

The share of women in academic research in Flanders

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A CLOSER LOOK AT GENDER

Nationally and internationally, attention is increasingly being paid to gender (in)equality among academic researchers. A recent publication by the European Commission shows that Belgium, with 46.8% women among the new PhD holders, scores just below the European average of 47.9% (figure for 2016 from She figures 2018) (1). France, the United Kingdom and Luxembourg are doing worse for that year (44.5%, 46.2% and 40.2%, respectively); the Netherlands and Germany are doing better with 49.1% and 56.9% women, respectively. The result for Flanders in 2016 was 46.2% (2). Overall, Flemish universities saw a strong increase in the share of women among PhD holders over the period 1995-2007, after which their share continued to fluctuate between 43% and 47% (3). In the higher ranks of academic careers, however, men are still strongly overrepresented (4), (5), and in the fields of exact and applied sciences, the imbalance starts as early as the study choice; only 30% of the students in those fields are women (figures for 2017-2018) (6).

Measures are being taken to combat this. Among our northern neighbours, in particular at Eindhoven University of Technology, it was recently decided that when opening a new vacancy during the first six months, only women will be considered. Only then will the vacancy be opened up to men (7). A similar measure, which was recently introduced in Ireland, has met with the necessary criticism (8).

No such drastic measures are currently in the pipeline in Flanders, but the universities are intervening, each in their own way. More generally, in 2019, the Young Academy launched the 'Science=M+V+X' campaign with the aim of raising awareness about gender (imbalance) at Flemish

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Academia' charter (10), which was signed by the five Flemish universities. The common goal of this charter is to accelerate the pace of change in order to achieve the gender balance in the academic population more quickly.

RESEARCH QUESTIONS

The purpose of this letter is to answer the following questions:

1. What is the current gender situation at Flemish universities?
2. How has the gender situation evolved over a period of 20 years?
3. At what level of the career and in which science cluster are the main bottlenecks?

To this end, we considered the group of **new researchers** in a specific period, more specifically the fledgling junior researchers, the new PhD holders, the starting postdoctoral researchers and starting professors. The results are presented for each of the five science clusters: medical, human, social, applied and exact sciences.

MARKING OUT DATA SOURCE AND DEFINITION

The results are taken from the Human Resources in Research Flanders (HRRF) database. This database contains the appointments of all researchers associated with one of the five Flemish universities since 1990. In addition, it also includes all doctoral enrolments and defences. The latest update on which this letter is based contains the data for the academic year 2016-2017.

The fledgling junior researchers (**Juniors**) are all researchers who are freshly appointed as research staff, assistants or (competitive) fellows for which Master's degrees are required.

Two figures are reported for the new PhD holders. In the first instance, we consider the PhD holders who had an appointment at a Flemish university at the start of their research trajectory. However, in Flanders, the situation is such that a significant share of the students who obtain a doctoral degree do so without being appointed at a Flemish university (16% in 2016-2017) (3). In the second place, therefore, we also report on the entire pool of new holders of a Flemish PhD (**All PhDs**), as this is, in principle, the pool from which recruitments can be made for the next career phase.

The new postdoctoral researchers (**Postdocs**) include all persons who entered positions as research staff or fellows for which a doctoral degree is required.

In the group of new professors, we consider all persons who started as assistant professors for at least 50% or as associate or (senior) full professors, regardless of the appointment percentage (**Professors**).

The science cluster is determined on the basis of the organisational unit in which researchers spend most of their time. This is done separately for each career stage (junior researcher, postdoctoral researcher and professor). On the other hand, two different methods are used for the doctorates obtained.

1. for PhD holders who obtained their PhD with an appointment at a Flemish university (**PhDs**), the cluster is determined as described above;
2. for all PhD holders (**all PhDs**), the degree code of the doctorate obtained is used.

RESULTS

The results are built around five figures. From one to five, they show the figures for the medical, human, social, applied and exact sciences, respectively. The denominators on which the figures are based are usually large. Only for the starting professors denominators are sometimes below 100. For the sake of completeness, they are added as an appendix at the end of this document (Appendix 1).

