The original version of this paper was published in the Higher Education Forum, Vol. 21, published by the Research Institute for Higher Education, Hiroshima University, Japan

Working Conditions in Argentina's Academia: Different career paths and fragmentation of the profession[1]

Mónica Marquina[*], Mariana Mandonça[**], and Nicolás Reznik[***]

Abstract. Since the mid-twentieth century, higher education systems worldwide went through huge transformations as a consequence of massification and the recognition of knowledge as key for economic development. The emergence of new teaching modes, the intensity of research, and performativity and accountability pressures impacted directly on academic work and, as a result, on academic working conditions. In this article, we examine the changes that the Argentine professoriate has experienced in recent decades. We argue that the process of fragmentation of the academic profession presents particularities in regard to global trends. We analyze the current state and evolution of the academic workforce in public universities by focusing on different aspects related to its academic profile: gender, training, working conditions, employers, positions, types of contracts, academic practice, perceptions about the career, preferences, and job stress/satisfaction. To achieve this, we have relied on data from the Academic Profession in the Knowledge-Based Society (APIKS) survey.

Keywords: academic profession, Argentina, higher education, fragmentation, working conditions

Introduction

Since the mid-twentieth century, higher education systems worldwide have experienced huge transformations. Universities have had to respond to the challenge of massification on all fronts, including changes in governance and management models (Amaral et al., 2002; Amaral et al., 2008; Deem, 1998; Santiago & Carvalho, 2012; Santiago et al., 2015; Teelken, 2012; Trow, 1973; Želvys et

[1] A shorter version of this paper was presented at the APIKS Conference 2022 held in Aveiro, Portugal between March 2-4.

[*] Researcher, Núcleo Interdisciplinario de Formación y Estudios para el Desarrollo de la Educación (NIFEDE), Universidad Nacional de Tres de Febrero (UNTREF), Argentina, email: mmarquina@untref.edu.ar

[**] Researcher, Universidad Nacional de Tres de Febrero (UNTREF), Universidad Nacional de Hurlingham (UNAHUR), Argentina, email: mmendonca85@gmail.com

[***] Doctoral student, Núcleo Interdisciplinario de Formación y Estudios para el Desarrollo de la Educación (NIFEDE), Universidad Nacional de Tres de Febrero (UNTREF), Argentina, email: nicoreznik@gmail.com

al., 2021). In a context emerging since the beginning of the twenty-first century, where knowledge has been recognized as key for economic development and, therefore, for a labor market that demands a higher-skilled workforce and industry that increasingly relies on this knowledge (Etzkowitz, 1998; Gibbons et al., 1994; Godin, 2006; Olssen & Peters, 2005; Organisation for Economic Co-operation and Development [OECD], 1997), the emergence of new teaching models, the intensity of research, and performativity and accountability pressures impact directly on academic work and, consequently, on academic working conditions.

Although universities share common roots, and most of them have evolved into modern institutions focused on three traditional missions—teaching, research, and third mission activities—they present different patterns of organization and structure. As Altbach (2007) states, while academics around the world teach and perform research and management tasks, working conditions vary greatly from country to country (pp. 159–179). Despite the professoriate having undergone a significant growth in recent decades, this growth rate is still far behind the number of postsecondary enrollments. This, in turn, has led to a deterioration of working conditions. Argentina is not the exception in this global trend. However, the characteristics of these transformations are quite specific.

In this article, we examine the changes that the Argentine professoriate has experienced in the last decades in relation to their working conditions. We argue that the process of fragmentation of the academic profession in this country presents particularities in regard to global trends. The main goal is to analyze the current state and evolution of the fragmentation of the academic workforce in Argentina's public universities by identifying and characterizing a variety of academic groups. We will focus on different aspects related to their profile: gender, training, working conditions, employers, positions, types of contracts, academic practice, perceptions about the career, preferences, and job stress/satisfaction. To achieve this, we have relied on data from the Academic Profession in the Knowledge-Based Society (APIKS) survey (Aarrevaara et al., 2021).

Theoretical framework

Expansion and differentiation of higher education systems worldwide and their impact on the academic profession

The explosive increase in enrollment during the last five decades has transformed the higher education map worldwide. A key consequence of this global trend has been an increasingly diversified and differentiated postsecondary system. As Neave (2001) points out, we must understand diversification as the process the system goes through, and institutional differentiation as its result. In this respect, it is widely accepted that a heterogeneous student body, labor market expectations, and academic abilities emerged together with quantitative expansion (Clark, 1978; Trow, 1973). As Altbach (2017) states, these new cohorts of students have wide-ranging objectives and purposes, and their background presents

an enormous variation when it comes to cultural orientation and economic resources. At the same time, the steering and management of higher education institutions and systems have been a subject of political and academic debate (Meek, 2000). Lastly, quality assurance also turned into a key issue, since some countries have created performance indicators to monitor their institutions. In some cases, this resulted in the redistribution of funding resources (Triventi, 2013).

Changes experienced in higher education institutions have prompted scholars to study academic career paths around the world (Carvalho, 2017; Finkelstein & Jones, 2019), recognizing a significant variation between countries, although it is possible to identify common trends and isomorphism in drivers (Bennion & Locke, 2010; Carvalho, 2017; Finkelstein, 2010; Teichler & Bracht, 2006; Teichler, & Höhle, 2013). The ever more diversified and differentiated higher education system evinces a process toward differentiation and fragmentation in the academic profession. According to Enders & Musselin (2008), the massification of higher education may lead to growth and internal differentiation of faculty profiles in a relatively uncontrolled way, with implications for quality in the profession. Carvalho & Diogo (2018) examine the diversity of contractual modalities that have been present in twenty-five countries over recent decades based on research by Karran (2007). The most evident is that of tenured and nontenured track positions, as well as the existence of fixed-term/part-time contracts. Yet it is possible to find more variation in the level of job security, which allows us to identify full-time permanent positions without the protections of tenured positions. Moreover, variants among tenure appointments can be identified through the use of figures such as "tenure by objectives" or "post tenure review" for countries with tenure systems, or through "merit-based" components or bonuses, focused on recognition of or incentives for teaching or research (Enders & Musselin, 2008).

These studies demonstrate that, despite national and regional specificities, a trend toward changes in academic working conditions (types of appointments, new career paths), including the decline of tenure, the rise of fixed-term contracts for both teaching and research, and the recruitment of academic staff from external professional fields, goes hand in hand with the openness of higher education institutions to outside influence beyond their social and economic environment (Cavalli & Moscati, 2010; Finkelstein, 2010). Therefore, the traditional role of the professoriate as knowledge creators presents a shift toward university teachers as knowledge workers in the context of mass higher education systems and the changing nature of work in a globalized economy, where the knowledge industry needs different kinds of educated workers (Gould, 2006).

