Stanchi, A., & Trivellato, P. (2007). Italy, Academic career structure. European University Institute.

Petzold, K., & Bucher, H. (2018). The Academic Mobility Regime: Analysing Perceptions of Students and Academic Staff. International Review of Social Research, 8(1), 98–108. https://doi.org/10.2478/irsr-2018-0011

Pfaffermayr, M. (2019). Gravity models, PPML estimation and the bias of the robust standard errors. Applied Economics Letters, 26(18), 1467–1471. https://doi.org/10.1080/13504851.2019.1581902

Pherali, T. J. (2012). Academic Mobility, Language, and Cultural Capital: The Experience of Transnational Academics in British Higher Education Institutions. Journal of Studies in International Education, 16(4), 313–333. https://doi.org/10.1177/1028315311421842

Ponomariov, B. L., & Boardman, P. C. (2010). Influencing scientists' collaboration and productivity patterns through new institutions: University research centers and scientific and technical human capital. Research Policy, 39(5), 613–624. https://doi.org/10.1016/j.respol.2010.02.013

Popov, E., Sandler, D., Popova, N., & Kochetkov, D. (2017). Institutions of scientific knowledge generation in regional economic systems. European Conference on Knowledge Management, 2, 808–817. https://www.scopus.com/record/display.uri?eid=2-s2.0-85035200005&origin=resultslist&sort=plf-f&src=s&st1=The+engagement+of+higher+educational+institutions+in+regional+development&sid=a67b4163401baf29127882dc429f9fef&sot=b&sdt=b&sl=88&s=TITLE-ABS-KEY%28The+engagement+of+higher+educational+institutions+in+regional+development%29&relpos=8&citeCnt=0&searchTerm=

Raagmaa, G., & Keerberg, A. (2017). Regional higher education institutions in regional leadership and development. Regional Studies, 51(2), 260–272. https://doi.org/10.1080/00343404.2016.1215600

Rebora, G., & Turri, M. (2009). Governance in higher education: An analysis of the Italian experience . In In International perspectives on the governance of higher education (pp. 39–58). Routledge. https://books.google.it/books?hl=it&lr=&id=iKaRAgAAQBAJ&oi=fnd&pg=PA13&dq=academic+structure+higher+education+in+italian+universities&ots=13GYkcV_Sw&sig=h0q9DB58gj7ngSs8axa683v5EbY&redir_esc=y#v=onepage&q=academic%20structure%20higher%20education%20in%20italian%20universities&f=true

Rørstad, K., & Aksnes, D. W. (2015). Publication rate expressed by age, gender and academic position – A large-scale analysis of Norwegian academic staff. Journal of Informetrics, 9(2), 317–333. https://doi.org/10.1016/j.joi.2015.02.003

Ryan, Y. (2010). Education Development in Higher Education.

Sá, C., Florax, R. J. G. M., & Rietveld, P. (2004). Determinants of the regional demand for higher education in the Netherlands: A gravity model approach. Regional Studies, 38(4), 375–392. https://doi.org/10.1080/03434002000213905

Santos Silva, J. M. C., & Tenreyro, S. (2011). Further simulation evidence on the performance of the Poisson pseudo-maximum likelihood estimator. Economics Letters, 112(2), 220–222. https://doi.org/10.1016/j.econlet.2011.05.008

Schaer, M. (2022). From mobility attractiveness to mobility fatigue: The impact of repeated transnational mobility on the lives and aspirations of early-career academics. Population, Space and Place, 28(5). https://doi.org/10.1002/psp.2536

Schiermeier, Q. (2011). The mobility imperative. Nature, 563–564. https://doi.org/10.1038/nj7335-563a

Shen, W., Xu, X., & Wang, X. (2022). Reconceptualising international academic mobility in the global knowledge system: towards a new research agenda. Higher Education, 84(6), 1317–1342. https://doi.org/10.1007/s10734-022-00931-8

Sheth, S. K., & Bettencourt, L. M. A. (2023). Measuring health and human development in cities and neighborhoods in the United States. Npj Urban Sustainability, 3(1). https://doi.org/10.1038/s42949-023-00088-y

Speed, F., & Kulichyova, A. (2021). The role of talent intermediaries in accessing and developing refugee talent pools. Journal of Organizational Effectiveness. https://doi.org/10.1108/JOEPP-01-2021-0023

Sugimoto, C. R., Robinson-Garcia, N., Costas, R., & Lariviere, V. (2017). Scientists have most impact when they're free to move. Nature, 550(7674), 29–31.

Teichler, U. (2017). Internationally mobile academics: concept and findings in Europe. European Journal of Higher Education, 7(1), 15–28. https://doi.org/10.1080/21568235.2017.1254921

Teichler, U., Ava, E., & Editors, H. (2013). The Changing Academy-The Changing Academic Profession in International Comparative Perspective 8 The Work Situation of the Academic Profession in Europe: Findings of a Survey in Twelve Countries. http://www.springer.com/series/8668

The State and Education Policy. (1990). British Journal of Sociology of Education, 11(1), 87–96. https://doi.org/10.1080/0142569900110106

Times higher education. (2022, July 27). Everything you need to know about Times Higher Education's global portfolio of university rankings. https://www.timeshighereducation.com/world-university-rankings/about-the-times-higher-education-world-university-rankings

Tocchioni, V., & Petrucci, A. (2021). Italian PhD students at the borders: the relationship between family background and international mobility. Genus, 77(1). https://doi.org/10.1186/s41118-021-00127-5

Trippl, M. (2013). Scientific Mobility and Knowledge Transfer at the Interregional and Intraregional Level. Regional Studies, 47(10), 1653–1667. https://doi.org/10.1080/00343404.2010.549119

Uhlbach, W. H., Tartari, V., & Kongsted, H. C. (2022). Beyond scientific excellence: International mobility and the entrepreneurial activities of academic scientists. Research Policy, 51(1). https://doi.org/10.1016/j.respol.2021.104401

UNESCO. (1997). The relationship among Research, Policy and Practice in Higher Education.

Van Der Wende, M. (2015). International academic mobility: Towards a concentration of the minds in europe. European Review, 23, S70–S88. https://doi.org/10.1017/S1062798714000799

Yuret, T. (2023). Predicting mobility and research performance of the faculty members in the economics departments at Turkish public universities. Quantitative Science Studies, 1–24. https://doi.org/10.1162/qss_a_00238

Zhao, Z., Bu, Y., Kang, L., Min, C., Bian, Y., Tang, L., & Li, J. (2020a). An investigation of the relationship between scientists' mobility to/from China and their research performance. Journal of Informetrics, 14(2). https://doi.org/10.1016/j.joi.2020.101037

Zhao, Z., Bu, Y., Kang, L., Min, C., Bian, Y., Tang, L., & Li, J. (2020b). An investigation of the relationship between scientists' mobility to/from China and their research performance. Journal of Informetrics, 14(2). https://doi.org/10.1016/j.joi.2020.101037

CHAPTER THREE

3. Does The Research Productivity of Academic Staff Increase with Mobility?

Abstract

Research is a significant factor in a country's regional and national development. This study investigates research productivity at the national level in Italy by examining academic personnel publications. Data is gathered by evaluating the individual profiles of academics using 5903 observations from university platforms and curriculum vitae. We conduct a panel data analysis spanning 22 academic years (2000-2022) to assess the performance of each member of the Economic-Management Engineering department at Italian higher education institutions (HEIs). The study uniquely considers academic staff migration between two universities (home and host) and the impact on receiving (host) universities. The findings are significant in terms of academic staff roles and are highly effective in terms of performance at HEIs.

Keywords: HEIs, productivity, scientific research, academic mobility, panel data analysis

3.1. Introduction

Higher education research in Italy is well-known for its contributions to numerous disciplines of study and has a long tradition of academic success. Many experts have focused on research activity and productivity, comparing two or more countries in Europe and throughout the world (Horta, Cattaneo, et al., 2018; Horta et al., 2010; Horta, Jung, et al., 2018; Sabharwal & Hu, 2013). Some findings classify by funding structures (through funding orientation), mobility movements between geographical regions, attractiveness and competitiveness, brain drain and brain gain, etc. (Baruffaldi et al., 2020; Cattaneo et al., 2019; Fadda et al., 2021; Khan, 2021; Laudel & Gläser, 2014). (Gibson & McKenzie, 2014) did a research analysis on researcher worldwide mobility and discovered that some return to their native country but are unproductive. Researcher mobility is an intriguing issue since they focus on professional advancement with the prospect of changing sectors or disciplines. In this study, we examine research output at the departmental level in Italian universities and research institutes, with mobility as a crucial component of scientific productivity. Italian universities have a significant educational workforce comprising academic staff members, such as researchers, associate professors, and professors. There are 20,326 researchers, 20,875 associate professors, and 13,259 ordinary professors in teaching and research across all departments (Statista, 2020). However, with such a vast number of personnel, it can be challenging to track and perform research analysis on all individuals while also identifying their career status. Therefore, our priority will be to select departments and conduct research on specific groups of academic staff, enabling us to obtain a more comprehensive understanding of their educational background, research interests, and professional experience. Scientific research is a multidimensional notion that requires interaction with indicators to quantify various dimensions. The group of publications and citations are regarded as scientific outputs. In contrast, the variables that cause production (such as staff, infrastructure, and so on) are called scientific inputs (Waltman et al., 2016). Citations are an essential aspect of academic writing that serves multiple purposes. One of the primary purposes of citations is to avoid potential copyright issues related to publications by crediting the original author or source of the information used in the article. Citations also play a crucial role in recognizing a researcher's contribution to a specific journal article, providing an opportunity for scholars to acknowledge the work of their peers. Moreover, using citations helps defend against plagiarism, a significant concern in the academic world. By citing sources correctly and accurately, scholars can demonstrate that their work is based on trustworthy and reliable information, thereby increasing the credibility of their research. This, in turn, enhances the overall quality of the article or report and adds value. Citation analysis can identify highly

productive researchers who produce work widely cited by others and determine which journals or publications are most influential in a particular field. Therefore, citations provide a quantitative measure of research productivity that can be used to assess the impact of a researcher's work on the field and to identify highly productive individuals and institutions.

Italy has a cluster of higher education institutions (HEIs) and research institutes that contribute significantly to research production. These institutions cover various scientific disciplines, from the natural sciences to social sciences and the humanities. However, gathering knowledge from all scientific areas can be pretty challenging, given the vast amount of research these institutions produce. Despite the challenges, Italy remains a prominent research and innovation hub, attracting scholars and researchers worldwide. The decision has been made to focus intensely on academic scientific research performance with the Economic-Management Engineering department (ING-IND/35). The primary objective of this study is to evaluate research productivity, with particular emphasis on the academic staff's association with the "Associazione Italiana di Ingegneria Gestionale" (AiIG). We have extracted data from various sources, such as CINECA (Consozio interuniversitario italiano), university databases, LinkedIn profiles, curriculum vitae, and the Scopus citation database. We understand that mobility plays a crucial role in this study, and therefore, we aim to examine geographical elements that may influence academic staff's decision-making. We plan to explore several factors: work location, commuting distance, local infrastructure, and regional amenities. Our academic staff consists of individuals ranging from post-doctoral researchers to full professors with extensive experience in Economic-Management Engineering (ING-IND/35). Our team expertise will enable us to accurately evaluate research productivity and provide a comprehensive understanding of the factors that influence academic staff's decision-making (Cassia et al., 2008; Popov et al., 2017). Here, we do two types of research analysis using scientific personnel publications and citations and testing against other control indicators. The Human Development Index (HDI) is a powerful tool that helps us assess the overall quality of life in different regions. The HDI provides a comprehensive picture of a society is well-being by considering factors such as life expectancy, education, and income. So, using HDI to guide our efforts towards mobility decision and their effective productivity. Another exciting factor observed during data collection is the movement of researchers between universities with the change in academic positions. In the second chapter, we examined the impact of mobility on publication rates in universities, with the position of the individual being a crucial factor. The exit route taken from the home or host university can significantly impact an individual's career growth and position. The tenure position is scrutinized based on the minimum annual stay period, which requires careful consideration. The mobility of staff and their research output is a growing area of interest in academic circles. Understanding how university staff mobility affects publication rates

and career growth is essential. The individual's position is a significant factor, as the exit route from the home or host university can significantly impact their career trajectory.

Considering the minimum annual stay requirement, it is important to scrutinize the tenure position period. This will enable individuals to make informed decisions regarding their career development and help them understand how their mobility will impact their career growth. By considering these factors, individuals can create a career path that aligns with their goals and aspirations.

This report is structured into various sections based on a thorough literature review. Section 2 provides a detailed overview of higher education institutions (HEIs) in Italy, which is essential for understanding the analysis context. In Section 3, you will find a comprehensive explanation of the research questions used in the analysis, including institutional and regional variables. Section 4 provides a detailed description of the data structure and methodology used in the study. The data collection process was carried out through various sources, including CINECA (departmental sectors), Scopus (primary citation and abstract platform), and National Statistics for Regional Areas (ISTAT), followed by a rigorous methodology. Finally, in Section 5, you will find the analysis results presented clearly and concisely, followed by a discussion of the findings.

3.2. Literature review

Higher education institutions are crucial in shaping the world by delivering three functions, which are interrelated into three groups: instruction, research, and extension (Brew et al., 2016). According to the Times Higher Education (2022), HEIs are divided into five pillars to highlight their functions and importance, as shown in Figure 1. Assessing research productivity and academic excellence is a multi-faceted endeavor that involves considering indicators. These indicators may include the total number of published documents, the number of academic articles that are indexed by databases such as Scopus or Web of Science, the number of cited publications, the total number of citations, the h-index, the number of published books, the number of research projects, and the number of research grants (Abouchedid & Abdelnour, 2015; Edgar & Geare, 2013). These indicators provide a comprehensive and nuanced assessment of a researcher's contributions to their field. By evaluating these metrics, researchers and institutions are better equipped to recognize and promote academic excellence and advance knowledge in their respective fields. It is important to note that research productivity and academic excellence are complex and multifaceted concepts that require careful consideration and analysis. However, by utilizing these indicators, researchers and institutions can gain a deeper understanding of individual contributions to their field and can work to promote excellence and innovation within their respective domains (Pasupathy & Siwatu, 2014; Quimbo &

Sulabo, 2014). Research institutions and higher educational universities are globally highly productive, with 12 million research articles and 60 million citations (from Scopus). Italy has shown an increase of 11% in business enterprise and 4% in the higher education sector, indicating firm research productivity comparatively from 2015 to 2016 (from the ISTAT report). This productivity rate is a testament to the quality of research and its impact on the world. According to a poll by The Times Higher Education, institutions worldwide have a high-quality research productivity rate of 30%, a remarkable achievement. Moreover, industry partnerships generate additional revenue, further supporting research and development. (Jacob & Lefgren, 2011; Miyaki & Okajima, 2018) According to the analysis, financial assistance from external sources is crucial in promoting individual academic research productivity. The availability of such funding acts as a catalyst, enabling researchers to carry out their work more effectively and efficiently. However, it is essential to note that if the research fails to achieve the desired level of productivity within the stipulated time frame, the risk of losing external funding increases significantly. In such a scenario, researchers must seek alternative funding sources to continue their work (Jacob & Lefgren, 2011). Individual research performance plays a crucial role in attracting funding agencies. This means that if a researcher has a strong track record of successful projects and publications, they are more likely to be considered for funding by agencies. Ultimately, the level of productivity the research achieves is crucial in determining the availability of private or public funding. This research approach aligns with scientific trends, and international collaborations between domestic institutions in Italy demonstrate the power of cooperation.

Figure 3.1 Five Pillars of a Higher Educational Institution (HEI)

Source: The Times Higher Education, 2022

Research groups typically comprise post-doctoral scholars and distinguished scientists, including researchers and professors of varying ages. Depending on the program structure, such as conferences, mobility, seminars, and the like, these academies may move to other institutions for brief periods to

pursue research in their respective disciplines, broaden their experience, and enhance their competencies. All scientific research contributions are compiled into an abstract and citation database that covers diverse academic fields. This database is an invaluable resource for scholars, researchers, and institutions worldwide, offering them access to the latest research and developments.

3.3. The Italian Higher Education

Higher education research is critical because it informs policies and practices that can improve educational quality and the student experience. It also helps to enhance knowledge and comprehension in a particular field or profession. The Italian higher education system is a long-standing, typical example of a public, highly centralized governance structure, with minimum degrees of autonomy at the university level and a significant role for the central authority. This tertiary education is a part of the Italian Ministry of Education, University, and Research (Ministero dell'Istruzione, Università e Ricerca, MIUR), which acts to support education, research (activities such as sponsoring programs) and foster collaborations (CORDIS, 2022). Teaching is prioritized, and national legislation requires at least 350 hours (15 days) of teaching time for each academic staff member at each Higher Educational Institution (HEI). The Humboldtian model, which was implemented in the 19th century in Berlin, Germany, and subsequently in the United States, followed by other European nations, served as inspiration; it states that there are no "only-teaching" universities in Italy (Abramo et al., 2013, 2020). Approximately 94.9 percent of professors work in public universities (0.5 percent in Scuole Superiori), and 5.1 percent are employed in private institutions among the 67 public and 27 private Italian universities. The supporting elements for research, such as financial funds from MUR, infrastructure, laboratories, and job prospects (positions), were also prioritized. It is not apparent that all HEIs in Italy follow this model. However, some components exist, such as how specific HEIs support research with academic independence, integrate teaching, and increase the career prospects of young researchers.

The fundamental goal of this strategy is to encourage scientific excellence in furthering research activities by requiring research academies at each HEI and teaching for a set number of hours per week. Education is thought to have a significant part in fostering critical thinking, and research provides creative techniques to improve teaching and develop other vital viewpoints (such as challenges, technological advancements, etc.). As a result, they are linked and interdependent. The University policy (Policy statement, 2013) states that Italy needs researchers to increase the role of participation in international higher education (IHE) by including international exchange strategies in medium terms. (Lepori et al., 2015) Indicates that nations with a research orientation play a big part in international academic personnel and are tied to the country's elements and policies. New

transparency provisions and the timely release of evaluation procedure regulations are all intended to ensure that mobilization opportunities (including funding, HEI reputation, and financial resources) assist academic personnel in mobilizing from one department to another or changing universities. This method may raise the academic rank, role, or reputation. We examine productivity using panel data analysis, considering personnel roles, the regional human development index, overall mobility movements of academic people, gender classifications, and designations.

Co-authorship of papers indicates that research efforts usually include a team of researchers. The fractional contributions of researchers to their outputs must be accounted for in productivity measurements. The Bologna process coined " mobility " in the early 2000s to describe how research output might rise or reduce institutional relationships quickly. The mobility alternatives are evaluated using the change in roles/frequency of academic careers, tenures, and rise in research productivity at multidisciplinary levels, and it is discovered that only a few mobility programs impact research production. More specifically, Europe's growth in productivity does not represent mobility (Horta, Jung, et al., 2018).

(Abramo et al., 2013) show the research productivity from 2004-2008, and 23 percent are professors alone, contributing 77 percent of research productivity uniformly among Italian HEIs. Importantly, brain drain and brain gain have been concepts that have been faced for decades, especially within European nations, where knowledge transfer is not the criterion. However, the migration of skilled labor is growing as a central problem. This is due to improper conditions or magnificent opportunities other institutions offer for academic personnel in specific sectors of interest. Swedish researchers have conclusively proven that incorporating inter-university mobility and performing inverse probability treatment censoring weights significantly increases publications and citations among various departments. The data shows an impressive 32% increase in publications and a whopping 63% increase in citations (Ejermo et al., 2020). (Mahroum, 2001) concludes that academic movement through brain drain directly correlates with opportunities and knowledge transfer. In context, we have brain circulation between universities, treated like expertise scientific loss for the sending institution, which is a gain for the receiving institution. This kind of brain circulation is an ongoing process rather than a single permanent process because there will be multiple collaborations between universities (i.e., if an academic person works for an institution, there is a probability that the same academic person has the collaboration with another institution irrespective of a country sometimes) (Meyer, 2001). All researchers in the Italian university system are classified in one field. As far as we know, this Italian higher education system element is unique worldwide. There are 205 such fields (called scientific disciplinary sectors, SDSs2) in the hard sciences, divided into nine disciplines (named

university disciplinary areas, UDAs3). Higher education institutions have established that the output of full-time, associate-time, and assistant-time researchers differs. As a result, we created a dataset that included academic personnel ranging from post-docs to professors in the management engineering (ingegneria gestionale) sector (ING-IND/35), as well as supporting institutional and geographical characteristics. This intriguing field characterizes management engineering, integrating economic, organizational, and technological skills with an approach that includes project finalization, a theory-based perspective of systems and control, an emphasis on modeling and quantitative methods, and integrating theoretical models and empirical verification.

3.4. Research design

When assessing scholarly productivity, we consider the number of articles an author has published in academic or professional journals throughout their career within a specific period. In addition, we consider a summary measure encompassing refereed journal articles, books, edited books, and book chapters available in the Scopus database. Furthermore, we create a model that considers the cumulative number of documents, articles, and citations received by the authors to further their research work. We then make them impact the career decisions of academic staff in the economic management sector. The nature of this study is associated with the data from multiple platforms. Fortunately, we have a tracking system that focuses on the changes and detects temporal variations over time from various platforms associated with the university. Therefore, we used the time series cross-sectional data for better dynamic analysis, increased robustness, and efficient estimates (Torres-Reyna, 2007). Apart from quantitative analysis, a qualitative methodology is used to collect data through manual screening. (for instance, tracking personal career movements) (Djamba & Neuman, 2002; Hathaway, 1995; Lund, 2012). Further analysis is performed by using panel data.

We took the data from CINECA by selecting the level of department and academic personnel who collaborated with the Economical – Management Engineering sector (ING - IND/35) over 22 academic years from 2000 – 2022. Within the Scientific Disciplinary (SD), we have 2,479 researchers (39.54 percent) and 3,400 professors (54.27 percent) from 98 Italian institutions (state/non-sate/superior-schools/telematics), with gender classifications of 28.21 percent female and 71.79 percent male. Publications and Citations are the main factors to test the research productivity and the mobility (critical factor) movement roles play effectiveness. Two research inquiries have been formulated to evaluate research productivity concerning mobility and other control variables,

- Does the shift in academic staff (research mobility) influence the department's research performance? How does the designation affect productivity improvement?

- To test the scientific impact on mobility and research performance. To assess and evaluate the research productivity about geographical and social parameters.

3.5. Data and Methodology

3.5.1 Data

We obtained the data from CINECA by identifying the level of department and academic people who interacted with the Economic - Management Engineering sector (ING - IND/35) during 22 academic years, from 2000 to 2022. The significant factors that measure the research productivity and the mobility (critical factor) movement roles that play an essential role in efficacy are publications and citations. The information was obtained through the citation platform SCOPUS, where each personnel entry was investigated. The regression between dependent, independent, and over-control variables is performed using panel data analysis. Table 3.1 presents the variable descriptions that were utilized in the analysis. During the analysis, we utilized the variables listed below. To accurately gauge the research productivity of academic personnel, we collected all the documents published by the author and the number of citations they received annually. By analyzing this information, we can determine the frequency of their research contributions yearly. Additionally, we can assess whether the author is still actively engaged in their research area or has become inactive. This data is crucial for evaluating the impact and significance of an author's research in their field.

