

Chapter 5

Poland

An Abundance of Doctoral Students but a Scarcity of Doctorates

Marek Kwiek

The massification of doctoral studies in Poland has not led to an equivalent increase in doctoral degrees. While the number of doctoral students increased steadily through the 1990s and 2000s, the number of doctorates awarded did not follow suit. Many students entered doctoral programmes, but only a minority were awarded degrees. Most either dropped out or completed the programme but did not defend their dissertations. This disparity between entrants and doctoral degrees awarded is central to understanding emergent tensions around doctoral education in the Polish context. Based on international comparative statistics, the current intake of 43,000 doctoral students (GUS 2017; OECD 2017) represents an overproduction of doctoral students but a scarcity of doctorates.

HISTORY OF DOCTORAL EDUCATION IN POLAND

Traditionally, as in other European systems, the number of doctoral students in Poland was low and completion rates were high. There were a limited number of available places and doctorates were awarded

upon completion of a highly competitive programme and dissertation defence, or by dissertation defence only if the candidate was already employed as an assistant in a degree-awarding institution. The proportion of new entrants to the academic profession through doctoral studies and assistantships has varied over time. At present, a doctoral degree is required for all new academic posts. Prior to 1989, the Polish higher education system was elitist and competitive. The number of academics increased slowly, from 22,523 in 1965 to 61,400 in 1989—an almost threefold increase within a quarter of a century. During that period, 1,700–3,700 doctoral degrees were awarded annually.

After 1989, the delayed massification of higher education changed the landscape beyond recognition. By 2016, there were four times as many students and sixteen times as many doctoral students, but the number of academics only increased by about 50 per cent (Białecki and Dąbrowa-Szeffler 2009; Siemieńska and Walczak 2012). In other words, the dramatic expansion in student numbers, which stopped in 2006 (Kwiek 2013; Kwiek and Szadkowski 2018), was not accompanied by a corresponding expansion in the academic profession. One consequence of this disparity was that academic employment opportunities for new doctoral graduates shrank in the post-1989 period, which largely explains why the increasing number of doctoral students did not lead to a proportionate increase in doctorates awarded. Because the chances of academic employment were very low, the motivation to pursue or complete a doctoral degree was also low.

Prior to the end of communist rule in 1989, the basic rationale behind Polish doctoral education was to provide highly trained personnel to higher education institutions. After 1989, doctoral education was extended to those who wished to continue in higher education without necessarily considering academic jobs. These new ‘third-cycle students’ (as they were called following the Bologna Process) qualified for benefits such as scholarships and health care provisions. The traditional rationale of intensive training in research and research methods for a small number of future academics was turned upside down, and in most academic fields and institutions, the traditional Humboldtian bond between pupil and master was broken. Among the exceptions were some research-intensive faculties in elite universities,

especially in the hard sciences. Massified, underfunded, organizationally uncoordinated—and most of all, perhaps, devoid of a clear purpose—Polish doctoral education has drifted into the unknown, and most doctoral students now combine doctoral studies with non-academic work rather than being socialized to academic norms.

This drift can be explained by a combination of several factors. Perhaps the most important of these was a failure to understand why the country needed doctoral studies on such a massive scale. It was also unclear what kind of professional life doctoral students might pursue if, as was already clear by about 2005, they were unlikely to secure academic jobs. Until recently, there was little debate about these issues, either in the public domain or among political parties. After two decades of failure, a new law passed in July of 2018 introduced fundamental changes, including a focus on research-intensive institutions and making scholarships available only for those enrolled in newly created doctoral schools.

DOCTORAL EDUCATION AND SOCIETY

The status of doctoral students in the higher education sector is unclear (Szadkowski 2014), as is the overall status of doctoral education in society. Are doctoral studies expected to produce national elites, or are they merely expanding the pool of highly qualified personnel in the labour market? Are universities more interested in the quantity or the quality of doctoral studies and, by extension, of doctoral degrees? When the Bologna Process was introduced about a decade and a half ago, the traditionally elite status of doctoral studies disappeared as higher education massified and programmes became largely non-selective. In Poland, the whole system of doctoral education had traditionally focused on producing future university professors; with massification, the question was where these future university professors were to be employed. In terms of non-academic employment for doctoral graduates, there is a vast difference between the needs of industry (where those with degrees in technical disciplines might find employment) and of business enterprises and public administration (for those with degrees in social sciences and economics).

Given the scarcity of new academic posts and the large number of doctoral students, the decision not to complete one's studies, or to even engage in research activities, can be seen as a rational strategy at the individual level. If only about 10 per cent of this population can reasonably expect to find employment in the academic sector, there seems little point in pursuing an education that prioritizes academic research and publications. Ninety per cent of doctoral students will never find their way to higher education employment. In a heavily declining higher education system (Kwiek 2013), with decreasing numbers of students and academics, the pool of new academic posts is very limited. For purely demographic reasons, the number of students declined by about one third in the last decade, and the number of academics, with a delay, followed suit. This disinterest in academic employment among doctoral students was matched by the frustration of doctoral supervisors, who saw no point in supervising students who showed little interest in research. However, the new law of 2018, if skilfully implemented and backed by new funding for doctoral schools, may bring much-needed change.