These "academic workers" (Gould, 2006; Jones, 2013; Musselin, 2005) may have the same academic qualifications and may be engaged in the same type of work as the "traditional" professoriate. Nevertheless, in addition to new approaches and requirements to teaching and learning for a more diverse student profile and industry (Enders & Musselin, 2008), these academic workers are subject to a variety of employment conditions within more regulated academic labor markets, leading to differentiated careers and a nontraditional academic division of labor that contrasts with the typical one devoted to teaching and research (Musselin, 2005; Enders & Musselin, 2008; Finkelstein, 2003). This

means that, with these new contractual arrangements, many academics are recruited to carry out only one of these two academic activities. This new profile of academics is not only limited to part-time contracts but also to full-time positions, which are research-only or clinical-only, or are now devoted, for example, to teaching-only introductory courses or even to administrative roles in program development and management (Finkelstein, 2003).

In addition, while academic careers become more competitive, more training skills are required. Although the academic career usually begins with a doctorate degree, it is possible to find some cases where it is actually the postdoctoral degree that marks the initial stages of the academic profession (Ates & Brechelmacher, 2013). It is also increasingly common for early career academics to obtain a fixed-term contract during their initial stages, which is unlikely to become permanent or—what is even more difficult—turn into a tenure-track position (Bennion & Locke, 2010; Cardoso et al., 2020; Musselin, 2005; Shin et al., 2018; Yudkevich et al., 2020).

As Enders (2007) claims, the academic profession experienced a loss of status, although the workload has increased substantially, and professional self-regulations have gradually diminished. Some authors have identified this process with a decline among academics, since most of them have been trained in elite universities and now work at other types of institutions (Altbach, 2000; Cavalli & Moscati, 2010; Enders & Musselin, 2008; Finkelstein, 2003; Kadushin, 1974, pp. 91–92). This is closely related to the number of students enrolled in nonelite universities, especially during the first academic years, as well as the cuts in funding for research and development (Teichler, 1994). At the same time, universities have had to reallocate the tenured and nontenured staff to respond to reduced government funding (Ates & Brechelmacher, 2013), a trend that has received criticism for the long periods of professional training, the lack of stability for young academics, and the low wages available (Huisman et al., 2002; Teichler & Bracht, 2006).

When analyzing these processes, the literature uses the terms “segmentation” or “fragmentation” more or less interchangeably (Bexley, 2013; Finnegan, 1993; Strachan et al., 2017; Vohlídalová, 2021) or relies on terminology from specific perspectives used in labor economics, centered on understanding the differences between labor markets (Fernández-Huerga, 2010). Our interest is to focus on individuals who perform different or similar tasks under other terms of employment and working conditions, which is why we find the term “fragmentation” more appropriate for our analysis.

According to Jones (2013), along with the horizontal fragmentation of the profession into disciplinary tribes, a vertical fragmentation of academic work has taken place in the higher education system in recent decades. The author continues to argue that there is a causal relationship between maintaining the status and the supportive working conditions of the full-time, tenure-stream professoriate and the increasing reliance on part-time, contractual university teachers. This fragmentation constitutes a challenge for governance and leadership in the context of the “global” university. Additionally, Finkelstein (2010) states that certain fields in the natural sciences and

engineering show an increased need for tenure-track positions, while most other fields are decreasing their recruitment of tenurable traditional faculty.

In sum, the fragmentation of the academic profession is a consequence of the increasingly differentiated higher education systems, and it represents an academic workforce highly divided by diverse backgrounds, career trajectories, motivations, talents, and work roles that vary widely between academic fields. As Finkelstein (2010) points out for Europe and North America:

> This differentiation of the profession represents an irreversible structural shift in response to larger economic forces transforming the world of work. The notion of academics as a 'cohesive group' united by a common pre-service socialization experience will become increasingly limited in its application to a shrinking core. (p. 151).

The academic profession in Argentina: A trend toward heterogeneity and fragmentation

After the significant rise in enrollment during the second half of the twentieth century, public and private, university and nonuniversity educational institutions in Argentina began to multiply. Until then, the university system in the country had been predominantly of a professional nature, with research development occupying a secondary place (Buchbinder, 2012). Alongside institutional expansion, a large number of science and technology institutions and organizations were created during the 1950s (Beigel et al., 2018; Hurtado de Mendoza, 2010). At the same time, research outside of universities was strongly encouraged.

One of the most noteworthy institutions, the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET—National Scientific and Technical Research Council), was established in 1958. This agency is composed of a wide range of research institutes, with over 10,000 researchers and 12,000 fellows. After going through dark decades under two military dictatorships (1966–1973 and 1976–1983), the scientific system and the public universities in Argentina experienced a process of democratization. As an initial measure, an attempt was made to reinforce the number of tenured professors (many of them had been dismissed or forced to resign for ideological reasons). But, in response to the increased number of university students enrolled, many part-time teachers were eventually hired (Buchbinder & Marquina, 2008; Míguez, 2018). Since then, this subgroup offers the majority of university lectures. At the same time, there was an attempt to bridge the gap between the CONICET's full-time researchers and full-time professors at public universities (Albornoz & Gordon, 2011).

In 2003, the country began to experience an economic recovery, which did not lead to a substantial increase in budget expansion, but it did significantly increase the number of PhD scholars and researchers at the CONICET (Albornoz & Gordon, 2011). To enter the academic career at the CONICET, applicants must hold a PhD and go through a public evaluation process. Once selected and appointed, researchers must undergo an evaluation every two years to remain in their positions or access higher

ones. It is worth noting that the process to enter the academic career is not the same as the one carried out at public universities for a teaching position, where the institution issues an open selection process through competitive examinations and interviews,[2] and the selection is made by an evaluating committee composed of peers in similar or higher ranks. This competitive evaluation process carried out at universities grants a tenured position to a selected teacher, who afterward enjoys stability. Yet, for the promotion to a higher position, a new call is made for an open selection process, similar to the previous one; therefore, the teacher who wants to be promoted must compete with new candidates. In addition, job stability does not necessarily correspond to a full-time position. The open selection processes that lead to a tenured position are also applicable to part-time positions, regardless of hierarchy.[3]

Despite institutional expansion, with new research institutions and new public universities established across the country, the Argentine research system still lags behind European countries (Beigel et al., 2018). If we observe the distribution of research employment in Argentina, we find that 51% of academics belong to the public sector and only 8% are employed in the private sector. Most research activities are carried out at universities (public and private ones) and at science and technology institutions (mainly the CONICET). Most of these academics are employed both at universities and the CONICET but under very different contracts. Most university teachers have part-time jobs and a full-time tenured-track position at the CONICET which, in turn, influences the selection of the different academic career paths (Marquina & Luchilo, 2021).

