

A comparison between employed PhD students and PhD scholarship students

Results from two cohorts

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1. Introduction

In May 2017, a survey was sent out to all PhD students registered at the University of Groningen (UG). The full report of the results of this survey can be found online (<https://www.rug.nl/education/phd-programmes/about/phd-survey/2017.pdf>). For the evaluation of the PhD scholarship programme also a more targeted report was made using only data comparing first year PhD scholarship students with employed PhD students (covering the major part of the cohort 2016/2017; see <https://www.rug.nl/education/phd-programmes/phd-scholarship-programme/about/phd-survey-2017-summary-results-first-year-phd-students.pdf>).

In September 2018, a similar survey, with some additional questions for PhD scholarship students only, was sent to all PhD students who started their project at the UG after May 2017. In this way results from the remaining part of the 2016/2017 and also the 2017/2018 cohort became available.

In the present report the data of the September 2018 survey as well as the combined outcome of both surveys are given and discussed. These results focus on the comparison between PhD scholarship students and employed PhD students. The results from external PhD students were excluded from the analyses. Whereas 122 employed PhD students and 98 PhD scholarship students completed the survey in 2017, 191 employed PhD students and 161 PhD scholarship students completed the survey in 2018.

This report is additional to the report about the 2017 survey data. Besides tables showing the combined results, separate tables about the 2017 and 2018 data are included in this report.

2. Response per graduate school

In total, 586 first- and second-year employed and PhD scholarship students completed either the first or the second survey. The cumulative data given in Table 1 show the numbers of respondents per faculty.

Table 1. Overview of responses (combining the May 2017 and September 2018 surveys)

Graduate school	R employed	R scholarship	R total
Campus Fryslân	2	6	8
Economics and Business	11	7	18
Science and Engineering	140	133	273
Behavioural and Social Sciences	36	15	51
Theology and Religious Studies	4	9	13
Humanities	16	19	35
Medical Sciences (UMCG O&O)	73	45	118
Law	5	12	17
Spatial Sciences	8	6	14
Philosophy	5	3	8

Did not answer this question	13	4	17
Total	313	259	572

Note: R = number of respondents

3. Affiliation

Of all first- and (starting) second-year PhD students who completed the survey in 2018, most had an employment (44%) or a scholarship (40%) position (Table 3). These percentages are similar to those for the 2017 data (Table 2). For the analyses in this report we compared employed PhD students (employed by either UG/UMCG, NWO I, ASTRON or SRON) with PhD scholarship students. PhD students employed by a university of applied sciences, other external party or company, and those who have no funding or have another affiliation are included in the category ‘other’, and were not taken into account in the analyses. Whenever we refer to ‘all PhD students’ in this report, we thus refer only to the first- and (early) second-year employed and PhD scholarship students who completed the survey.

Table 2. Affiliation of the 2017 respondents

Affiliation	Total (%)
Employed by UG/UMCG	111 (49)
Employed by NWO I (formerly FOM), ASTRON or SRON	11 (9)
PhD scholarship student	98 (43)
Other	9 (4)
Total	229 (100)

Table 3. Affiliation of the 2018 respondents

Affiliation	Total (%)
Employed by UG/UMCG	180 (44)
Employed by NWO I (formerly FOM), ASTRON or SRON	11 (3)
PhD scholarship student at the UG/UMCG	161 (40)
Other	56 (14)
Total	408 (100)

Table 4. Affiliation of the cumulative 2017 and 2018 group of respondents (combined sample)

Affiliation	Total (%)
Employed by UG/UMCG	291 (46)
Employed by NWO I (formerly FOM), ASTRON or SRON	22 (4)
PhD scholarship student at the UG/UMCG	259 (41)
Other	65 (10)
Total	637 (100)

4. Background characteristics

Gender

A small majority of respondents in 2018 was female. Among the employed PhD students, more than half of the respondents were female (59%), whereas the percentage of males and females is the same among the responding PhD scholarship students (Table 6). In 2017, the percentage of female PhD scholarship students in the sample was slightly higher than the percentage of males (Table 5). Still, the male/female ratios within both samples

are rather similar. So, in both cases, the samples seem to fairly reflect the gender distribution in the whole UG population of PhD students, with a slightly higher response by female PhD students.