ORGANIZATION, PROCEDURES, FUNDING AND INTERNATIONALIZATION

While doctoral students are predominantly enrolled in higher education institutions (94.23% of candidates), data from 2016 indicate that some can also be found in the Polish Academy of Sciences (4.72%) and research institutes (0.95%). All higher education institutions, including those specializing in one discipline such as agriculture, economics, education, technology or medicine, offer doctoral programmes. About half of these students (48.25%) are enrolled in universities and about one fifth (18.05%) in universities of technology. In organizational terms, doctoral education is provided at the faculty level. Faculties are the main organizational units within academic institutions and, in most cases, they comprise several departments and are headed by a dean. In 2018, almost 90 per cent of about 1,000 faculties (880) were eligible to provide doctoral education (POLON 2018). Doctoral education is located almost exclusively in the public sector. The number of doctoral

students (and doctoral degrees awarded) in the private sector is marginal. In 2016, the private sector accounted for just 3,418 doctoral students (7.9%), while only 122 doctoral degrees (2.8%) and 17 *Habilitation* degrees (0.9%) were awarded (GUS 2017). The demand-driven nature of the private sector largely accounts for this low level of participation (Antonowicz et al. 2018; Kwiek 2018b).

Doctoral education in Poland is currently provided through a combination of structured teaching (lectures, classes, laboratory hours) at the faculty level and individual collaboration with academic supervisors. One main supervisor is responsible for the student's academic development and progress. In 2016, almost 90 per cent of doctoral students failed to specify their dissertation themes and titles, which are required for the so-called opening procedure. The number of doctoral students who passed the opening procedure is very low (5,209 of 43,181 doctoral students, or just 12.1%). In all other cases, official supervisors had not even been assigned.

The criteria for doctoral programme providers are strictly defined. According to the Law on Higher Education (LHE 2011), an academic institution must be authorized to confer the PhD degree in at least two different disciplines before being allowed to provide doctoral programmes in those disciplines. In practice, only faculties or departments that employ at least eight full-time senior academics in a given discipline may confer doctoral degrees.

Entry to doctoral studies is offered to top graduates as a continuation of their master's-level studies. There is a required minimum average grade (usually 4.0 on the Polish scale, in which 2.0 is a fail and 5.0 is the maximum). Because the number of candidates usually exceeds places available, oral entrance exams are commonplace. Admissions committees comprising professors from the given faculty organize these exams and evaluate candidates partly on the basis of their academic accomplishments to date, and partly on their project proposals. Doctoral studies take four years, and scholarships may be provided for that entire duration. Most universities will agree to extend the period of study by one year, with all privileges maintained (including coverage of costs for the doctorate defence procedure, which all part-time candidates

or those not enrolled in a doctoral programme must pay themselves), but with no scholarship. Doctoral programmes may be full-time or part-time. In public higher education institutions, no tuition fees are charged for full-time programmes, but there may be fees for part-time studies, especially in law, business and economics.

Although this chapter addresses doctoral education, it is important not to disregard the specific structure of academic degrees in Poland. One feature that the Polish higher education system shares with countries such as Austria, Finland, France, Germany, Russia and Switzerland is the postdoctoral degree (or *Habilitation*), which can be granted by about two-thirds (647) of all Polish faculties (POLON 2018). While a doctoral degree opens the door to junior positions, the *Habilitation* is the first step in a senior academic career. The powerful gatekeeper status of the *Habilitation* as a prerequisite for university professorship, and ultimately full professorship, means that the doctoral degree becomes less important. It is merely the entry ticket on the long journey to academic seniority.

The changing proportion of doctoral students to degrees awarded has important policy implications. Other than Russia, Poland is the largest producer of doctorates in Central and Eastern Europe. In 2016, there were 43,181 Polish doctoral students, and 5,999 doctoral degrees were awarded. Since the collapse of communism in 1989, about 117,000 new doctorates have been awarded. The number of those completing a *Habilitation* degree has been much smaller, as they are awarded to those already employed in the academic sector (in 2016, for instance, 1,848 were awarded). While the number of doctoral students grew roughly by a factor of 10 between 1990 and 2000, and a factor of about 16 by 2016, the number of doctorates awarded in the same period increased by no more than a factor of 2 or 3, depending on the year. The period of greatest expansion was the 1990s. The number of doctoral students increased from 2,695 in 1990 to 25,622 by 2000. Following an increase to 37,492 by 2010, the number has remained in the 40,000–43,000 range for the last three years (Table 5.1).