According to recent statistical data, the university system is made up of more than 200,000 teachers. But when we break down this data, we find that only 21,861 are full-time professors, and 142,623 of them are part-timers (Secretaría de Políticas Universitarias [SPU], 2021). At first glance, these figures show a low research activity carried out at universities. However, when analyzing the science and technology system as a whole and considering that there is a convergence of academics at public universities who also carry out research activities and who belong to science and technology institutions, we find differentiated career paths and a strong increase in the number of part-time professors who, nonetheless, carry out full-time research activities subsidized by external research organizations (i.e., the CONICET). In addition, the majority is comprised of a large group of part-time teachers who only develop teaching activities at universities. Despite research policies adopted during recent decades, we still observe a lack of postgraduate degrees among academics in Argentina: barely 12.6 % of them hold a doctorate degree, and 5.6 % a master's degree (SPU, 2021).

It is important to note that this differentiation in career paths is not evident between types of institution—as is the case with other countries, where it is easy to distinguish between research

[2] Or, "concurso público de antecedentes y oposición".

[3] In Argentina, university teaching positions can be classified according to the time devoted to academic tasks, such as full-time, semi-exclusive (50% of full-time), or single position (25% of full-time). The number of working hours does not correspond to the hierarchy of the position. For our analysis, we will consider a full-time or part-time classification (regardless of the percentage of full-time dedicated hours) for time devoted to work, and a junior/senior classification for ranks.

universities and other more teaching-oriented institutions—but rather within institutions themselves, where all career paths converge. This is a consequence of the Higher Education Act of 1995, which established that all universities in Argentina must develop three main functions: teaching, research, and third mission activities.

When analyzing public policies and working conditions over the last decades, it is possible to observe profound changes throughout the years. We argue that these public policies have highly impacted the academic profession in Argentina. As Marquina et al. (2021) state, changes can be seen across academic generations, which have adopted these new policies and regulations differently. We agree with Shaw (2005) and his definition of generation, in which he considers that the aspects of time and space affect the aggregate of subjects' generations because of their presence in a delineated historical period, as well as the specific processes of socialization in terms of values, beliefs, attitudes, and demands toward the work of academics in higher education institutions.

Hypotheses and methods

There is currently a worldwide trend that shows a fragmentation of the academic profession based on different backgrounds, career trajectories, motivations, talents, and work roles. This structural shift, a reflection of the differentiation of the higher education systems, is a response to a context in which economic forces are transforming the world of work. It is assumed that Argentina is part of this global shift, but the fragmentation process of the academic profession presents particularities, because Argentina is both part of the periphery and, at the same time, part of an international academic community (Altbach, 2003; Enders & Musselin, 2008). This makes the case more complex and worthy of study.

Some of the questions that prompted our research are the following: what kinds of subgroups of academic work exist (e.g., full-time professors, full-time researchers, part-time professors and full-time researchers, part-time professors)? How does academic work differ in these subgroups (with some dedicated to teaching and others to research)? How are these subgroups composed in terms of academic profile? Which are the potential effects on academic work (preferences, satisfaction, stress, institutional involvement, etc.)? Are there any specific working conditions (e.g., teaching-only, research-only, and teaching and research positions) and contracts (tenured, interim, hourly contracts)? Who is their main employer in each case?

For the purpose of this study, we have made an attempt to identify these subgroups based on two main variables (employer and contract time) that, we believe, will allow us to gain an in-depth understanding of the composition of the academic career paths in Argentina. We have thus defined four main subgroups:

1. Group 1: full-time professors who carry out their research at and are employed by public

universities.

2. Group 2: full-time researchers who are employed by a research institution or organization that is associated with public universities (the CONICET, etc.) and who have a part-time, teaching-only position at the university.
3. Group 3: part-time teachers, employed by a public university, who carry out research activities more than five hours per week but who are far from becoming full-time professors or full-time researchers.
4. Group 4: part-time teachers employed by a public university who focus their activity on teaching and do not carry out research or do so less than five hours per week.

The fragmentation process in Argentina has produced at least four groups with different compositions in terms of education, genre, rank, type of contract, and generation (H1). Moreover, this fragmentation has an impact a) on the practices that academics engage in, and b) on their perceptions about some aspects of their academic careers (H2 a and b).

We have drawn on data from the Argentine APIKS survey to support our hypotheses and answer the formulated questions. This survey was carried out in 2019, with a total of 1,450 responses obtained, which, after a detailed clean-up process, produced 1,025 valid responses. The resulting database was weighed in accordance with employment status, gender, and rank to ensure representativeness of the public university system. Consequently, the final number of valid cases was reduced to 954.[4]

The analysis of the hypotheses was based on an analytical model (see Annex, Table A), which allowed us to relate our main explanatory variable (career path groups) to dependent variables. For H1, we first identified the groups detailed below.

Career Path Groups*:* we identify four groups based on different career paths according to their main employer and employment time (full-time or part-time).

This independent variable (which was considered as dependent in prior analyses) was compared to the following dependent ones:

1. Generation: three generations of academics, influenced by key moments in national policy implementation and the year of access to their first teaching position.
    a. Novice: they have accessed their academic careers since 2008, have ten or less years of

[4] Our survey obtained 1,450 responses as of May 31, 2019. After debugging the database, 362 responses were eliminated because they were incomplete and 63 were invalid, leaving 1,025 valid responses (exceeding the minimum number of responses to enter the international project that was 800). Considering that the original sample was 7,500 cases, we had a response rate of 13.7%. Since the responses obtained were not balanced regarding three main variables, the database has been weighted in terms of employment status (Full-time or Part-time), gender and rank, so that the results are representative of all academics in the country's public universities. Thus, the final database has a total of 345,348 records (362 variables for 954 valid cases), and the total number of valid cases was reduced to 954.Variable “degree” was not part of the balance. In this sense, we warn the reader that in our sample the population with a postgraduate degree is slightly overrepresented.

experience in the profession, and entered the profession during former president Cristina Fernandez's administration.

b. Intermediate: they obtained their first positions between 1995 and 2007, have up to twenty-five years' experience in the field, and entered the profession during the second administration of former president Carlos Menem or during Néstor Kirchner's administration.

c. Consolidated: they began their academic careers before 1995, the same year the Higher Education Act was passed; have worked as academics for more than twenty-five years; and entered the profession during the de facto military government (1976–1983) or during the administrations of former presidents Raúl Alfonsín or Carlos Menem (1989–1995).

2. Type of contract: there are three types of contracts for academics,
   a. Tenured: in general, access to these positions is decided through an "open selection process through competitive examinations and interviews."
   b. Interim: these contracts are appointed without going through an open process of competitive examination; the duration of the contract normally lasts six to twelve months and has an automatic renewal; and, although the law establishes that there must be an open call for the position, most universities do not meet this requirement.
   c. Hourly: these contracts fulfill the need to cover teaching hours for short periods of time, without guaranteeing continuity.
3. Rank: two main ranks, juniors and seniors.
4. Gender: male, female.
5. Training: this group is divided into three subgroups,
   a. Undergraduate,
   b. MA and specialization,
   c. PhD and postdoctoral degree.