Variables	Description	(IDV/DV/CV)*
Identities	The identification number is allotted for each academic personnel related to sector ING-IND/35.	
Year	The number of academic personnel drawn from annual periods (2000 – 2022).	
Documents (Docs)	Number of publications by each author/personnel in each academic year	IDV
Citations	Total number of citations obtained by the author each year.	IDV
Italian HEIs	Teaching and research-based institutions.	DV
University mobility	It is the total mobility persons arrive in each year	DV
Academic mobility	Describe if the personnel accept mobility opportunities at least once.	0 if the personnel remain at the same university; 1 if the

		personnel accept to change university (DV).
Total university staff	Total number of staff available at each university in each year	
Academic role	The department has 392 personnel, each with specific roles: postdoc, Assistant professor, Associate professor, and Full professor.	CV
Gender	0 if Female; 1 if Male	CV
Human Development Index (HDI)	It describes the Socio-Economic health of a region where the university is situated. It might influence mobility decision-making.	CV

Table 3.1 Variable description in performing the analysis.

***IDV = Independent variable; DV = Dependent variable; CV = Control variable**

The academic data (staff) related to economic management engineering range from postdocs to professors. Table 3.2 has the descriptive statistics of the institutional and regional factors necessary for the analysis. Here, we have 5903 observations with HDI index ranges with limited observations. However, we considered the annual observations that we merged directly with the national statistics in the analysis part.

The standard deviations represent the overall level of mobility acceptance in a university for a specific year, based on individual observations. For example, a few incoming mobilities in a research group of 9 members, contributing 3 documents, resulted in an overall increase of 47 citations to the university within the research department. For example, at the Polytechnic University of Turin, an average of 16 members contributed 2 documents and 67 citations for each research team member, accepting new staff. Research productivity may vary depending on the university size (as mentioned in table 2.3), with large variations in citations for each document published by an individual. Generally, associate professors' publications range widely, regardless of gender, according to the data set observations.

Variables	Observations	Mean	Std. Dev.	Min	Max
Documents * (Units)	5903	2.271	2.663	0	26
Citations * (Times cited)	5903	62.932	125.549	0	2395
Running Citations * (Units cumulated)	5903	316.007	631.241	0	9008
Running documents * (Units cumulated)	5903	17.888	20.535	0	173
University mobility * (Total personnel)	5903	3.426	4.614	0	21
Academic mobility **	5903	.26	.439	0	1
Total staff *	5903	19.441	21.833	1	83
HDI (%)	5745	88.4	2.6	81.3	92.6

Table 3.2 Descriptive statistics of institutional and regional indicators

*Absolute numbers (count of 22 years); ** Dummy variable

Documents and running documents:

Documents refer to various types of published articles, including journals, newspapers, book sections, web pages, patents, and reports. When collecting data, the term 'documents' is used to represent the total number of papers published by each author during a specific time period. These papers are published in highly regarded journals that undergo a rigorous evaluation process prior to publication. Similarly, when collecting documents on a yearly basis (i.e., collective years), the active publications from the author are cumulated and added each year, and the total count is defined for each year in a given time series.

Citations and running citations:

Authors can become associated with the work they contribute towards process improvement or innovation. This recognition is often established through citations, acknowledging the previous work of other individuals. Citations are important for establishing expertise in a particular field, and the

greater the number of citations, the higher the recognition of the work. The cumulative citations received by an author each year can be calculated using a variable known as "cumulative citations".

University and academic mobility:

The data collection in this chapter is similar to the previous chapter 2, but with a focus on individual mobility between home and host universities. We have two variables here - one for academic individuals who choose to migrate between departments or universities, and another for a group of academic staff joining existing staff from another university or department. The former is defined as the acceptance of mobility in an academic's career, regardless of the country, while the latter is defined as University Mobility, which counts the number of people coming from home/host universities or departments. Opting for mobility in an academic's career is represented by a dummy variable, where 1 signifies true, and 0 signifies false.

The Human Development Index (HDI) is an essential metric (that influences decision-making) that adds to national/regional status and gauges well-being and development. Improved educational opportunities, healthcare, infrastructure, and general development foster an atmosphere favorable to research and innovation. We evaluated this HDI as a choice factor when assessing career or mobility prospects since it primarily focuses on research and development. Before establishing specific policies connected to education, healthcare, and social development, policymakers may consider the HDI factor, which leads to the availability of resources in recruiting talent pool at HEIs and other sectors. (Gerged & Elheddad, 2020) From 2002 to 2017, researchers investigated the relationship between national governance and educational quality, which is a factor of HDI, with significant European nations and discovered a high positive significance level with the challenges associated with voice and accountability (such as resource scarcity, governance scandals, increasing injustice and inequality, and so on) have a crucial relationship with educational quality to emerge new opportunities for higher educational institutions (HEIs).

3.5.2. Methodology

To identify each academic person's (his/her) yearly development with the research progress each annual year about the tenure, we decided to run the model with the panel data by using the fixed effect with the Higher educational institutions (HEIs) using the panel data analysis. In this case, we determine the analysis by considering the (n-1) period with accurate data. The regression is examined by importing each indicator to see if the factor variables impact research productivity.

Panel data deals with omitted variable bias caused by data heterogeneity. This is accomplished by controlling for factors that we cannot see, are unavailable, and cannot be quantified but are connected with the predictors. Two types:

1. Entity Fixed Effects: Variables that do not change over time but vary across entities (differences within institutions). An entity's fixed effects assume a correlation between the entity's error term and predictor variables. However, an entity's fixed effects cannot be correlated with another entities.
2. Time-Fixed Effects: Variables that change over time but not across entities (such as Public and Private institutions).

Entities have individual characteristics that may or may not influence the outcome and predictor variables.

The entity fixed effects regression model is

$$Y_{it} = \alpha_i + \beta X_{it} + u_i + e_{it}$$

$$i = 1 \ldots n \,;\; t = 1 \ldots . T$$

Where:

Y_{it} dependent and outcome variable (for entity i at time t).

α_i is the unknown intercept for each entity ($n - 1$ entity-specific intercepts).

X_{it} is a vector of predictors or control variables (for entity i at time t).

μ_i within-entity error term.

$pedicuree_{it}$ overall error term;

β represents a common effect across entities controlling for individual and time heterogeneity.

3.6. Results

We speculated on the variables in two ways. First, the mobile academic staff from their home university to the host university are considered cumulative members by year. Second, if an academic staff member is mobilized, this is considered unique, irrespective of the cumulative frequency from the previous records.

The Higher Education Institutions (HEIs) perform and have equal priorities over teaching and research activities (Abramo et al., 2013, 2019, 2022; Anussornnitisarn & Lesjak, 2017; Artés et al., 2017; Bergantino et al., 2012; Coate et al., 2001; Glass et al., 1995). Pursuing sustainable development and academic excellence has long been a focal point for universities worldwide. Among the critical factors in achieving these goals are publications and citations, which have the potential to enhance institutional rankings, bolster enrollment rates, and indirectly influence policy. As such, universities have devoted significant attention to these areas to improve their standing, attract top talent, and further their academic mission. By prioritizing publication and citation metrics, universities can position themselves as leaders in their respective fields, driving innovation and advancing knowledge for the benefit of society (Cole & Cole, 1967; Shahbazi-Moghadam et al., 2015). Based on the cumulative documents and the designation of academic personnel, the research performance has shown a high level of significance over the academic years. Specifically, the results indicate a 6 percent yearly increase in research followed by a 20 percent yearly increase in citations. The post-docs and assistant professors are highly significant in publishing and research activities. The gender classification is insignificant, but we have 0.28 female academic staff over males. Finally, there is a flow in research productivity and mobility movement; about 30 percent of the staff chose to perform research through mobilization. This increases the collaborations (national, international, and industry-wide), which might attract policymakers' interest in universities.

The following analysis, presented in Table 3.3, explores the relationship between institutional and regional factors and the number of publications produced. Notably, the mobility opportunities available to academic professionals at the university level significantly impact their publication output. As academics advance, their roles become increasingly prestigious, leading to more responsibilities. This phenomenon is particularly evident among Associate Professors and Full Professors. The latter group is associated with many definitive academic responsibilities, including administrative work, conference attendance, journal publications, and national political roles. These roles reflect the regions where universities are located and play a crucial role in showcasing a university's reputation through national contributions. However, these additional responsibilities also result in a slight reduction in academic research activities. The Human Development Index (HDI) validates and compares national policies. It raises questions about why countries with the same GNI per capita different human development outcomes have, leading to discussions about government policy priorities. However, it is crucial to remember that the HDI only captures a part of what human development encompasses. It fails to account for factors such as inequality, poverty, human security, empowerment, and others that are equally essential.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Docs*	Docs*	Docs*	Docs*	Docs*	Docs*	Docs*	Docs*
University mobility	.159***	.203***	.205***	.178***	.162***	.165***	.134***	.117***
	(.011)	(.026)	(.026)	(.026)	(.026)	(.026)	(.026)	(.026)
Academic mobility	.206	.18	.194	.322	.377*	.358	.412*	.306
	(.218)	(.218)	(.218)	(.219)	(.219)	(.219)	(.22)	(.21)
Total staff		-.016*	-.016*	-.015*	-.013	-.012	-.008	-.02**
		(.008)	(.008)	(.008)	(.008)	(.008)	(.008)	(.009)
Gender male			.023	-.144	-.253	-.202	-.438**	-.253
			(.2)	(.201)	(.202)	(.202)	(.205)	(.195)
Post-doc				-1.195***	-1.505***	-1.275***	.809***	.866***
				(.1)	(.115)	(.141)	(.261)	(.26)
Assistants					-.566***	-.34***	1.763***	1.652***
					(.103)	(.131)	(.258)	(.256)
Associates						.315***	2.589***	2.42***
						(.114)	(.265)	(.264)
Ordinary							2.676***	2.278***
							(.282)	(.281)
_cons	-1.28	-1.244	-1.276	-1.189	-.48	-.804	-2.598	-24.367***
	(1.68)	(1.677)	(1.689)	(1.674)	(1.676)	(1.678)	(1.681)	(2.489)

Observations	5510	5510	5468	5468	5468	5468	5468	5327
Mean dependent var		2.360		SD dependent var		2.717		
Overall r-squared		0.085		Number of obs		5510		
Chi-square		480.638		Prob > chi2		0.000		
R-squared within		0.078		R-squared between		0.137		

*** p<.01, ** p<.05, * p<.1

Table 3.3 Explores results with publications as the dependent variable over factor variables.

Docs* = Documents published

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Citation	Citation	Citation	Citation	Citation	Citation	Citation	Citation
University mobility	16.977***	24.995***	25.04***	23.761***	21.473***	21.001***	18.678***	17.99***
	(.521)	(1.168)	(1.175)	(1.16)	(1.128)	(1.12)	(1.101)	(1.126)
Academic mobility	18.066*	13.512	14.35	20.66**	28.692***	31.318***	35.319***	32.306***
	(9.221)	(9.192)	(9.241)	(9.264)	(9.279)	(9.335)	(9.399)	(9.921)
Total Staff		-2.915***	-2.912***	-2.875***	-2.464***	-2.511***	-2.232***	-2.743***
		(.38)	(.382)	(.376)	(.364)	(.361)	(.352)	(.373)
Gender male			27.944***	19.575**	3.265	-3.945	-21.389**	-15.057
			(8.442)	(8.482)	(8.541)	(8.629)	(8.755)	(9.233)
Post-docs				-60.351***	-107.003***	-139.777***	13.068	14.862
				(4.529)	(5.012)	(6.128)	(11.184)	(11.195)
Assistants					-85.817***	-117.953***	36.317***	31.535***
					(4.491)	(5.676)	(11.026)	(11.056)
Associates						-44.889***	122.053***	115.601***
						(4.936)	(11.348)	(11.421)
Ordinary							197.122***	188.497***

							(12.062)	(12.24)
Cons	-30.796	-24.452	-51.487	-47.06	59.716	105.687	-24.42	-912.434***
	(74.937)	(74.546)	(75.098)	(74.245)	(72.718)	(72.596)	(71.878)	(108.706)
Observations	5510	5510	5468	5468	5468	5468	5468	5327

Standard errors are in parentheses.

*** p<.01, ** p<.05, * p<.1*

Table 3.4 Explores results with citations as the dependent variable over factor variables.

In Table 3.4, it was found that research productivity (in the form of citations) is positively affected by institutional factors such as mobility options within the university and department. Another analysis was performed using the total documents published, which included the additional regional indicator of the Human Development Index (HDI), and it was found that this only affects the well-being factors concerning regional and provincial development. Table 3.5 shows the effect of research productivity (the documents published) on the regional HDIs. It was found that overall document productivity increased by 15% with mobilization but decreased to 6% on overall cumulative documents. However, when it comes to running documents over the annual years, there is an increase, irrespective of mobility opportunities. It has been observed that there has not been a significant increase in productivity recently. In the last three years, from 2019 to 2022, the COVID-19 pandemic has been the focus. This has affected various aspects, such as childcare, loss of structure, limited access to institutional support, and a lack of professional and emotional support from peers and mentors (Helali, 2023; Lambrechts et al., 2021; Wang et al., 2022). All these factors have led to a decrease in research productivity. Furthermore, they are closely related to regional factors like income, life expectancy, and development levels.

This is consistent with previous studies suggesting that mobility does not affect research productivity (Allison & Scott, 1990; Hesli & Lee, 2011; Kim et al., 2012). An exciting finding suggests that mobilizing contributes to increasing productivity in other research projects by leveraging the skills of the mobilized individuals. The study also revealed that the impact of academic experts on improving productivity through mobilization opportunities is minor. However, this approach has proven effective with associates and post-docs. This can be attributed to full professors having other administrative or academic responsibilities towards developing their regions, which enhances their reputation and collaboration activities. These theoretical findings were observed by studying the respective curriculum vitae of the academics.

	(1) Docs	(2) Docs	(3) Docs	(4) Docs	(5) Docs	(6) Docs	(7) Docs	(8) Docs
University Mobility	.155***	-.065***	-.061**	-.066**	-.059**	-.064**	-.064**	-.065**
	(.02)	(.016)	(.027)	(.027)	(.026)	(.026)	(.027)	(.027)
Academic Mobility								
Running documents		.075***	.075***	.073***	.076***	.077***	.077***	.081***
		(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.005)
Total staff			-.001	0	-.002	.002	.002	.005
			(.007)	(.007)	(.007)	(.007)	(.007)	(.008)
Post-docs				-.28***	.051	.585***	.593***	.666***
				(.107)	(.133)	(.158)	(.176)	(.167)
Assistants					.535***	1.049***	1.058***	1.174***
					(.129)	(.172)	(.197)	(.192)
Associates						.721***	.732***	.974***
						(.159)	(.249)	(.237)
Ordinary							.017	.275
							(.326)	(.319)
Human Development Index								-10.695***
								(2.985)

_cons	1.723***	1.165***	1.175***	1.249***	1.035***	.555***	.545***	9.683***
	(.065)	(.057)	(.08)	(.086)	(.106)	(.152)	(.201)	(2.565)
Observations	5510	5510	5510	5510	5510	5510	5510	5363
R-squared	.038	.276	.276	.277	.282	.289	.289	.303

Robust standard errors are in parentheses.

**** p<.01, ** p<.05, * p<.1*

Table 3.5 Test the panel regression over the social and regional factors

3.7. Discussion

The hierarchy of academic positions is positively correlated with the rate of scientific publication. Specifically, professors (associate professors and full professors) are the most prolific publishers, while individuals in lower academic positions tend to publish fewer articles per year (Allison & Stewart, 1974; Rørstad & Aksnes, 2015; Tien & Blackburn, 1996). This phenomenon indicates a trend in which academics with more remarkable experience, knowledge, and expertise are better able to produce high-quality research output (Abramo et al., 2019, 2020). Scientists who hold senior positions are more likely to possess superior research and writing abilities. As a result, they are more likely to produce exceptional research and article composition results (Freeling et al., 2019). As such, institutions should strive to promote and support the career advancement of their academic staff to facilitate the generation of impactful and influential academic work. It is imperative to implement policy reformations to gain international recognition, attract a diverse pool of international students, and secure government funding. This would catalyze globalization and foster novel thinking on international affairs. Notably, the Times Higher Education World University Ranking attributes 30% of its total value to citation. Therefore, the publication and citation of research are essential factors for universities seeking to maintain a competitive ranking position.

The academic staff at Italian universities has found that a 1 percent increase in research productivity in the ING-IND 35 sector leads to an 11.7 to 15.6 percent increase in mobility. The designation or rank of an academic position is considered a professional variable that impacts research productivity. The research findings indicate a positive correlation between academic rank and research productivity. This suggests that higher academic ranks are associated with greater research productivity, which can be attributed to experience (Blackburn et al., 1978; Maske et al., 2003; Washburn Taylor et al., 2006). Only the most productive faculty members are promoted, eliminating low producers before they reach higher ranks, creating a situation where higher-ranking faculty produce more. The full professors tend to maintain their productivity even after the prospect of promotion no longer serves as a motivator. This phenomenon can be attributed to intrinsic motivation, which arises from their interest and passion for their work rather than external factors such as rewards or recognition (Tien & Blackburn, 1996). This might have other motives, such as involvement in national research or collaborating with the government to improve teaching, research, and policies (Altbach, 1995). It is widely advocated that departments with high productivity should prioritize the recruitment of the most competent personnel to conduct research with precision. This practice can potentially enhance the department's reputation and, by extension, the university's ranking. However, some divergent opinions exist on whether the academic position is necessary for research activities.

Many studies argue that gender does not impact research productivity, as it is correlated with working position and institution type (Abramo et al., 2009; Cohen et al., 2020; Jonkers, 2011; Nokkala et al., 2020; Rørstad & Aksnes, 2015). (Horta et al., 2020, 2021; Patrício et al., 2018) they discussed the effects of different mobility programs on academic research. Some programs have a positive impact up to a certain threshold, while others improve the quality of publications. The analysis found substitution effects, such as the number of jobs outside academia, that can increase the ability to publish in top-tier journals and decrease overall publications.

Research collaboration represents an area in which internationalization, excellence, and quality converge, distinct from the domain of higher education. In this context, the researcher is not viewed as a teacher involved in research intermittently but rather solely as a researcher. Research excellence is, hence, an independent entity that is separate from teaching excellence. Research collaboration is more commonly a matter for individuals or groups rather than institutions. This allows researchers to choose between being global citizens or local ones, unlike teachers who may not have this option. The discourse on internationalization and collaboration between Higher Education Institutions (HEIs) and researchers primarily occurs via recruitment, publication/patenting, and funding. Mobility is a crucial indicator of individual excellence. As such, the average researcher must undertake some form of mobility to secure a tenure or even an entry-level position. Similarly, universities must demonstrate their commitment to excellence by prioritizing internationalization, diversity, gender equality, and mobility in their recruitment policies. These requirements are considered universally applicable to all disciplines. After analysing the data, we found very little international representation in Italian research institutions. This is because there are significantly fewer foreign personnel compared to Italian researchers. Nevertheless, the consideration is due to its belonging to the IND-ING/35 sector. Therefore, we cannot express the publication rate regarding foreign researchers within Italian HEIs.

The analysis was performed during the COVID-19 pandemic, which has significantly impacted academic and other forms of mobility, especially international short-term mobility. This includes teaching missions, research visits, and conferences, which have been significantly reduced. The results show a highly negative significance, indicating a significant effect on research productivity. In Table 3.5, The age discrepancy of 45 years between the senior professors and the respondents does not appear to significantly affect the correlation between environmental and situational variables and performance (Jamalova & Bálint, 2023; Leisyte & Rose, 2017). Tables 3.6 and 3.7 display the variables utilized in the analysis and their corresponding correlations.

3.8. Limitations

Gathering data from various sectors and departments can be a time-consuming task, mainly because of the enormous databases involved. Initially, our research focused on the Engineering Faculty at both public and private Higher Education Institutions (HEIs) in Italy. After doing a more detailed analysis of the data, specifically by applying a filter based on the scientific sector discipline (SSD), it became clear that the Economic-Management Engineering sector alone consists of 394 individuals, out of a total of 154 academic staff stated. This disparity suggests a significant convergence and potential inaccuracy in the initial classification of data, emphasizing the intricacies and difficulties inherent in gathering data across several disciplines.

Although it is difficult to collect full data from all scientific areas, the Economic-Management Engineering department was chosen for a targeted investigation. The decision was driven by the necessity to evaluate the department's contributions in relation to the impacts of academic mobility. Italy has a combined total of around 65,000 academic workers who are involved in teaching and conducting research in both public and private higher institutions. The large number of staff members highlights the challenge of acquiring accurate and specific data that is essential for conducting a thorough study.

The choice to prioritize the Economic-Management Engineering department was additionally justified by its ability to provide valuable contributions to the comprehension of mobility impacts within the academic community. This concentrated methodology enables a more controllable and exact analysis of the data, which can subsequently provide more comprehensive insights into the influence of academic mobility on institutional performance and individual career paths within the framework of Italian higher education.

Appendix II

Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Documents	1.000									
(2) Mobility university	0.146*	1.000								
(3) Mobility Academics	0.049*	-0.038*	1.000							
(4) Total staff	0.078*	0.909*	-0.123*	1.000						
(5) Post-docs	-0.094*	-0.084*	0.070*	-0.064*	1.000					
(6) Asst. Professors	0.066*	0.018	0.021	-0.020	-0.241*	1.000				
(7) Associate	0.080*	-0.056*	0.022	-0.072*	-0.267*	-0.347*	1.000			
(8) Designated	-0.042*	-0.036*	-0.003	-0.041*	-0.023	-0.030*	-0.033*	1.000		
(9) Ordinary	-0.038*	0.093*	-0.101*	0.124*	-0.278*	-0.363*	-0.401*	-0.035*	1.000	

**** p<0.01, ** p<0.05, * p<0.1*

Designated: ordinary professors holding a temporary contract

Table 3.6 Pairwise correlation concerning the Total documents produced each year.

Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Citations	1.000									
(2) Mobility university	0.283*	1.000								
(3) Mobility academics	0.073*	-0.038*	1.000							
(4) Total staff	0.183*	0.909*	-0.123*	1.000						
(5) Post-docs	-0.172*	-0.084*	0.070*	-0.064*	1.000					
(6) Asst. Professor	-0.090*	0.018	0.021	-0.020	-0.241*	1.000				
(7) Associate	0.076*	-0.056*	0.022	-0.072*	-0.267*	-0.347*	1.000			
(8) Designated	-0.020	-0.036*	-0.003	-0.041*	-0.023	-0.030*	-0.033*	1.000		
(9) Ordinary	0.179*	0.093*	-0.101*	0.124*	-0.278*	-0.363*	-0.401*	-0.035*	1.000	

**** p<0.01, ** p<0.05, * p<0.1*

Designated: ordinary professors holding a temporary contract

Table 3.7 Pairwise correlation concerning the Total Citations produced each year.

References

Abouchedid, K., & Abdelnour, G. (2015). Faculty research productivity in six Arab countries. International Review of Education, 61(5), 673–690. https://doi.org/10.1007/s11159-015-9518-5

Abramo, G., Aksnes, D. W., & D'Angelo, C. A. (2020). Comparison of research performance of Italian and Norwegian professors and universities. Journal of Informetrics, 14(2). https://doi.org/10.1016/j.joi.2020.101023

Abramo, G., Andrea D'angelo, C., & Di Costa, F. (2022). The effect of academic mobility on research performance: The case of Italy. https://doi.org/10.1162/qss_a

Abramo, G., Cicero, T., & D'Angelo, C. A. (2013). The impact of unproductive and top researchers on overall university research performance. Journal of Informetrics, 7(1), 166–175. https://doi.org/10.1016/j.joi.2012.10.006

Abramo, G., D'Angelo, C. A., & Caprasecca, A. (2009). Gender differences in research productivity: A bibliometric analysis of the Italian academic system. Scientometrics, 79(3), 517–539. https://doi.org/10.1007/s11192-007-2046-8

Abramo, G., D'Angelo, C. A., & Di Costa, F. (2019). A nation's foreign and domestic professors: which have better research performance? (the Italian case). Higher Education, 77(5), 917–930. https://doi.org/10.1007/s10734-018-0310-x

Allison, P. D., & Scott, J. (1990). Departmental Effects on Scientific Productivity. In American Sociological Review (Vol. 55, Issue 4).

