

How often do PhD students consider quitting their PhD?

Findings for Flanders 2013-2018

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TURNOVER AND TURNOVER INTENTIONS

How many PhD students in Flanders obtain their PhD? And how many PhD programmes are terminated prematurely? These questions are part of the standard monitoring activities carried out by ECOOM Ghent University based on the administrative Human Resources in Research Flanders database (HRRF). In a recent study, we found that, in 2008-2009, 70.3% of all researchers who started their PhD trajectory at one of the Flemish universities successfully completed their PhDs. This success rate is higher than before: of the researchers who started in 2004-2005, 68.4% obtained their PhDs (ECOOM HRRF update 2016-2017). If we look at PhD students turnover instead of success rates, the same HRRF shows that in the period 2010-2011 to 2013-2014, 11.3% of PhD students had decided to leave their universities after two years without a PhD (ECOOM HRRF update 2016-2017).

The decision to quit research is usually preceded by a wide range of thoughts and feelings that are not necessarily present all the time: intentions to quit and yet stay on, often alternate each other. Intentions can also be triggered by sudden events (Holmton et al., 2005). Moreover, not all turnover intentions lead to actual quitting.

The extent to which PhD students in Flanders have turnover intentions was first seen based on the *Survey of Junior Researchers 2013*. This survey showed, among other things, that 14% of PhD students considered quitting their PhD at least several times a month and that there is a link between turnover intentions on the one hand and work and organizational context, on the other (see ECOOM-brief 14). What was not questioned in that survey were the motives underlying the idea of prematurely terminating the PhD trajectory. Were these motives particularly positive, such as an interesting job offer outside of academia? Or rather negative, such as feelings of incompetence or perhaps a conflict with colleagues or supervisor?

In 2018, a new *Survey of Junior Researchers* was organized in Flanders. This time, not only the question was asked about the extent of students' intentions to quit their PhD, but also about the motives behind those intentions. For an analysis of these motives, we refer to ECOOM-brief 20. In what follows, the focus is on the extent to which PhD students have intentions to quit their PhD. More specifically, we formulate five research questions:

1. *How often do PhD students in 2018 consider quitting their PhD?*
2. *Is this comparable to turnover intentions in 2013?*
3. *Do turnover intentions differ according to gender, nationality, scientific cluster and PhD phase?*
4. *Do turnover intentions differ according to the work and organizational context?*
5. *Are turnover intentions on the part of PhD students within Flanders comparable to those of PhD students outside Flanders and 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 their PhD life. For the current study, we restrict our analyses to information on junior researchers who are in a PhD trajectory ($N_{2013}=3659$; $N_{2018}=3359$). For more details on both surveys, we refer to ECOOM-briefs 8 and 17.

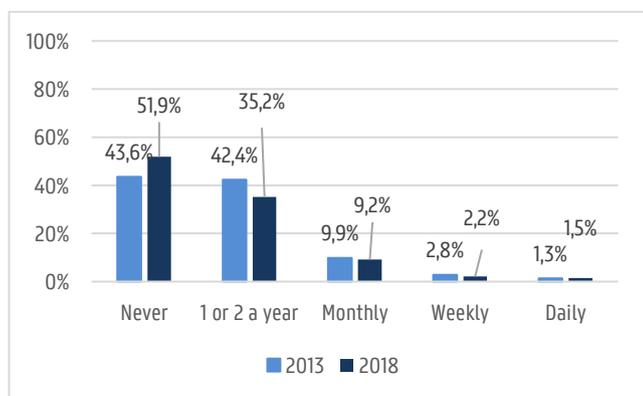
HOW OFTEN DO PHD STUDENTS IN 2018 CONSIDER QUITTING THEIR PHD?

In 2018, we asked all PhD students in Flanders "Have you considered giving up your research work?". There were five possible answers: 1="never", 2="once or twice a year", 3="several times a month", 4="several times a week" and 5="every day". The same question was asked in 2013. Figure 1 shows the distribution of the answers in 2018, and that in 2013.

In 2018, 51.9% of PhD students indicated that they had never considered quitting their PhD, while 35.2% indicated once or twice a year. 9.2% of PhD students considered quitting several times a month, while 3.7% mentioned several times a week, or even daily.