This subdivision of career path groups allowed us to characterize each of these groups, detailing their composition according to different academic profiles and establishing an association between each path chosen and the specific features of each group. To test H1, we addressed career path groups as a dependent variable to analyze variations by generation, type of contract, training, rank, and gender. We also carried out a descriptive analysis and employed chi-square to evaluate the association between these variables.

After characterizing the four groups for H1, we considered them an independent and explanatory variable, which we named "Career Path Groups," and used new dependent variables to work on H2—that is, to predict some aspects of academic practice and academics' perceptions about their careers.

1. Academic Practice
    a. Hours devoted to teaching/research
2. Perceptions about Academic Career
    a. Preferences of academic work: teaching vs. research
    b. Stress/satisfaction
    c. Institutional influence

To test H2, we ran a multivariate regression model for dependent variables because we assumed that the time devoted to teaching/research and the assessments of preferences on academic work, stress/satisfaction, and institutional influence might be related to additional factors beyond career path groups differences alone. As presented in the Annex (Table A), the regression model included gender, academic rank, contract time, generation, discipline, and employer as control variables, which were of particular relevance to test H2, either because some of them are part of the explanatory variable and we wanted to test them in isolation, or because they are relevant variables that better explain perceptions and use of time. Based on the characteristics of the variables included in the multivariate regression model, we created the corresponding dummy variables to ensure the applicability of the model, as shown in the Annex (Table A).

Results

Descriptive analysis: Four different groups of academics

According to our sample, most Argentine academics began their careers after 2008 and, therefore, belong to the youngest generation of academics. Junior positions are held by 62% of them—i.e., 38% of junior positions are occupied by academics of older generations—66% of the total academics in junior positions hold interim contracts, and only 25% are tenured, despite the fact that the law establishes that university teachers and professors must complete an "open selection process through competitive examinations and interviews" to access the position and attain stability.

Another characteristic that emerged from our sample is that a significant percentage of academics in Argentina do not have a graduate degree (35.7%), and those who do only hold a master's or specialization degree (37%). Only 27% have PhDs and postdoctoral degrees. In terms of gender, it is possible to observe parity among Argentine academics.

We have also found that a large majority of professors are part-timers (67.7% of our sample, which matches official data). Nevertheless, such numbers do not necessarily mean that they do not carry out research activities. Regarding full-time professors, 32.3% carry out research activities at universities or at another science and technology institution in addition to holding a teaching position.

According to the criteria used to define the four groups for the academic profession in Argentina, we have identified the academic profile of each of these four groups of academics as follows:

Group 1 (G1): These are mostly academics belonging to the oldest generation (21 points above the average) and who are mostly tenured (17 points above the average) for their senior positions (33 points above the average). Among them, 43.2% hold a master's or a specialization degree, while 20% hold only an undergraduate degree, and 37% a PhD or higher degree. When it comes to gender composition, women are in the majority, with 7.4 points above the average for the profession.

Group 2 (G2): These are academics who mostly belong to the youngest generation in a proportion similar to that of the total. In relation to teaching positions, this group is primarily composed of nontenured academics (68.9% have an interim period of junior positions), whereas only 24.9% are tenured professors. At the same time, their degrees differ notably, since a larger group hold PhDs or postdoctoral degrees (67%). Lastly, this group has a balanced gender composition.

Group 3 (G3): It is primarily composed of the oldest generation of academics, but unlike the first group, most of them are not tenured professors. In comparison with the other groups, most of them hold an undergraduate degree (40.7%), although there is a 22% segment that holds a PhD or a higher degree. The proportion related to academic positions keeps up with the average (63% for juniors and 37% for seniors). It also has a balanced gender composition (44.2% are women and 55.8% are men).

Group 4 (G4): Most of the academics in this group are young teachers (8.5 points above the general average) on fixed-term contracts (4.3 points above the average) and hold undergraduate degrees (11.8% above the average). Most of them hold junior positions (9.2% above average). In comparison with the other groups, there is an unequal gender composition, with a majority of male academics.

Based on the analysis conducted, we argue that there is a significant decline in tenure-track positions when comparing the different career path groups, with a higher percentage in G1 and a sharp decrease as we move on to the other groups. Moreover, an increase in the number of hourly contracts can be observed among G3 and G4 when compared to G1 and G2. At the same time, junior positions increase sharply from G1 to G2 and continue increasing in G3 and G4.

We may underscore that tenured positions are concentrated, mainly, in G1. Nevertheless, the highest successfully completed level of education or training is a characteristic of G2. Furthermore, those who hold an undergraduate degree as the highest degree attained are the majority in G4. At the

Table 1. Composition of career path groups

Variables	Groups	G1		G2		G3		G4		Total	
		115		193		271		375		954	
		12,05%		20,23%		28,40%		39,30		100%	
		N	%	N	%	N	%	N	%	N	%
Generation	Novice	29	25.7	83*	44.4	115*	43.7	198*	54.2	425	45.7
	Intermediate	35	30.3	67	35.5	82	31.2	110	30.2	293	31.6
	Consolidated	50*	44.0	38	20.2	66	25.1	57	15.6	211	22.7
Type of contract	Tenure	48	42.0	48	24.9	66	24.2	78	20.8	240	25.1
	Interim	63*	55.4	133*	68.9	187*	68.8	246*	65.5	629	65.9
	Hourly contract	2	2.0	12	6.3	14	5.3	45	12.1	74	7.8
	Other	1	0.6	0	0	4	1.6	6	1.6	11	1.2
Training	Under-graduate	22	19.4	32	16.4	109*	40.7	172*	47.5	335	35.7
	Master's specialization degree	49*	43.2	32	16.6	100	37.4	166	45.7	347	37.1
	PhD/postdoctoral degree	43	37.3	129*	67.0	59	21.9	25	6.8	255	27.2
Rank	Junior	33	28.9	122*	63.2	171*	63.0	268*	71.5	594	62.3
	Senior	81*	71.1	71	36.8	100	37.0	107	28.5	360	37.7
Gender	Male	49	43.0	98**	50.5	120	44.2	214**	57.1	481	50.4
	Female	65**	57.0	95	49.5	151**	55.8	161	42.9	473	49.6

Source: APIKS Argentina, 2018.

*p < 0.001, **p < 0.01, ***p < 0.05

same time, we have noted that most of these academics are men in junior positions. By comparison, those who hold interim positions and have earned a graduate degree belong to G3. In particular, we must highlight that a significant percentage holds a PhD. Finally, when it comes to gender, we find a percentage of women above the average in G1. This is one of the less significant variables, but others, when compared to the rest, have shown a strong association.

In sum, we clearly recognize four career paths based on institutional affiliation (main employer) and contract time. Additionally, we identify clear academic profiles in the population of each of the four groups, which shows fragmentation and allows us to confirm our previously established H1.