Allison, P. D., & Stewart, J. A. (1974). Productivity Differences Among Scientists: Evidence for Accumulative Advantage. In Source: American Sociological Review (Vol. 39, Issue 4).

Altbach, P. G. (1995). Problems and possibilities: The US academic profession. Studies in Higher Education, 20(1), 27–44. https://doi.org/10.1080/03075079512331381780

Anussornnitisarn, P., & Lesjak, D. (2017). Internationalisation - professors' mobility and teaching in foreign languages in Slovenian higher education. International Journal of Innovation and Learning, 22(3), 340. https://doi.org/10.1504/ijil.2017.10007818

Artés, J., Pedraja-Chaparro, F., & Salinas-JiméneZ, M. del M. (2017). Research performance and teaching quality in the Spanish higher education system: Evidence from a medium-sized university. Research Policy, 46(1), 19–29. https://doi.org/10.1016/j.respol.2016.10.003

Baruffaldi, S. H., Marino, M., & Visentin, F. (2020). Money to move: The effect on researchers of an international mobility grant. Research Policy, 49(8). https://doi.org/10.1016/j.respol.2020.104077

Bergantino, A. S., Capozza, C., & Porcelli, F. (2012). Measuring Teaching Efficiency of the Italian University System: the Role of Market Structure. A two step DEA analysis at faculty level. http://www.cnvsu.it/_library/download

Blackburn, R. T., Behymer, C. E., & Hall, D. E. (1978). Research Note: Correlates of Faculty Publications. In Source: Sociology of Education (Vol. 51, Issue 2).

Brew, A., Boud, D., Namgung, S. U., Lucas, L., & Crawford, K. (2016). Research productivity and academics' conceptions of research. Higher Education, 71(5), 681–697. https://doi.org/10.1007/s10734-015-9930-6

Cassia, L., Colombelli, A., & Paleari, S. (2008). Regional Transformation Processes through the Universities—Institutions—Industry Relationship. Industry and Higher Education, 22(2), 105–118. https://doi.org/10.5367/000000008784139451

Cattaneo, M., Malighetti, P., & Paleari, S. (2019). The Italian brain drain: cream and milk. Higher Education, 77(4), 603–622. https://doi.org/10.1007/s10734-018-0292-8

Coate, K., Barnett, R., & Williams, G. (2001). Relationships Between Teaching and Research in Higher Education in England.

Cohen, S., Hanna, P., Higham, J., Hopkins, D., & Orchiston, C. (2020). Gender discourses in academic mobility. Gender, Work and Organization, 27(2), 149–165. https://doi.org/10.1111/gwao.12413

Cole, S., & Cole, J. R. (1967). Scientific Output and Recognition: A Study in the Operation of the Reward System in Science. American Sociological Review, 32(3), 377. https://doi.org/10.2307/2091085

CORDIS. (2022, November 28). RTD in relation to the EU's development cooperation policy. European Commission. https://cordis.europa.eu/article/id/8408-rtd-in-relation-to-the-eus-development-cooperation-policy

Djamba, Y. K., & Neuman, W. L. (2002). Social Research Methods: Qualitative and Quantitative Approaches. Teaching Sociology, 30(3), 380. https://doi.org/10.2307/3211488

Edgar, F., & Geare, A. (2013). Factors influencing university research performance. Studies in Higher Education, 38(5), 774–792. https://doi.org/10.1080/03075079.2011.601811

Ejermo, O., Fassio, C., & Källström, J. (2020). Does Mobility across Universities Raise Scientific Productivity? Oxford Bulletin of Economics and Statistics, 82(3), 603–624. https://doi.org/10.1111/obes.12346

Erasmus-Policy-Statement. (2013).

Fadda, N., Marinò, L., Pischedda, G., & Ezza, A. (2021). The effect of performance-oriented funding in higher education: evidence from the staff recruitment budget in Italian higher education. Higher Education. https://doi.org/10.1007/s10734-021-00725-4

Freeling, B., Doubleday, Z. A., & Connell, S. D. (2019). How can we boost the impact of publications? Try better writing. National Academy of Science, 341–343. https://doi.org/10.1073/pnas.1819937116/-/DCSupplemental

Gerged, A., & Elheddad, M. (2020). How can national governance affect education quality in Western Europe? International Journal of Sustainability in Higher Education, 21(3), 413–426. https://doi.org/10.1108/IJSHE-10-2019-0314

Gibson, J., & McKenzie, D. (2014). Scientific mobility and knowledge networks in high emigration countries: Evidence from the Pacific. Research Policy, 43(9), 1486–1495. https://doi.org/10.1016/j.respol.2014.04.005

Glass, J. C., McKillop, D. G., & Hyndman, N. (1995). Efficiency in the provision of university teaching and research: An empirical analysis of UK universities. Journal of Applied Econometrics, 10(1), 61–72. https://doi.org/10.1002/jae.3950100106

Hathaway, R. S. (1995). Assumptions underlying quantitative and qualitative research: Implications for institutional research. Research in Higher Education, 36(5), 535–562. https://doi.org/10.1007/BF02208830

Helali, R. G. M. (2023). An Exploratory Study of Factors Affecting Research Productivity in Higher Educational Institutes Using Regression and Deep Learning Techniques. Artificial Intelligence and Applications. https://doi.org/10.47852/bonviewAIA3202660

Hesli, V. L., & Lee, J. M. (2011). Faculty Research Productivity: Why Do Some of Our Colleagues Publish More than Others? PS: Political Science & Politics, 44(2), 393–408. https://doi.org/10.1017/s1049096511000242

Horta, H., Birolini, S., Cattaneo, M., Shen, W., & Paleari, S. (2021). Research network propagation: The impact of PhD students' temporary international mobility. Quantitative Science Studies, 2(1), 129–154. https://doi.org/10.1162/qss_a_00096

Horta, H., Cattaneo, M., & Meoli, M. (2018). PhD funding as a determinant of PhD and career research performance. Studies in Higher Education, 43(3), 542–570. https://doi.org/10.1080/03075079.2016.1185406

Horta, H., Jung, J., & Santos, J. M. (2018). Effects of mobilities on the research output and its multidisciplinarity of academics in Hong Kong and Macau: An exploratory study. Higher Education Quarterly, 72(3), 250–265. https://doi.org/10.1111/hequ.12161

Horta, H., Jung, J., & Santos, J. M. (2020). Mobility and Research Performance of Academics in City-Based Higher Education Systems. Higher Education Policy, 33(3), 437–458. https://doi.org/10.1057/s41307-019-00173-x

Horta, H., Veloso, F. M., & Grediaga, Ŕ. (2010). Navel gazing: Academic inbreeding and scientific productivity. Management Science, 56(3), 414–429. https://doi.org/10.1287/mnsc.1090.1109

Jacob, B. A., & Lefgren, L. (2011). The impact of research grant funding on scientific productivity. Journal of Public Economics, 95(9–10), 1168–1177. https://doi.org/10.1016/j.jpubeco.2011.05.005

Jamalova, M., & Bálint, C. (2023). What Matters the Most? – Exploratory Analysis of Environmental and Situational Variables Influencing Performance of Students During COVID-19 Pandemic. International Journal of Emerging Technologies in Learning, 18(2), 159–172. https://doi.org/10.3991/ijet.v18i02.36279

Jonkers, K. (2011). Mobility, productivity, gender and career development of Argentinean life scientists. Research Evaluation, 20(5), 411–421. https://doi.org/10.3152/095820211X13176484436177

Khan, J. (2021). European academic brain drain: A meta-synthesis. European Journal of Education, 56(2), 265–278. https://doi.org/10.1111/ejed.12449

Kim, D., Twombly, S., & Wolf-Wendel, L. (2012). International Faculty in American Universities: Experiences of Academic Life, Productivity, and Career Mobility. New Directions for Institutional Research, 2012(155), 27–46. https://doi.org/10.1002/ir.20020

Lambrechts, A. A., Larasatie, P., Boutelier, S., Guta, H. A., Leonowicz-Bukała, I., Martinez-Suarez, A., & Prashad, S. (2021). Why Research Productivity Among Women in Academia Suffered During the Early Stages of COVID-19 Crisis: A Qualitative Analysis.

Laudel, G., & Gläser, J. (2014). Beyond breakthrough research: Epistemic properties of research and their consequences for research funding. Research Policy, 43(7), 1204–1216. https://doi.org/10.1016/j.respol.2014.02.006

Leisyte, L., & Rose, A.-L. (2017). Academic Staff Mobility in the Age of Trump and Brexit? International Higher Education, 89, 3. https://doi.org/10.6017/ihe.2017.89.9758

Lepori, B., Seeber, M., & Bonaccorsi, A. (2015). Competition for talent. Country and organizational-level effects in the internationalization of European higher education institutions. Research Policy, 44(3), 789–802. https://doi.org/10.1016/j.respol.2014.11.004

Lund, T. (2012). Combining Qualitative and Quantitative Approaches: Some Arguments for Mixed Methods Research. Scandinavian Journal of Educational Research, 56(2), 155–165. https://doi.org/10.1080/00313831.2011.568674

Mahroum, S. (2001). Europe and the immigration of highly skilled labour. International Migration, 39(5), 27–43. https://doi.org/10.1111/1468-2435.00170

Maske, K. L., Durden, G. C., & Gaynor, P. E. (2003). Determinants of scholarly productivity among male and female economists. In Economic Inquiry (Vol. 41, Issue 4, pp. 555–564). https://doi.org/10.1093/ei/cbg027

Meyer, J. B. (2001). L'Exode des Cerveaux Supplante par L'Approche "Reseau": Les Leçons de la Diaspora. International Migration, 39(5), 91–110. https://doi.org/10.1111/1468-2435.00173

Miyaki, M., & Okajima, Y. (2018). Do External Funding Sources Affect Research Productivity?: A Departmental-Level Analysis of Seven Former Imperial Japanese Universities.

Nokkala, T., Bataille, P., Siekkinen, T., & Goastellec, G. (2020). Academic Career, Mobility and the National Gender Regimes in Switzerland and Finland. 262–286. https://doi.org/10.1163/9789004422582_012ï

Pasupathy, R., & Siwatu, K. O. (2014). An investigation of research self-efficacy beliefs and research productivity among faculty members at an emerging research university in the USA. Higher Education Research & Development, 33(4), 728–741. https://doi.org/10.1080/07294360.2013.863843

Patrício, M. T., Santos, P., Loureiro, P. M., & Horta, H. (2018). Faculty-exchange programs promoting change: motivations, experiences, and influence of participants in the Carnegie Mellon University-Portugal Faculty Exchange Program. Tertiary Education and Management, 24(1), 1–18. https://doi.org/10.1080/13583883.2017.1305440

Popov, E., Sandler, D., Popova, N., & Kochetkov, D. (2017). Institutions of scientific knowledge generation in regional economic systems. European Conference on Knowledge Management, 2, 808–817. https://www.scopus.com/record/display.uri?eid=2-s2.0-85035200005&origin=resultslist&sort=plf-f&src=s&st1=The+engagement+of+higher+educational+institutions+in+regional+development&sid=a67b4163401baf29127882dc429f9fef&sot=b&sdt=b&sl=88&s=TITLE-ABS-KEY%28The+engagement+of+higher+educational+institutions+in+regional+development%29&relpos=8&citeCnt=0&searchTerm=

Quimbo, M. A. T., & Sulabo, E. C. (2014). Research productivity and its policy implications in higher education institutions. Studies in Higher Education, 39(10), 1955–1971. https://doi.org/10.1080/03075079.2013.818639

Rørstad, K., & Aksnes, D. W. (2015). Publication rate expressed by age, gender and academic position – A large-scale analysis of Norwegian academic staff. Journal of Informetrics, 9(2), 317–333. https://doi.org/10.1016/j.joi.2015.02.003

Sabharwal, M., & Hu, Q. (2013). Participation in university-based research centers : Is it helping or hurting researchers ? Research Policy, 42(6–7), 1301–1311. https://doi.org/10.1016/j.respol.2013.03.005

Shahbazi-Moghadam, M., Salehi, H., Amin Embi, M., Zavvari, A., Shakiba, M., Mohammadjafari, M., Ale Ebrahim, N., & Bakhtiyari, K. (2015). Effective Factors for Increasing Rate of University Publication and Citation. Asian Social Science, 11(16). https://doi.org/10.5539/ass.v11n16p338

Statista. (2020). Number of university teachers in Italy in the academic year 2018/2019, by role.

Tien, F. F., & Blackburn, R. T. (1996). Faculty rank system, research motivation, and faculty research productivity: Measure refinement and theory testing. In Journal of Higher Education (Vol. 67, Issue 1, pp. 2–22). Ohio State University Press. https://doi.org/10.1080/00221546.1996.11780246

Times higher education. (2022, July 27). Everything you need to know about Times Higher Education's global portfolio of university rankings. https://www.timeshighereducation.com/world-university-rankings/about-the-times-higher-education-world-university-rankings

Torres-Reyna, O. (2007). Panel Data Analysis Fixed and Random Effects using Stata. http://www.princeton.edu/~otorres/

Waltman, L., van Eck, N. J., Visser, M., & Wouters, P. (2016). The elephant in the room: The problem of quantifying productivity in evaluative scientometrics. In Journal of Informetrics (Vol. 10, Issue 2, pp. 671–674). Elsevier Ltd. https://doi.org/10.1016/j.joi.2015.12.008

Wang, X. Y., Li, G., Malik, S., & Anwar, A. (2022). Impact of COVID-19 on achieving the goal of sustainable development: E-learning and educational productivity. Economic Research-Ekonomska Istrazivanja , 35(1), 1950–1966. https://doi.org/10.1080/1331677X.2021.1927789

Washburn Taylor, S., Fox Fender, B., & Gladden Burke, K. (2006). Unraveling the Academic Productivity of Economists: The Opportunity Costs of Teaching and Service. In Journal (Vol. 72, Issue 4).

CHAPTER FOUR

4. The policy measures of talent management, high-skilled migration, and research productivity at the HE level. A Qualitative Study and Global Comparisons

Abstract

The policy instruments on the brain drain of talents, mobility, and high-skilled migration at HEIs are discussed globally. The bibliometric method is used to identify the data (articles related to the policies) from the citation platform Web of Science (WoS), which determines the work carried out on the talents and policies at the HEIs. This study aims to investigate the mechanisms and policies through which institutions of higher education can leverage their brand to attract proficient academic personnel. Additionally, it examines policies designed to facilitate mobility initiatives aimed at enhancing research output, thereby cultivating domestic and international research partnerships on a global scale. The research endeavours to advance understanding of the significant role played by higher educational institutions in driving research and innovation by analysing their branding strategies for attractiveness. Its objective is to identify actionable policies conducive to promoting research productivity and fostering collaborative endeavours within the academic domain. The findings of this study are expected to offer valuable insights to stakeholders in the higher education sector, aiding in the formulation of strategies to attract talented academic staff and cultivate research collaborations.

Keywords: brain drain, policies, skill migration, bibliometric, HEIs, research

4.1. Introduction

The precise meaning of "talent management" (TM) is difficult to identify due to the confusion regarding definitions and terms and the many assumptions made by authors. TM encompasses the workforce in the industrial sector, academic staff (responsible for staffing, employment relations, and organizational development) in higher education, and the general workforce responsible for recruitment. Together, they work towards developing processes and policies in academic and organizational activities such as compliance with employment laws and regulations and fostering a positive work environment (Baporikar & Smith, 2019; Lewis & Heckman, 2006; Ruchira et al., 2020). Talent development is a multifaceted process that involves planning for the required human resources and creating opportunities catering to diverse interests and skills. In contrast, tertiary institutions are not specifically designed to attract foreign or diasporic talent. The recruitment of external talent is influenced by contextual factors such as unique political and economic conditions and ethnic sensitivities, which vary from region to region (Lee, 2014). This makes it essential to consider these factors while developing talent recruitment strategies that align with the organizational goals and objectives. (Saurombe et al., 2017) delineated six key themes deemed pivotal in shaping the reputation of higher education institutions (HEIs). These include organizational culture, image, identity, strategic vision, and corporate social responsibility. These themes hold immense significance across all research, management, and teaching fields.

HEIs have a collegiate academic body comprising a university council, an academic board, and executive management (see Fig. 4.1). The board is a technical committee responsible for overseeing the academic functions of the university. First, the academic body is the collegial decision-making entity of the university, operating under the direction of the state or government. Although many institutions are autonomous, the academic body is not directly responsible for institutional policies, orientation, and strategic development, as it lacks a decision-making role in these areas (Fossestøl et al., 2015; Veiga et al., 2015). In contrast to counterparts in non-academic domains, the tertiary sector demonstrates comparatively deficient performance in its implementation of talent management strategies, particularly in the realms of recruitment and retention of personnel for both pedagogical and research endeavors, as well as in the facilitation of employee motivation, professional development, organizational transformation, and the maintenance of workforce sustainability (Ibua, 2013). Second, Executive management shapes the direction, culture, and success of tertiary institutions by

providing visionary leadership, effective stewardship of resources, and fostering a culture of innovation and excellence. The typical function of executive management involves Institutional governance, risk management and compliance, external relations, student affairs, and strategic methods in academic leadership and financial management. Third, university council provides strategic direction, oversights, and accountability to ensure the effective management and governance of the institution. All together contributes to the development, review, and implementation of policies that govern various aspects of academic affairs.

The academic policies are conceived for national development to benefit HEIs in retaining new talents and academic personnel (Forrester, 1992; Giannoccolo, 2005; Jacob & Kearney, 2020; Racké, 2013). Here, we compare the responsible policies that have evolved over the last decades in attracting talent within and outside the nation. In other words, we classify the differences between the HEIs globally and discuss the policies that belong to the teaching and research at various HEIs with highly skilled migrations and research mobilities. Academic personnel at Higher Educational Institutions (HEIs) are involved in organizational and employment opportunities by considering socioeconomic, religious, and cultural factors that refer to a Nation. When it comes to socioeconomic status, few nations (like the US, Germany, etc.) concentrate on higher R&D investments (in all sectors) to develop state-of-the-art equipment and models to generate higher innovative outputs and GDP per capita than other nations, which are the proxies of socioeconomic power (Coccia, 2018). The most critical

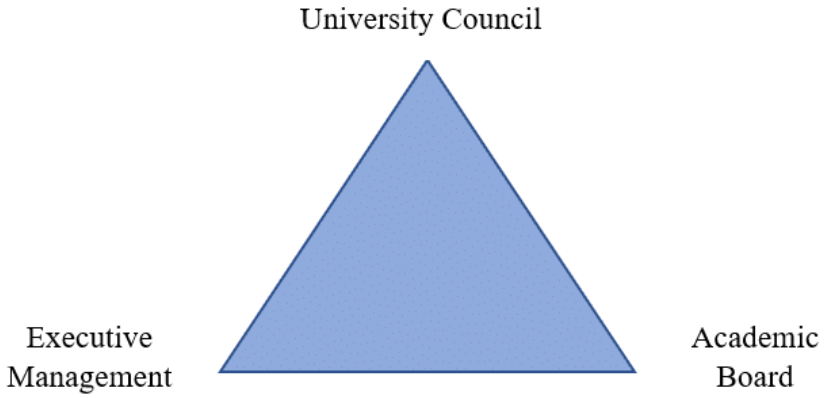

Figure 4.1 Higher educational institution's academic structure

element is human capital from HEIs, which includes academies, administrative, and technical staff (Baporikar, 2017). However, talent management activities undertaken by higher education

institutions are limited to selection, recruitment, employment contracts, and career advancement. Indeed, policies are designed to attract talent globally in academic sectors. The Bologna process, European Charter for researchers and code of conduct for the recruitment of researchers, Framework for qualifications of the European Higher Education, quality assurance and accreditation system, and gender equality policies are few policies to aim for the improvement in working conditions, enhance career development opportunities, promote research excellence to ensure high quality in HE (EHEA, 2005; EIGE, 2016). As a result, there is a possibility of raising immense opportunities for human capital development through quality in higher education. Generally, people (academic-based) look for better opportunities and possibly migrate to these nations (where the quality-of-life matters) in search of the quality of provision, supply-side migration incentives, and constraints such as public funding involved by the state government, followed by restrictive visa policies to work overseas. Engineers and technicians, for example, are reportedly pulled and pushed primarily by institutional and economic factors (economic policies). The need to better understand what talent attraction policies mean and what can be achieved by their implementation requires a classification of policy instruments. Such as, national and regional funding programs provide grants, fellowships, and incentives to support research projects and teaching activities to enrich the academic community. Also, joint research programs enhance the visibility and reputation of participating institutions while fostering interdisciplinary collaborations and knowledge exchange. Depending on the statistical data on the central destination countries for highly skilled emigrants from Italy constitute a reference point for the analysis. Multiple classification schemes have been adopted to identify similarities, differences, and trends. Additionally, many reports and assessments were investigated and cited to enrich the comparison through the lenses of migration paths. The aim is to highlight successful policies capturing the deficiencies, closing the gap between brain drain and brain gain for talent attraction, and identify possible future implications for becoming a destination country.

Section 4.2 discusses academic brain drain and how to retain talents with the appropriate policy classifications. Section 4.3 uses section 4.4 bibliometric methodology. It is followed by section 4.5, conclusions, and recommendations.

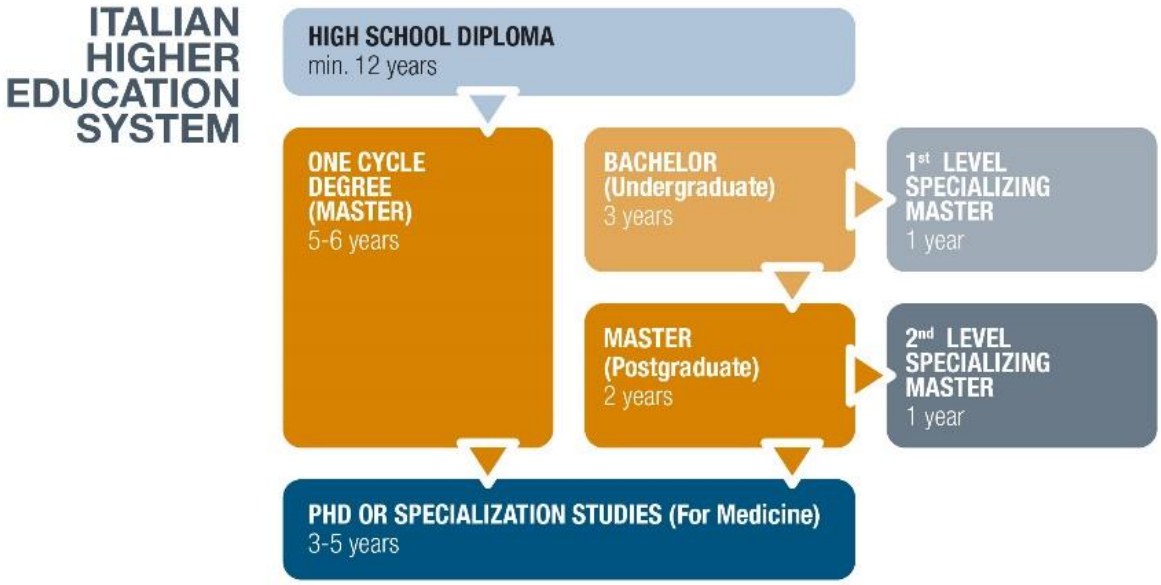

Figure 4.2 Italian academic structure classification

Source: Italianuniversities.com

4.2. Academic Brain Drain and Brain Gain

The phenomenon of "brain drain" or "brain gain" is not new to societies. The emigration and immigration of highly skilled individuals (such as academic staff), respectively. Concerns about brain drain from the developing world first emerged in the 1960s and 1963 (Balmer et al., 2009; Raghuram, 2009). These terms denote the migration of highly skilled individuals from one country to another, typically driven by factors such as improved economic prospects (superior remunerations), enhanced living standards, more conducive environments for career advancement, or better professional opportunities. The phenomenon entails the departure of individuals (also known as high skilled personnel) possessing advanced education or specialized expertise, thereby impacting the human capital landscape of the source country while potentially bolstering the receiving nation's talent pool.