Figure 1. The share of women at the various levels of the academic career in medical sciences

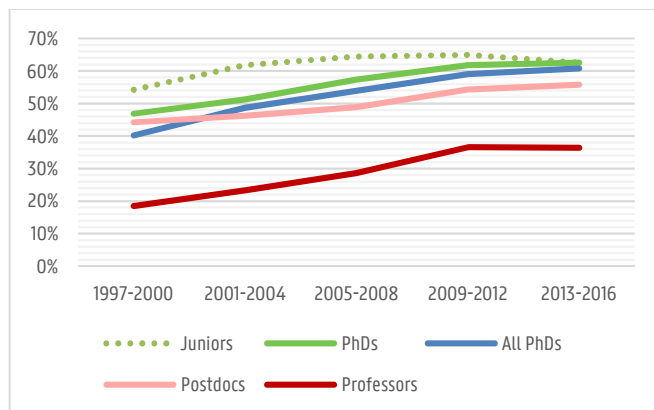


Figure 2. The share of women at the various levels of the academic career in the humanities

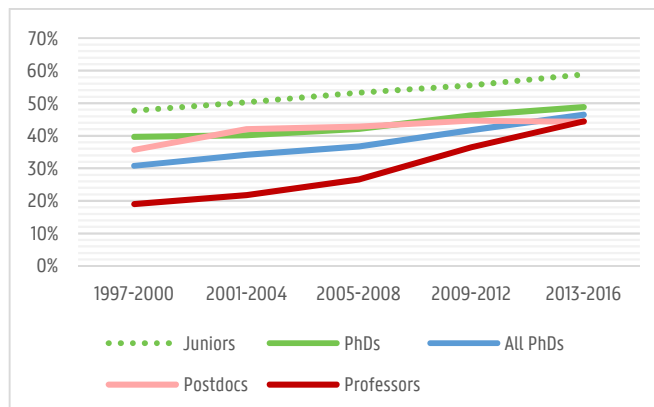


Figure 3. The share of women at the various levels of the academic career in the social sciences

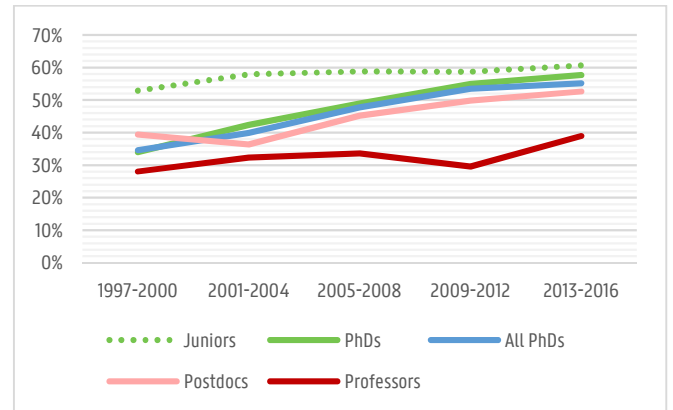


Figure 4. The share of women at the various levels of the academic career in applied sciences

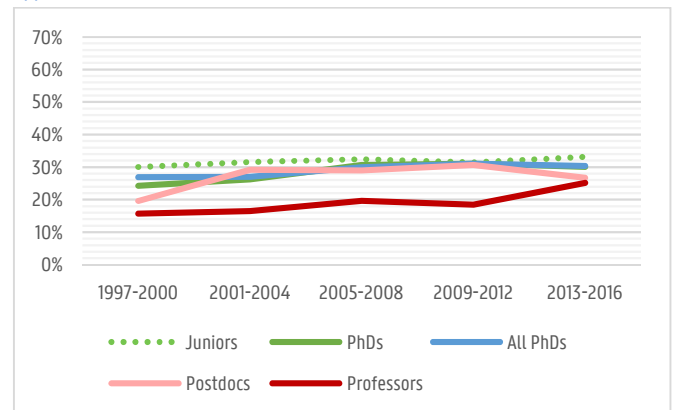
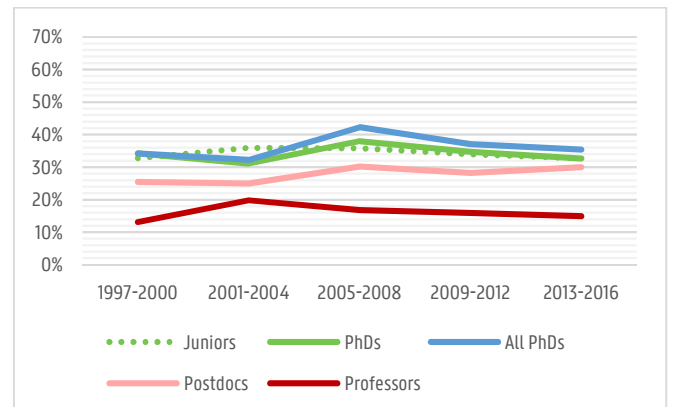


