

How satisfied are PhD students with their job? A focus on Flanders 2013-2018

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GENERAL JOB SATISFACTION

A third of the Belgian working population is happy at work. At least, according to the *National Happiness Survey*, a study conducted between December 2017 and February 2018 by Lieven Annemans (Ghent University). Annemans states that job satisfaction influences the employee's level of happiness considerably. On average, job satisfaction makes up a fifth (18%) of the overall happiness experienced in one's life. The research points to clear differences between the self-employed, white-collar workers, blue-collar workers and employees working for the government (Annemans & T'Jaecx, 2018).

But what about PhD students? How satisfied are they with their job in general? In what follows we take a closer look at general job satisfaction of PhD students in Flanders in 2018. To do this, we propose five specific research questions:

1. *How satisfied are PhD students with their job in general in 2018?*
2. *Is this comparable to the level of job satisfaction among PhD students observed in 2013?*
3. *Does the level of general job satisfaction differ according to gender, nationality, scientific cluster or PhD phase?*
4. *Does the level of general job satisfaction differ according to the work and organizational context?*
5. *Is the level of general job satisfaction among PhD students in Flanders comparable to that of PhD students in other regions or to other groups on the Flemish labour market??*

We answer these research questions using data from the *Survey of Junior Researchers 2018*, as well as the *Survey of Junior Researchers 2013*. Both surveys were set up by ECOOM Ghent University and invited all junior researchers from all five Flemish universities to participate in the online questionnaire on PhD life. For the current study, we restrict

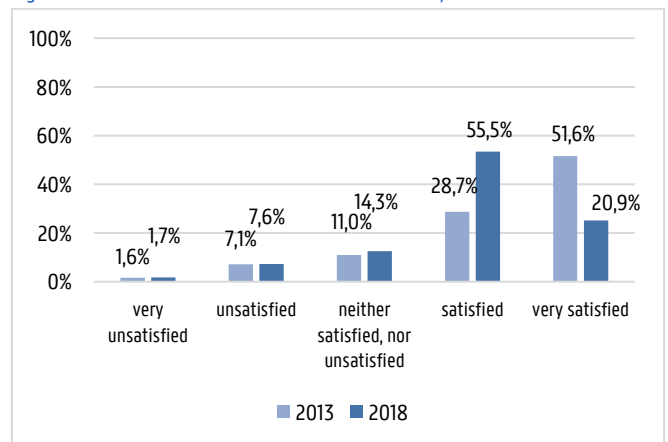
our analyses to information on junior researchers who are in a PhD trajectory (N₂₀₁₃=3659; N₂₀₁₈=3359). For more details on both surveys, we refer to ECOOM-briefs 8 and 17.

HOW SATISFIED ARE PHD STUDENTS WITH THEIR JOB IN GENERAL IN 2018?

In 2018 we asked PhD students in Flanders *"How satisfied are you with your current job in general?"* Answers ranged from 1= "very unsatisfied" to 5= "very satisfied". Figure 1 shows the percentage distribution of the answers in 2018, as well as 2013 for comparison.

In Figure 1, we see that 20.9% of PhD students in 2018 are very satisfied, while 55.5% is satisfied. About 1 in 7 (14.3%) indicate that they are neither satisfied, nor dissatisfied. For 7.6% we note dissatisfaction, whereas 1.7% of PhD students is very unsatisfied with their job in general. On a scale of 1 to 5, the average job satisfaction is 3.9.

Figure 1. Job satisfaction of PhD students in Flanders, 2013 and 2018



When we compare general job satisfaction as reported in 2013 and 2018, we see major changes in the amount of satisfied and very satisfied PhD students: in 2018 less PhD students report that they are very satisfied with their job in general. When we combine the satisfied and very satisfied answers, we observe a total of 76.4% of PhD students in 2018, compared to 80.3% in 2013 (see ECOM-brief 13). When we, simultaneously, take into account a different socio-demographic profile of PhD students (over the years), as well as differences in work and organizational context, we see that "survey year" in Table 2 (see below) shows a significant decrease in general job satisfaction: the odds ratio (OR) for the year 2018 is a significant (OR=0.717).