"The brain drain of scientists from Italy is now on the national political agenda. It is a matter of concern that scientists need to leave Italy to advance their careers, but they also face massive reintegration problems when they return," Louise Ackers explains. Her Italian colleague, Sonia Morano-Foadi, attributes this paradox partly to the influence of the so-called 'Barone,' the professors who are allegedly the 'deal-makers' in the university jobs market, often requiring scientists to work for them for up to two years without pay to progress. This may also explain why Italy attracts few international scientists, the researchers claim".

Source: (Giannoccolo, 2005), working paper, University of Bologna.

The involvement of high-skilled academics (researchers and scientists) in other nations is vastly referred to as brain drain or brain gain. It is a critical factor in the knowledge-based economy (Giannoccolo, 2005; Khan, 2021). It is a vast phenomenon and is not only related to the pure academic field but also to professional sectors such as international consultants, scientists, researchers, scholars, etc. like Research and Development (R&D). Here, the academic sector stays the context, and several European nations attract researchers and scientific academies by implementing mutually beneficial policies and sustainable goals. The EU leaders (collaborative efforts with the key actors involving stakeholders, governments, academic institutions, international organizations, NGOs, and civil society) and confident policymakers develop these to keep the innovation levels (irrespective of sectors valued under state of the art) at the forefront. The reports from EU commission specifies that many European graduates, around 400,000 people migrate to Western countries, and only 13 percent intend to return to their native nation. Governments and institutions have tried to reverse the brain drain, attract talent abroad, and retain highly skilled individuals (Ruiu et al., 2019; Skonieczny G & Monteleone S, 2011).

Researchers travel internationally for various reasons, including skill development, access to research infrastructures, scientific knowledge growth, academic network expansion, and symbolic affiliation benefits, influenced by recruitment strategies. In Figure 4.3, the movement of scientists, researchers, and professors makes up an important sector that helps exchange knowledge and contributes to scientific knowledge in Italian HE. We have already preferred the term brain gain instead of brain drain because these migrations do not always have negative implications. A survey in Italy examined the correlation between researcher mobility and skill mobility in international scientific communities. It compared economic and non-economic migration as well as skilled and mass migration, concluding that the private sector is more financially rewarding than the public sector due to better long-term job prospects (Carolina, 2003; Carolina Brandi et al., 2011). (Netz et al., 2020) conducted a study on scientific mobility and provided strong evidence of the positive benefits of physical movement of academies between domestic and international universities. To extend, the research mobility created an intensive impact with its productivity and scientific collaborations (Allison & Scott, 1990; Ejermo et al., 2020; Henry et al., 2020; Hesli & Lee, 2011; Kim et al., 2012). Sometimes, research mobility is complex, and the policymakers make the path without generating uncertainties according to the labor market, providing economic benefits, and allocating state

incentives (Ewers et al., 2022). The raise in migration or scientific productivity creates new gaps in higher education policies due to the likely improvement in academic structure for delivering higher education quality through global competition, change in demands, technological advancements, social and economic factors, research innovations, and internationalizations.

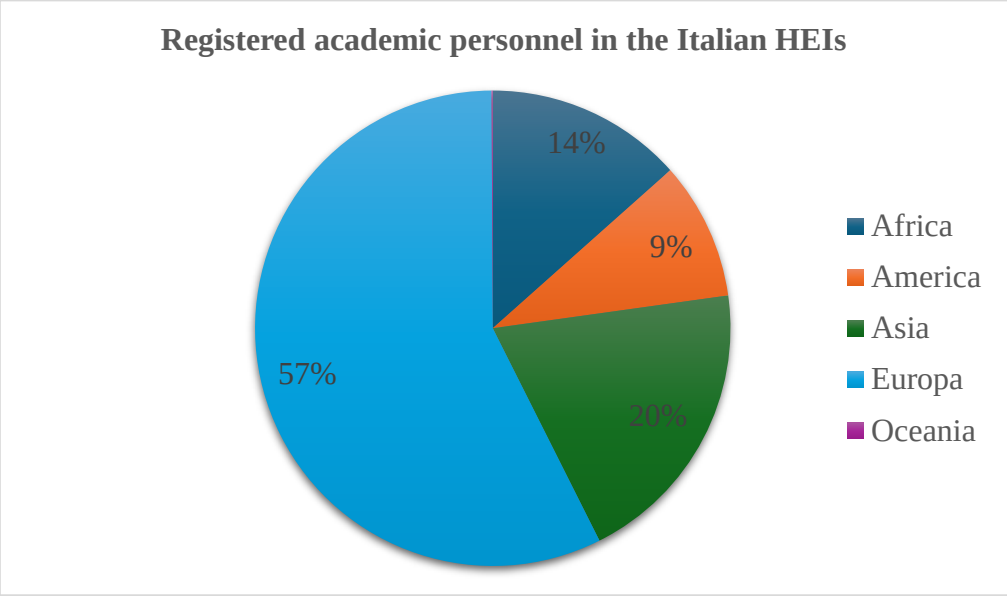

Figure 4.3 Total Foreign enrollments at the HEIs from periods 2010 – 2021

Source: MUR statistics

4.3. Policy classifications

"Policy instruments" is the generic term provided to encompass the myriad techniques at the disposal of governments to implement their public policy objectives. Legislations and regulation, funding mechanisms, quality and accreditation, curriculum development, stake holder engagement, and government and autonomy are some of the policy instruments need to be considered while policy formation. Policies to promote researcher mobility must consider all disciplines and sectors, including professional fields, given the growing diversity of routes through HE and support exchanges with industry. Constraints on researcher mobility will need to be rethought, especially as mobility and collaboration become central to academic careers.

The Ministry of Education, University, and Research (MIUR) is responsible for setting general guidelines, quality education standards, fundamental principles, allocation of financial resources, and ensuring cooperation between educational and cultural institutions. As a quality measure, MIUR provides active input and constructive feedback in upcoming periods and holds

yearly conferences. The following are some detailed policy instruments in Italian higher educational institutions for delivering and formulating refined policies used to attract talent and are seen common in all EU nations.

Italy provides research financing initiatives to attract highly skilled academics. These initiatives offer funding assistance for research projects, postdoctoral fellowships, and professorships. Some examples of funding programs are the Progetto di Ricerca di Rilevante Interesse Nazionale (PRIN), Piano Nazionale di Ripresa e Resilienza (PNRR), Marie Skłodowska-Curie (MSCA) for inter mobility, international mobility, interdisciplinary, and the Rita Levi Montalcini program for young researchers, which are funded by the Italian Ministry of Education, Universities and Research (MIUR). Through open requests for professor vacancies, institutions actively provide talent attraction programs for scholars through the world. In addition, mobility programs promote the exchange of researchers and professors between Italian institutions and foreign universities, thereby encouraging international collaboration and the transmission of knowledge.

Italy has simplified visa and immigration processes for highly proficient professions, including scholars. The "Italian Researcher Visa" grants foreign researchers the right to live and operate in Italy specifically for the purpose of doing scientific research or teaching at Italian universities and research institutions. Universities have used tenure track systems to attract and retain skilled academics. These systems provide organized career pathways with well-defined criteria for promotion and tenure. These structures offer stability and opportunity for professional development to early-career researchers in Italy, thereby incentivizing them to pursue academic careers. HE institutions endeavour to provide competitive remuneration and perks in order to attract proficient academic staff. Salaries for faculty members are subject to variation based on criteria such as rank, discipline, and location. However, we strive to offer appealing remuneration packages that acknowledge the expertise and accomplishments. Acquiring advanced research infrastructure and facilities is crucial for attracting highly talented academic professionals.

Italian universities and research institutions are enhancing their facilities to facilitate research and innovation. They have implemented internationalization initiatives to attract international students and faculty. These include forming alliances with renowned foreign universities, engaging in global research networks, and offering degree programs in English. Universities also offer professional development programs for academic staff, enhancing teaching skills, research, and career advancement. Regional authorities and bodies like the Higher Council of

Education assess the education system, while public research bodies oversee labor market policies and employment services. The National University council plans and approves university regulations, appoints professors and researchers, and evaluates universities and research systems. The National Agency evaluates Higher Education Institutions (HEIs), and the Conference of Rectors Councils MIUR sets university objectives and allocates financial resources.

4.4. Skilled labour market

European higher education institutions are known for their quality education, cutting-edge research facilities, and collaborative networks, making them attractive destinations for both domestic and international students and researchers. Policy schemes have some commonalities and differences among nations, but two main approaches to selective policymaking exist. Apart from that, another approach, supply-driven and demand-driven, leads through the economic path. First, supply-driven selection systems target a broad range of individuals who can potentially contribute to the skillset of human capital in the receiving country with long-term goals and prospects. The most common application of this is the point-based systems, a Canadian innovation in the late 1960s. Language ability, education, age (i.e., youth), job offer, or work experience are the most widespread attributes that individuals are rewarded. Second, a demand-driven model is one where the system aims to channel specific skills considered urgent needs of a country in the direction of employer satisfaction and labour market stimulation. Its roots can be traced back to U.S. immigration policy. These systems allow employers to decide which skills and qualifications are most useful or in demand (Papademetriou, Somerville, & Tanaka, 2008). Employers are required to submit their request for a labour market test. The labour market test is meant to verify that the employer cannot fill the position locally. Characteristics of the labour market test vary and reflect the role in matching workers with jobs played by public employment services. Some countries require employers to list job openings on Public Employment Services or alternative recruitment channels for a determined period. Another prevalent tool is to provide a shortage occupation list to exempt employers from the labour market test for immediate skill shortages (Chaloff & Lemaitre, 2009). Diverse and discretionary policy vehicles aim to shape employer's use of systems. Third, a hybrid selection system attends to current labour market needs while using points to assess and select pools of prospective economic-stream immigrants (Papademetriou & Hooper, 2019). In a certain way, these consider the broad immigrant characteristics that

policymakers are concerned with and specific vacancies that employers need to fill (Papademetriou, Somerville, & Tanaka, 2008). Besides, in constant competition, the need to recognize potential skills and capture valuable interpersonal attributes that descriptive job descriptions can overlook is the primary driver toward hybrid models.

In our view, higher education institutions must be regarded as organizations that attempt to "manage" their environment for survival, growth, and certainty. This implies that it does not suffice to take a policy as given. Attention should also be focused on how the policy design and formation process has taken place. Policy making and policy change can be studied from similar perspectives, as found in the outline above of a theoretical framework for studying organizational change. We can take on an exchange view of policymaking and see policy change as the result of changes in the political coalition and new bargains between policy-making actors when resources are redistributed. Such a perspective sees policy formation as strategic goal-directed behaviour and problem-solving under conditions of conflicting interests. On the other hand, an institutional perspective would see policy change as driven by rules and taken-for-granted assumptions about appropriate behaviour. It would focus on how policy processes affect the values and beliefs about the nature of higher education and knowledge production and its role in society (Bleiklie, 2000). Such a perspective is more engaged in studying how changes in and diffusion of values and ideas affect policy rather than changes in the resources and political clout of policy-making actors. Furthermore, an emphasis is put on policy making as symbolic-expressive behaviour, i.e., policies are not simply guidelines for action but also expressions of faith, values and beliefs, and instruments of (civic) education: "Individuals and groups support the adoption of policies that symbolize important affirmations even where they are relatively unconcerned with the ultimate implementation of the policies."

4.5. Research mobility collaborations

Researcher mobility has increased rapidly in recent decades, facilitated by the globalization of science, the growth of research collaborations, and a global competition for research talent. While this mobility can be traced back to the colonial networks and exchanges facilitated by an empire of scholars, much of this mobility has emerged in years (Marginson, 2018). Academic mobility is often one-way, and prestigious Euro-American universities continue winning the talent race. Institutional mobility and policies can lead to the recruitment of international graduate students and research staff as a form of academic in-sourcing (Leikuma-

Rimicane et al., 2022; Taylor & Cantwell, 2015). (Jonkers & Tijssen, 2008) found there is a direct link between the level of international mobility among Chinese researchers and their publishing output. This is because labor mobility enhances the scientific and technical expertise of researchers by fostering partnerships and reinforcing existing connections. Foreign scholars and persons with extensive international experience often create publications that have a more substantial influence (Franzoni et al., 2014). The link between scientific performance and the department of destination following a mobility event has been the subject of several research. This is because it is considered that larger institutions and/or departments may provide more options in terms of facilities and scientific collaborations. German speaking economist and management non-tenured post- doctoral researchers reveals that in short term mobility decreases scientific outputs across research contexts further it might show effects on human and social capital (Bäker, 2015).

4.5.1. NATO Model and Framework

It is essential to draw a framework to recognize trends over time and detect similarities and differences among countries (Howlett, 1991). For this purpose, policy instruments to attract and retain high-skilled individuals in Italy, UK, Switzerland, and Germany have been considered between 2010 and 2020. The documentation for this work was collected from online legislation archives of countries and publication platforms shortened for better understanding. These are considered partial theories of national policy styles in Italy, Germany, the United Kingdom (UK), and Switzerland. These are elaborated with four determinants. First, modality and identifying needs should be identified before structuring attraction policies to address priority areas and channel suitable skills. A skilled worker bottleneck monitoring system has been designed to predict how supply and demand for labor for sectors, regions, and qualifications will develop in the next ten to twenty years. It comprises regional and organizational networks to address specific market needs in Germany. Similarly, Italy's permanent national information system shares data with job seekers and labor market players on short- and medium-term trends, characterizing competencies and vacancies and aiming to facilitate skills match. The Second Authority, the Regulation of admission procedures, discloses resources that derive from an authority, asserting different levels of selectiveness. Visa schemes and admission criteria of countries were investigated to reveal those resources. By the free movement of workers, policies mainly address processes that apply to non-EU citizens. Third, taxation and fiscal obligations constitute the government's primary treasury

source, often driving individuals' decisions. Italy introduced a so-called brain drain tax regime for highly skilled individuals who reside abroad (either Italian or foreign citizens), offering taxable income deductions in the case of relocation. Lastly, from an organization's perspective, due to the multidimensionality of resources, the support provided by the organizational resources is generally delivered by informational tools such as advisory and teaching activities, and funding of the organizations is inherently financial. However, as mentioned earlier, the classification considers the primary properties of resources. Under this title, policies are designed to achieve desired ends through direct government organizations, human resources, and coordination of stakeholders.

Firstly, when the choice versus resources approach was considered, the choice of government intervention was taken for granted. Initially, the NATO (Nodality, Authority, Tressure, and Organizational) framework (Table 4.1) was adopted to identify and classify those resources. Anderson's coercion-based logic was adopted to distinguish the policy tools used in each country. Subsequently, the decision to migrate depends on multidimensional factors, and attractiveness depends on comprehensive factors; appropriate OECD indicators were considered clusters for a broader range of policy instruments (Braconier et al., 2014). The motivation behind each choice is provided respectively.

	Italy	**Germany**	**UK**	**Switzerland**
Nodality	National information system for occupational needs.	Integration through counseling, training, and education. We have a skilled worker monitoring system. Online information and support portal	Shortage Occupation List. Employer Skills Survey.	Shortage Occupation List. Information portal.
Authority	Removing quotas on highly qualified work permits. Start-up visa.	Abolish labor market tests and quotas. Job search visa.	Point-based visa schemes. Certificate of Sponsorship.	Criteria-based visa schemes. Restrictive admission for non-EU citizens.

			Abolish labor market tests. Post-graduate visa.	quotas and labor market tests.
Treasure	Research funds for Italians abroad. Favorable tax regime for individuals. Tax relief on R&D.	Tax relief on R&D. International research funds.	Tax relief on R&D. Immigration Skills Charge. Research funds. Employer Investment Fund.	Research funds. Loans and student grants. Tax relief on R&D.
Organizational	Reorganization of higher education. National Research Council. National Technology Clusters.	University entrepreneurship collaborations. Federal Employment Agency.	UK Research and Innovation. Office for Students. Office for Talent.	Public-private research partnerships. Swiss Innovation Agency.

Table 4.1 Summarizes the policy instruments within the NATO Hood's model,

(Howlett, 1991)

4.6. Methodology: Bibliometric Analysis

The articles cover a broad range of research topics, and the need for a categorical classification has arisen. Every journal and book covered by the Web of Science core collection is assigned to at least one of the subject categories. (Web of Science Core Collection Help) The Web of Science scheme comprises approximately 250 science, social sciences, and arts and humanities subjects. An attempt to assign General Categories to each article depending on its Web of Science category is provided with a Graph. From the table, we see that with a ratio of %31, most of the articles belong to Economics, followed by Demography (14%) and Management (13%). It can be interpreted as consistent with the expectations since those research areas are substantially linked with highly skilled migration patterns.

To determine the growth rate and size of the knowledge base, the number of articles published is plotted along with their times cited. The following graph (figure 4) shows the incremental trend of publications from 2000 up to 2018, when it experienced a sudden drop, then continued to increase steadily.

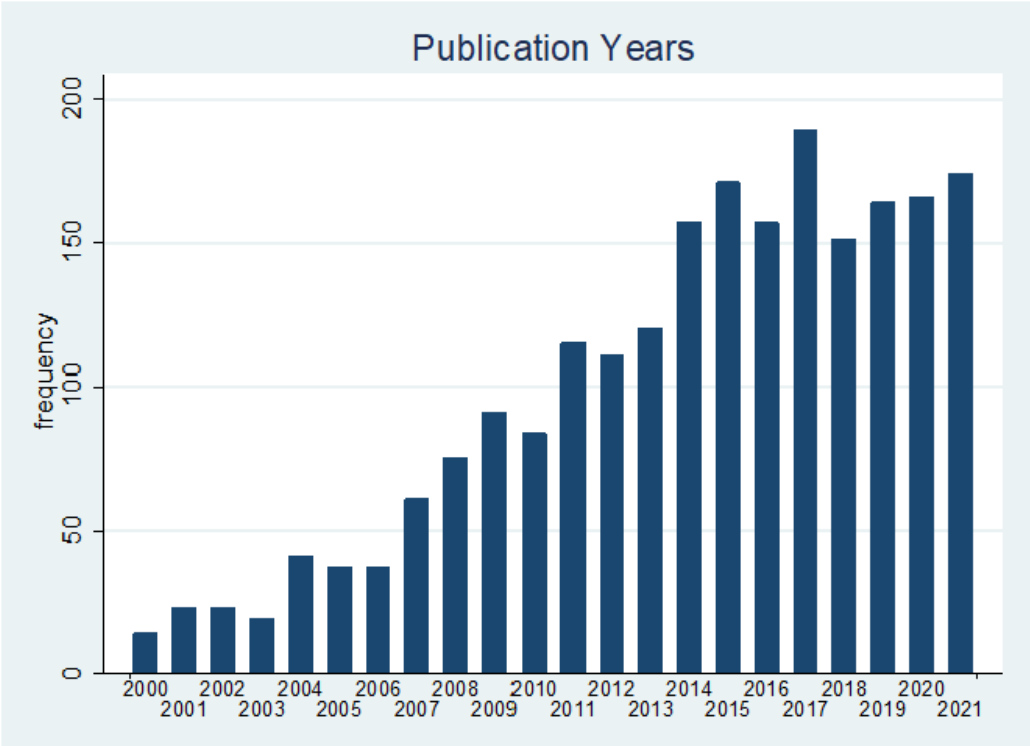

Figure 4.4 Effective publications at Italian HEIs from periods 2000 - 2021

The time series graph (Figure 4.5) with citation times of articles implies the fact that the most influential studies have been conducted between 2000-2010 in the literature. Even though having a shorter period to be cited widely, a significant number of articles became noteworthy after 2010.

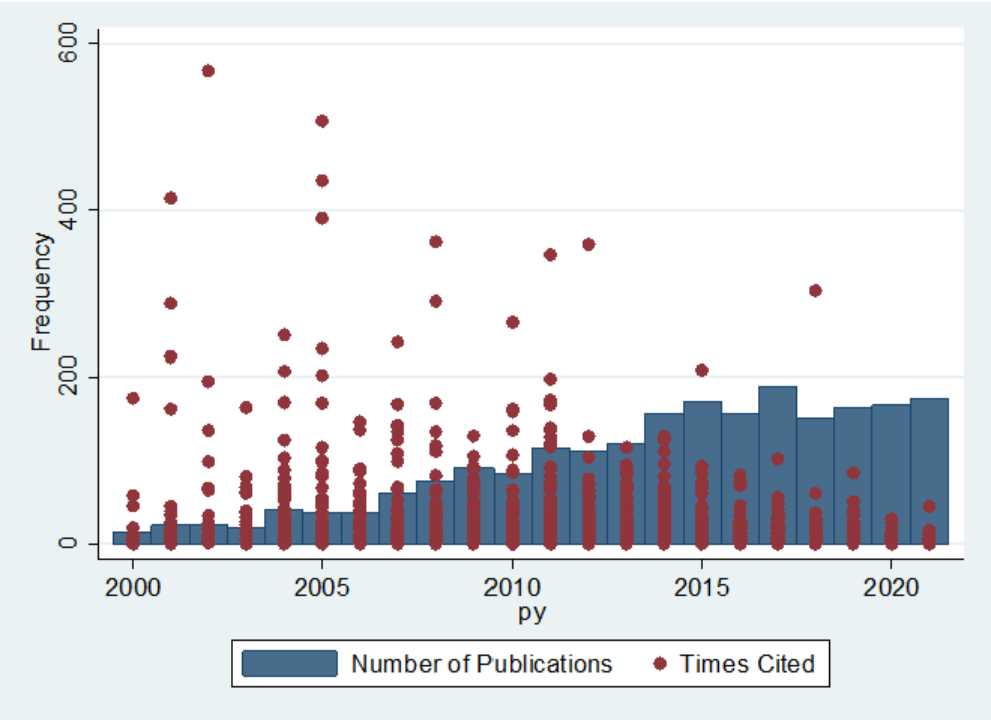

Figure 4.5 Citations produced by authors in all sectors from periods 2000 – 2021

The quality measures the publications produced by scientific researchers and academic staff, depth of analysis, and generating ideas within academies (to gain talent) from outside the borders of a nation interacting at a distance and maintaining links with the region of origin. The scientists who migrate are more likely to collaborate internationally, and some of these collaborations involve scientists in the home country. The following graph (Figure 4.6) shows the total number of researchers enrolled at Italian universities. PhD students are more likely to be mobile than any other students, and in some European countries, almost half of all those pursuing doctoral degrees are international students. These include short and medium-term mobility (physical and virtual) of doctoral students (e.g., through exchange schemes) to facilitate the exchange of ideas, as well as distance and hybrid doctoral training programs (Marginson, 2018).