Table 5. Sample characteristics in 2017: gender in %

Gender	Employed PhD students	PhD scholarship students
Female	59	55
Male	41	46

Table 6. Sample characteristics in 2018: gender in %

Gender	Employed PhD students	PhD scholarship students
Female	59	50
Male	41	50

Table 7. Sample characteristics of the combined sample: gender in %

Gender	Employed PhD students	PhD scholarship students
Female	59	52
Male	41	48

Nationality

Whereas the number of non-Dutch PhD students equals the number of Dutch PhD students in the whole PhD student population in Groningen, the majority of first- and second-year PhD students who completed the 2018 survey do not have the Dutch nationality (see Table 9). These results are also seen in the 2017 survey (Table 8). Among those with a non-Dutch nationality, most PhD students had a non-European nationality. The percentage of non-European PhD students was considerably higher among PhD scholarship students than among employed PhD students. This higher percentage of PhD students with a non-Dutch nationality in the PhD scholarship group can be explained by the fact that international PhD students with a scholarship of their home country are included in the PhD scholarship group taking about 40% of all PhD scholarship positions.

Table 8. Sample characteristics in 2017: nationality in %

Nationality	Employed PhD students	PhD scholarship students	Total sample
Dutch	42	24	31
European	29	10	23
Non-European	29	66	46

Table 9. Sample characteristics in 2018: nationality in %

Nationality	Employed PhD students	PhD scholarship students	Total sample
Dutch	45	27	35
European	20	19	20
Non-European	35	55	44

Table 10. Sample characteristics of the combined sample: nationality in %

Nationality	Employed PhD students	PhD scholarship students	Total sample
Dutch	41	25	34
European	25	16	21
Non-European	34	59	45

University where master was obtained

In the combined sample, 40% of the PhD scholarship students had obtained their master's degree at a Dutch university, either at the UG (35%) or another university (5%) (Table 13). Employed PhD students more often than PhD scholarship students had obtained their master from a Dutch university other than the UG (18% compared to 5%). The latter can be explained by the fact that doing a research master at the UG provides a kick-start in getting a PhD scholarship position, since writing a PhD project proposal is part of these masters. In total, 60% of PhD scholarship students and 48% of employed PhD students obtained their master from a non-Dutch university. This higher percentage of PhD students with a non-Dutch master in the PhD scholarship group can be explained by the fact that international PhD students with a scholarship of their home country take 40% of all PhD scholarship positions. Compared to the 2017 sample (Table 11), a smaller percentage of PhD scholarship students obtained their master outside of Europe and a smaller percentage of employed PhD students obtained their master from the UG.

Table 11. University where master was obtained by the 2017 respondents in %

Nationality	Employed PhD students	PhD scholarship students
UG	41	30
Other Dutch university	12	3
University in Europe	31	14
University outside Europe	17	53

Table 12. University where master was obtained by the 2018 respondents in %

Nationality	Employed PhD students	PhD scholarship students
UG	33	39
Other Dutch university	18	6
University in Europe	25	17
University outside Europe	23	39

Table 13. University where master was obtained by the combined sample in %

Nationality	Employed PhD students	PhD scholarship students
UG	37	35
Other Dutch university	16	5
University in Europe	28	16
University outside Europe	20	45

5. Work and project characteristics

Application

Among employed PhD students in the 2018 data, about one third described that their application process contained one formal interview (Table 15). For PhD scholarship students, this percentage was higher (43%). Employed PhD students more often had two or more formal interviews. For PhD scholarship students, having had an assignment was more common than for employed PhD students. Receiving an offer for a PhD position without a formal interview happened substantially more often for employed positions than for PhD scholarships. The results from the 2017 data (Table 14), however, show a different picture. Among this cohort, fewer employed PhD students but more PhD

scholarship students indicated having had to complete an assignment as a part of their application process.