If we examine the intentions to quit recorded in 2013, there are clear differences with 2018. However, as can be seen from Table 2 under "survey year" (see below), these differences are not statistically significant.

Figure 1. Turnover intentions in PhD students in Flanders, 2013 and 2018



DO TURNOVER INTENTIONS DIFFER ACCORDING TO GENDER, NATIONALITY, SCIENTIFIC CLUSTERS AND PHD PHASE?

To answer this research question, we consider turnover intentions to be present if the PhD student indicates that (s)he considers quitting their PhD several times a month, a week or even on a daily basis.

Do men consider quitting their PhD more often than women? Table 1, based on simple cross-tabs, shows that this is not the case. Also, there are no significant differences according to nationality or scientific cluster. As is evident in Table 2 (see below), this picture remains intact if we also take into account the socio-demographic characteristics of PhD students and the characteristics of their work and organizational context (i.e., include them in a prediction model).

As far as the PhD phase is concerned, Table 1 reports that more PhD students consider quitting their PhD in the final phase of their PhD. The differences with PhD students in the other phases of the PhD track are relatively small, but significant. Whether the motives behind the intentions to quit differ according to the PhD phase is examined in ECOOM-brief 20. If, at the same time, we take into account the socio-demographic profile of PhD students and differences in their work and organizational context, it turns out that

intentions to quit the PhD process occur significantly less as PhD students have progressed further in their PhD trajectory.

Table 1. Turnover Intentions according to gender, nationality, science cluster and PhD phase in PhD students in Flanders, 2018: percentages

	Turnover Intentions %	Sign (S)
Gender		n.s.
Male	12.2	
Female	13.4	
Nationality		n.s.
Belgian	12.6	
EU28	14.2	
Non-EU28	13.0	
Scientific cluster		n.s.
Exact Sciences	12.5	
Biomedical Sciences	13.0	
Applied Sciences	14.2	
Humanities	8.8	
Social Sciences	13.3	
PhD phase		*
Initiating	13.0	
Executing	11.7	
Finishing	15.8	

(S) Significance based on Chi²

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

DO TURNOVER INTENTIONS DIFFER ACCORDING TO THE WORK AND ORGANIZATIONAL CONTEXT?

Table 2 provides us with the necessary insights. The table shows that significant risk factors related to PhD students turnover intentions should be sought in the areas of job demands and an imbalance in work-family. Turnover intentions occur significantly more often (OR>1) in PhD students who (1) experience high job demands, such as publication pressure or workload, or (2) who experience work-family conflicts. The latter is a feeling of internal conflict that arises when the demands of the work make it difficult to adequately fulfil the family role as well as the work role.

Turnover intentions are significantly less common (OR<1) in PhD students (1) with a high degree of job control (i.e. more job variation and job autonomy), (2) in the humanities compared to the exact sciences, (3) in the implementation and completion phases of the PhD compared to the initial phase, and (4) if an inspiring supervisor is involved. Finally, PhD students (5) who are highly interested in an academic career and (6) with a positive perception of the value of the PhD on the labour market outside of academia, also report lower intentions to quit their PhD.

Table 2. Predictors of turnover intentions in PhD students in Flanders 2013-2018 (N₂₀₁₃₋₂₀₁₈=7018): OR, 95% BI, significance level