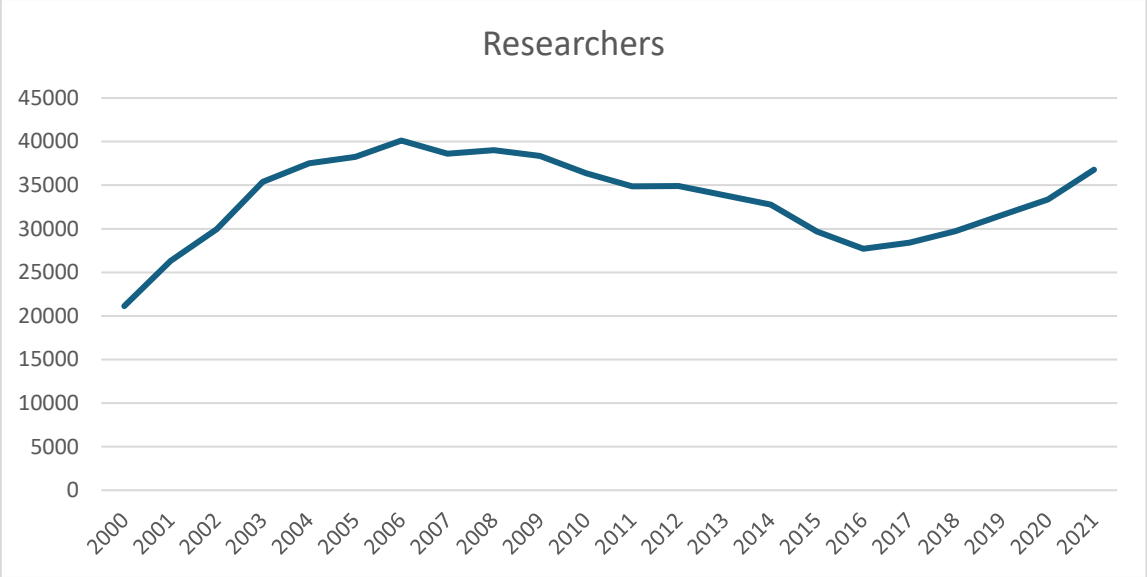

Figure 4.6 Ph.Ds. enrolled in the Italian HEIs from periods 2000 – 2021.

Source: MUR statistics

4.7. Keyword Identification and Analysis

Following that, to identify the keywords that were mainly used, a listing process was applied according to the frequencies of the author keywords. Table 4.2 shows the most common keywords; however, there are limitations to this finding. First, since Stata does not have capital letter sensibility, it recognizes the exact words as different. Therefore, initially, all keywords have capitalized. Second, some keywords can be accepted as synonyms due to the inflections (e.g., skilled migration, highly skilled migration, high-skilled immigration) and can have accepted identical meanings; it required some filtering and grouping of the keywords under specific umbrella terms. After tabulating the most frequent 20 keywords, the Table presents the sorted most frequent keywords.

Keywords	Frequency
Brain Drain	1848
Migration	1764
High Skilled Migration	560
Human Capital	252
Academic/Student Mobility	224
Brain Circulation	182
Higher Education	112

Table 4.2 Frequency of diverse keywords from the citation platform

Third, after determining the most used author keywords, the frequency trend of the most repeated keywords along the period is presented with graphs. The graphs (Figures 4.7 and 4.8) highlight the sharp rise of negative brain drain phenomena over different higher educational sectors, which increasingly have positive connotations such as brain gain and brain circulation.

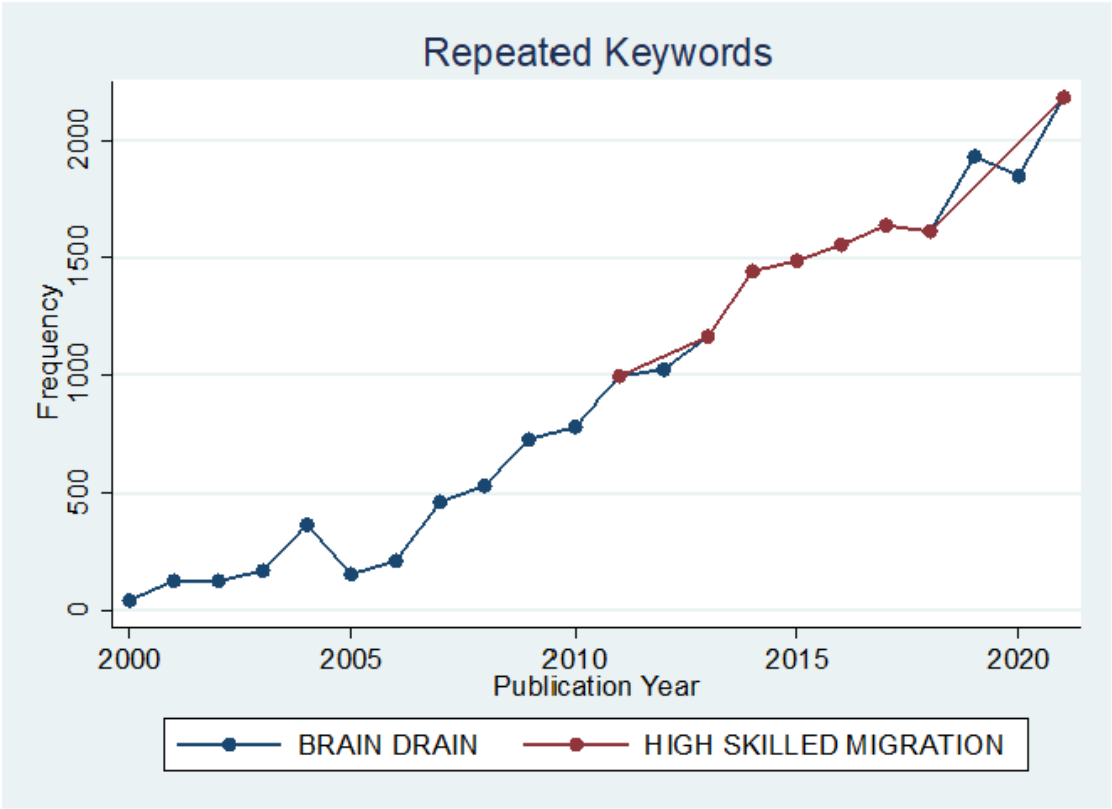

Figure 4.7 High-skilled immigration projected over the brain drain approach.

Brain drain refers to the occurrence in which highly educated persons, such as researchers and academics, depart from their native institutions or nations in search of better employment prospects. The phenomenon of brain drain might further worsen disparities in the availability of educational and research prospects, particularly in underdeveloped areas. Brain circulation in higher education refers to the cross-border mobility of researchers, academics, and students, which facilitates the exchange of knowledge and encourages collaboration. This strategy differs from brain drain, which is a one-way movement of talent. Brain circulation facilitates the exchange of diverse ideas, networking possibilities, and knowledge transmission across

many contexts. It enhances and promotes research, teaching, and innovation in higher education by promoting mobility and collaboration. Although high-skilled migration includes both brain drain and brain circulation, it does not necessarily have a negative effect on the knowledge base in higher education institutions. On the other hand, the migration of highly qualified persons can promote the sharing of knowledge, foster innovation, and contribute to the globalization of higher education by luring brilliant people to institutions that require their specific abilities. Nevertheless, if the relocation of highly talented individuals results in an imbalanced loss of talent without sufficient methods to retain or share information, it can exacerbate the problem of brain drain and provide difficulties for higher education institutions in the locations from where the migration originates. Although high-skilled migration includes both brain drain and brain circulation, it does not necessarily have a detrimental effect on the knowledge base within higher education institutions. On the other hand, the migration of highly trained persons can promote the sharing of knowledge, foster innovation, and contribute to the globalization of higher education by luring brilliant individuals to institutions that require their specific abilities. Nevertheless, if the transfer of highly qualified individuals results in an imbalanced loss of talent without sufficient methods for retaining or sharing information, it can exacerbate the problem of brain drain and provide difficulties for higher education institutions in the locations from which these individuals originate.

The concepts "brain circulation" or "brain mobility" more aptly encompass the significance of academic diasporas, the temporal nature of knowledge transfer throughout an academic career, the opportunities (and challenges) encountered by returning scholars, and the impact of regional knowledge ecologies. An annual concern arises regarding the necessity to expand research across various sectors, in addition to the study that has been conducted for decades. The continuity is extended through the utilization of current data and revised research criteria.

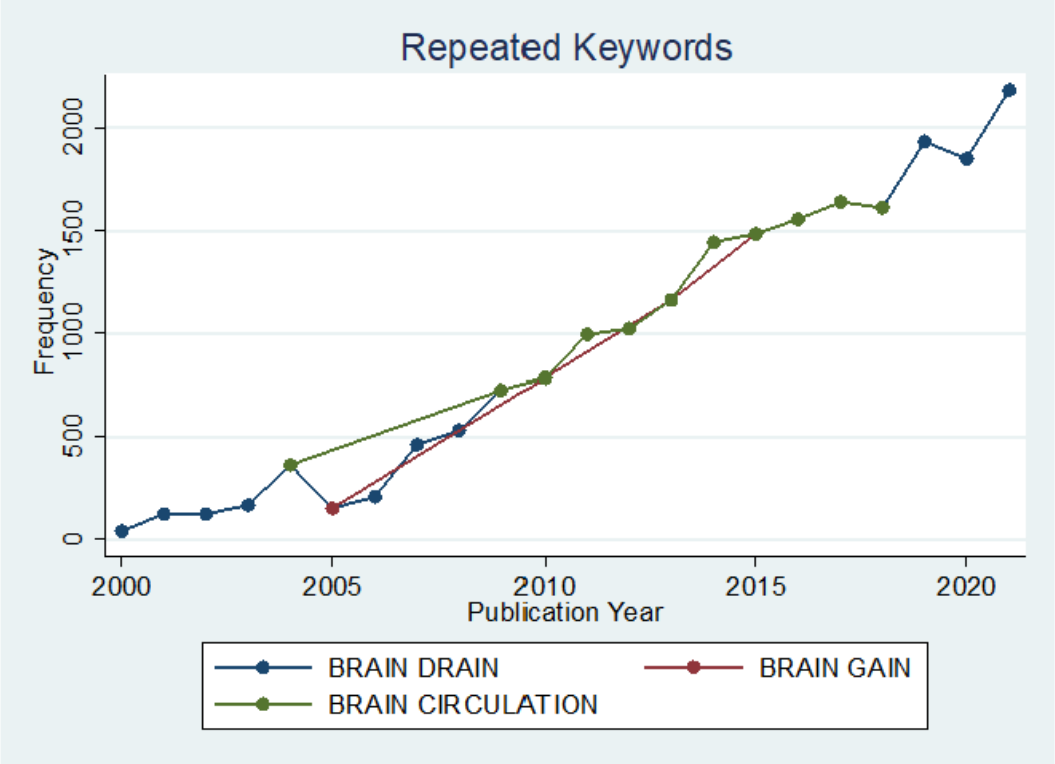

Figure 4.8 Keywords used over the different sectors at HEIs.

4.8. Conclusions

In 2011, 109 countries, out of the 174 countries with available data, had policies to encourage the return home of their citizens, this is a part of brain gain which means attracting scholars to return to their nation by providing benefits (Dassin et al., 2017). The policies employed by governments to encourage return of skilled immigrants can be divided into three: first, incentives to build migrant networks; second, temporary return programs; and third, programs aimed at permanent return (Jonkers, 2008). All three are effectively considered with propriate policy framework, state of the art infrastructure and support, and great research collaborations. Some countries offer talent programs to attract talents to their home countries with incentives such as housing allowances, research grants, comparatives salaries, etc. from Chinese Academy of Science (CAS) and The National Science Foundation of China (NSFC) to attract foreign scientist for their country development by constructing science and technology parks. In Europe, the Bulgarian started the national strategical program in the field of migration from 2005 to 2020 to attract brain gain "Tuk-Tam" of their own national scholars from around the world. Poland started the similar program to gain back its personnel through initiative from Polish Ministry of Foreign Affairs "Close to work, Closer to Poland" and "Become your own boss" for developing entrepreneurial activities for national development. Similarly, some Latin

nations initiated CONACYT and CALDAS scientific talent program for joint research projects and academic exchanges to attract 3000 researchers at a total cost of USD 57 million in year 2000. Similarly in Africa, the program of home coming revolution the brain gain company for Africa was created to get back African skills to their soil. Germany initiated Recruiting Experts Program by centre of immigration and development (CIM) which was financed by Ministry of Economic Cooperation and Development (BMZ) which facilitates for their people in gaining talents in developing and transition economies and assisted around for 10,000 people (Source: CIM report, 2016). From reports, net estimated profits in 2013 are USD 437 billion per year in 2013 by offering diverse talent programs in North America by attracting foreign talents through their national programs. An estimated 97.8 percent of the annual increase in the US economy value (USD 1.6 trillion) is contributed to immigrants in the form of salaries and benefits; therefore, the net benefit to the native-born population is negligible (Borjas, 2013). However, the genuine advantage of return is fully recognized when the economies of origin are sufficiently dynamic to integrate and make use of skills, including prospects for upward mobility in management and leadership progression.

The movement of highly skilled individuals within the academic industry, known as the "brain drain," has resulted in positive outcomes for research and collaboration between higher education institutions. However, it is important to note that these institutions are guided by ethical principles and values that transcend national and university boundaries. It is crucial to make these principles explicit and encourage open discussion. The main aim of higher education is to equip citizens with the knowledge, skills, values, and research needed to contribute to society and promote its development and advancement. Policy recommendations based on an integrative understanding of academic mobility should be improved to regulate and ensure the fairness and sustainability of these movements. Universities must have sustainable and comprehensive internationalization strategies prioritizing quality and equity, effectively leveraging online provision, and supporting sustainability. They should work with governments to eliminate supply-side constraints such as visa restrictions and migration controls. Doctoral training programs should promote innovative and hybrid models of researcher mobility, encouraging virtual training collaborations.

Brain drain is a phenomenon that occurs when highly skilled individuals migrate from one country to another. This migration is a significant concern for many nations, particularly those in the developing world. However, the mobility of researchers and academics can also lead to

a "brain gain" for destination countries. This is because it promotes knowledge exchange and contributes to scientific advancements. Many governments and institutions have implemented various policies to address the brain drain, attract talent from abroad, and retain skilled individuals. These policies include financial incentives, recruitment strategies, and support for international collaborations. Higher education institutions play a crucial role in managing researcher mobility and responding to policy changes. They need to adapt to evolving policies and strive to maintain competitiveness in attracting and retaining talent. Researcher mobility is influenced by several factors, including career advancement opportunities, access to research infrastructure, academic networks, and international affiliation. Policies must consider the diverse motivations and needs of researchers to be successful.

The process of policymaking and change is complex and influenced by political, institutional, and cultural factors. Policies reflect societal values and beliefs about education, knowledge production, and the role of universities in society. While brain drain poses challenges for source countries, it also presents opportunities for collaboration and knowledge exchange on a global scale. Institutions and policymakers must navigate these complexities to harness the benefits of researcher mobility while mitigating its potential drawbacks. Encourage academics, faculty, researchers, higher education management, policymakers, students, and other stakeholders to consider future research to reimagine higher education of the future based on the common good and social justice framework. The HE policy should seek to promote sustainable researcher mobility. Funding for two-way academic mobility exchange programs helps facilitate the exchange of ideas (provided flying is limited where possible). An instrumental assessment of research outputs should not measure the success of international networking and exchanges.

Europeans who have emigrated would be eager to have the chance to repatriate. It is important to acknowledge that the phenomenon known as "Brain Drain" should be a two-way process, meaning that we should also strive to attract talented foreign scientists. The European Commission recommends increasing investment in research to reach 3 percent of GDP. Additionally, they propose implementing strategies to counteract Brain Drain and attract academics from other regions to Europe. Several countries adopt the European Union's suggestions, effectively counteracting the phenomenon of Brain Drain and enticing foreign researchers. Countries like Italy seem to lack awareness of the value and potential advantages of hosting international students, and they have not made any specific efforts to develop this resource. The Italian example is considered a case study due to Italy's reputation for providing

talented individuals to Europe and the Americas, as well as experiencing a substantial outflow and movement of researchers. In the end, the increased ability for talented individuals to move across countries and the tremendous progress in global communication led to a larger population of people who identify themselves as transnational or global citizens. These folks opt to live and work on multiple continents. Examples comprise of persons referred to as "transnational entrepreneurs" who frequently journey between the United States and nations such as India, Taiwan, Mexico, and South Africa. In addition, there are Chinese scientists who were born in China and have set up their own laboratory in the United Kingdom. To tackle the problem of “brain drain” in smaller, low-income nations, it is essential for institutions in the host country and international organizations to aggressively promote cross-border collaboration and incentivize voluntary repatriation.

References

Allison, P. D., & Scott, J. (1990). Departmental Effects on Scientific Productivity. In American Sociological Review (Vol. 55, Issue 4).

Bäker, A. (2015). Non-tenured post-doctoral researchers' job mobility and research output: An analysis of the role of research discipline, department size, and coauthors. Research Policy, 44(3), 634–650. https://doi.org/10.1016/j.respol.2014.12.012

Balmer, B., Godwin, M., & Gregory, J. (2009). The Royal Society and the 'brain drain': natural scientists meet social science. Notes and Records: The Royal Society Journal of the History of Science, 63(4), 339–353. https://doi.org/10.1098/rsnr.2008.0053

Baporikar, N. (2017). Sustainable Framework to Attract, Develop, and Retain Global Talent (pp. 50–74). https://doi.org/10.4018/978-1-5225-2557-8.ch003

Baporikar, N., & Smith, A. (2019). Talent Management in Higher Education Institution. International Journal of Applied Management Sciences and Engineering, 6(2), 36–57. https://doi.org/10.4018/IJAMSE.2019070103

Bleiklie, I. (2000). Policy regimes and policy change: Comparing higher education reform policy in three European countries. Comparative Social Research, 19, 101–138. https://doi.org/10.1016/s0195-6310(00)80022-8

Borjas, G. (2013). Immigration and the American Worker: A Review of the Academic Literature.

Braconier, H., Nicoletti, G., & Westmore, B. (2014). Policy challenges for the next 50 years: OECD economic policy paper. 9, 1–67. https://doi.org/10.1787/5jz18gs5fckf-en

Carolina, B. M. (2003). Skilled migration: a theoretical framework and the case of foreign researchers in Italy. http://ehlt.flinders.edu.au/deptlang/fulgor/

Carolina Brandi, by M., Avveduto, S., & Cerbara, L. (2011). The reasons of scientists mobility: results from the comparison of outgoing and ingoing fluxes of researchers in Italy.

Coccia, M. (2018). Socioeconomic driving forces of scientific research. http://orcid.org/0000-0003-1957-6731

Dassin, J. R., Marsh, R. R., & Mawer, M. (2017). International scholarships in higher education: Pathways to social change. In International Scholarships in Higher Education:

Pathways to Social Change. Springer International Publishing. https://doi.org/10.1007/978-3-319-62734-2

EHEA. (2005). A framework for qualifications of the European higher education area. Ministry of Science, Technology and Innovation.

EIGE. (2016). Promoting gender equality in academia and research institutions. https://doi.org/10.2839/260518

Ejermo, O., Fassio, C., & Källström, J. (2020). Does Mobility across Universities Raise Scientific Productivity? Oxford Bulletin of Economics and Statistics, 82(3), 603–624. https://doi.org/10.1111/obes.12346

Ewers, M. C., Khattab, N., Babar, Z., & Madeeha, M. (2022). Skilled migration to emerging economies: the global competition for talent beyond the West. Globalizations, 19(2), 268–284. https://doi.org/10.1080/14747731.2021.1882816

Forrester, J. W. (1992). Policies, decisions and information sources for modeling. European Journal of Operational Research, 59(1), 42–63. https://doi.org/10.1016/0377-2217(92)90006-U

Fossestøl, K., Breit, E., Andreassen, T. A., & Klemsdal, L. (2015). Managing institutional complexity in public sector reform: Hybridization in front-line service organizations. Public Administration, 93(2), 290–306. https://doi.org/10.1111/padm.12144

Franzoni, C., Scellato, G., & Stephan, P. (2014). The mover's advantage: The superior performance of migrant scientists. Economics Letters, 122(1), 89–93. https://doi.org/10.1016/j.econlet.2013.10.040

Giannoccolo, P. (2005). Brain Drain Competition Policies in Europe. https://doi.org/10.6092/unibo/amsacta/4756

Henry, C., Md Ghani, N. A., Hamid, U. M. A., & Bakar, A. N. (2020). Factors contributing towards research productivity in higher education. International Journal of Evaluation and Research in Education, 9(1), 203–211. https://doi.org/10.11591/ijere.v9i1.20420

Hesli, V. L., & Lee, J. M. (2011). Faculty Research Productivity: Why Do Some of Our Colleagues Publish More than Others? PS: Political Science & Politics, 44(2), 393–408. https://doi.org/10.1017/s1049096511000242

Howlett, M. (1991). Policy Instruments, Policy Styles, and Policy Implementation. National Approaches to Theories of Instrument Choice. Policy Studies Journal, 19(2), 1–21. https://doi.org/10.1111/j.1541-0072.1991.tb01878.x

Ibua, M. P. (2013). THE INFLUENCE OF INSTITUTIONAL FACTORS AND JOB RELATED ATTITUDES ON THE RELATIONSHIP BETWEEN EMPLOYEE EMPOWERMENT AND PERFORMANCE OF PUBLIC UNIVERSITIES IN KENYA.

Jacob, M., & Kearney, M.-L. (2020). Higher Education and Research Policies. In Building Higher Education Cooperation with the EU (pp. 15–34). BRILL. https://doi.org/10.1163/9789004445420_002

Jonkers, K. (2008). A Comparative Study of Return Migration Policies Targeting the Highly Skilled in Four Major Sending Countries. https://www.researchgate.net/publication/267954634

Jonkers, K., & Tijssen, R. (2008). Chinese researchers returning home: Impacts of international mobility on research collaboration and scientific productivity. Scientometrics, 77(2), 309–333. https://doi.org/10.1007/s11192-007-1971-x

Khan, J. (2021). European academic brain drain: A meta-synthesis. European Journal of Education, 56(2), 265–278. https://doi.org/10.1111/ejed.12449

Kim, D., Twombly, S., & Wolf-Wendel, L. (2012). International Faculty in American Universities: Experiences of Academic Life, Productivity, and Career Mobility. New Directions for Institutional Research, 2012(155), 27–46. https://doi.org/10.1002/ir.20020

Lee, J. T. (2014). Education hubs and talent development: policymaking and implementation challenges. Higher Education, 68(6), 807–823. https://doi.org/10.1007/s10734-014-9745-x

Leikuma-Rimicane, L., Baloran, E. T., Ceballos, R. F., & Medina, M. N. D. (2022). The Role of Higher Education in Shaping Global Talent Competitiveness and Talent Growth. International Journal of Information and Education Technology, 12(11), 1211–1220. https://doi.org/10.18178/ijiet.2022.12.11.1741

Lewis, R. E., & Heckman, R. J. (2006). Talent management : A critical review. Human Resource Management Review, 16(2), 139–154. https://doi.org/10.1016/j.hrmr.2006.03.001

Marginson, S. (2018). Centre for Global Higher Education working paper series The new geo-politics of higher education. www.researchcghe.org

Netz, N., Hampel, S., & Aman, V. (2020). What effects does international mobility have on scientists' careers? A systematic review. Research Evaluation, 29(3), 327–351. https://doi.org/10.1093/reseval/rvaa007

Racké, C. (2013). Staff mobility in higher education – National policies and programmes.