Table 14. Application process of the 2017 respondents in %

Answer category	Employed PhD students	PhD scholarship students
I was offered a PhD position without a formal application interview.	18	11
The application process consisted of one formal interview.	32	51
The application process consisted of two or more formal interviews.	14	9
The application process consisted of one or more interviews plus an assignment (e.g. an assessment, a writing assignment, a presentation).	31	19
Other	5	11

Table 15. Application process of the 2018 respondents in %

Answer category	Employed PhD students	PhD scholarship students
I was offered a PhD position without a formal application interview.	19	7
The application process consisted of one formal interview.	36	43
The application process consisted of two or more formal interviews.	26	13
The application process consisted of one or more interviews plus an assignment (e.g. an assessment, a writing assignment, a presentation).	18	26
Other	2	11

Table 16. Application process of the combined sample in %

Answer category	Employed PhD students	PhD scholarship students
I was offered a PhD position without a formal application interview.	18	9
The application process consisted of one formal interview.	34	46
The application process consisted of two or more formal interviews.	22	11
The application process consisted of one or more interviews plus an assignment (e.g. an assessment, a writing assignment, a presentation).	22	24
Other	3	11

Project design

When asked who designed the PhD project at the beginning of the trajectory, we see for the 2018 cohort a clear tendency that employed PhD students felt that their project was designed by the supervisors (see Table 18). This is especially visible at the ‘extremes’. Whereas 45% of the employed PhD students said their supervisor(s) designed the entire project, this was only the case for 28% of the PhD scholarship students. For PhD scholarship students, the project was far more often designed by the PhD student him-/herself or as a co-production with his/her supervisor. Compared to 2017 (Table 17), PhD scholarship students’ projects in 2018 more often seemed to be co-designed by the PhD student and his or her supervisor. Employed PhD students less often reported to work on a project that was entirely or mostly designed by them. In addition, they also considerably more often reported an ‘other’ way of designing the project (5% in 2017; 15% in 2018), which in most cases means that the project had been designed by a consortium.

Table 17. Design of the project of the 2017 respondents in %

Answer category	Employed PhD students	PhD scholarship students
Project is entirely designed by PhD student.	3	9
Project is mostly designed by the PhD student.	12	26
Project is co-designed by PhD student and supervisor.	28	32
Project is mostly designed by supervisor.	21	25
Project is entirely designed by supervisor.	31	9
Other	3	0

Table 18. Design of the project of the 2018 respondents in %

Answer category	Employed PhD students	PhD scholarship students
Project is entirely designed by PhD student.	3	8
Project is mostly designed by the PhD student.	7	19
Project is co-designed by PhD student and supervisor.	28	45
Project is mostly designed by supervisor.	22	21
Project is entirely designed by supervisor.	24	7
Other	16	1

Table 19. Design of the project of the combined sample in %

Answer category	Employed PhD students	PhD scholarship students
Project is entirely designed by PhD student.	3	8
Project is mostly designed by the PhD student.	9	22
Project is co-designed by PhD student and supervisor.	28	40
Project is mostly designed by supervisor.	22	22
Project is entirely designed by supervisor.	27	8
Other	12	0

Other project characteristics

PhD scholarship students in the 2018 sample significantly more often considered the final year of their master's degree as part of their PhD project (e.g. they wrote their PhD proposal during their master or the topic of their master's thesis is closely related to their PhD research) than employed PhD students (see Table 21). They also more often considered their project to be a stand-alone project. Moreover, PhD scholarship students' projects were significantly less often closely related to other PhD students' projects, to research by a postdoc or other colleagues, or part of (inter)national consortia. There were no differences, however, regarding the relatedness of the PhD project to the daily or primary supervisor's research. All these findings are similar to those based on the 2017 survey, except that some of the described differences were not statistically significant then (Table 20).

Table 20. Other project characteristics in %

Characteristic	Employed PhD students 'yes'	PhD scholarship students 'yes'
Can the final year of your (Research) master's degree be considered part of your PhD project?*	19	45
My project is a stand-alone project; I am the only one in my department who is working on this topic.	37	45
My project is closely linked to other PhD students' projects.*	49	32
My project is closely linked to research by a postdoc or other colleagues.	21	14
My project is closely linked to my daily and/or primary supervisor's research.	43	41
My project is part of a national or an international consortium.*	22	4