Multivariate analysis: Different academic practices and perceptions

After discussing our first hypothesis and clearly identifying the composition of the "Career Path Groups" variable, we applied a test on this variable to further understand whether they can be considered explanatory of some aspects linked with academic practice and also some of the perceptions that academics have about their profession, in particular their preferences about teaching or research, their satisfaction or stress in the profession, and their influence on different organizational levels at the university.

Therefore, we ran a multivariate analysis for our second hypothesis (H2), which included other variables related to professional characteristics. We set out to find out how these additional variables impact the above-mentioned aspects and whether the "Career Path Groups" variables are determinant factors. This exercise allowed us to confirm that the "Career Path Groups" variables account for some of the aspects selected for analysis (see Annex, Table B). Indeed, we found a high correlation between these variables and the hours devoted to teaching (G2: -0.35**, G4: -0.36***) and research (G1: 0.16*, G2: 0.46***, G4: -0.43***), academics' preferences for teaching and research (G2: 0.43***, G4: -0.17***), and their perception of stress (G2: 0.11**, G4: -0.06***) as a result of their profession. Yet this explains neither satisfaction nor institutional influence.

Among the control variables included in our model, academic rank seems to have a significant influence on the explanation of these perceptions (including stress). On the other hand, "employer" is the main variable that helps explain institutional influence. In regard to the rest of the control variables, it should be noted that discipline does not present a strong correlation with any of the variables under analysis (only teaching hours, 0.07*, and preferences, -0.07*), and neither does gender, with the exception of satisfaction (-0.09**). The "generation" variable, however, carries some weight in explaining stress and institutional influence.

Based on this statistical analysis, we will now focus on those aspects in which we have verified a significant explanatory impact of our main variable—"Career Path Groups"—to further understand the effects of fragmentation on academic practice and perceptions.

Table 2. Academic practices, preferences, and stress according to career path groups

Variables	Mean	Total	Groups			
			1	2	3	4
Academic Practices	Average weekly hours dedicated to teaching	9.4	11.8	9.0	11.7	7.2
	Average weekly hours dedicated to research	11.4	14.3	23.7	13.5	2.6
Preferences	Primarily in / leaning toward teaching	64.8	59.0	23.6	67.6	85.8
	Primarily in / leaning toward research	35.2	41.0	76.4	32.4	14.3
Stress	Mean of three related variables ((B4_1+B4_2+B4_3)/3)	2.56	2.39	2.94	2.57	2.41

Source: APIKS Argentina, 2018.

This study shows that the different aspects of the academic profession analyzed allow us to further understand the fragmentation process that it has gone through. With respect to the hours dedicated to teaching and research, there are several aspects to highlight that confirm our hypotheses. G1, whose members have a full-time commitment to the university and whose population is more consolidated in terms of position, generation, and type of contract, dedicates more time to teaching than the overall average, even though their positions demand time committed to research as well. G2, by contrast and as expected—and despite its members' part-time positions at universities—mostly carry out research activities, as their main employer requires. G3, while corroborating our assumptions, stands out because, despite holding part-time contracts, its members' interest in research is above the average. Finally, G4, whose members are specifically hired to teach, devotes fewer hours to research activities than the overall average (less even than G1 and G2), which include teaching and research among their duties.

As for preferences, data does not reveal any unexpected results. With a higher inclination for teaching, G1 shows an interest in research above the average by 6 points. G2 mostly prefers research, with 41 points above the average. G3 leans toward teaching by a few points above the average, and this is even more pronounced in G4, who prefers teaching by 20 points above the average.

Finally, in terms of perceived stress, G2 presents above-average values, while G1 and G4 seem to be more at ease with their work, perhaps for different reasons—reasons that we will attempt to explain in the next section.

Discussion and conclusions

We have discussed several aspects of the fragmentation process that the academic profession has experienced in Argentina. After reviewing the recent history of the higher education system, it is possible to consider that the changes that have led to this fragmentation have been mainly driven by public policies related to global trends and implemented over the last decades.

We have corroborated that "fragmentation" (Jones, 2013) is the correct term, given that we are not in the presence of well-defined markets or academic segments for different activities but rather vertical and horizontal processes in which the profession is developing and is increasingly differentiated through tasks that are not necessarily aligned vis-à-vis academic market segments and clearly defined working conditions.

As a result, we have confirmed the existence of at least four different groups when analyzing the structure of the academic profession in Argentina on the basis of employers and time devoted to the profession. We have found a strong differentiation between those who hold full-time positions and the vast majority who hold part-time positions at universities. Moreover, even though this is a structural feature of the higher education systems of the periphery (Altbach, 2003), this differentiation has deepened in recent decades, and this trend can be observed not only across generations but also across academic ranks.

Yet, even though all academic groups carry out their work at universities, it is possible to identify contrasts among them. We have found an important difference between full-time professors, whose main employer is the university, and those whose employer is a science and technology organization, (i.e., the CONICET). The latter carry out full-time research activities and have a part-time university position for teaching. And although both groups perform the usual teaching and research activities, those working at the CONICET are more oriented toward research, with a differentiated distribution of academic work. This is in line with the process identified by Enders and Musselin (2008) of a differentiation focused on academic tasks.

At the same time, we have found a number of part-time teachers who engage in research activities despite not holding a full-time position neither at the CONICET nor at any university. This group reveals a particularity of the fragmented academic profession in Argentina: as a result of the policies implemented in the science and technology sector with the opening of more doctoral scholarships through the CONICET between 2003 and 2015, there has been a surplus of PhDs (even though there is still a small group that holds doctoral degrees) who carry out research activities despite holding a teaching-only position. In other developed countries, academic careers have become more competitive, with more training skills required, mainly for early career academics, who obtain a fixed-term contract that is unlikely to turn into a permanent or a tenure-track position (Bennion & Locke, 2010; Shin et al., 2018; Yudkevich et al., 2020; Cardoso et al., 2020). In Argentina, these difficulties might be expressed with the existence of a group that produces knowledge without any economic compensation for it but

with huge expectations of making a leap toward a full-time position at universities or the CONICET. We suggest that future studies should focus on this group of teachers with PhDs and part-time positions who develop research on their own in order to investigate the reasons behind the performance of research activities during hours that exceed their employment contract.

We have also found a fair number of teachers who do not perform any research activities. Most of them are young teachers and have hourly contracts; they hold undergraduate degrees, have junior positions and, in comparison with the other groups, gender composition in that group is mostly male. They are probably contracted for massive introductory courses. At first glance, it is possible to identify this group with the set of part-time teachers that has been growing globally as a response to the massification of enrollment and the need to fulfill teaching duties (Cavalli & Moscati, 2010; Finkelstein, 2003, 2010).