	OR	95% BI	Sign (S)
Constant	19.772		***
Survey year			
2013 (ref)	-	-	-
2018	0.895	(0.746-1.072)	n.s.
Work context			
Job demands	1.531	(1.284-1.825)	***
Job control	0.508	(0.425-0.608)	***
Scientific cluster			
Exact sciences (ref)	-	-	-
Biomedical sciences	0.884	(0.678-1.154)	n.s.
Applied sciences	1.123	(0.846-1.489)	n.s.
Humanities	0.669	(0.455-0.983)	*
Social sciences	1.007	(0.763-1.330)	n.s.
Type of appointment			
Assistant (ref)	-	-	-
Scholarship	0.998	(0.775-1.284)	n.s.
Research project	1.024	(0.792-1.325)	n.s.
No university funding	1.123	(0.780-1.615)	n.s.
Other funding	0.988	(0.647-1.508)	n.s.
Unknown funding	1.370	(0.859-2.185)	n.s.
PhD phase			
Initiating (ref)	-	-	-
Executing	0.686	(0.547-0.860)	**
Finishing	0.653	(0.496-0.859)	**
Inspirational leadership style	0.713	(0.667-0.761)	***
Much interest in an academic career	0.407	(0.339-0.489)	***
Perception of high chance of an academic career	1.064	(0.884-1.279)	n.s.
Positive perception of a career outside academia	0.606	(0.544-0.674)	***
Organizational context			
University			
KU Leuven (ref)	-	-	-
Ghent University	1.040	(0.850-1.273)	n.s.
Antwerp University	1.100	(0.825-1.468)	n.s.
VUB	0.980	(0.751-1.279)	n.s.
Hasselt University	1.009	(0.660-1.544)	n.s.
Closed decision-making in the team	1.094	(0.990-1.209)	n.s.
Family-work conflict	1.042	(0.943-1.152)	n.s.
Work-family conflict	1.198	(1.081-1.328)	**
Socio-demographic characteristics			
Female	1.112	(0.929-1.331)	n.s.
Age	0.977	(0.953-1.000)	n.s.
Partner	0.871	(0.720-1.053)	n.s.
Children	1.223	(0.924-1.618)	n.s.
Model fit:			
LR=757.3	df = 29	p<0.001	Nagelkerke R ² = 0.231

Note: OR = odds ratio, 95% BI = 95% confidence interval. Ref. = reference category.

Significances: * = p < .05, ** = p < .01, *** = p < .001, n.s. = not significant

Table 2 also shows that the turnover intentions of PhD students in Flanders do not vary significantly across the different universities or types of appointment. Neither does the extent to which the decision-making within the research team has a rather closed or open (or democratic) character play a role. The same applies to the extent to which the probability of an academic career is estimated to be high or low. In addition, Table 2 also shows that turnover intentions of PhD students in Flanders are no different between men or women, are not age-related, nor are they related to the presence of a partner or children. This also applies to the family-work balance, a feeling of internal conflict in which the demands of the family make it difficult to adequately fulfil the role of employee in addition to the family role.

The predictors in Table 2 result in a determination coefficient (Nagelkerke R²) of 0.231. This means that 23.1% of the variance in turnover intentions of PhD students in Flanders is explained by the predictors in the model.

ARE TURNOVER INTENTIONS OF PHD STUDENTS IN FLANDERS COMPARABLE TO...?

It is not easy to compare turnover intentions of PhD students in Flanders to those of PhD students outside Flanders or, indeed, other groups in the Flemish labour market. Firstly, because, except for Flanders 2013 (see above and ECOOM-brief 14), no data are available on PhD students' turnover intentions. Another reason is that while many companies may heed the information, they are reluctant about openly sharing their statistics with the outside world. Another difficulty is that different studies focus on different types of turnover intentions (e.g. leaving the job versus leaving the organization) or take into account different timeframes (e.g. the past year versus the next three months).

First, we will look at the turnover intentions of PhD students in - and outside Flanders. Apart from what we already reported for PhD students in Flanders in 2013 (see above and ECOOM-brief 14), very few insights on PhD turnover intentions are available. The same applies to actual turnover. Several countries do calculate success rates, however. Although success rates are not an unambiguous measure of turnover, they do offer some indication. In any case, the available success rates do not provide an unambiguous picture. American studies, for example, have been pointing out for decades that 40% to 60% of PhDs are never completed (Golde, 2005; Council of Graduate Schools, 2016). Figures, however, vary greatly depending on the science cluster. A study in England, on the other hand, showed that 73% of those who started a PhD in 2010-2011 were expected to succeed (Times Higher Education, 2013). For the Netherlands, a relatively constant pattern has been emerging for years, whereby 3 out of 4 PhDs are successfully completed (De Goede, Belder & de Jonge, 2013). We remind the reader of the most recent Flemish figures that point to a nearly comparable 70.3% (ECOOM HRRF update 2016-2017).