These data can be analysed along several dimensions, including academic field, institutional type, gender and regional concentration.

Table 5.1 *Doctoral Students and Doctorates Awarded in Poland (1990–2016)*

Year	Total	Full-Time	Part-Time	Doctorates Awarded
1990	2,695	1,926	769	2,324
1995	10,482	6,779	3,703	2,300
2000	25,622	18,882	6,740	4,400
2005	32,725	23,169	9,556	5,917
2010	37,492	27,066	10,426	4,815
2015	43,177	37,101	6,076	5,956
2016	43,181	37,548	5,633	5,999

Source: Author's analysis based on GUS (Central Statistical Office) data.

While the number of men pursuing a doctoral degree increased by 5,445 in the period 2000–2016, the number of women increased by almost double that figure (12,548). This is a strong trend. While a majority of doctoral students in 2000 were men (55.44%), they were in the minority (44.95%) by 2016. This change may be attributed to the decreasing attractiveness of the academic profession (Kwiek 2017), especially in the context of low entry salaries in the higher education sector in Poland and elsewhere, and also relatively low salaries for senior academics (Kwiek 2019; Yudkevich, Altbach, and Rumbley 2015). Poland clearly represents the feminization of academe, which may further diminish its financial attractiveness, as a growing number of women enter doctoral studies and move on to junior positions in higher education.

While the growth of doctoral education in the university sector has been remarkable, it has been less dramatic in universities of technology, which are focused on both teaching and research. For the period studied, the number of doctoral students increased by 61.24 per cent in universities, but only 27.02 per cent in universities of technology. This, in part, explains the increasing numbers of women doctoral students, as new opportunities have appeared predominantly in the university sector. In 2016, women accounted for two-thirds of all students at the

master's level (67.19%). It is hardly surprising, then, that the number of women doctoral students in universities increased by about 5,000 (79.06%) in the period 2000–2016.

In 2016, there were 8,106 doctoral students in the humanities and 4,674 in the social sciences. With 3,728 in economics and 3,860 in law, the total in 'soft fields' was 20,368 (47.17 %); in other words, about half of all doctoral students that year were enrolled in fields unrelated to STEM (science, technology, engineering and mathematics). The proportion of women is higher in these non-STEM fields, totalling 62.05 per cent in the humanities, 62.84 per cent in the social sciences, 51.52 per cent in economics and 54.72 per cent in law, which are all well above the proportion of women in the doctoral population as a whole. The number of doctoral students in technical sciences is widely considered too low at 15.75 per cent (6,802), 36.64 per cent of which are women. In international terms, STEM fields are underrepresented in Polish doctoral education, while non-STEM fields are overrepresented (see Table 5.2).

In terms of regional concentration, 40.93 per cent of doctoral students are located in Warsaw and Krakow, the two largest academic centres. A further 38.70 per cent are located in five smaller academic centres. Warsaw's dominance is strong, with one in four doctoral students in Poland enrolled in Warsaw-based institutions. Similarly, one third of research funding from the National Research Council goes to the two national flagship universities, the University of Warsaw and the Jagiellonian University in Krakow (Kwiek 2018b).

The distribution of doctorates by academic field reveals the tension between high numbers of doctoral students and low numbers of doctorates awarded. In 2016, the largest numbers of doctorates were awarded in medicine and technical sciences, followed by the humanities and social sciences. In all other fields, the number was considerably smaller. In the case of *Habilitations*, these four fields also dominated, accounting for 51.35 per cent of all Polish postdoctoral degrees. Of 5,999 doctorates awarded in 2016, 91.13 per cent were awarded by higher education institutions (predominantly universities and universities of technology), with 4.96 per cent (297) awarded by the various institutes of the Polish Academy of Sciences, 3.23 per cent (194) by

Table 5.2 *Number of Doctoral Students by Major Academic Field (2016)*

	Doctoral Students					
	Total		Full-Time		Part-Time	
	Total	Female	Total	Female	Total	Female
Total	43,181	23,772	37,548	20,931	5,633	2,841
Humanities	8,106	5,030	7,811	4,815	295	215
Religious studies	1,720	422	1,492	395	228	27
Social sciences	4,674	2,937	3,900	2,585	774	352
Economics	3,728	1,921	2,444	1,295	1,284	626
Law	3,860	2,112	1,724	891	2,136	1,221
Mathematics	541	144	537	142	4	2
Physics	1,202	471	1,192	468	10	3
Chemistry	1,763	1,160	1,755	1,155	8	5
Biology	1,991	1,381	1,991	1,381	0	0
Earth sciences	946	497	939	494	7	3
Technical sciences	6,802	2,492	6,543	2,448	259	44
Agriculture	1,585	1,066	1,492	1,017	93	49
Forestry	178	65	106	48	72	17
Medicine	3,183	2,143	2,967	2,022	216	121
Health sciences	677	557	639	529	38	28

Source: Author's analysis based on GUS (Central Statistical Office) data (2017).

research institutes and 0.68 per cent (41) by ecclesiastical higher education institutions (GUS 2017).