Another expression of fragmentation arises from a horizontal differentiation (Jones, 2013). Today, young Argentine academics have two very different paths available to them: one is to aspire to be a part of the academic elite by entering the profession through the CONICET, mainly to conduct research and additionally to teach, whereas the other is to be a part of a majority of part-time teachers or teachers on hourly contracts—both needed to respond to the great massification of higher education—especially during the initial years of university programs. We might be in the presence of new types of fragmentation, with university teachers complementing their part-time university position with work at different educational institutions (secondary and postsecondary) or even at other institutions (governmental, nongovernmental organizations, businesses, etc.). This is another issue that future studies ought to address.

Years of training are also noteworthy, since they vary greatly among these groups. Contrary to what is usually assumed, full-time university professors do not always have a PhD, unlike those whose main employer is a science and technology institution, such as the CONICET. This phenomenon may be understood in generational terms: most of these academics are senior professors, many of them facing retirement, who entered the academic career when a doctorate degree was not the rule but rather the crowning achievement of a career in the academic field. We have shown that most members of the youngest generations who engage in research activities do indeed hold a PhD and that most of them have entered the academic career through the CONICET as their main employer. It is thus possible to associate the training profile of this group with traditional academics from developed countries, given that their participation in the international academic community is greater than the rest (Altbach, 2000, 2003; Enders & Musselin, 2008).

The characteristics described allow us to discuss the results obtained when examining the variables linked with the perceptions that these groups have about the academic activities they perform. Traditional full-time university professors are the ones who show less signs of stress, which can be considered a result of their career paths: they have earned a fully consolidated senior rank, and most of them hold a permanent position. This group, then, is the closest to the traditional idea of academics as a

"cohesive group" (Finkelstein, 2010), equivalent to the tenured professor of the developed world. It is interesting to observe that this coincides with the fact that this group of academics is an increasingly small group.

By contrast, academics who entered the career through the CONICET show higher signs of stress with respect to their academic activities. This is because their academic ranks are subject to their performance. They have to undergo periodic peer reviews and evaluations to advance in their careers as researchers, and it is very difficult for them to progress to a full-time position at the university. This case is similar to the tenure-track by objectives or by results, identified in international literature as the expression of a significant change in the global academic profession (Enders & Musselin, 2008; Finkelstein, 2010).

A similar situation can be found in part-timers contracted for teaching duties who have decided to work over hours to continue conducting research activities as a way of advancing in their academic careers. They show higher levels of stress than their peers, who perform teaching-only duties. Their lower levels of stress may be directly related to the fact that their academic position might not be their main professional activity.

This initial approach to the fragmentation process that the Argentine academic profession has experienced allows us to shed light on the issues faced by the youngest generation. The possibilities and career path options are constantly narrowing. Advancing in their careers does not only depend on individual efforts, achievements, and results. The traditional full-time university position seems to be at risk of extinction or being reduced to specific disciplines (Finkelstein & Jones, 2019).

Finally, the differentiation between career paths has not yielded evidence to substantiate academic satisfaction or institutional influence. Future studies, therefore, should focus on identifying other variables that may confirm these aspects.

Unlike other higher education systems, where it is possible to find an interinstitutional differentiation, we may affirm that the academic fragmentation in Argentina is intra-institutional. This may be related to the policies implemented in recent decades, as academic requirements have continued to increase.

References

Aarrevaara, T., Finkelstein, M., Jones, G.A., & Jung, J. (2021). The academic profession in the knowledge-based society (APIKS): Evolution of a major comparative research project. In T. Aarrevaara, M. Finkelstein, G. A. Jones, & J. Jung (Eds.), *Universities in the knowledge society: The nexus of national systems of innovation and higher education* (pp. 49–64). Springer. https://doi.org/10.1007/978-3-030-76579-8_4

Albornoz, M., & Gordon, A. (2011). La política de ciencia y tecnología en Argentina desde la recuperación de la democracia (1983–2009) [Science and technology policy in Argentina since the return to democracy (1983–2009)]. In M. Albornoz Díez-Rodríguez & J.S. Andina (Eds.), *Trayectorias de las políticas científicas y universitarias de Argentina y España* (pp. 1–46). Consejo Superior de Investigaciones Científicas.

Altbach, P. G. (Ed.). (2000). *The changing academic workplace: Comparative perspectives*. Boston College Center for International Higher Education.

Altbach, P. G. (2003). Centers and peripheries in the academic profession: The special challenges of developing countries. In P. G. Altbach (Ed.), *The Decline of the Guru: The Academic Profession in Developing and Middle-Income Countries* (pp. 1–21). Palgrave Macmillan. https://doi.org/10.1057/9781403982568_1

Altbach, P. G. (2007). *Tradition and transition: The international imperative in higher education*. Sense Publishers.

Altbach, P. G. (2017). The necessity and reality of differentiated postsecondary systems. In P. G. Altbach, L. Reisberg, & H. de Wit (Eds.), *Responding to massification: Differentiation in postsecondary education worldwide*. (pp. 1–12). Sense Publishers. https://doi.org/10.1007/978-94-6351-083-7_1

Amaral, A., Bleiklie, I., & Musselin, C. (2008). *From governance to identity: A festschrift for Mary Henkel*. Springer Science & Business Media. https://doi.org/10.1007/978-1-4020-8994-7

Amaral, A., Jones, G. A., & Karseth, B. (2002). Governing higher education: Comparing national perspectives. In A. Amaral, G. A. Jones, & B. Karseth (Eds.), *Governing Higher Education: National Perspectives on Institutional Governance* (pp. 279–298). Springer Science & Business Media. https://doi.org/10.1007/978-94-015-9946-7_14

Ates, G., & Brechelmacher, A. (2013). Academic career paths. In U. Teichler & E. A. Höhle (Eds.), *The work situation of the academic profession in Europe: Findings of a survey in twelve countries* (pp. 13–35). Springer. https://doi.org/10.1007/978-94-007-5977-0_2

Beigel, F., Gallardo, O., & Bekerman, F. (2018). Institutional expansion and scientific development in the periphery: The structural heterogeneity of Argentina's academic field. *Minerva*, *56*(3), 305–331. https://doi.org/10.1007/s11024-017-9340-2

Bennion, A., & Locke, W. (2010). The early career paths and employment conditions of the academic profession in 17 countries. *European Review*, *18*(S1), S7–S33. https://doi.org/10.1017/S1062798709990299

Bexley, E. (2013). On the fragmentation and decline of academic work. In Centre for the Study of Higher Education, *Tertiary education policy in Australia* (pp. 97–104). The University of Melbourne. https://melbourne-cshe.unimelb.edu.au/__data/assets/pdf_file/0009/2306484/Tert_Edu_Policy_Aus_2013.pdf

Buchbinder, P. (2012). *Historia de las universidades Argentinas* [History of universities in Argentina] (2nd ed.). Editorial Sudamericana.