* $p < .05$

Table 21. Other project characteristics of the 2018 sample in %

Characteristic	Employed PhD students 'yes'	PhD scholarship students 'yes'
Can the final year of your (Research) master's degree be considered part of your PhD project?***	25	40
My project is a stand-alone project; I am the only one in my department who is working on this topic.**	31	47
My project is closely linked to other PhD students' projects.*	42	30
My project is closely linked to research by a postdoc or other colleagues.*	26	15
My project is closely linked to my daily and/or primary supervisor's research.	42	47
My project is part of a national or an international consortium.***	21	6

* $p < .05$

** $p < .01$

*** $p < .001$

Table 22. Other project characteristics of the combined sample in %

Characteristic	Employed PhD students 'yes'	PhD scholarship students 'yes'
Can the final year of your (Research) master's degree be considered part of your PhD project?***	23	41
My project is a stand-alone project; I am the only one in my department who is working on this topic**	34	45
My project is closely linked to other PhD students' projects.**	43	31
My project is closely linked to research by a postdoc or other colleagues.*	23	15
My project is closely linked to my daily and/or primary supervisor's research.	42	44
My project is part of a national or an international consortium.***	22	6

* $p < .05$

** $p < .01$

*** $p < .001$

6. The importance attached to job benefits

We asked PhD students how important they found several job rights and benefits on a scale of 1 (not important at all) to 5 (extremely important). The results for 2018 are presented in Table 24. All aspects are evaluated as above the scale mean of 3.0, so are felt as important. Two differences between employed PhD students and scholarship students were found: PhD scholarship students attached more value to having a regular monthly income and having access to a good range of health facilities. In 2017, three additional differences on benefits were found (Table 23): PhD scholarship students attached higher value to having good conditions regarding sick leave and maternity care and having access to a good range of sports facilities, whilst employed PhD students attached higher value to having flexible working hours. Furthermore, PhD scholarship students scored significantly higher on the total scale of rights and benefits than employed PhD students. In 2018, this difference is also visible when comparing the mean scores of both groups on the scale, but it was not statistically significant.

Table 23. Importance of rights and benefits to the 2017 sample: mean and standard deviation

Benefit	Employed PhD students	PhD scholarship students
Having a regular monthly income.*	4.80 (.50)	4.96 (.20)
Having a pay rise every year.	4.04 (.97)	4.17 (.97)
Receiving a holiday allowance (i.e. the equivalent of one month's pay, paid out in May).	4.11 (.97)	4.17 (.85)
Receiving an end-of-year bonus (i.e. the equivalent of one month's pay, paid out in December).	3.99 (1.01)	4.10 (.91)
Having good conditions regarding sick leave and maternity leave.*	4.33 (.82)	4.57 (.71)
Having access to a good range of sports facilities.*	3.41 (1.30)	3.79 (1.04)
Having access to a good range of health facilities, including mental health services.*	3.75 (1.15)	4.41 (.74)
Having the freedom to make my own choices in my project.	4.49 (.69)	4.47 (.72)
Having flexible working hours.*	4.49 (.70)	4.13 (.95)
Being allowed to teach and supervise Bachelor's and Master's students.	3.61 (1.13)	3.74 (.98)
Being able to go abroad to do research at another university.	4.02 (.98)	4.22 (.83)
Being able to follow an internship at a company or government organization.	3.47 (1.21)	3.62 (1.03)
Total rights and benefits scale ($\alpha = .80$)*	4.04 (.57)	4.20 (.44)

* $p < .05$

Table 24. Importance of rights and benefits to the 2018 sample: mean and standard deviation

Benefit	Employed PhD students	PhD scholarship students
Having a regular monthly income.*	4.82 (.52)	4.93 (.25)
Having a pay rise every year.	4.08 (.90)	4.19 (.88)
Receiving a holiday allowance (i.e. the equivalent of one month's pay, paid out in May).	4.16 (.82)	4.19 (.96)
Receiving an end-of-year bonus (i.e. the equivalent of one month's pay, paid out in December).	4.08 (.84)	4.11 (.99)
Having good conditions regarding sick leave and maternity leave.	4.47 (.75)	4.51 (.79)
Having access to a good range of sports facilities.	3.43 (1.19)	3.65 (1.11)
Having access to a good range of health facilities, including mental health services.**	3.92 (1.07)	4.26 (.89)
Having the freedom to make my own choices in my project.	4.53 (.62)	4.51 (.63)
Having flexible working hours.	4.32 (.80)	4.23 (.86)
Being allowed to teach and supervise Bachelor's and Master's students.	3.75 (1.03)	3.80 (.98)
Being able to go abroad to do research at another university.	3.92 (1.03)	4.08 (.91)
Being able to follow an internship at a company or government organization.	3.44 (1.21)	3.37 (1.20)
Total rights and benefits scale ($\alpha = .74$)	4.08 (.48)	4.15 (.45)