From October 2019 onwards, it is expected that the newly created doctoral schools required by the 2018 law will lead to further regional concentration. The data for 2000–2016 shows that the academic peripheries (in terms of the 16 Polish administrative units) have not been developing as rapidly as Warsaw and Krakow, and in some cases,

the number of doctoral students in 2016 was the same as in 2000. Detailed analysis of the regional concentration of doctoral students over time confirms this skewed pattern of expansion. The two major academic centres differ substantially from the rest of the country, making them natural candidates for flagship status as ‘research universities’ under the 2018 law (Kwiek 2018).

Doctoral studies in Poland are funded by the public budget (included in ministerial subsidies for teaching) and by fees (for part-timers in public universities and for all doctoral students in private ones). Public and private institutions each have separate funding streams for doctoral studies, and the funding is included as part of the general financial support for students. In 2016, about 40 per cent of doctoral students received financial support—one in five (19.9%) received doctoral scholarships and one in five (21.20%) got social scholarships or need-based support related to family income (GUS 2017, 158–159).

The number of international students enrolled in doctoral studies in Poland is the lowest across all OECD countries. In 2015, it was 1.9 per cent (OECD average=25.7%; EU22 average=21.7%). In Europe, only Hungary (7.2%), Latvia (8.8%), Slovenia (8.5%) and Germany (9.1%) had a share of international students lower than 10 per cent (OECD 2017, 300). This is perhaps the most worrying indicator, suggesting that the Polish doctoral system as a whole is uncompetitive and unable to attract international talent. Despite its relatively large size, the system is focused almost exclusively on Polish students, and predominantly uses the Polish language for instruction.

POLISH DOCTORAL EDUCATION: AN INTERNATIONAL COMPARATIVE PERSPECTIVE

To assess Poland’s international standing in this context, the most meaningful comparison is with other OECD economies (OECD 2017). The number of doctorate holders in Poland’s working age population (ages 25–64) is one of the lowest in Europe. At fewer than 5 doctorates per 1,000 people, Poland is most similar to post-communist countries such as Russia, Estonia, Slovakia and Latvia, as well as Portugal and

Italy. In contrast, 10 OECD countries achieve figures of 10 or more doctorates per 1,000 (OECD 2015, 102).

Polish doctoral recipients are relatively young, with a median age at graduation of 32 years. That is one of the lowest in the OECD area. Cross-disciplinary differences are relatively small, with the median age being 31 in the natural and agricultural sciences and 33 in the medical sciences and humanities. In Europe, the median age is lower only in the Netherlands and Switzerland (29–31; OECD 2010). The typical age of entry to doctoral education in Poland is 24–26, which is among the lowest in the OECD area (OECD 2017, 420). The age structure of Polish doctoral holders indicates that they are a relatively homogeneous population group, with the highest share below 45 years old (68.7% for men; 70.8% for women). This is the highest rate across all OECD countries, with most European countries at 40–50 per cent.

In Poland, the structure of doctorate holders by employment sector differs radically from all other countries for which data are available. The most recent data (2016; GUS 2017) show that 213,971 people in the Polish labour force are involved in research and development, and that 87,027 of them hold doctoral degrees. Using the OECD classification of research and development personnel, 87.39 per cent of Polish doctoral holders are employed in the higher education sector (including the Polish Academy of Sciences), with 8.71 per cent in the business enterprise sector and 3.90 per cent in the government and private non-commercial sectors combined (GUS 2017, 42). Poland is one of several countries in which the business enterprise sector accounts for less than 10 per cent of the pool of doctorate holders. The picture that emerges is one of a Polish higher education and science system that produces doctorates for academia, and then keeps them there.

Distribution of Doctorates Awarded

In the Polish context, only one in four doctoral students is ultimately awarded a doctoral degree (NIK 2015, 6). It follows that the processes affecting the distribution of doctoral education differ from those that determine the distribution of doctorates. The emergent tensions reveal

the fundamental difference between the changing higher education system in terms of teaching, which is where the Bologna Process places doctoral education, and research, in which doctorates awarded belong. In Poland, there is a further difference in national statistics, as the fields of study used to report doctoral student numbers differ from those used to report doctorates awarded.

While the rise in the number of doctoral students can be linked to financial mechanisms (e.g., more doctoral students per institution means higher public subsidies), the rise in the number of doctorates awarded can be linked to factors such as internal academic promotion procedures and doctoral supervision as a formal requirement in applying for full professorship. While doctoral education is therefore undertaken for reasons other than the award of a doctorate (e.g., to prolong the period of study), doctorates awarded signal a new stage, leading predominantly to employment in the academic sector. Measuring the changing distribution of doctorates awarded over time by academic field reveals shifts in the academic sector better than changes in doctoral education, as a high proportion of doctoral students are academically inactive. More doctorates are reported in academic fields that either afford more employment opportunities in the academic sector or—as in medicine and law—lead to new opportunities in non-academic sectors of the economy.