Buchbinder, P., & Marquina, M. (2008). *Masividad, heterogeneidad y fragmentación: el sistema universitario argentino 1983–2007* [Massivity, heterogeneity and fragmentation: the Argentinean university system 1983-2007]. Universidad Nacional de General Sarmiento.

Cardoso, S., Tavares, O., Sin, C., & Carvalho, T. (Eds.). (2020). *Structural and institutional transformations in doctoral education: Social, Political and student expectations*. Palgrave Macmillan. https://doi.org/10.1007/978-3-030-38046-5

Carvalho, T. (2017). The study of academic profession: Contributions from and to the sociology of professions. In J. Huisman & M. Tight (Eds.), *Theory and method in higher education research* (Vol. 3, pp. 59–76). Emerald Publishing. https://doi.org/10.1108/S2056-375220170000003004

Carvalho, T., & Diogo, S. (2018). Non-tenured teachers, higher education. In P. N. Teixeira & J. C. Shin (Eds.), *The international encyclopedia of higher education systems and institutions* (pp. 2114–2118). Springer. https://doi.org/10.1007/978-94-017-8905-9_292

Cavalli, A., & Moscati, R. (2010). Academic systems and professional conditions in five European countries. *European Review*, *18*(S1), S35–S53. https://doi.org/10.1017/S1062798709990305

Clark, B. R. (1978). Academic differentiation in national systems of higher education. *Comparative Education Review*, *22*(2), 242–258. https://doi.org/10.1086/445980

Deem, R. (1998). 'New managerialism' and higher education: The management of performances and cultures in universities in the United Kingdom. *International Studies in Sociology Of Education*, *8*(1), 47–70. https://doi.org/10.1080/0962021980020014

Enders, J. (2007). The academic profession. In J. J. F. Forest & P. G. Altbach (Eds.), *International Handbook of Higher Education* (pp. 5–21). Springer. https://doi.org/10.1007/978-1-4020-4012-2_2

Enders, J., & Musselin, C. (2008). Back to the future? The academic professions in the 21st century. In OCDE (Ed.), *Higher education to 2030, Vol. 1. Demography* (pp. 125–150). Organisation for Economic Co-operation and Development. https://doi.org/10.1787/9789264040663-en

Etzkowitz, H. (1998). The norms of entrepreneurial science: Cognitive effects of the new university–industry linkages. *Research Policy*, *27*(8), 823–833. https://doi.org/10.1016/S0048-7333(98)00093-6

Fernández-Huerga, E. (2010). La teoría de la segmentación del mercado de trabajo: Enfoques, situación actual y perspectivas de futuro [The theory of labour market segmentation: Approaches, current situation and future prospects]. *Investigación Económica*, *69*(273), 115–150. https://doi.org/10.22201/fe.01851667p.2010.273.24253

Finkelstein, M. (2003). Japan's national universities gird themselves for the latest wave of reform. *International Higher Education*, *33*, 20–22. https://doi.org/10.6017/ihe.2003.33.7387

Finkelstein, M. J. (2010). Diversification in the academic workforce: The case of the US and implications for Europe. *European Review*, *18*(S1), S141–S156. https://doi.org/10.1017/S1062798709990366

Finkelstein, M. J., & Jones, G. A. (Eds.). (2019). *Professorial pathways: Academic careers in a global perspective*. Johns Hopkins University Press.

Finnegan, D. E. (1993). Segmentation in the academic labor market: Hiring cohorts in comprehensive universities. *Journal of Higher Education*, *64*(6), 621–656. https://doi.org/10.1080/00221546.1993.11778461

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). The new production of knowledge: The dynamics of science and research in contemporary societies. Sage Publications.

Godin, B. (2006). The knowledge-based economy: Conceptual framework or buzzword? *Journal of Technology Transfer*, *31*(1), 17–30. https://doi.org/10.1007/s10961-005-5010-x

Gould, E. (2006). Professor or knowledge worker? The politics of defining faculty work. *Higher Education in Europe*, *31*(3), 241–249. https://doi.org/10.1080/03797720601058690

Huisman, J., de Weert, E., & Bartelse, J. (2002). Academic careers from a european perspective: The declining desirability of the faculty position. *Journal of Higher Education*, *73*(1), 141–160. https://doi.org/10.1080/00221546.2002.11777134

Hurtado de Mendoza, D. (2010). La ciencia Argentina: Un proyecto inconcluso: 1930–2000 [Science in Argentina: An unfinished proyect: 1930–2000]. Edhasa.

Jones, G. A. (2013). The horizontal and vertical fragmentation of academic work and the challenge for academic governance and leadership [Special issue]. *Asia Pacific Education Review*, *14*(1), 75–83. https://doi.org/10.1007/s12564-013-9251-3

Kadushin, C. (1974). *The American intellectual elite*. Transaction Publishers.

Karran, T. (2007). Academic freedom in Europe: A preliminary comparative analysis. *Higher Education Policy*, *20*(3), 289–313. https://doi.org/10.1057/palgrave.hep.8300159

Marquina, M., & Luchilo, L. (2021). University, research, and innovation in Argentina: A winding road to the knowledge society. In T. Aarrevaara, M. Finkelstein, G. A. Jones, & J. Jung (Eds.), *Universities in the knowledge society: The nexus of national systems of innovation and higher education* (pp. 319–338). Springer. https://doi.org/10.1007/978-3-030-76579-8_18

Marquina, M., Pérez Centeno, C., & Reznik, N. (2021). Institutional influence of academics in Argentinean public universities in a context of external control. *Acta Paedagogica Vilnensia*, *46*, 54–72. https://doi.org/10.15388/ActPaed.2021.46.4

Meek, V. L. (2000). Diversity and marketisation of higher education: Incompatible concepts? *Higher Education Policy*, *13*(1), 23–39. https://doi.org/10.1016/S0952-8733(99)00030-6

Míguez, E. (2018). *Crítica (y reivindicación) de la universidad pública* [Criticism (and vindication) of the public university]. Siglo XXI Editores.

Musselin, C. (2005). European academic labor markets in transition. *Higher Education*, *49*(1–2), 135–154. https://doi.org/10.1007/s10734-004-2918-2

Neave, G. (2001). The European dimension in higher education: An excursion into the modern use of historical analogues. In J. Huisman, P. Maassen, & G. Neave, *Higher education and the nation state: The international dimension of higher education* (pp. 13–73). IAU Press.