If we compare the turnover intentions of PhD students with those of other groups in the Flemish labour market, it is, once again, clear that it is difficult to draw unequivocal conclusions from this. For example, the most recent staff survey carried out by the Flemish government in 2018 showed that 35% of the staff answered affirmatively to the question 'I have recently taken concrete action to change jobs or I have concrete plans to do so in the future'. This intention to quit has increased significantly since 2014 (by 4%).

A study carried out by Securex in 2017, on the other hand, shows that 13.5% of the highly-skilled in 2017 were planning to change their employer in the short term. If we look at the share of employees in the Belgian labour market who actually take the step and leave work on their own initiative, we see a slight increase in the voluntary turnover in recent years (from 5.0% in 2015 to 5.9% in 2018) (Securex, 2019). This is a turnaround after the decreased involuntary turnover already described in ECOOM-brief 14. Studies repeatedly show that voluntary turnover in periods of crisis is lower than in periods with better economic prospects.

ARE TURNOVER INTENTIONS OF PHD STUDENTS IN FLANDERS COMPARABLE TO...?

In the development of effective and efficient doctoral pathways, it is important for the government and universities to gain an insight into the extent to which PhD students terminate their PhD studies prematurely and what their underlying motives are. Turnover entails a lot of economic and psychosocial costs. On an economic level, turnover results in a loss of recruitment and training costs and the costs of training a new employee. There is also a loss of time, human capital and knowledge. For the PhD students themselves, but also for the supervisors and colleagues, turnover can lead to frustration and demoralization, not in the least because tasks have to be taken over.

Although turnover, just like absenteeism, is usually seen as an indication of a quality problem in the organization, this does not necessarily have to be the case. This course of events can also be the result of a positive choice by the PhD student, because there are better opportunities elsewhere. The course can also have positive consequences for the organization itself, especially if it turns out that there is an insufficient fit between PhD students on the one hand and the work, the team or the organization, on the other. And for society, experiences gained in one organization or sector, even if they are negative, can boost performance in other organizations or sectors.

Whether the course is inspired by so-called push or pull mechanisms, the fact remains that the actual decision to quit the PhD is usually preceded by a wide range of thoughts and feelings. These are not necessarily continuously present: intentions to stop and to stay often alternate. Research shows that employees who intend to leave the organization are more likely to perform poorly and show less 'organizational citizenship'. The latter means that the employee behaves like a "good citizen" at work and, through positive initiatives, goes beyond his/her brief to help colleagues and the organization. Organizational citizenship promotes job satisfaction, cooperation, extra efforts during peak periods and reduces absenteeism. It is therefore in the interest of organizations not only to gain an insight into the extent to which actual staff turnover occurs, but also into staff turnover intentions and the motives underlying them. In ECOOM-brief 20, we examine these motives behind the PhD candidates' turnover intentions in more detail.

From the present research, we remember that just over half of the PhD students in Flanders in the year 2018 had never considered quitting their PhD, while the other half played with the idea of abandoning the PhD

trajectory prematurely once or twice a year, or more. For 9.2% of PhD students, the idea of quitting their PhD even occurred several times a month, whereas for 3.7%, it was several times a week or even daily. Our analyses show that PhD students' turnover intentions are more common in the case of high demands for work and work-family conflict, but are slowed down by a high level of job control, an inspiring supervisor and the time and effort they have already invested. Moreover, PhD students are less likely to terminate their PhD trajectory prematurely if they are interested in an academic career, or if they perceive their PhDs as added value for the non-academic labour market. Such a finding suggests that - from the perspective of talent retention - universities, research teams and PhD students benefit from approaching both academic and non-academic jobs as valuable forms of employment for PhD holders. Additional analyses by the *Survey of Junior Researchers* 2018 show that 13.3% of PhD students do not agree with the proposition that a PhD in their field of study can provide added value for future employers. Not much scientific research has yet been done into the perceptions, stereotypes and opinions about PhD holders among employers in the non-academic labour market. That is why in 2016, ECOOM UGent decided to approach 30 key figures in the Flemish labour market and asked them in a series of interviews about their experiences and vision of the added value of the PhD for their sector. The reader can find this uncensored interview series in Stassen, Levecque & Anseel (2016).

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