Figure 5. The share of women at the various levels of the academic career in exact sciences



SHARE OF WOMEN AMONG NEWCOMERS - SITUATION IN 2013-2016

As we know, applied and exact sciences account for the lowest share of women: only one in three of the fledgling junior researchers is female (green dotted line). In the other science clusters, more than one in two of the starting junior researchers is currently a woman: 63% in the medical, 61% in the social and 59% in the human sciences. Among new PhD holders (full green line), too, the share of women is still higher than 50% in the medical and social sciences (63% and 58%

respectively). In the humanities, this has dropped to 49%. In applied and exact sciences, 30% and 33%, respectively, of the new PhD holders are women. For all new PhD holders (blue line), the share of women is 61%, 55%, 46%, 30% and 35%, respectively, for the medical, social, human, applied and exact sciences. Women are, therefore, generally slightly less represented than in the group of appointments, with the exception of applied and exact sciences.

In the next career phase, the new postdoctoral researchers (pink line), just over one in two people is still a woman in the medical and social sciences (56% and 53% respectively). This is 44% in the humanities, 27% in the applied sciences and 30% in the exact sciences. Among the new professors (red line), the share of women is always below 50%. In the human sciences, the highest share is found at 44%. This is followed by the social sciences with 39%, the medical sciences with 36%, the applied sciences with 25% and the exact sciences with barely 15%.

EVOLUTION FROM 1997 TO 2016

Over time, there has been an increase in the share of women, but this was not the same in every science cluster and at every level.

Among the fledgling junior researchers (green dotted line), it was only in the humanities that there was a gradual increase in the number of women compared to men. Since this was the cluster with the largest share of women from the outset, it stands to reason that it has remained in the lead. In the medical and social sciences - the clusters in which more than one in two junior researchers was already a woman - there was only a small increase in the share of women in the period 1997-2004. In applied and exact sciences, the share of women among junior researchers has remained more or less the same.

Among the new PhD holders (full green and blue lines), the increase in the share of women was slightly more pronounced, particularly in the medical, human and social sciences; in the applied and exact sciences, on the other hand, there were, once again, hardly any changes.

Among the new postdoctoral researchers (pink line), there was an increase in the share of women, especially in the medical and social sciences. There was also an increase in the other clusters, but this was less pronounced.

Finally, we have also noticed a substantial increase in the share of women among the new professors (red line) in the medical and human sciences. In the social and applied sciences, the share of women has increased to a lesser extent. In the exact sciences, again, there was no significant change.

RELATIONSHIPS BETWEEN THE DIFFERENT LEVELS OF THE ACADEMIC CAREER

It is instantly noticeable that there are discrepancies between the science clusters in terms of the share of women at the different levels of their academic careers.

In the human, social and medical sciences, there is a first decrease in the share of women in the transition from junior starters to new PhD holders (green dotted line to green full line). In the medical and social

sciences, this gap has narrowed until it disappeared in the most recent cohort, but this is not the case in the humanities. In the applied sciences, the decrease in women is smaller and in the exact sciences, there is no change.

At the transition from the new PhD holders (all, blue line) to the starting postdoctoral researchers (pink line), there is a small decrease in the share of women in the medical and social sciences. In applied sciences, there is only a small decrease in the share of women in 1997-2000 and in 2013-2016. In the exact sciences, there is a larger decrease. It is striking that the share of women among the new postdoctoral researchers in the humanities is greater than among the new PhD holders (all).