Olssen, M., & Peters, M. A. (2005). Neoliberalism, higher education and the knowledge economy: From the free market to knowledge capitalism. *Journal of Education Policy*, *20*(3), 313–345. https://doi.org/10.1080/02680930500108718

Organisation for Economic Co-operation and Development. (1997). *OECD Observer, 1996*(3), OECD Publishing. https://doi.org/10.1787/observer-v1996-3-en

Santiago, R., & Carvalho, T. (2012). Managerialism rhetorics in Portuguese higher education. *Minerva*, *50*(4), 511–532. https://doi.org/10.1007/s11024-012-9211-9

Santiago, R., Carvalho, T., & Cardoso, S. (2015). Portuguese academics' perceptions of higher education institutions' governance and management: A generational perspective. *Studies in Higher Education*, *40*(8), 1471–1484. https://doi.org/10.1080/03075079.2015.1060709

Secretaría de Políticas Universitarias. (2021). Síntesis de información: Estadísticas universitarias: 2020–2021 [Synthesis of information: University statistics: 2020-2021]. https://www.argentina.gob.ar/sites/default/files/sintesis_2020-2021_sistema_universitario_argentino.pdf

Shaw, V. (2005). Life course of academic professionals: Substantive tasks, false assumptions, institutional accommodations, and personal adjustments. *Advances in Life Course Research*, *9*, 331–347. https://doi.org/10.1016/S1040-2608(04)09012-4

Shin, J. C., Kehm, B. M., & Jones, G. A. (2018). The increasing importance, growth, and evolution of doctoral education. In J. C. Shin, B. M. Kehm, & G. A. Jones (Eds.), *Doctoral education for the knowledge society: Convergence or divergence in national approaches?* (pp. 1–10). Springer. https://doi.org/10.1007/978-3-319-89713-4_1

Strachan, G., Peetz, D., Broadbent, K., Bailey, J., Whitehouse, G., & Troup, C. (2017). Academics: How career structures and segmentation undermine pay regulation. In D. Peetz & G. Murray (Eds.), *Women, labor segmentation and regulation: Varieties of gender gaps* (pp. 155–174). Palgrave Macmillan. https://doi.org/10.1057/978-1-137-55495-6_9

Teelken, C. (2012). Compliance or pragmatism: How do academics deal with managerialism in higher education? A comparative study in three countries. *Studies In Higher Education*, *37*(3), 271–290. https://doi.org/10.1080/03075079.2010.511171

Teichler, U. (1994). Higher education and employment: Changing conditions for diversified structures of higher education. *Higher Education in Europe*, *19*(4), 51–59. https://doi.org/10.1080/0379772940190408

Teichler, U., & Bracht, O. (2006). The academic profession in Germany. *Reports of changing academic profession project workshop on quality, relevance, and governance in the changing academia: International perspectives*, *20*, 129–150. https://rihe-publications.hiroshima-u.ac.jp/wp/wp-content/uploads/2019/05/COE20.pdf

Teichler, U., & Höhle, E. A. (Eds.). (2013). *The work situation of the academic profession in Europe: Findings of a survey in twelve countries*. Springer. https://doi.org/10.1007/978-94-007-5977-0

Triventi, M. (2013). Stratification in higher education and its relationship with social inequality: A comparative study of 11 European countries. *European Sociological Review*, *29*(3), 489–502. https://doi.org/10.1093/esr/jcr092

Trow, M. (1973). *Problems in the transition from elite to mass higher education*. Carnegie Commission on Higher Education.

Vohlídalová, M. (2021). The segmentation of the academic labour market and gender, field, and institutional inequalities. *Social Inclusion*, *9*(3), 163–174. https://doi.org/10.17645/si.v9i3.4190

Yudkevich, M., Altbach, P. G., & de Wit, H. (Eds.). (2020). *Trends and Issues in Doctoral Education: A Global Perspective*. SAGE Publications.

Želvys, R., Leišytė, L., Pekşen, S., Bružienė, R., & Rose, A-L. (2021). From collegiality to managerialism in Lithuanian higher education. *Acta Paedagogica Vilnensia*, *46*, 27–42. https://doi.org/10.15388/ActPaed.2021.46.2

Annex

Table A. Model: Variables used in regression analysis

Name	Description	Range
Dependent variables		
Average weekly hours dedicated to teaching	Considering all your professional work, how many hours do you spend in a typical week on each of the following activities? (B1)	0–50 hours
Average weekly hours dedicated to research		
Preferences	Regarding your own preferences, do your interests lie primarily in teaching or research? (B2)	1= teaching 2= research
Stress	Please indicate your views on the following (B4)	1 (Strongly disagree)– 5 (Strongly agree)
Satisfaction	How would you rate your satisfaction with (B5)	1 (Very low)–5 (Very high)
At the level of the department or similar unit	How influential are you in helping to shape key academic policies at your institution? (F1)	1 (Not at all influential)– 5 (Very influential)
At the level of the faculty, school or similar unit		
At the institutional level		
Independent variables		
Career-path groups		1=Group 1; 0=Group 2/3/4 1=Group 2; 0=Group 1/3/4 1=Group 4; 0=Group 1/2/3 00=Group 3
Gender		0 = Male 1 = Female
Academic Rank		0 = Junior 1 = Senior
Contract time	Full time (40 hrs./week) Part time (less than 40 hrs./week)	0 = Part time 1 = Full time
Generation	Young (2008–2019) Intermediate (1995–2007) Old (before 1995)	0 = Young 1 = Intermediate 00 = Old
Discipline		0 = STEM 1 = NO STEM
Affiliation (employer)	What is your affiliation as a researcher?	0 = Your own university 1 = CONICET 00 = Other science and technology entities

Table B. Regression model: Academic practices and perceptions

Variables		Average weekly hours dedicated to teaching	Average weekly hours dedicated to research	Prefer-ences	Stress	Satisfac-tion	At the level of the departme nt or similar unit	At the level of the faculty, school or similar unit	At the institu-tional level
(Constant)		12.805	59.848	2.809	4.390	3.339	1.537	0.574	1.576
Career-path groups	G1	-0.10	0.16***	0.06	0.01	0.07	-0.14	-0.08	-0.03
	G2	-0.35**	0.46*	0.43*	0.11**	0.23	-0.21	-0.22	-0.10
	G4	-0.36*	-0.43*	-0.17*	-0.06*	-0.04	0.03	0.01	-0.03
Gender		-0.01	-0.01	-0.01	0.03	-0.09**	-0.08***	-0.04	-0.06
Academic rank		0.12**	0.02	-0.01	-0.15*	0.17*	0.18*	0.20*	0.15*
Contract time		-0.05	-0.47*	-0.29***	-0.18*	0.12**	0.11*	0.15**	0.01
Generation		-0.01	-0.02	-0.04	-0.10**	-0.03	0.12**	0.12**	0.11**
Discipline		0.07***	-0.12	-0.07***	-0.01	-0.01	-0.01	0.04	0.01
Affiliation (employer)		-0.14*	-0.13*	-0.11**	-0.06	0.13*	-0.10**	-0.11**	-0.10**
R2 (Adjusted)		0.080	0.436	0.180	0.079	0.058	0.111	0.118	0.079

Source: APIKS-survey 2018

*p < 0.001, **p < 0.01, ***p < 0.05