From a historical perspective, the number of doctorates (and *Habilitations*) awarded was relatively stable in the period prior to the regime change (1970–1990), and so too was the gender distribution of both types of degrees. Women were awarded about one-third of all doctoral degrees (27–32%), and about one-fifth (20–21%) of *Habilitations*.

It is useful to view Polish doctorates and *Habilitations* in the context of academic careers and how they relate to age. In the last half century, the average age range for doctorates was 30–35 years; over the last 15 years, this has remained stable at 32–33 years. In the case of *Habilitations*, the average age increased until 2008, peaking at 47 and then decreasing slowly to about 45 by 2016 (Figure 5.1). What is especially important in both academic and policy contexts is the time lapse between

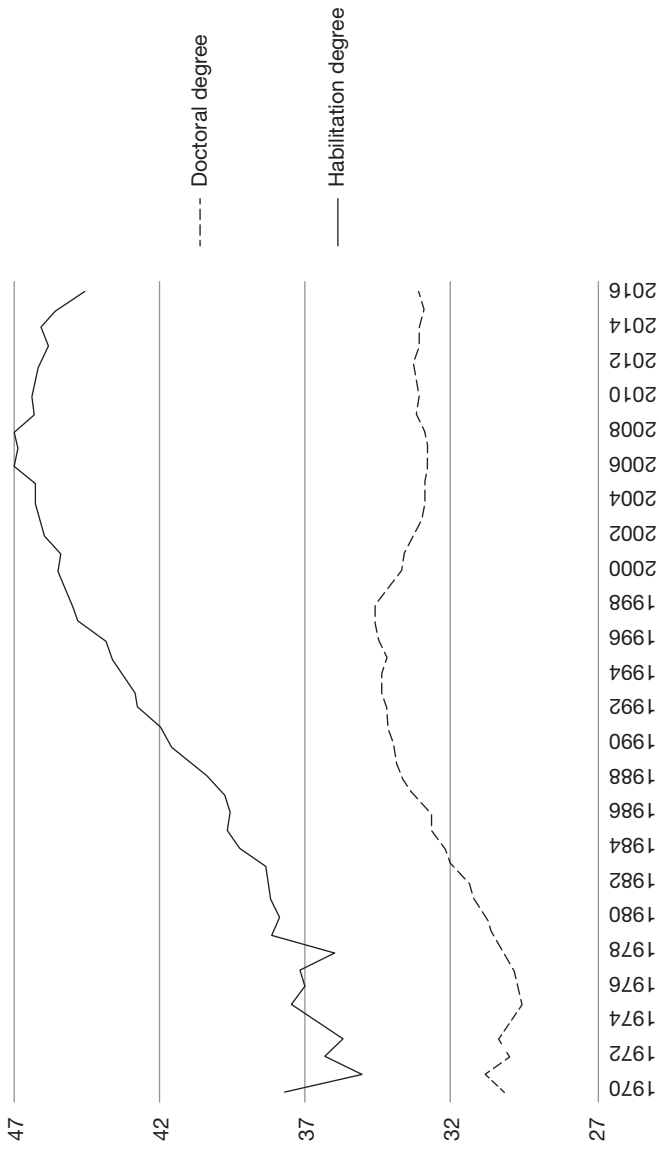


Figure 5.1 Mean Age for Award of Doctoral and Habilitation Degrees (1970–2016)
 Source: Author's analysis based on data from the OPI (2017) data set.

the two degrees. In the 1980s, this averaged 7–9 years, increasing in the mid–1990s to an average of 12–13 years, where it remains today. This means that junior-level academic careers are very long in Poland compared to other countries. As mentioned earlier, the second degree is just the entry ticket to academic seniority. The full professorship is not reached, on average, until academics are in their 50s. In the case of the *Habilitation*, the age factor has major policy implications, and its possible abolition has been at the centre of the academic reform debate over the last quarter of the century.

During the period studied (1990–2016), the number of doctorates awarded annually increased by 158 per cent (from 2,324 to 5,999). A total of 92,993 new doctorates have been awarded since 2000. This increase is not impressive when compared to the fourfold increase in the number of students, and the huge increase ($\times 16$) in the number of doctoral students in the same period. Rather, the limited expansion of doctorates during the period from 1990 to 2016 reflects the limited growth of the academic profession (Kwiek 2015b, 2017). There is a clear connection here; while doctoral education witnessed phenomenal growth (as did higher education in general), the growth in doctorates awarded reflects the emergent opportunities in the academic sector. From a European perspective, employment opportunities for doctoral holders in Poland are almost exclusively academic. As the academic sector did not grow quickly enough, the growth in the number of doctorates was therefore modest. During the expansion period of doctoral education (2000–2016), the number of doctorates was stable at about 5,000–6,000 per year.