Raghuram, P. (2009). Caring about 'brain drain' migration in a postcolonial world. Geoforum, 40(1), 25–33. https://doi.org/10.1016/j.geoforum.2008.03.005

Ruchira, S., Perera, D., & Sajeevanie, T. L. (2020). Talent , Talent Management & its Practices : A Critical Review. 13th International Research Conference, October, 302–318.

Ruiu, B., Ruiu, G., Fadda, N., Ezza, A., & Esposito, M. (2019). Exploring mobility of Italian Ph.Ds over the last decades. Electronic Journal of Applied Statistical Analysis EJASA, Electron. J. App. Stat. Anal. Electronic Journal of Applied Statistical Analysis, 12, 748–773. https://doi.org/10.1285/i20705948v12n4p748

Saurombe, M., Barkhuizen, E. N., & Schutte, N. E. (2017). Management perceptions of a higher educational brand for the attraction of talented academic staff. SA Journal of Human Resource Management, 15(0). https://doi.org/10.4102/sajhrm.v15i0.831

Skonieczny G, & Monteleone S. (2011). Geographical analysis of the academic brain drain in Italy.

Taylor, B. J., & Cantwell, B. (2015). Global Competition, US Research Universities, and International Doctoral Education: Growth and Consolidation of an Organizational Field. Research in Higher Education, 56(5), 411–441. https://doi.org/10.1007/s11162-014-9355-6

Veiga, A., Magalhães, A., & Amaral, A. (2015). From Collegial Governance to Boardism: Reconfiguring Governance in Higher Education. In The Palgrave International Handbook of Higher Education Policy and Governance (pp. 398–416). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-137-45617-5_22

CHAPTER FIVE

5. Conclusions

5.1. The choice of academic career

Academic career development pertains to the endeavors and encounters those scholars and employers partake in during their tenures as researchers, instructors, and administrators within academic and higher education environments. All of those activities and experiences influence the professional advancement and maturation of the scholar. This procedure encompasses individuals who have received scholarly training, including professors, lecturers, doctoral students, postdoctoral researchers, and sessional, untenured, and tenured academics, in addition to part-time and full-time scholars (Baruch, 2013). The focus is on individuals who engage in research, teaching, and administrative roles throughout their careers. However, individuals in administrative roles are excluded from the aforementioned chapters. Some may engage in all three roles simultaneously, while others may engage in only one or two of these roles over certain periods or for most of their careers. For instance, a professor may conduct research, teach students, and hold administrative roles such as committee chair throughout his or her career. However, a professor who is also the head of a department/faculty/university may have reduced expectations to conduct research and/or teach courses (Baruch & Hall, 2004; Roach & Sauermann, 2010). It is essential to note that working in academia is a unique career path for individuals across different fields of study. The individual abilities and motivations, working conditions, organizational interventions, policy approaches, and career development practices in academic contexts differ substantially from those in other contexts. Therefore, academic career development research and practice focuses on the unique challenges and opportunities.

From the research identification in the Chapter 1, we have a research question,

"How is academic attractiveness and research productivity achieved through "Mobility" and do they rely on institutional, regional, and socio-economic factors of a nation? Do the policies facilitate the attraction of talented individuals in academia?"

The geographical analysis made some significant contributions by providing local forms of spatial analysis in different fields. Typically, we apply models of spatial processes and methods of spatial analysis on a global scale, generating a single set of results from the analysis. We assume that these results, which represent a single set of relationships, apply uniformly

throughout the study region. Among these is the analysis of potential major factors influencing mobility, regardless of whether students or staff are involved. In general, migration to a different country provides flexibility in earning or learning diverse factors such as local culture and traditions. However, the educational system, particularly for all types of academics, takes precedence. Here, I discuss the term "spatial dimension" in the context of university attractiveness for academic scholars (teaching or research), with a primary focus on long-term mobility. Apart from that, adding other institutional and socio-economic factors might affect a mobility person satisfaction level. To transform an educational institution, it is crucial to introduce substantial modifications that will generate academic, economic, and social benefits. High standards of infrastructure, abundant resources, extensive collaborations, geographical advantage, and similar factors define the attractiveness of the host institution. According to tables 2.3 and 2.4, the size of an institution matters. Large universities have a larger number of academic staff than small universities, indicating that more opportunities within the field or sector may lead to more migration patterns. Table 2.5 analysis reveals that the spatial dimension plays a crucial role in mobilization, exhibiting a significant negative correlation, and is subject to the influence of other institutional indicators. The other key parameter that influences the satisfaction level is the cost of local housing. Policies, interest rates, and the economy previously determined the housing price (Yang, 2022). However, an increase in demand, regardless of the size of the house, leads to higher housing costs in certain cities due to the implementation of government fiscal measures, particularly in cities with rich cultural traditions and vibrant social life, and fewer transportation transfers. The size of the staff is another factor that influences mobility. Regardless of their research interests, it can be overwhelming to have an academic person join a specific research team. Slowly, environmental factors such as collaborations with co-authors or colleagues may influence their psychological, mental, or behavioural intentions, as alignment is crucial for improving research.

5.2. Determinants of academic and research productivity

Since the early 1970s, productivity studies in higher education have become increasingly important. These studies have focused on examining various factors that impact the productivity of universities, academic programs, and faculty. Specifically, many studies have attempted to identify institutional factors that contribute to research productivity. While some researchers believe that measuring research performance is relatively easy due to the availability of measures such as published books, journal articles, or citation counts, there are

still significant measurement challenges that have limited the scope of such studies. Measuring both research inputs and outputs presents a significant challenge. Additionally, the unit of analysis for research productivity varies depending on the availability of data at institutional levels. Most early productivity studies of academic staff research performance focused on individual factors rather than at the departmental or university level.

The above chapters classify the factors that support individual academic mobility and research productivity for academic staff based on spatial distance, age cohort, gender classification, designation, institutional ranking, human development index, and size (Artés et al., 2017; Cohen et al., 2020; Leisyte & Rose, 2017; Marginson, 2017; MERISOTIS, 2002; Rørstad & Aksnes, 2015; Sagaria, 1988; Times higher education, 2022). (Maske et al., 2003) showed the article production show variation with gender classification and it depends on the teaching load, teaching and research orientation. Moreover, the productivity also differs with the co-authors involved during the article production (From Scopus reports). (Dickson, 1983) the research in the Canadian higher education showed, the higher the academic rank of a personnel higher is the research productivity. The human resources, financial aids, quality of the institution, internationalization and university collaborations were some determinants that are observed during the analysis and research conducted. The differentiation also exists between private and public HEIs, as the private universities have more incentives, mainly with contracts (Henry et al., 2020).

5.3. Further observations

Europe has systems with extremely diverse regulations for inbreeding talents, very different compositions in terms of mobile and non-mobile, and very distinct roles for mobility in career growth (Macháček et al., 2022). During the pandemic period, the regulations made it more challenging to mobilize between countries for both students and researchers, resulting in most higher education institutions transitioning to digital learning methods. Together have the significant consequences for establishing sustainable goal developments and favored policies by policy makers and the European Research Area (ERA). Despite advances, the European Commission (EC) admits that academic recruiting remains challenging. In this regard, our findings form the following chapters might help to influence the execution of the EC stated goal of deepening the ERA toward tighter integration of national policies as a prerequisite for attracting and retaining talent (EUL, 2020). Instead, encouraging mobility without considering and harmonizing key aspects governing academic careers in various systems may jeopardize

the career prospects of mobilized researchers, resulting in a significant loss of scientific talent, which is considered a brain gain for the host countries. From the numerous findings, with the brain drain there are positive spillovers with the host institutions and highlight the effects of mobility (Abramo et al., 2019; Carolina Brandi et al., 2011; Ehrenfried et al., 2022; Fahey & Kenway, 2010; Kim, 2017; Scott, 2015). Moving to a different institution can allow researchers to shift their research focus or discover new fields of research, possibly leading to teaching opportunities. It may also give them access to fresh resources or skills that are more aligned with their evolving research interests, enabling them to pursue more relevant and meaningful projects. Eventually, they may gain access to superior research facilities, funding opportunities, specialized equipment, or collaboration networks, all of which can enhance their research capabilities. In addition, collaborative networks can help researchers expand their professional connections and work with different experts in their field, resulting in new collaborations and publications that offer diverse perspectives.

Chapters 2 and 3 analyze how institutional and socio-regional factors influence decision-making related to mobility and research productivity. These elements are considered in terms of their impact on mobility and as regional factors. Chapter four focuses on the talent policies within tertiary educational institutions. The existing policies have more significance towards determining new policies which can achieve a more talents or skill migrants discoverable. To achieve favorable outcomes, it is crucial that educational policies are tailored keeping in mind various factors. For instance, a prime example of well-designed policies can be observed in China, where they have implemented measures to bring back their highly skilled expatriate professionals by offering better incentives than their host countries. While designing these policies, it is essential to consider the rules and regulations governing access to higher education institutions, the relationship between universities and non-university sectors, the importance of equal financial resources among universities, and the professional development of higher education management (WEBER, 1994). By taking these factors into account, educational policies can be designed to promote growth and development for both individuals and the country. Further, debates on higher education policies are divisive and focus more on individual benefits than societal gains. Private sector involvement has grown, but government spending does not align with local and national needs. Political dynamics need more study, as do cost-sharing implications. Employers require diverse skills, yet vocational education programs are preferred. It is believed that national political situations play a role in forming policies for tertiary institutions irrespective of the sectors (Bianchi et al., 2021; Dar, 2012).

In the context of educational statistics and observations on academic staff, only academics at universities are occasionally addressed, followed by those in Higher Education (HE). Furthermore, it is frequently unclear whether the following categories of staff are included or excluded in statistical overviews: academics employed part-time, having a second job, working on a fee basis rather than as employees, or are active regularly but without remuneration; in some countries, many doctoral candidates are included in staff statistics and the researchers followed by the term of serving before getting a permanent contract at the same or different university. There is a situation seen from the analysis that, even if scientific research would mobilize between universities or the departments, there is a significant result (more negatively) affecting the spatial distance or the conditions they find within the universities and region. Here, the researcher's age does matter, and we have many young researchers, though. Elite scientists whose designation is higher than other scientific researchers tend to stay at their native university location, which might encourage the traffic conditions of the university, but they are involved in the scientific community less from our results in Table 3.3 and Table 3.4.

In terms of research productivity (Abramo et al., 2022), Italian academic staff perform well compared to Norway, while it is diverse for Germany and Switzerland. Germany is a leader in academic structures and collaboration methods, with the Excellence Initiative being a key contributor to top-level research at German universities. This initiative provides funding for graduate schools, clusters of excellence, and institutional strategies that enhance research quality. German universities receive research funding from various sources, including the German Research Foundation (DFG), the Federal Ministry of Education and Research (BMBF), the European Union, and industry partners. While Italy has national research agencies like CNR and MIUR that provide funding, support, and promote scientific excellence (Fadda et al., 2021). These institutions engage in international research collaborations, promote open access to research findings, and adhere to principles of research integrity. Policies and funding initiatives support interdisciplinary collaboration, research networks, and career development for early-career researchers. As seniority level increases in academic personnel, there is a significant shift in research production, which helps to groom and develop new talent in academia. Gender classification has no relationship with research productivity, which is seen as a gauge of rising talent in academics (Abramo et al., 2009). The research conducted each year impacts the advancement of research, and the engagement of international colleges is an example of this global overflow.

The emigration of highly skilled individuals from foreign countries frequently leads to a dynamic exchange of expertise, which can emerge as either a detriment or a benefit for the country concerned (Bosetti et al., 2015; Collings, 2014). Studies show that foreign researchers, especially those at the doctoral level, participate in an annual competition to establish their academic and professional presence in their host countries. Significant increases in research productivity associated with these individuals fuel this competitiveness. In comparison to previous years, the statistical data indicates a 1.5 percent increase in the percentage of foreign nationals. Furthermore, competitiveness persists even among individuals involved in virtual multinational cooperation. Although native residents are responsible for the majority of research output, skilled migrants also make a considerable contribution, albeit to a lower degree. Previous studies have shown that skilled migrants actively seek recognition and work hard to make a significant impact in their new country.

The results show that temporary movement within esteemed organizations improves networking prospects, including the ability to establish additional collaborations. Nevertheless, this level of mobility does not necessarily correspond to a higher probability of publishing in prestigious publications with significant influence. The notion of brain circulation is becoming more widely accepted. This concept advocates for the retention of academics at their current institutions, while simultaneously promoting the introduction of new academic policies worldwide to provide opportunities for their fellow citizens. As a result, there is an expected increase in future research in different industries that will examine the phenomena of brain gain and brain drain, specifically with skilled migrants worldwide. The Hood model proposes employment, authority, and tax strategies to address these factors, with the goal of retaining skilled individuals and boosting research productivity in their respective countries.

Finally, this study clarifies the present conditions of skilled migrants and their effective research production in collaborations between host institutions when mobility is considered. The study in chapter 2, the research productivity is constrained to the specific department in the Engineering sector and it is further extended to have a better knowledge in comparisons with other couple of departments. Mobility is an asset for each academic personnel to gain academic experience in host country. To support this activity, government along with policy makers, design few educational policies to attract more talents or skilled persons. These policies provide positive outcomes and on other side might show failures in the implementation phases by providing logical reasons behind, which will be unusual. This might be due to the

overly optimistic expectations (complex challenges in management, incentive behavior, and decision making over short term recognition), implementation in dispersed governance (multi-level players and source of knowledge), inadequate collaborative policy making (conflicts over policy legitimacy and organizational mission), and the vagaries of the political cycle (through raising salience by key players like ministers followed by building blocks with institutional key players and reducing risks diminishing factors). And how these policies contributed to their decision-making process and made to maintain global collaborations with the university or the country of their origin. To detect such relationships, the study evaluates the most visible output of scientific partnerships (co-authorship), portraying as collaborators the scientists who actively contributed to publishing an article. Nevertheless, the topics, literature, and data discussed in these chapters present a chance to extract some preliminary recommendations for policy practitioners on the most effective way to tackle the work with the attraction measures in Higher Education.

6. References

Abell, D., & Becker, K. (2021). Enhancing university employer attractiveness for the next generation of academics. Journal of Higher Education Policy and Management, 43(5), 457–473. https://doi.org/10.1080/1360080X.2020.1847241

Abeuova, D., & Muratbekova-Touron, M. (2019). Global talent management: Shaping the careers of internationally educated talents in developing markets. Thunderbird International Business Review, 61(6), 843–856. https://doi.org/10.1002/tie.22085

Abouchedid, K., & Abdelnour, G. (2015). Faculty research productivity in six Arab countries. International Review of Education, 61(5), 673–690. https://doi.org/10.1007/s11159-015-9518-5

Abramo, G., Aksnes, D. W., & D'Angelo, C. A. (2020). Comparison of research performance of Italian and Norwegian professors and universities. Journal of Informetrics, 14(2). https://doi.org/10.1016/j.joi.2020.101023

Abramo, G., Andrea D'angelo, C., & Di Costa, F. (2022a). The effect of academic mobility on research performance: The case of Italy. Qualitative Science Studies. https://doi.org/10.1162/qss_a

Abramo, G., Andrea D'angelo, C., & Di Costa, F. (2022b). The effect of academic mobility on research performance: The case of Italy. https://doi.org/10.1162/qss_a

Abramo, G., Cicero, T., & D'Angelo, C. A. (2012). The dispersion of research performance within and between universities as a potential indicator of the competitive intensity in higher education systems. Journal of Informetrics, 6(2), 155–168. https://doi.org/10.1016/j.joi.2011.11.007

Abramo, G., Cicero, T., & D'Angelo, C. A. (2013). The impact of unproductive and top researchers on overall university research performance. Journal of Informetrics, 7(1), 166–175. https://doi.org/10.1016/j.joi.2012.10.006

Abramo, G., D'Angelo, C. A., & Caprasecca, A. (2009). Gender differences in research productivity: A bibliometric analysis of the Italian academic system. Scientometrics, 79(3), 517–539. https://doi.org/10.1007/s11192-007-2046-8

Abramo, G., D'Angelo, C. A., & Di Costa, F. (2019). A nation's foreign and domestic professors: which have better research performance? (the Italian case). Higher Education, 77(5), 917–930. https://doi.org/10.1007/s10734-018-0310-x

Abramo, G., D'Angelo, C. A., Di Costa, F., & Solazzi, M. (2009). University-industry collaboration in Italy: A bibliometric examination. Technovation, 29(6–7), 498–507. https://doi.org/10.1016/j.technovation.2008.11.003

Ackers, L. (2005). Moving people and knowledge: Scientific mobility in the European Union. International Migration, 43(5), 99–131. https://doi.org/10.1111/j.1468-2435.2005.00343.x

Agasisti, T. (2011). Performances and spending efficiency in higher education: a European comparison through non-parametric approaches. Education Economics, 19(2), 199–224. https://doi.org/10.1080/09645290903094174

Agasisti, T., Dal Bianco, A., Landoni, P., Sala, A., & Salerno, M. (2011). Evaluating the Efficiency of Research in Academic Departments: An Empirical Analysis in an Italian Region. Higher Education Quarterly, 65(3), 267–289. https://doi.org/10.1111/j.1468-2273.2011.00489.x

Agasisti, T., & Pérez-Esparrells, C. (2010). Comparing efficiency in a cross-country perspective: The case of Italian and Spanish state universities. Higher Education, 59(1), 85–103. https://doi.org/10.1007/s10734-009-9235-8

Agasisti, T., & Ricca, L. (2016). Comparing the Efficiency of Italian Public and Private Universities (2007–2011): An Empirical Analysis. Italian Economic Journal, 2(1), 57–89. https://doi.org/10.1007/s40797-015-0022-7

Ali, S., Carden, G., Culling, B., Hunter, R., Oswald, A. J., Owen, N., Ralsmark, H., & Snodgrass No, N. (n.d.). Elite Scientists and the Global Brain Drain.

Allison, P. D., & Scott, J. (1990). Departmental Effects on Scientific Productivity. In American Sociological Review (Vol. 55, Issue 4).

Allison, P. D., & Stewart, J. A. (1974). Productivity Differences Among Scientists: Evidence for Accumulative Advantage. In Source: American Sociological Review (Vol. 39, Issue 4).

Altbach, P. G. (1995). Problems and possibilities: The US academic profession. Studies in Higher Education, 20(1), 27–44. https://doi.org/10.1080/03075079512331381780

Altbach, P. G., & Salmi, J. (2011). The Road to Academic Excellence.

Andrea D'angelo, C., & Abramo, G. (2015). Publication Rates in 192 Research Fields of the Hard Sciences. www.iasi.cnr.it/laboratoriortt/TESTI/Altro/ISSI-ANNEX%202_P.pdf,

Anussornnitisarn, P., & Lesjak, D. (2017). Internationalisation - professors' mobility and teaching in foreign languages in Slovenian higher education. International Journal of Innovation and Learning, 22(3), 340. https://doi.org/10.1504/ijil.2017.10007818

Artés, J., Pedraja-Chaparro, F., & Salinas-JiméneZ, M. del M. (2017). Research performance and teaching quality in the Spanish higher education system: Evidence from a medium-sized university. Research Policy, 46(1), 19–29. https://doi.org/10.1016/j.respol.2016.10.003

Ates, G., & Brechelmacher, A. (2013). Academic Career Paths. In The Work Situation of the Academic Profession in Europe: Findings of a Survey in Twelve Countries (pp. 13–35). Springer Netherlands. https://doi.org/10.1007/978-94-007-5977-0_2

Ayoubi M, R. (2019, April 6). What makes a university a "global university"? University World News.

BACHE, P., & MAASSEN, P. (1994). Higher Education Policy in Denmark. In Higher Education Policy: an International Comparative Perspective (pp. 83–103). Elsevier. https://doi.org/10.1016/b978-0-08-042393-7.50011-0

Bäker, A. (2015a). Non-tenured post-doctoral researchers' job mobility and research output: An analysis of the role of research discipline, department size, and coauthors. Research Policy, 44(3), 634–650. https://doi.org/10.1016/j.respol.2014.12.012

Bäker, A. (2015b). Non-tenured post-doctoral researchers' job mobility and research output: An analysis of the role of research discipline, department size, and coauthors. Research Policy, 44(3), 634–650. https://doi.org/10.1016/j.respol.2014.12.012

Baker, J. A., Vassar, D., & Barrett, B. (2014). US-MEXICO ACADEMIC MOBILITY: TRENDS, CHALLENGES, AND OPPORTUNITIES.

Balmer, B., Godwin, M., & Gregory, J. (2009). The Royal Society and the 'brain drain': natural scientists meet social science. Notes and Records: The Royal Society Journal of the History of Science, 63(4), 339–353. https://doi.org/10.1098/rsnr.2008.0053

Baporikar, N. (2017). Sustainable Framework to Attract, Develop, and Retain Global Talent (pp. 50–74). https://doi.org/10.4018/978-1-5225-2557-8.ch003

Baporikar, N., & Smith, A. (2019). Talent Management in Higher Education Institution. International Journal of Applied Management Sciences and Engineering, 6(2), 36–57. https://doi.org/10.4018/IJAMSE.2019070103

Barrioluengo, M. S., & Flisi, S. (2017). Student mobility in tertiary education: institutional factors and regional attractiveness. https://doi.org/10.2760/675338

Baruffaldi, S. H., Marino, M., & Visentin, F. (2020). Money to move: The effect on researchers of an international mobility grant. Research Policy, 49(8). https://doi.org/10.1016/j.respol.2020.104077

Bauder, H. (2015). The international mobility of academics: A labour market perspective. International Migration, 53(1), 83–96. https://doi.org/10.1111/j.1468-2435.2012.00783.x

Bergantino, A. S., Capozza, C., & Porcelli, F. (2012). Measuring Teaching Efficiency of the Italian University System: the Role of Market Structure. A two step DEA analysis at faculty level. http://www.cnvsu.it/_library/download

Bianchi, P., Biggeri, M., & Ferrannini, A. (2021). The political economy of places from a Sustainable Human Development perspective: The case of Emilia-Romagna. Cambridge Journal of Regions, Economy and Society, 14(1), 93–116. https://doi.org/10.1093/cjres/rsaa037

Blackburn, R. T., Behymer, C. E., & Hall, D. E. (1978). Research Note: Correlates of Faculty Publications. In Source: Sociology of Education (Vol. 51, Issue 2).

Bleiklie, I. (2000). Policy regimes and policy change: Comparing higher education reform policy in three European countries. Comparative Social Research, 19, 101–138. https://doi.org/10.1016/s0195-6310(00)80022-8

Bleiklie, I., & Michelsen, S. (2013). Comparing HE policies in Europe: Structures and reform outputs in eight countries. Higher Education, 65(1), 113–133. https://doi.org/10.1007/s10734-012-9584-6

Bonaccorsi, A., & Biancardi, D. (2019). Internationalisation of Academic Staff in European Higher Education.