DOES JOB SATISFACTION DIFFER ACCORDING TO GENDER, NATIONALITY, SCIENTIFIC CLUSTER OR PHD PHASE?

To answer this and following research questions, we consider a PhD student to be satisfied if (s)he indicated to be satisfied or very satisfied with the job in general. Table 1 shows how job satisfaction varies according to gender, nationality, scientific cluster and PhD phase.

Table 1. General job satisfaction of PhD students in Flanders according to gender, nationality, scientific cluster and PhD phase, 2018

	Satisfied/Very satisfied %	Sign (S)
Gender		n.s.
Male	75.5	
Female	77.2	
Nationality		**
Belgian	78.2	
EU28	77.2	
Non-EU28	70.8	
Scientific cluster		n.s.
Exact Sciences	75.6	
Biomedical sciences	77.7	
Applied sciences	73.8	
Humanities	80.7	
Social sciences	76.2	
PhD phase		***
Initiating	83.2	
Executing	78.4	
Finishing	65.7	

(S) significance based on the Chi²-test

n.s.=not significant * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Are male PhD student more satisfied than female colleagues when it comes to general job satisfaction? We see no significant differences according to gender: at least 3 in 4 males of females are (very) satisfied with their job.

However, there are significant differences according to nationality: PhD students from Belgium or other EU28 countries are significantly more satisfied with the job than PhD students from outside the EU28. Respectively, we note 78.2%, 77.2% and 70.8%.

Additionally, there are no noteworthy differences in job satisfaction according to scientific cluster.

Yet, we do see significant differences with regards to PhD phase: in the first phase 83.2% indicated that they are (very) satisfied but this number is reduced to 65.7% in the last phase. An additional test (independent samples t-test) showed that the difference in job satisfaction between the first and last PhD phase is considerable (averages of 4.0 and 3.6, respectively). The difference between executing phase (second) and finishing (last) phase, however, were not significant.

DOES JOB SATISFACTION DIFFER ACCORDING TO WORK AND ORGANIZATIONAL CONTEXT?

Table 2 shows how work organization and organizational context influences job satisfaction (being satisfied or very satisfied). The analytical results indicate that general job satisfaction is higher (OR>1) with (1) a high level of job control (i.e., a high level of job variation and job autonomy), (2) when the promoter has an inspiring leadership style, (3) when the PhD student has a positive perception of the value of the PhD outside the university and (4) when the PhD student is interested in an academic career. We also see higher job satisfaction in PhD students who (5) have a partner.

General job satisfaction is significantly lower (OR<1) for (1) high job demands (such as a high workload), for (2) closed (i.e., non-democratic) decision-making in the team, and in (3) the finishing phase of the doctorate compared to the planning phase. Furthermore, job satisfaction is also lower (4) within the applied sciences compared to the exact sciences and (5) for those PhD students who do not receive a personal scholarship or research project but are employed on other funds acquired within or outside the university in comparison to PhD students employed as a research assistant. Table 2 also points to lower job satisfaction when the PhD student (6) is older, (7) experiences a work-family conflict (i.e., when the work situation complicates the family role) and (8) in 2018 compared to 2013.

We note no significant differences in general job satisfaction between the Flemish universities and no significant differences, nor is there a significant association with family-work conflict, different perceived opportunity levels concerning an academic career, gender, and having or not having children. Furthermore, we observe no significant differences between PhD students in the biomedical, human or social sciences compared to their colleagues in the exact sciences.

The predictors in Table 3 result in a determination coefficient (Nagelkerke R²) of 0.379. This means that 37.91% of the variance in the risk of mental health problems in PhD students in Flanders is explained by the predictors in the model.