What did change fundamentally during this time, however, was the gender composition of doctorate holders, with a gradually increasing share of women receiving doctorates. While 31 per cent of doctorates in 1990 were awarded to women, the percentage rose to 42 per cent in 2000, and 53 per cent by 2010. From a gender perspective, the turning point came in 2008. This is when, for the first time in the history of Polish science, the number of women exceeded the number of men receiving doctorates (Table 5.3).

The female-to-male (FM) ratio is a useful tool for studying gender differentiation in doctorates (and *Habilitations*), and reveals dramatic changes in the gender composition of doctorates in Poland. This ratio

Table 5.3 Number of Doctorates and Habilitations Awarded by Gender (1990–2006)

	Doctorates						Habilitations					
	Total	Male	Female	FM Ratio	% Male	% Female	Total	Male	Female	FM Ratio	% Male	% Female
1990	2,324	1,607	717	0.45	69	31	973	765	208	0.27	79	21
1995	2,300	1,537	763	0.50	67	33	628	457	171	0.37	73	27
2000	4,400	2,568	1,832	0.71	58	42	829	589	240	0.41	71	29
2005	5,917	2,986	2,931	0.98	50	50	955	611	344	0.56	64	36
2010	4,815	2,260	2,555	1.13	47	53	960	610	350	0.57	64	36
2015	5,956	2,787	3,169	1.14	47	53	1,643	921	722	0.78	56	44
2016	5,999	2,817	3,182	1.13	47	53	1,848	1,047	801	0.77	57	43

Source: Author's analysis based on GUS (Central Statistical Office) data.

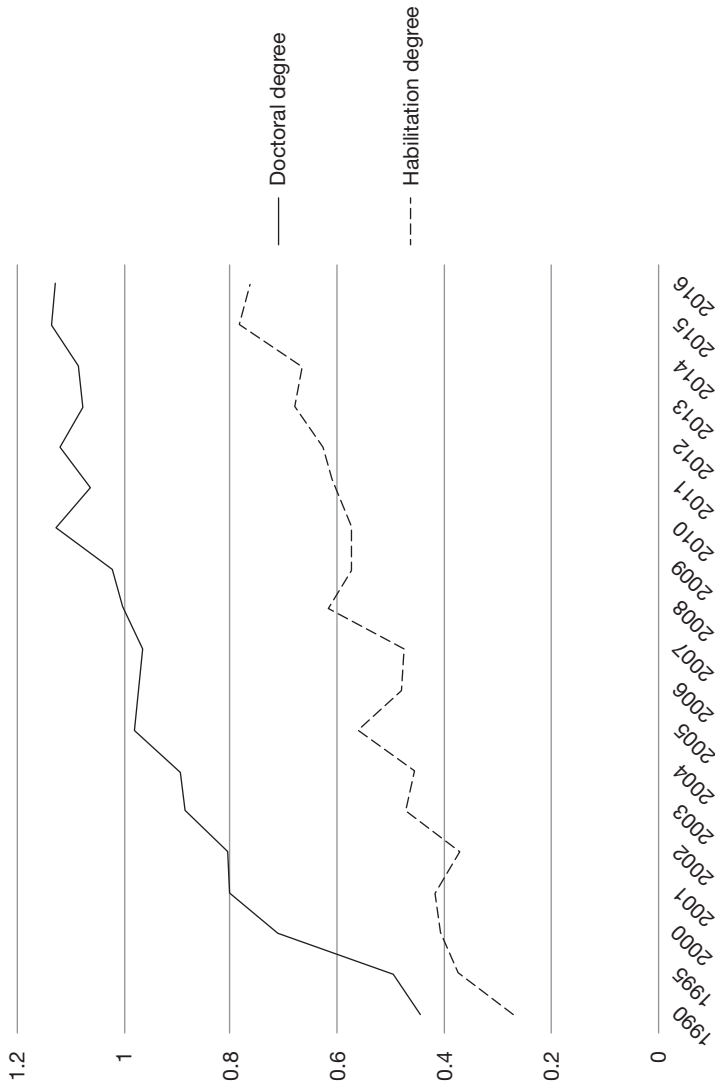


Figure 5.2 FM Ratio of Doctorates and Habilitations Awarded (1990–2006)

Source: Author's analysis based on data from OPI (2017).

was 0.45 in 1990; it increased steadily, reaching 1.00 in 2008 (a turning point, with an equal number of male and female doctorates) and 1.13 in 2016 (Figure 5.2).