Borisov, O. I., Karamova, O. V, Naidenova, E. M., Osipova, I. V, Pavlova, A. V, Gibadullin, A. A., & Sadriddinov, M. I. (2020). Development of digital competencies among students of higher educational institutions Development of digital competencies among students of higher educational institutions. Journal of Physics: Conference Series, 1–6. https://doi.org/10.1088/1742-6596/1691/1/012098

Borjas, G. (2013). Immigration and the American Worker: A Review of the Academic Literature.

Braconier, H., Nicoletti, G., & Westmore, B. (2014). Policy challenges for the next 50 years: OECD economic policy paper. 9, 1–67. https://doi.org/10.1787/5jz18gs5fckf-en

Breschi, S., Lissoni, F., & Montobbio, F. (2007). The scientific productivity of academic inventors: New evidence from italian data. Economics of Innovation and New Technology, 16(2), 101–118. https://doi.org/10.1080/10438590600982830

Brew, A., Boud, D., Namgung, S. U., Lucas, L., & Crawford, K. (2016). Research productivity and academics' conceptions of research. Higher Education, 71(5), 681–697. https://doi.org/10.1007/s10734-015-9930-6

Buracas, A., & Navickas, V. (2017). Global Competitiveness of World Superpowers: Education, Talents and Innovations. Eurasian Studies in Business and Economics, 6, 129–147. https://doi.org/10.1007/978-3-319-50164-2_7

Cañibano, C., Vértesy, D., & Vezzulli, A. (2017). An inquiry into the return mobility of scientific researchers in Europe. https://doi.org/10.2760/54633

Cappelletti, G. M., Grilli, L., Russo, C., & Santoro, D. (2021). Sustainable mobility in universities: The case of the university of foggia (italy). Environments - MDPI, 8(6). https://doi.org/10.3390/environments8060057

Carolina, B. M. (2003). Skilled migration: a theoretical framework and the case of foreign researchers in Italy. http://ehlt.flinders.edu.au/deptlang/fulgor/

Carolina Brandi, by M., Avveduto, S., & Cerbara, L. (2011). The reasons of scientists mobility: results from the comparison of outgoing and ingoing fluxes of researchers in Italy.

Carrozza, C., & Minucci, S. (2014). Keep on movin'? Research mobility's meanings for Italian early-stage researchers. In Higher Education Policy (Vol. 27, Issue 4, pp. 489–508). Palgrave Macmillan. https://doi.org/10.1057/hep.2014.23

Cassia, L., Colombelli, A., & Paleari, S. (2008). Regional Transformation Processes through the Universities—Institutions—Industry Relationship. Industry and Higher Education, 22(2), 105–118. https://doi.org/10.5367/000000008784139451

Castellacci, F., & Viñas-Bardolet, C. (2021). Permanent contracts and job satisfaction in academia: evidence from European countries. Studies in Higher Education, 46(9), 1866–1880. https://doi.org/10.1080/03075079.2019.1711041

Cattaneo, M., Horta, H., Malighetti, P., Meoli, M., & Paleari, S. (2019). Universities' attractiveness to students: The Darwinism effect. Higher Education Quarterly, 73(1), 85–99. https://doi.org/10.1111/hequ.12187

Cattaneo, M., Malighetti, P., Meoli, M., & Paleari, S. (2017). University spatial competition for students: the Italian case. Regional Studies, 51(5), 750–764. https://doi.org/10.1080/00343404.2015.1135240

Cattaneo, M., Malighetti, P., Morlotti, C., & Paleari, S. (2018). Students' mobility attitudes and sustainable transport mode choice. International Journal of Sustainability in Higher Education, 19(5), 942–962. https://doi.org/10.1108/IJSHE-08-2017-0134

Cattaneo, M., Malighetti, P., & Paleari, S. (2019). The Italian brain drain: cream and milk. Higher Education, 77(4), 603–622. https://doi.org/10.1007/s10734-018-0292-8

Cejda, B. D. (1994). Reducing transfer shock through faculty collaboration: A case study. Community College Journal of Research and Practice, 18(2), 189–199. https://doi.org/10.1080/1066892940180207

Celis, S., & Kim, J. (2018). The making of homophilic networks in international research collaborations: A global perspective from Chilean and Korean engineering. Research Policy, 47(3), 573–582. https://doi.org/10.1016/j.respol.2018.01.001

Cerna, L., & Czaika, M. (2016). European Policies to Attract Talent: The Crisis and Highly Skilled Migration Policy Changes. High-Skill Migration and Recession, 22–43. https://doi.org/10.1057/9781137467119_2

Cerych, L. (1989). Higher Education and Europe after 1992: The Framework. European Journal of Education, 24(4), 321. https://doi.org/10.2307/1503300

Chatterton, P., & Goddard, J. (2000). The Response of Higher Education Institutions to Regional Needs. In European Journal of Education (Vol. 35, Issue 4). Stakeholder Society.

Ciriaci, D. (2014). Does University Quality Influence the Interregional Mobility of Students and Graduates? The Case of Italy. Regional Studies, 48(10), 1592–1608. https://doi.org/10.1080/00343404.2013.821569

Coate, K., Barnett, R., & Williams, G. (2001). Relationships Between Teaching and Research in Higher Education in England.

Coccia, M. (2018). Socioeconomic driving forces of scientific research. http://orcid.org/0000-0003-1957-6731

Cohen, S., Hanna, P., Higham, J., Hopkins, D., & Orchiston, C. (2020). Gender discourses in academic mobility. Gender, Work and Organization, 27(2), 149–165. https://doi.org/10.1111/gwao.12413

Cole, S., & Cole, J. R. (1967). Scientific Output and Recognition: A Study in the Operation of the Reward System in Science. American Sociological Review, 32(3), 377. https://doi.org/10.2307/2091085

Columbu, S., Porcu, M., Primerano, I., Sulis, I., & Vitale, M. P. (2021). Geography of Italian student mobility: A network analysis approach. Socio-Economic Planning Sciences, 73. https://doi.org/10.1016/j.seps.2020.100918

Commission, E. (2023). In Europe 2023 education and training systems Structural indicators for monitoring European Education and Culture Executive Agency Higher education. Higher Education. https://doi.org/10.2797/134369

Conard, M. J., & Conard, M. A. (2000). An analysis of academic reputation as perceived by consumers of higher education. Journal of Marketing for Higher Education, 9(4), 69–80. https://doi.org/10.1300/J050v09n04_05

CORDIS. (2022, November 28). RTD in relation to the EU's development cooperation policy. European Commission. https://cordis.europa.eu/article/id/8408-rtd-in-relation-to-the-eus-development-cooperation-policy

Cullinan, J., & Flannery, D. (2021). Distance Matters: Geographic Accessibility and Higher Education Participation Decisions. In Centre for Economic Research on Inclusivity and Sustainability (CERIS) Working Paper Series.

Curaj, A., Matei, L., Pricopie, R., Salmi, J., & Scott, P. (n.d.). The European Higher Education Area Between Critical Reflections and Future Policies.

Dar, L. (2012). The Political Dynamics of Higher Education Policy. The Journal of Higher Education, 83(6), 769–794. https://doi.org/10.1080/00221546.2012.11777269

Dassin, J. R., Marsh, R. R., & Mawer, M. (2017). International scholarships in higher education: Pathways to social change. In International Scholarships in Higher Education: Pathways to Social Change. Springer International Publishing. https://doi.org/10.1007/978-3-319-62734-2

de Filippo, D., Casado, E. S., & Gómez, I. (2009). Quantitative and qualitative approaches to the study of mobility and scientific performance: A case study of a spanish university. Research Evaluation, 18(3), 191–200. https://doi.org/10.3152/095820209X451032

De, M., Au, R., & Jonkers, K. (2008). MIREM Project A Comparative Study of Return Migration Policies Targeting the Highly Skilled in Four Major Sending Countries. http://www.eui.eu/RSCAS/Publications/

Demele, U., Nölting, B., Crewett, W., & Georgiev, G. (2021). Sustainability transfer as a concept for universities in regional transformation-a case study. Sustainability (Switzerland), 13(9). https://doi.org/10.3390/su13094956

Djamba, Y. K., & Neuman, W. L. (2002). Social Research Methods: Qualitative and Quantitative Approaches. Teaching Sociology, 30(3), 380. https://doi.org/10.2307/3211488

Djikhy, S., & Moustaghfir, K. (2019). International faculty , knowledge transfer , and innovation in higher education : A human resource development perspective. Human Systems Management, 38(4), 423–431. https://doi.org/10.3233/HSM-190614

Donina, D., Meoli, M., & Paleari, S. (2015). Higher education reform in Italy: Tightening regulation instead of steering at a distance. Higher Education Policy, 28(2), 215–234. https://doi.org/10.1057/hep.2014.6

Drucker, J. (2016). Reconsidering the Regional Economic Development Impacts of Higher Education Institutions in the United States. Regional Studies, 50(7), 1185–1202. https://doi.org/10.1080/00343404.2014.986083

Duarte, M. G. P., Gonçalves, E., Chein, F., & Taveira, J. G. (2020). Drivers of scientific-technological production in brazilian higher education and research institutions. Revista de Economia Contemporanea, 24(3), 1–41. https://doi.org/10.1590/198055272432

Edgar, F., & Geare, A. (2013). Factors influencing university research performance. Studies in Higher Education, 38(5), 774–792. https://doi.org/10.1080/03075079.2011.601811

EHEA. (2005). A framework for qualifications of the European higher education area. Ministry of Science, Technology and Innovation.

Ehrenfried, F., Fackler, T. A., & Lindlacher, V. (2022). New region, new chances: does moving regionally for university shape later job mobility? Regional Studies, 1–15. https://doi.org/10.1080/00343404.2022.2119217

EIGE. (2016). Promoting gender equality in academia and research institutions. https://doi.org/10.2839/260518

Ejermo, O., Fassio, C., & Källström, J. (2020). Does Mobility across Universities Raise Scientific Productivity? Oxford Bulletin of Economics and Statistics, 82(3), 603–624. https://doi.org/10.1111/obes.12346

Enders, J. (1998). Academic Staff Mobility in the European Community: The ERASMUS Experience. Comparative Education Review, 42(1), 46–60. https://doi.org/10.1086/447478

Erasmus-Policy-Statement. (2013).

EUL. (2020). A new ERA for Research and Innovation - Brussels. https://doi.org/10.1787/888933616940

Ewers, M. C., Khattab, N., Babar, Z., & Madeeha, M. (2022). Skilled migration to emerging economies: the global competition for talent beyond the West. Globalizations, 19(2), 268–284. https://doi.org/10.1080/14747731.2021.1882816

Fadda, N., Marinò, L., Pischedda, G., & Ezza, A. (2021). The effect of performance-oriented funding in higher education: evidence from the staff recruitment budget in Italian higher education. Higher Education. https://doi.org/10.1007/s10734-021-00725-4

Fahey, J., & Kenway, J. (2010). International academic mobility: Problematic and possible paradigms. Discourse, 31(5), 563–575. https://doi.org/10.1080/01596306.2010.516937

Fajčíková, A., & Urbancová, H. (2019). Factors influencing students' motivation to seek higher education-a case study at a state university in the Czech Republic. Sustainability (Switzerland), 11(17). https://doi.org/10.3390/su11174699

Farooq, M., Othman, A., Nordin, M. S., & Ibrahim, M. B. (2017). Analysing the Relationship Between Sustainable Leadership, Talent Management and Organization Health As Predictors of University Transformation. Journal of Positive Management, 8(1), 32. https://doi.org/10.12775/jpm.2017.003

Foadi, S. M. (2006). Key issues and causes of the Italian brain drain. Innovation: The European Journal of Social Science Research, 19(2), 209–223. https://doi.org/10.1080/13511610600804315

Forrester, J. W. (1992). Policies, decisions and information sources for modeling. European Journal of Operational Research, 59(1), 42–63. https://doi.org/10.1016/0377-2217(92)90006-U

Fossestøl, K., Breit, E., Andreassen, T. A., & Klemsdal, L. (2015). Managing institutional complexity in public sector reform: Hybridization in front-line service organizations. Public Administration, 93(2), 290–306. https://doi.org/10.1111/padm.12144

Franzoni, C., Scellato, G., & Stephan, P. (2014). The mover's advantage: The superior performance of migrant scientists. Economics Letters, 122(1), 89–93. https://doi.org/10.1016/j.econlet.2013.10.040

Franzoni, C., Scellato, G., & Stephan, P. (2015). International mobility of research scientists: Lessons from GlobSci. In Global Mobility of Research Scientists: The Economics of Who Goes Where and Why (pp. 35–65). Elsevier. https://doi.org/10.1016/B978-0-12-801396-0.00002-8

Freeling, B., Doubleday, Z. A., & Connell, S. D. (2019). How can we boost the impact of publications? Try better writing. National Academy of Science, 341–343. https://doi.org/10.1073/pnas.1819937116/-/DCSupplemental

Fu, Y. C., Vásquez, J. J. M., Macasaet, B. T., Hou, A. Y. C., & Powell, J. J. W. (2023). Game of Brains: Examining Researcher Brain Gain and Brain Drain and Research University Policy. Higher Education Policy. https://doi.org/10.1057/s41307-023-00303-6

Gaebel, M., & Zhang, T. (2018). Learning and teaching in the European Higher Education Area. European University Association.

Gerged, A., & Elheddad, M. (2020). How can national governance affect education quality in Western Europe? International Journal of Sustainability in Higher Education, 21(3), 413–426. https://doi.org/10.1108/IJSHE-10-2019-0314

Giannoccolo, P. (2005). Brain Drain Competition Policies in Europe. https://doi.org/10.6092/unibo/amsacta/4756

Gibson, J., & McKenzie, D. (2014). Scientific mobility and knowledge networks in high emigration countries: Evidence from the Pacific. Research Policy, 43(9), 1486–1495. https://doi.org/10.1016/j.respol.2014.04.005

Gill, B. (2005). HOMEWARD BOUND? Innovation: The European Journal of Social Science Research, 18(3), 319–341. https://doi.org/10.1080/13511610500186698

Glass, J. C., McKillop, D. G., & Hyndman, N. (1995). Efficiency in the provision of university teaching and research: An empirical analysis of UK universities. Journal of Applied Econometrics, 10(1), 61–72. https://doi.org/10.1002/jae.3950100106

Gopaul, B., & Pifer, M. J. (2016). The Conditions of Movement: a Discussion of Academic Mobility between Two Early Career Scholars. Higher Education Quarterly, 70(3), 225–245. https://doi.org/10.1111/hequ.12092

Gornitzka, Å. (1999). Governmental policies and organisational change in higher education. In Higher Education (Vol. 38).

Greek, M., & Jonsmoen, K. M. (2021). Transnational academic mobility in universities: the impact on a departmental and an interpersonal level. Higher Education, 81(3), 591–606. https://doi.org/10.1007/s10734-020-00558-7

Gu, J. (2012). Spatial recruiting competition in Chinese higher education system. Higher Education, 63(2), 165–185. https://doi.org/10.1007/s10734-011-9429-8

Gustafson, P. (2006). Work-related travel, gender and family obligations. Work, Employment and Society, 20(3), 513–530. https://doi.org/10.1177/0950017006066999

Haley, A. (2017). Defining geographical mobility: Perspectives from higher education. Geoforum, 83, 50–59. https://doi.org/10.1016/j.geoforum.2017.04.013

Hasgall, A., & Peneoasu, A.-M. (2022). Doctoral education in Europe: current developments and trends. www.eua.eu

Hathaway, R. S. (1995). Assumptions underlying quantitative and qualitative research: Implications for institutional research. Research in Higher Education, 36(5), 535–562. https://doi.org/10.1007/BF02208830

Heinze, T., Shapira, P., Rogers, J. D., & Senker, J. M. (2009). Organizational and institutional influences on creativity in scientific research. Research Policy, 38, 610–623. https://doi.org/10.1016/j.respol.2009.01.014

Helali, R. G. M. (2023). An Exploratory Study of Factors Affecting Research Productivity in Higher Educational Institutes Using Regression and Deep Learning Techniques. Artificial Intelligence and Applications. https://doi.org/10.47852/bonviewAIA3202660

Henningsson, M., & Geschwind, L. (2022). Recruitment of academic staff: An institutional logics perspective. Higher Education Quarterly, 76(1), 48–62. https://doi.org/10.1111/hequ.12367

Henry, C., Md Ghani, N. A., Hamid, U. M. A., & Bakar, A. N. (2020). Factors contributing towards research productivity in higher education. International Journal of Evaluation and Research in Education, 9(1), 203–211. https://doi.org/10.11591/ijere.v9i1.20420

Hesli, V. L., & Lee, J. M. (2011). Faculty Research Productivity: Why Do Some of Our Colleagues Publish More than Others? PS: Political Science & Politics, 44(2), 393–408. https://doi.org/10.1017/s1049096511000242

Hilmer, M. J., & Hilmer, C. E. (2012). On the relationship between student tastes and motivations, higher education decisions, and annual earnings. Economics of Education Review, 31(1), 66–75. https://doi.org/10.1016/j.econedurev.2011.09.004

Hnatkova, E., Degtyarova, I., Kersschot, M., & Boman, J. (2022). Labour market perspectives for PhD graduates in Europe. European Journal of Education, 57(3), 395–409. https://doi.org/10.1111/ejed.12514

Horta, H., Birolini, S., Cattaneo, M., Shen, W., & Paleari, S. (2021). Research network propagation: The impact of PhD students' temporary international mobility. Quantitative Science Studies, 2(1), 129–154. https://doi.org/10.1162/qss_a_00096

Horta, H., Cattaneo, M., & Meoli, M. (2018). PhD funding as a determinant of PhD and career research performance. Studies in Higher Education, 43(3), 542–570. https://doi.org/10.1080/03075079.2016.1185406

Horta, H., Jung, J., & Santos, J. M. (2018). Effects of mobilities on the research output and its multidisciplinarity of academics in Hong Kong and Macau: An exploratory study. Higher Education Quarterly, 72(3), 250–265. https://doi.org/10.1111/hequ.12161

Horta, H., Jung, J., & Santos, J. M. (2020a). Mobility and Research Performance of Academics in City-Based Higher Education Systems. Higher Education Policy, 33(3), 437–458. https://doi.org/10.1057/s41307-019-00173-x

Horta, H., Jung, J., & Santos, J. M. (2020b). Mobility and Research Performance of Academics in City-Based Higher Education Systems. Higher Education Policy, 33(3), 437–458. https://doi.org/10.1057/s41307-019-00173-x

Horta, H., Veloso, F. M., & Grediaga, Ŕ. (2010). Navel gazing: Academic inbreeding and scientific productivity. Management Science, 56(3), 414–429. https://doi.org/10.1287/mnsc.1090.1109

How do Educational Research and Policy-making affect each other? (1984). In Educational Research and Policy: How Do They Relate? (pp. 48–62). Elsevier. https://doi.org/10.1016/B978-0-08-030820-3.50010-0

Howlett, M. (1991). Policy Instruments, Policy Styles, and Policy Implementation. National Approaches to Theories of Instrument Choice. Policy Studies Journal, 19(2), 1–21. https://doi.org/10.1111/j.1541-0072.1991.tb01878.x

Ibua, M. P. (2013). THE INFLUENCE OF INSTITUTIONAL FACTORS AND JOB RELATED ATTITUDES ON THE RELATIONSHIP BETWEEN EMPLOYEE EMPOWERMENT AND PERFORMANCE OF PUBLIC UNIVERSITIES IN KENYA.

Iorio, R., Labory, S., & Rentocchini, F. (2017). The importance of pro-social behaviour for the breadth and depth of knowledge transfer activities: An analysis of Italian academic scientists. Research Policy, 46(2), 497–509. https://doi.org/10.1016/j.respol.2016.12.003

Jacob, B. A., & Lefgren, L. (2011). The impact of research grant funding on scientific productivity. Journal of Public Economics, 95(9–10), 1168–1177. https://doi.org/10.1016/j.jpubeco.2011.05.005

Jacob, M., & Kearney, M.-L. (2020). Higher Education and Research Policies. In Building Higher Education Cooperation with the EU (pp. 15–34). BRILL. https://doi.org/10.1163/9789004445420_002

Jamalova, M., & Bálint, C. (2023). What Matters the Most? – Exploratory Analysis of Environmental and Situational Variables Influencing Performance of Students During COVID-19 Pandemic. International Journal of Emerging Technologies in Learning, 18(2), 159–172. https://doi.org/10.3991/ijet.v18i02.36279

Janger, J., Campbell, D. F. J., & Strauss, A. (2019). Attractiveness of jobs in academia: a cross-country perspective. Higher Education, 78(6), 991–1010. https://doi.org/10.1007/s10734-019-00383-7

Jonkers, K. (2008). A Comparative Study of Return Migration Policies Targeting the Highly Skilled in Four Major Sending Countries. https://www.researchgate.net/publication/267954634

Jonkers, K. (2011). Mobility, productivity, gender and career development of Argentinean life scientists. Research Evaluation, 20(5), 411–421. https://doi.org/10.3152/095820211X13176484436177

Jonkers, K., & Tijssen, R. (2008). Chinese researchers returning home: Impacts of international mobility on research collaboration and scientific productivity. Scientometrics, 77(2), 309–333. https://doi.org/10.1007/s11192-007-1971-x

Jöns, H. (2011). Transnational academic mobility and gender. Globalisation, Societies and Education, 9(2), 183–209. https://doi.org/10.1080/14767724.2011.577199

Kaplan, R. (2019). Italy counts the cost of its brain drain _ Financial Times.

Khan, J. (2021). European academic brain drain: A meta-synthesis. European Journal of Education, 56(2), 265–278. https://doi.org/10.1111/ejed.12449

Kim, D., Twombly, S., & Wolf-Wendel, L. (2012). International Faculty in American Universities: Experiences of Academic Life, Productivity, and Career Mobility. New Directions for Institutional Research, 2012(155), 27–46. https://doi.org/10.1002/ir.20020

Kim, T. (2010). Transnational academic mobility, knowledge, and identity capital. Discourse, 31(5), 577–591. https://doi.org/10.1080/01596306.2010.516939

Kim, T. (2017). Academic mobility, transnational identity capital, and stratification under conditions of academic capitalism. Higher Education, 73(6), 981–997. https://doi.org/10.1007/s10734-017-0118-0

Kirss, L., Kussk, K., Rozeik, H., & Haaristo, H.-S. (2014). National Policies for International Talent Attraction and Retention in Estonia. www.praxis.ee

Kitagawa, F. (2004). Universities and regional advantage: Higher education and innovation policies in English regions. European Planning Studies, 12(6), 835–852. https://doi.org/10.1080/0965431042000251882

Knight, J. (2008). Higher education internationalization: Concepts, Rationales and Frameworks. 13(1).

Knight, J. (Educator). (2008). Higher education in turmoil : the changing world of internationalization (Vol. 13).

Koksharov, V. A., Sandler, D. G., Kuznetsov, P. D., Klyagin, A. V., & Leshukov, O. V. (2021). The Pandemic as a Challenge to the Development of University Networks in Russia: Differentiation or Collaboration? Voprosy Obrazovaniya, 2021(1), 1–17. https://doi.org/10.17323/1814-9545-2021-1-52-73

Kosztyán, Z. T., Csányi, V. V., Banász, Z., Jakobi, Á., Neumanné-Virág, I., & Telcs, A. (2021). The role of higher education in spatial mobility. Applied Network Science, 6(1). https://doi.org/10.1007/s41109-021-00428-w

Koutsouris, G., Stentiford, L., & Norwich, B. (2022). A critical exploration of inclusion policies of elite UK universities. British Educational Research Journal. https://doi.org/10.1002/berj.3799

Lambrechts, A. A., Larasatie, P., Boutelier, S., Guta, H. A., Leonowicz-Bukała, I., Martinez-Suarez, A., & Prashad, S. (2021). Why Research Productivity Among Women in Academia Suffered During the Early Stages of COVID-19 Crisis: A Qualitative Analysis.