Table 2. Predictors of general job satisfaction of PhD students, Flanders 2013-2018 (pooled data SJR2013 and SJR2018, N=7018: odds ratio (OR), 95% confidence interval (95% CI), significance level

	OR	95% CI	Sign (S)
Constant	0.022		***
Year			
2013 (ref)	-	-	-
2018	0.717	(0.608-0.846)	***
Work context			
Job demands	0.749	(0.637-0.882)	**
Job control	3.545	(2.981-4.217)	***
Scientific cluster			
Exact sciences (ref)	-	-	-
Biomedical sciences	1.116	(0.872-1.428)	n.s.
Applied sciences	0.697	(0.540-0.899)	**
Human sciences	1.212	(0.859-1.710)	n.s.
Social sciences	1.090	(0.840-1.413)	n.s.
Type of appointment			
Research assistant (ref)	-	-	-
Scholarship	0.855	(0.675-1.082)	n.s.
Research project	0.956	(0.749-1.219)	n.s.
No funding from university	0.494	(0.358-0.682)	***
Other	0.567	(0.393-0.818)	**
Unknown	0.836	(0.525-1.333)	n.s.
PhD phase			
Initiating (ref)	-	-	-
Executing	0.880	(0.704-1.101)	n.s.
Finishing	0.729	(0.564-0.943)	*
Leadership style: inspirational	1.718	(1.612-1.830)	***
Much interest in academic career	2.710	(2.291-3.204)	***
Perception of high chance of an academic career	0.912	(0.770-1.079)	n.s.
Positive perception of a career outside university	1.441	(1.305-1.591)	***
Organizational context			
University			
KU Leuven (ref)	-	-	-
Ghent University	1.136	(0.943-1.368)	n.s.
Antwerp University	1.038	(0.797-1.351)	n.s.
VUB	1.042	(0.820-1.323)	n.s.
Hasselt University	1.304	(0.875-1.944)	n.s.
Closed team decision-making	0.844	(0.771-0.925)	***
Family work conflict	0.967	(0.882-1.062)	n.s.
Work family conflict	0.788	(0.717-0.866)	***
Sociodemographics			
Female	1.055	(0.896-1.243)	n.s.
Age	0.977	(0.959-0.997)	*
Partner	1.217	(1.022-1.448)	*
Children	1.112	(0.862-1.435)	n.s.
Model fit General job satisfaction:			
LR= 1565	df = 29	p<0.001	Nagelkerke R ² = 0.379

Note: OR = odds ratio, 95% CI = 95% confidence interval. Ref. = reference category. Significances: * = p < .05, ** = p < .01, *** = p < .001, n.s. = not significant

IS JOB SATISFACTION AMONG PHD STUDENTS IN FLANDERS COMPARABLE TO...?

General job satisfaction, specifically among academics, has received increasing attention in recent years, especially in the United States. Characteristic of the research conducted is that a range of definitions and measuring instruments for job satisfaction are adopted and that studies are usually limited to a single department, university or country. This makes comparisons (or benchmarking) difficult. Moreover, the research results are often not made public which means that benchmarking is not really feasible and the chance of disseminating good practices is reduced.

As for PhD students in Flanders, we can benchmark with the general job satisfaction of PhD students at the Flemish universities, as recorded in 2013. We consider three main issues: (1) the job satisfaction of PhD students in Flanders is still high in 2018, but still significantly lower than in 2013, and (2) the biggest shift is the halving of the proportion of PhD students who say they are very satisfied. We also note (3) that just as in 2013, the level of general job satisfaction is related to specific factors from the work and organization context in which the PhD is being prepared.

Let's have a look at benchmarking opportunities outside of Flanders, and more specifically at a study by Bentley et al. (2012, 2015) with more than 24,000 academics in 19 countries. As with the PhD students in the *Survey of Junior Researchers* in 2013 and 2018, general job satisfaction was measured as an ordinal response to the question "How satisfied are you with your current job, generally?" Here, a 5-point Likert scale is also used and includes a score of 4 or 5 meaning "satisfied" and "(very) satisfied", respectively. The research shows that in the Netherlands, the United States, Germany and the United Kingdom, 70%, 61%, 56% and 44% of junior academics, respectively, are satisfied with their current job. Junior researchers in all these countries were (slightly) less satisfied than senior academics.

More recent figures on the job satisfaction of PhD students in Europe are scarce. We can only fall back on a study with 57689 PhD students in the United Kingdom (Slight, 2017). This study was designed to determine the satisfaction with their doctoral program. This study showed that 82% indicated "definitely agree" or "mostly agree" on the question "Overall, I am satisfied with the experience of my research degree program". Another relevant figure can be found in a recent worldwide survey by *Nature* administered among 5723 PhD students. The survey shows that 68% of the participating PhD students are satisfied with their PhD in general (Woolston, 2017). The survey participants mainly came from the United States, India and the United Kingdom. In terms of science cluster, they primarily belonged to the exact sciences.