While doctorates may be awarded to non-academics, the post-doctoral degree is awarded almost exclusively to academics. In other words, the changing gender composition of the *Habilitation* over time highlights changes within the academic profession. The FM ratio for doctorates differs considerably from the FM ratio for *Habilitations*, although both show a substantial increase in women receiving degrees. In the case of the *Habilitation*, the gender factor is very clear. In the same period (1990–2016), the FM ratio increased from 0.27 in 1990, to 0.41 in 2000, to 0.57 in 2010, and reached 0.77 in 2016. The gender gap is also evident in the number of *Habilitations* awarded (1,047 men and 801 women in 2016; see Table 5.3). While the share of women with doctorates increased from 31 per cent in 1990 to 53 per cent in 2016, the share of women awarded *Habilitations* increased from 21 per cent to 44 per cent over that same period. One further dynamic—not addressed here but worthy of attention—is the slowly changing low share of female professorships over time.

A detailed analysis of the changing composition of doctorates awarded in Poland from 2006 to 2016 reveals stability in all major academic fields. While in some cases there has been a slight decrease in the number of doctoral degrees awarded (biology, economics, physics, medical sciences, technical sciences), there have been slight increases in others (chemistry). Other fields (law) have shown substantial increases, although overall numbers remain low. The only academic field in which the number of degrees awarded exceeded 1,000 is the humanities, with 1,349 degrees in 2016 (22.49%). This has important policy implications, as the state may decide to limit the number of places available in these fields through the new organizational mechanism of doctoral schools and the financial mechanism of scholarships for those in doctoral schools only.

REFORM DEBATES: ACADEMIC DEGREES AND ACADEMIC CAREERS

In terms of funding and governance, Polish universities remained largely unreformed until 2009–2012 (Kwiek 2016). Prior to 2009, the

higher education system was governed by two laws: a 1990 law granting academic freedom and institutional autonomy, and a 2005 law, which sought to adapt the system as a whole to Bologna Process requirements (including the introduction of a three-cycle model of higher education studies). Throughout this period, however, the system was based on non-competitive funding modes and excessively powerful collegial governance (Kwiek 2015a). The next set of reforms (from 2009 to the present) aimed to reinstitutionalize the research mission (Kwiek 2012) and to reorient Polish universities towards research activities and closer cooperation with wider socio-economic interests. As of 1 October 2018, another new wave of reforms has taken the same direction, with internationalization of research as one of the major goals (Antonowicz, Kwiek, and Westerheijden 2017; LHE 2018).

Since 2010, doctoral education in Poland has attracted severe public and academic criticism, following Bologna-related changes in the law on higher education introduced in 2005. The major lines of criticism include: lax selection criteria that allow the inflow of large numbers of doctoral students (selection and size), declining quality of doctoral education and doctoral dissertations (quality), narrow choice of courses for doctoral students (educational offerings), low numbers of doctoral scholarships (incentives), and the inability of Polish institutions to attract international doctoral students (internationalization).

As in a number of other European countries, the legal and academic status of Polish doctoral students remains unclear. The key question is whether they are young academics (as was traditionally the case in Poland) or third-level students (in the spirit of the Bologna Process). The young academic/older student distinction has a number of practical implications, including access to national-level research funding and access to institution- and faculty-level research infrastructures. Doctoral students in the humanities and social sciences report the lowest levels of access to funding; more than 40 per cent of the former and 35 per cent of the latter report no access to funding at all (Bień 2016, 261). Reported reasons for pursuing doctoral studies are as follows: self-development (90%), influencing research in one's academic discipline (49.7%), professional career (40.3%), social advancement (28.9%) and access to scholarships (20%; Bień 2016, 266).

In the debate around Polish higher education reforms from 1999 to 2018, three questions related to doctoral education figure prominently. First, how is doctoral education to be linked to the research status of degree-awarding institutions (or their academic units, predominantly faculties)? In other words, how can it be ensured that doctorates are produced only in research-intensive academic environments? Second, how can it be ensured that doctoral students are fully focused on their dissertations rather than on outside jobs? And finally, how can doctoral education be linked to the labour market and/or social needs? These three issues reflect the three major lines of criticism of doctoral education: the declining quality of doctoral dissertations, doctoral students' declining interest in research, and the mismatch between scientific fields in which dissertations are awarded and available employment opportunities inside and outside the university sector.

The new law on higher education advances a comprehensive solution to these three issues (Antonowicz, Kwiek, and Westerheijden 2017; LHE 2018). From October 2019 onwards, the right to award doctoral degrees will be granted only to institutions of at least middle ranking in the periodic national research assessment exercise known as the 'national research evaluation' (Kulczycki 2017). In a national ranking system for 47 academic fields, only institutions with middle and high marks will be able to award doctoral degrees in a given academic field. The new requirement brings an end to the current situation, which grants this right to 88 per cent of academic units.