Laudel, G. (2005). Migration currents among the scientific elite. Minerva, 43(4), 377–395. https://doi.org/10.1007/s11024-005-2474-7

Laudel, G., & Gläser, J. (2014). Beyond breakthrough research: Epistemic properties of research and their consequences for research funding. Research Policy, 43(7), 1204–1216. https://doi.org/10.1016/j.respol.2014.02.006

Lawson, C., & Ana, F.-Z. (2015). Academic mobility. Global Mobility of Research Scientists.

Leal Filho, W., Pallant, E., Enete, A., Richter, B., & Brandli, L. L. (2018). Planning and implementing sustainability in higher education institutions: an overview of the difficulties and potentials. International Journal of Sustainable Development & World Ecology, 25(8), 713–721. https://doi.org/10.1080/13504509.2018.1461707

Lee, J. T. (2014). Education hubs and talent development: policymaking and implementation challenges. Higher Education, 68(6), 807–823. https://doi.org/10.1007/s10734-014-9745-x

Lehmann, E. E., Meoli, M., Paleari, S., & Stockinger, S. A. E. (2018). Approaching effects of the economic crisis on university efficiency: a comparative study of Germany and Italy. Eurasian Business Review, 8(1), 37–54. https://doi.org/10.1007/s40821-017-0091-7

Leikuma-Rimicane, L., Baloran, E. T., Ceballos, R. F., & Medina, M. N. D. (2022). The Role of Higher Education in Shaping Global Talent Competitiveness and Talent Growth. International Journal of Information and Education Technology, 12(11), 1211–1220. https://doi.org/10.18178/ijiet.2022.12.11.1741

Leisyte, L., & Rose, A.-L. (2017). Academic Staff Mobility in the Age of Trump and Brexit? International Higher Education, 89, 3. https://doi.org/10.6017/ihe.2017.89.9758

Lepori, B., Seeber, M., & Bonaccorsi, A. (2015a). Competition for talent . Country and organizational-level effects in the internationalization of European higher education institutions. Research Policy, 44(3), 789–802. https://doi.org/10.1016/j.respol.2014.11.004

Lepori, B., Seeber, M., & Bonaccorsi, A. (2015b). Competition for talent. Country and organizational-level effects in the internationalization of European higher education institutions. Research Policy, 44(3), 789–802. https://doi.org/10.1016/j.respol.2014.11.004

Lewis, R. E., & Heckman, R. J. (2006). Talent management : A critical review. Human Resource Management Review, 16(2), 139–154. https://doi.org/10.1016/j.hrmr.2006.03.001

Liang, W., Gu, J., & Nyland, C. (2022). China's new research evaluation policy: Evidence from economics faculty of Elite Chinese universities. Research Policy, 51(1), 104407. https://doi.org/10.1016/j.respol.2021.104407

Libarkin, J. C., & Kurdziel, J. P. (2002). Research Methodologies in Science Education: The Qualitative-Quantitative Debate. Journal of Geoscience Education, 50(1), 78–86. https://doi.org/10.1080/10899995.2002.12028053

Lindberg, M. E. (2009). Student and early career mobility patterns among highly educated people in Germany, Finland, Italy, and the United Kingdom. Higher Education, 58(3), 339–358. https://doi.org/10.1007/s10734-009-9198-9

Lund, T. (2012). Combining Qualitative and Quantitative Approaches: Some Arguments for Mixed Methods Research. Scandinavian Journal of Educational Research, 56(2), 155–165. https://doi.org/10.1080/00313831.2011.568674

Macháček, V., Srholec, M., Ferreira, M. R., Robinson-Garcia, N., & Costas, R. (2022). Researchers' institutional mobility: bibliometric evidence on academic inbreeding and internationalization. Science and Public Policy, 49(1), 85–97. https://doi.org/10.1093/scipol/scab064

Mahroum, S. (2001). Europe and the immigration of highly skilled labour. International Migration, 39(5), 27–43. https://doi.org/10.1111/1468-2435.00170

Marginson, S. (2017). Do Rankings Drive Better Performance? International Higher Education, 89, 5. https://doi.org/10.6017/ihe.2017.89.9761

Marginson, S. (2018). Centre for Global Higher Education working paper series The new geo-politics of higher education. www.researchcghe.org

Maske, K. L., Durden, G. C., & Gaynor, P. E. (2003). Determinants of scholarly productivity among male and female economists. In Economic Inquiry (Vol. 41, Issue 4, pp. 555–564). https://doi.org/10.1093/ei/cbg027

Meyer, J. B. (2001). L'Exode des Cerveaux Supplante par L'Approche "Reseau": Les Leçons de la Diaspora. International Migration, 39(5), 91–110. https://doi.org/10.1111/1468-2435.00173

Miyaki, M., & Okajima, Y. (2018). Do External Funding Sources Affect Research Productivity?: A Departmental-Level Analysis of Seven Former Imperial Japanese Universities.

Mobility scoreboard: Higher education background report 2022/2023. (2023).

Morano-Foadi, S., Foadi, J., Morano-Foadi, S., & Foadi, J. (2003). Italian Scientific Migration: from Brain Exchange to Brain Drain. https://www.academia.edu/1997869/Italian_scientific_migration_from_brain_exchange_to_brain_drain

Morichika, N., & Shibayama, S. (2015). Impact of inbreeding on scientific productivity: A case study of a Japanese university department. Research Evaluation, 24(2), 146–157. https://doi.org/10.1093/reseval/rvv002

Muscio, A., Quaglione, D., & Ramaciotti, L. (2016). The effects of university rules on spinoff creation: The case of academia in Italy. Research Policy, 45(7), 1386–1396. https://doi.org/10.1016/j.respol.2016.04.011

Nascia, L., Pianta, M., & Zacharewicz, T. (2021). Staying or leaving? Patterns and determinants of Italian researchers' migration. Science and Public Policy, 48(2), 200–211. https://doi.org/10.1093/scipol/scab007

Negricea, C. I., Edu, T., & Avram, E. M. (2014). Establishing Influence of Specific Academic Quality on Student Satisfaction. Procedia - Social and Behavioral Sciences, 116, 4430–4435. https://doi.org/10.1016/j.sbspro.2014.01.961

Netz, N., Hampel, S., & Aman, V. (2020). What effects does international mobility have on scientists' careers? A systematic review. Research Evaluation, 29(3), 327–351. https://doi.org/10.1093/reseval/rvaa007

Nifo, A., & Vecchione, G. (2014). Do Institutions Play a Role in Skilled Migration? The Case of Italy. Regional Studies, 48(10), 1628–1649. https://doi.org/10.1080/00343404.2013.835799

Noben, I., Brouwer, J., Deinum, J. F., & Hofman, W. H. A. (2022). The development of university teachers' collaboration networks during a departmental professional development project. Teaching and Teacher Education, 110. https://doi.org/10.1016/j.tate.2021.103579

Nokkala, T., Bataille, P., Siekkinen, T., & Goastellec, G. (2020). Academic Career, Mobility and the National Gender Regimes in Switzerland and Finland. 262–286. https://doi.org/10.1163/9789004422582_012ï

OECD Reviews of Tertiary Education: Mexico 2008. (2008). OECD. https://doi.org/10.1787/9789264039247-en

Paleari, S., Donina, D., & Meoli, M. (2015). The role of the university in twenty-first century European society. Journal of Technology Transfer, 40(3), 369–379. https://doi.org/10.1007/s10961-014-9348-9

Panigrahi, S. (2020, February 19). Importance of Seminars and Workshops for Students in Higher Education. Higher Education Review. https://others.thehighereducationreview.com/news/importance-of-seminars-and-workshops-for-students-in-higher-education-nid-1261.html

Pasupathy, R., & Siwatu, K. O. (2014). An investigation of research self-efficacy beliefs and research productivity among faculty members at an emerging research university in the USA. Higher Education Research & Development, 33(4), 728–741. https://doi.org/10.1080/07294360.2013.863843

Patrício, M. T., Santos, P., Loureiro, P. M., & Horta, H. (2018). Faculty-exchange programs promoting change: motivations, experiences, and influence of participants in the Carnegie Mellon University-Portugal Faculty Exchange Program. Tertiary Education and Management, 24(1), 1–18. https://doi.org/10.1080/13583883.2017.1305440

Perrotti, R., Ichino, A., Gagliarducci, S., Stanchi, A., & Trivellato, P. (2007). Italy, Academic career structure. European University Institute.

Petzold, K., & Bucher, H. (2018). The Academic Mobility Regime: Analysing Perceptions of Students and Academic Staff. International Review of Social Research, 8(1), 98–108. https://doi.org/10.2478/irsr-2018-0011

Pfaffermayr, M. (2019). Gravity models, PPML estimation and the bias of the robust standard errors. Applied Economics Letters, 26(18), 1467–1471. https://doi.org/10.1080/13504851.2019.1581902

Pherali, T. J. (2012). Academic Mobility, Language, and Cultural Capital: The Experience of Transnational Academics in British Higher Education Institutions. Journal of Studies in International Education, 16(4), 313–333. https://doi.org/10.1177/1028315311421842

Pleśniarska, A. (2019). Monitoring progress in "quality education" in the European Union – strategic framework and goals. In International Journal of Sustainability in Higher Education (Vol. 20, Issue 7, pp. 1125–1142). Emerald Group Holdings Ltd. https://doi.org/10.1108/IJSHE-10-2018-0171

Ponomariov, B. L., & Boardman, P. C. (2010). Influencing scientists' collaboration and productivity patterns through new institutions: University research centers and scientific and technical human capital. Research Policy, 39(5), 613–624. https://doi.org/10.1016/j.respol.2010.02.013

Popov, E., Sandler, D., Popova, N., & Kochetkov, D. (2017). Institutions of scientific knowledge generation in regional economic systems. European Conference on Knowledge Management, 2, 808–817. https://www.scopus.com/record/display.uri?eid=2-s2.0-85035200005&origin=resultslist&sort=plf-f&src=s&st1=The+engagement+of+higher+educational+institutions+in+regional+development&sid=a67b4163401baf29127882dc429f9fef&sot=b&sdt=b&sl=88&s=TITLE-ABS-KEY%28The+engagement+of+higher+educational+institutions+in+regional+development%29&relpos=8&citeCnt=0&searchTerm=

Prakash, C., Yadav, R., Singh, A., & Aarti. (2022). An Empirical Investigation of the Higher Educational Institutions' Attractiveness as an Employer. South Asian Journal of Human Resources Management, 9(1), 130–148. https://doi.org/10.1177/23220937221078118

Quimbo, M. A. T., & Sulabo, E. C. (2013). Research productivity and its policy implications in higher education institutions. Studies in Higher Education, 39(10), 1955–1971. https://doi.org/10.1080/03075079.2013.818639

Raagmaa, G., & Keerberg, A. (2017). Regional higher education institutions in regional leadership and development. Regional Studies, 51(2), 260–272. https://doi.org/10.1080/00343404.2016.1215600

Racké, C. (2013). Staff mobility in higher education – National policies and programmes.

Raghuram, P. (2009). Caring about 'brain drain' migration in a postcolonial world. Geoforum, 40(1), 25–33. https://doi.org/10.1016/j.geoforum.2008.03.005

Reale, E. (2014). Challenges in higher education research: the use of quantitative tools in comparative analyses. Higher Education, 67(4), 409–422. https://doi.org/10.1007/s10734-013-9680-2

Rebora, G., & Turri, M. (2009). Governance in higher education: An analysis of the Italian experience . In In International perspectives on the governance of higher education (pp. 39–58). Routledge. https://books.google.it/books?hl=it&lr=&id=iKaRAgAAQBAJ&oi=fnd&pg=PA13&dq=academic+structure+higher+education+in+italian+universities&ots=13GYkcV_Sw&sig=h0q9DB58gj7ngSs8axa683v5EbY&redir_esc=y#v=onepage&q=academic%20structure%20higher%20education%20in%20italian%20universities&f=true

Romiani, Y., & Farahbakhsh, S. (2024). Toward a comprehensive model for talent identification of faculty members: a qualitative study for regional universities. Journal of Applied Research in Higher Education, 16(1), 169–181. https://doi.org/10.1108/JARHE-07-2022-0230

Rørstad, K., & Aksnes, D. W. (2015). Publication rate expressed by age, gender and academic position – A large-scale analysis of Norwegian academic staff. Journal of Informetrics, 9(2), 317–333. https://doi.org/10.1016/j.joi.2015.02.003

Royo-Vela, M., & Hünermund, U. (2016). Effects of inbound marketing communications on HEIs' brand equity: the mediating role of the student's decision-making process. An exploratory research. Journal of Marketing for Higher Education, 26(2), 143–167. https://doi.org/10.1080/08841241.2016.1233165

Ruchira, S., Perera, D., & Sajeevanie, T. L. (2020). Talent , Talent Management & its Practices : A Critical Review. 13th International Research Conference, October, 302–318.

Ruiu, B., Ruiu, G., Fadda, N., Ezza, A., & Esposito, M. (2019). Exploring mobility of Italian Ph.Ds over the last decades. Electronic Journal of Applied Statistical Analysis EJASA, Electron. J. App. Stat. Anal. Electronic Journal of Applied Statistical Analysis, 12, 748–773. https://doi.org/10.1285/i20705948v12n4p748

Ryan, Y. (2010). Education Development in Higher Education.

Sá, C., Florax, R. J. G. M., & Rietveld, P. (2004a). Determinants of the regional demand for higher education in the Netherlands: A gravity model approach. Regional Studies, 38(4), 375–392. https://doi.org/10.1080/03434002000213905

Sá, C., Florax, R. J. G. M., & Rietveld, P. (2004b). Determinants of the regional demand for higher education in the Netherlands: A gravity model approach. Regional Studies, 38(4), 375–392. https://doi.org/10.1080/03434002000213905

Sabharwal, M., & Hu, Q. (2013). Participation in university-based research centers : Is it helping or hurting researchers ? Research Policy, 42(6–7), 1301–1311. https://doi.org/10.1016/j.respol.2013.03.005

Sagaria, M. A. D. (1988). Administrative Mobility and Gender. The Journal of Higher Education, 59(3), 305–326. https://doi.org/10.1080/00221546.1988.11778330

Santos Silva, J. M. C., & Tenreyro, S. (2011). Further simulation evidence on the performance of the Poisson pseudo-maximum likelihood estimator. Economics Letters, 112(2), 220–222. https://doi.org/10.1016/j.econlet.2011.05.008

Saurombe, M., Barkhuizen, E. N., & Schutte, N. E. (2017). Management perceptions of a higher educational brand for the attraction of talented academic staff. SA Journal of Human Resource Management, 15(0). https://doi.org/10.4102/sajhrm.v15i0.831

Schaer, M. (2022). From mobility attractiveness to mobility fatigue: The impact of repeated transnational mobility on the lives and aspirations of early-career academics. Population, Space and Place, 28(5). https://doi.org/10.1002/psp.2536

Schiermeier, Q. (2011). The mobility imperative. Nature, 563–564. https://doi.org/10.1038/nj7335-563a

Scott, P. (2015). Dynamics of academic mobility: Hegemonic internationalisation or fluid globalisation. European Review, 23, S55–S69. https://doi.org/10.1017/S1062798714000775

Seeber, M., Debacker, N., Meoli, M., & Vandevelde, K. (2022). Exploring the effects of mobility and foreign nationality on internal career progression in universities. Higher Education. https://doi.org/10.1007/s10734-022-00878-w

Shahbazi-Moghadam, M., Salehi, H., Amin Embi, M., Zavvari, A., Shakiba, M., Mohammadjafari, M., Ale Ebrahim, N., & Bakhtiyari, K. (2015). Effective Factors for Increasing Rate of University Publication and Citation. Asian Social Science, 11(16). https://doi.org/10.5539/ass.v11n16p338

Shen, W., Xu, X., & Wang, X. (2022). Reconceptualising international academic mobility in the global knowledge system: towards a new research agenda. Higher Education, 84(6), 1317–1342. https://doi.org/10.1007/s10734-022-00931-8

Sheth, S. K., & Bettencourt, L. M. A. (2023). Measuring health and human development in cities and neighborhoods in the United States. Npj Urban Sustainability, 3(1). https://doi.org/10.1038/s42949-023-00088-y

Sin, C., Veiga, A., & Amaral, A. (2016). European Policy Implementation and Higher Education. Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-50462-3

Skonieczny G, & Monteleone S. (2011). Geographical analysis of the academic brain drain in Italy.

Speed, F., & Kulichyova, A. (2021). The role of talent intermediaries in accessing and developing refugee talent pools. Journal of Organizational Effectiveness. https://doi.org/10.1108/JOEPP-01-2021-0023

Spiess, C. K., & Wrohlich, K. (2010). Does distance determine who attends a university in Germany? Economics of Education Review, 29(3), 470–479. https://doi.org/10.1016/j.econedurev.2009.10.009

Statista. (2020). Number of university teachers in Italy in the academic year 2018/2019, by role.

Sugimoto, C. R., Robinson-Garcia, N., Costas, R., & Lariviere, V. (2017). Scientists have most impact when they're free to move. Nature, 550(7674), 29–31.

Szabó, J., Révész, H. G., & Van-Dyke, D. J. (2021). The most important attributes for talented students who want to be scientists. Gifted Education International, 37(3), 241–254. https://doi.org/10.1177/0261429420947092

Tavares, D., Tavares, O., Justino, E., & Amaral, A. (2008). Students' preferences and needs in Portuguese higher education. European Journal of Education, 43(1), 107–122. https://doi.org/10.1111/j.1465-3435.2007.00331.x

Taylor, B. J., & Cantwell, B. (2015). Global Competition, US Research Universities, and International Doctoral Education: Growth and Consolidation of an Organizational Field. Research in Higher Education, 56(5), 411–441. https://doi.org/10.1007/s11162-014-9355-6

Teichler, U. (2015). Academic mobility and migration: What we know and what we do not know. European Review, 23, S6–S37. https://doi.org/10.1017/S1062798714000787

Teichler, U. (2017). Internationally mobile academics: concept and findings in Europe. European Journal of Higher Education, 7(1), 15–28. https://doi.org/10.1080/21568235.2017.1254921

Teichler, U., Ava, E., & Editors, H. (2013). The Changing Academy-The Changing Academic Profession in International Comparative Perspective 8 The Work Situation of the Academic Profession in Europe: Findings of a Survey in Twelve Countries. http://www.springer.com/series/8668

The State and Education Policy. (1990). British Journal of Sociology of Education, 11(1), 87–96. https://doi.org/10.1080/0142569900110106

Tien, F. F., & Blackburn, R. T. (1996). Faculty rank system, research motivation, and faculty research productivity: Measure refinement and theory testing. In Journal of Higher Education (Vol. 67, Issue 1, pp. 2–22). Ohio State University Press. https://doi.org/10.1080/00221546.1996.11780246

Times higher education. (2022, July 27). Everything you need to know about Times Higher Education's global portfolio of university rankings. https://www.timeshighereducation.com/world-university-rankings/about-the-times-higher-education-world-university-rankings

Tocchioni, V., & Petrucci, A. (2021). Italian PhD students at the borders: the relationship between family background and international mobility. Genus, 77(1). https://doi.org/10.1186/s41118-021-00127-5

Torres-Reyna, O. (2007). Panel Data Analysis Fixed and Random Effects using Stata. http://www.princeton.edu/~otorres/

Trippl, M. (2013a). Scientific Mobility and Knowledge Transfer at the Interregional and Intraregional Level. Regional Studies, 47(10), 1653–1667.

Trippl, M. (2013b). Scientific Mobility and Knowledge Transfer at the Interregional and Intraregional Level. Regional Studies, 47(10), 1653–1667. https://doi.org/10.1080/00343404.2010.549119

Uhlbach, W. H., Tartari, V., & Kongsted, H. C. (2022). Beyond scientific excellence: International mobility and the entrepreneurial activities of academic scientists. Research Policy, 51(1). https://doi.org/10.1016/j.respol.2021.104401

UNESCO. (1997). The relationship among Research, Policy and Practice in Higher Education.

UNESCO. (2022). Academic mobility in higher education.

Van Der Wende, M. (2015a). International academic mobility: Towards a concentration of the minds in europe. European Review, 23, S70–S88. https://doi.org/10.1017/S1062798714000799

Van Der Wende, M. (2015b). International academic mobility: Towards a concentration of the minds in europe. European Review, 23, S70–S88. https://doi.org/10.1017/S1062798714000799

Veiga, A., Magalhães, A., & Amaral, A. (2015). From Collegial Governance to Boardism: Reconfiguring Governance in Higher Education. In The Palgrave International Handbook of Higher Education Policy and Governance (pp. 398–416). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-137-45617-5_22

Verginer, L., & Riccaboni, M. (2021). Talent goes to global cities : The world network of scientists ' mobility. Research Policy, 50(1), 104127. https://doi.org/10.1016/j.respol.2020.104127

Waltman, L., van Eck, N. J., Visser, M., & Wouters, P. (2016). The elephant in the room: The problem of quantifying productivity in evaluative scientometrics. In Journal of Informetrics (Vol. 10, Issue 2, pp. 671–674). Elsevier Ltd. https://doi.org/10.1016/j.joi.2015.12.008

Wang, X. Y., Li, G., Malik, S., & Anwar, A. (2022). Impact of COVID-19 on achieving the goal of sustainable development: E-learning and educational productivity. Economic Research-Ekonomska Istrazivanja , 35(1), 1950–1966. https://doi.org/10.1080/1331677X.2021.1927789

Washburn Taylor, S., Fox Fender, B., & Gladden Burke, K. (2006). Unraveling the Academic Productivity of Economists: The Opportunity Costs of Teaching and Service. In Journal (Vol. 72, Issue 4).

Weber, K. (1994). Higher Education Policy in Switzerland. In Higher Education Policy: an International Comparative Perspective (pp. 265–289). Elsevier. https://doi.org/10.1016/B978-0-08-042393-7.50018-3

Widiputera, F., De Witte, K., Groot, W., & van den Brink, H. M. (2017). The attractiveness of programmes in higher education: an empirical approach. European Journal of Higher Education, 7(2), 153–172. https://doi.org/10.1080/21568235.2016.1275976

Wullschleger, A., Vörös, A., Rechsteiner, B., Rickenbacher, A., & Maag Merki, K. (2023). Improving teaching, teamwork, and school organization: Collaboration networks in school teams. Teaching and Teacher Education, 121, 103909. https://doi.org/10.1016/j.tate.2022.103909

Yuret, T. (2023). Predicting mobility and research performance of the faculty members in the economics departments at Turkish public universities. Quantitative Science Studies, 1–24. https://doi.org/10.1162/qss_a_00238

Zhao, Z., Bu, Y., Kang, L., Min, C., Bian, Y., Tang, L., & Li, J. (2020a). An investigation of the relationship between scientists' mobility to/from China and their research performance. Journal of Informetrics, 14(2). https://doi.org/10.1016/j.joi.2020.101037

Zhao, Z., Bu, Y., Kang, L., Min, C., Bian, Y., Tang, L., & Li, J. (2020b). An investigation of the relationship between scientists' mobility to/from China and their research performance. Journal of Informetrics, 14(2). https://doi.org/10.1016/j.joi.2020.101037