If we also compare the general satisfaction of PhD students with other employees on the Flemish labour market, it also appears that figures for benchmarking are not just publicly available. With the exception of a survey by SD Workx on employees in Belgium in 2015. This survey shows that on average four in five Belgians are satisfied or very satisfied with their job. Here, job satisfaction is measured as "accepting the situation as it is". Based on the *Belgian Survey on Income and Living Conditions*, it appears however that no less than 93.6% of the Belgian, highly skilled

employees report either "a high level of satisfaction" or "completely satisfied" (SILC, 2013). The *National Happiness Survey* reported that 43% of working Belgians are very satisfied with their job and rate it with a score of 8 out of 10 or more. Yet, a relatively large group is also very dissatisfied: 28% of active Belgians give their job a score of 5 out of 10 or less (Annemans & T'Jaecckx, 2018).

DISCUSSION

Research has subsequently shown that satisfied employees achieve better work performance and show greater involvement. In addition, there are fewer dropouts due to illness and there is less turnover. The positive link between job satisfaction and job performance appears to be particularly large in jobs characterized by a high degree of complexity and autonomy, such as in academic jobs.

Not much is known yet about job satisfaction among PhD students. Research by ECOOM UGhent shows that 76.4% of PhD students in 2018 are satisfied or very satisfied with their job in general. This percentage is slightly lower than in 2013. The degree to which PhD students are (very) satisfied with their job in general is related to different characteristics of the job and to the extent to which execution conflicts with one's role in the family.

It is key to not merely focus on general job satisfaction as such, but also on the individual components that contribute to general job satisfaction. The *Survey of Junior Researchers* 2018 states that PhD students vary considerably in their satisfaction with various job aspects. More specifically, it appears that PhD students are (very) satisfied with the flexibility of working hours (88.7%), salary (81.4%) and training opportunities (71.9%). Furthermore, it appears that 62.8% are (very) satisfied with the supervision by the (main) promoter. When asked whether they are satisfied with the quality of the university's career policy, 32.7% of PhD students state that they are (very) satisfied, while 19.7% say they are (very) dissatisfied. Looking specifically at the appreciation of career opportunities within the academic sector, 30.0% appear to be (very) satisfied, while 36.0% of the PhD students indicate that they experience (great) dissatisfaction. Focusing on career opportunities outside the academic sector, 42.4% indicate (great) satisfaction, while 15.1% say they are (very) dissatisfied. More than two PhD students out of five report that they are neither satisfied nor dissatisfied with career opportunities outside academia.

Finally, we reflect how these findings of the current study coincide with the findings in ECOOM-brief 22: how is it possible that three out of four (in 2018) or four out of five (in 2013) PhD students are satisfied to very satisfied with their job in general, while one in three PhD students (both in 2013 and 2018) are at risk of having or developing mental health problems? The apparent incompatibility lies in the fact that general job satisfaction and mental health are both aspects of well-being, but their correlation is often less strong than expected (see a.o. Faragher, Cass & Cooper, 2005). For the PhD students who participated in the *Survey of Junior Researchers* 2013 or 2018 we note Pearson $r = -0.375$ between general job satisfaction (see below) and the sum of symptoms of mental health problems as measured in the *General Health Questionnaire-12* (see ECOOM-brief 22). This correlation is in line with other research (see

Faragher, Cass & Cooper, 2005). The moderate correlation can be explained by the fact that both constructs share several predictive factors, but they are also individually influenced by unique predictive factors. We encourage the reader to further explore which characteristics of the work and organizational context are related to the general job satisfaction of PhD students, their mental health, or both (see ECOOM-briefs 12, 13, 18 and 22, as well as Levecque et al. 2017). Based on the comparison, policymakers receive an indication of which work and organizational characteristics can act as a lever to work on both aspects of well-being at the same time. For the importance of a clear conceptualization of well-being and its various aspects in the development of an effective well-being policy, we refer the reader to a contribution by Levecque and Mortier on well-being and mental health among academics in *The Doctoral Debate* (European Universities Association, December 2018).

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