The new law on higher education also introduces the concept of doctoral schools, which are to be located exclusively in institutions that are highly ranked for research performance. A new geography of doctoral education will gradually be introduced, with all full-time doctoral students concentrated in doctoral schools and a limited number of part-time doctoral students still scattered across the system. As mentioned earlier, all full-time students in doctoral schools will be entitled to relatively generous scholarships, which will be accompanied by a ban on non-academic outside work. The idea of these schools is to confine doctoral education to research-focused institutions and to keep doctoral students focused on their dissertations.

At the same time, Polish doctoral education has been experimenting with an entirely new type of doctorate: the so-called ‘implementation doctorate’, which is similar to the professional doctorate. Although the number of such doctorates is limited (500 new doctoral student per year as of 2017), it warrants mention as a new idea. Under this new ministerial scheme, doctoral students are entitled to receive a relatively generous doctoral scholarship, as well as a salary, from any enterprise that employs them. Both doctoral education and dissertations will be undertaken in partnerships between higher education institutions and enterprises. Only the highest ranking institutions (according to the national research exercise) are eligible to offer this new type of doctoral education. Agreements are signed between the ministry, the higher education institution and the enterprise. Dissertation themes are proposed by enterprise partners rather than by academic institutions or doctoral students. This measure is meant to address the criticisms that doctoral education is unrelated to business sector needs. In the first round of the programme in 2017, 54 institutions were awarded ministerial funding, including major universities of technology and several medical universities.

However, the debate around Polish doctoral education has mostly concerned another issue: the complicated, three-degree structure within university authority and prestige systems. The doctoral degree marks entry into the junior ranks of an academic career, the post-doctoral degree (*Habilitation*) marks entry into the lower senior ranks and full professorship marks real academic seniority and is considered the pinnacle of the academic profession (as in several other Central European systems). This three-degree system has frequently been criticized by reform-minded academics and policymakers as obsolete, complicated and energy-wasting, as academics must struggle to finish degrees rather than solving problems and publishing research. The number of full professorships—based on individual research achievements assessed by the Central Committee for Academic Degrees and Titles rather than academic posts granted by institutions as in most European systems—is small, but not limited by the state or institutions. In 2016, there were 10,988 academics with the full professorship title (11.99%; GUS 2017).

Every round of debate about the complicated structure of academic degrees inevitably includes the criticism that the doctoral degree is academically weak and that it is a necessary, but somehow insignificant step on the ladder of academic prestige. By abolishing the title of full professor, or by abolishing both full professorships and *Habilitations*, the role of the doctoral degree in higher education and in the national system of science would be substantially strengthened. The key problem has always been the structural position of the *Habilitation* in the academic career. Its abolition has always been linked to potentially increased requirements, and higher prestige, for the doctoral degree.

In the 2009–2012 wave of reforms in Poland, the role of the *Habilitation* degree was fundamentally weakened, but still remained mandatory. Under the new law of 2018, however, this is no longer the case. Also, all three degrees have been internationalized, in that proof of international publications and international research cooperation are now entry requirements. From the perspective of doctoral education, its concentration in doctoral schools over the next few years represents a major change, and this is where major public research funding seems likely to be invested in all academic fields (Kwiek and Szadkowski 2018).

CONCLUSIONS AND FUTURE CHALLENGES

Polish doctoral education, along with the entire higher education sector, is clearly in need of reform. However, both the feasibility and affordability of the current reforms remain unclear. During extensive preparations in 2016–2018, doctoral education and doctoral degrees were at the centre of public and academic debates about the organizational and financial changes to doctoral education. The decision was made to form doctoral schools from scratch. The success of this effort will depend on the overall success of the imminent, larger-scale higher education reforms. The complicated structure of academic degrees in Poland—with doctorates, *Habilitations* and professorships awarded on the basis of research achievements—clearly needs to be simplified. However, abolition of the *Habilitation* degree will entail giving higher academic status to, and more internationalized requirements for, the

doctoral degree, a move that is always at the centre of the controversy surrounding academic careers.

Whatever the future structure of Polish academia, it is essential to improve the quality of doctoral education and the quality of doctoral dissertations in the interest of international competitiveness. The ability to bring the ‘best and brightest’ into doctoral education is one thing, the ability to retain them in the university sector after graduation is quite another. Both recruitment and retention are key elements in enhancing the attractiveness of an academic career, and both require increased public funding, which has not been guaranteed in the current reform package. Initially, university governance reforms were supposed to be combined with increased, albeit selective, public funding. Currently, reforms are accelerating and the expectation is that public funding for both higher education and academic research will be higher. At the centre of this reform package is the concept of increased competition among existing research teams, academic units and institutions, with a new model of academic research assessment to be applied in 2021. The concept also includes new doctoral schools competing for public subsidies and top minds.

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Trends and Issues in Doctoral Education

A Global Perspective

Edited by

Maria Yudkevich

Philip Altbach

Hans de Wit



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