Finally, we see the biggest fall in the share of women when comparing the new postdoctoral researchers (pink line) with the new professors (red line). Given the time it takes to progress from a starting postdoctoral researcher to a professor, the share of women among the new professors is compared with the share of women among the new postdoctoral researchers of previous cohorts. The medical and exact sciences are the two clusters in which the share of women among the new professors never reaches the share of women that was at least present among the postdoctoral researchers. In the other science clusters, the share of women in the most recent cohort reaches at least the share of women present among the starting postdoctoral researchers in previous cohorts. In the social sciences, the situation in 2009-2012 cohort was less favourable compared to the other cohorts.

DISCUSSION

The figures confirm, of course, what is already known, namely that the presence of women decreases as one climbs the academic ladder. We do notice differences between the science clusters, however. In the medical, human and social sciences, there was a decrease in the share of women at junior level in the older cohorts (from junior researcher to PhD holder). In the human sciences, this decrease also persists in the recent cohort. In the applied and especially in the exact sciences, the decrease in the share of women at that junior level is much less pronounced. These stats actually reflect the success rates for obtaining a PhD. The chances of success in the human sciences are statistically significantly lower for women for the entire cohort of entrants from 1995 to 2008. Also in the social and medical sciences, the success rate was significantly lower among women, but this was no longer the case for the entrants from 2004-2005 onwards. In the exact and applied sciences, the chances of success between men and women are not significantly different (2). It is therefore striking that although the intake of female researchers in applied and exact sciences is low, the transition of these female researchers at junior level (from junior researcher to PhD holder) is smoother than in the fields where more than one in two of the starting researchers is a woman.

For the next phases (the starting postdoctoral researchers and the starting professors), it is important to realise that they are the product of two aspects, namely 1) the transition of researchers from the Flemish universities and 2) the incoming researchers from outside. The results shown do not allow us, therefore, to speculate about their opportunities

for transition. With the transition from the level of new PhD holders to the level of starting postdoctoral researchers, the decrease in the share of women is rather insignificant. The largest decrease is observed in the exact sciences. Humanities, on the other hand, is the only cluster where the share of women among the starting postdoctoral researchers is higher than among the new PhD holders. It is only at the next step (from starting postdocs to starting professors) that a greater loss of the share of women is observed, which is greatest in the medical and exact sciences.

If actions are taken in Flanders, it may be useful to organise them more specifically within certain science clusters. Accordingly, it remains an area for improvement to continue to generate women's interest in applied and exact sciences, as recently called for by the European Committee of the Regions (CoR) (11). In the humanities, the figures suggest that the share of women in the higher echelons of academia is not decreasing any further – there is, in fact, a temporary gender balance – although one can question the continued greater turnover of female researchers in human sciences at the very beginning of their academic careers. In the medical and exact sciences, the greatest efforts appear to be needed at the senior level of the academic careers. Furthermore, the dip in the social sciences in the 2009-2012 cohort also shows that continuous alertness is called for in order to achieve and maintain a gender balance.

In this letter, we did not go into the details of a professor's trajectory as such. Earlier monitoring of this showed that while the intake of women at that level does increase over time, they are still under-represented and their share decreases as they climb the career ladder (5). Moreover, in a chapter written for the Flemish Indicator Book 2019, it appears that female assistant professors are less likely to progress compared to their male counterparts (12).

These stats show the importance of regular monitoring of academic careers. They provide a basis that makes it possible, where necessary, to examine certain aspects more qualitatively, to organise actions in a more targeted way and to measure the effect of these actions afterwards. Needless to say, these figures are only a tip of the iceberg. The situation today is the product of a complex interaction between, among other things, intake, transition, mobility, perception, policy and university- and cluster-specific aspects. It is recommended that, in the coming period, the other gender aspects should also be investigated on the basis of the available data and, where the data are still lacking, as is the case, for example, with the application process for professors, this situation should be monitored (see also the recommendation in the Gender in Academia Charter (10)).

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APPENDICES

Appendix 1. The number of new professors according to the science cluster and the starting period.

	MS	HS	SS	AS	ES
'97-'00	184	121	107	70	107
'01-'04	210	133	96	79	106
'05-'08	241	154	137	102	113
'09-'12	260	129	142	119	107
'13-'16	302	189	249	286	107

MS, HS, SS, AS and ES stand for medical, human, social, applied and exact sciences, respectively.

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