* $p < .05$

** $p < .01$

Table 25. Importance of rights and benefits to the combined sample: mean and standard deviation

Benefit	Employed PhD students	PhD scholarship students
Having a regular monthly income.**	4.84 (.45)	4.94 (.23)
Having a pay rise every year.	4.09 (.91)	4.19 (.90)
Receiving a holiday allowance (i.e. the equivalent of one month's pay, paid out in May).	4.15 (.87)	4.19 (.91)
Receiving an end-of-year bonus (i.e. the equivalent of one month's pay, paid out in December).	4.07 (.89)	4.10 (.96)
Having good conditions regarding sick leave and maternity leave.	4.44 (.78)	4.53 (.76)
Having access to a good range of sports facilities.**	3.43 (1.23)	3.73 (1.09)
Having access to a good range of health facilities, including mental health services.***	3.88 (1.10)	4.33 (.83)
Having the freedom to make my own choices in my project.	4.50 (.66)	4.50 (.66)
Having flexible working hours.*	4.38 (.76)	4.20 (.90)
Being allowed to teach and supervise Bachelor's and Master's students.	3.66 (1.07)	3.79 (.99)
Being able to go abroad to do research at another university.*	3.95 (1.03)	4.14 (.87)
Being able to follow an internship at a company or government organization.	3.45 (1.20)	3.50 (1.13)
Total rights and benefits scale ($\alpha = .77$)**	4.07 (.51)	4.18 (.45)

* $p < .05$

** $p < .01$

*** $p < .001$

7. Freedom

PhD students answered six statements about perceived freedom in which they had to indicate the extent to which they agreed with the freedom statement on a Likert scale ranging from 1 (completely disagree) to 5 (completely agree). All the freedom scores were above the mean scale score of 3.0 (see Table 27). The differences between the mean scores of employed PhD students and PhD scholarship students were relatively small, and only one was found to be statistically significant: PhD scholarship students perceived themselves to have more freedom when it comes to choosing when and where they work. In 2017, next to having the freedom to choose when and where to work and compared to employed PhD students, PhD scholarship students also perceived their freedom to choose which journals to publish in to be significantly higher than employed PhD students (Table 26). Another interesting finding is that whereas in 2017, overall, PhD scholarship students perceived themselves to have significantly more freedom than employed PhD students, this difference was not significant in 2018.

Table 26. Amount of freedom perceived by PhD students from the 2017 sample: mean and standard deviation

Freedom statement	Employed PhD students	PhD scholarship students
In my PhD project there is much room for my own ideas.	4.20 (.76)	4.33 (.75)
I have the freedom to make my own choices about the direction of my project and the methods to be used.	3.89 (.83)	4.05 (.80)
I have the freedom to choose which conferences to attend.	3.86 (.89)	4.09 (.85)
I have the freedom to choose which courses to take.	4.12 (.83)	4.20 (.85)
I have the freedom to choose which journals to publish in.*	3.38 (.74)	3.60 (.91)
I have the freedom to choose when and where I work.*	3.82 (.96)	4.08 (1.03)
Total freedom scale ($\alpha = .80$)*	3.88 (.55)	4.06 (.64)

* $p < .05$

Table 27. Amount of freedom perceived by PhD students from the 2018 sample: mean and standard deviation

Freedom statement	Employed PhD students	PhD scholarship students
In my PhD project there is much room for my own ideas.	4.27 (.80)	4.31 (.75)
I have the freedom to make my own choices about the direction of my project and methods to be used.	3.97 (.83)	4.04 (.86)
I have the freedom to choose which conferences to attend.	3.92 (.87)	3.87 (.95)
I have the freedom to choose which courses to take.	4.15 (.83)	4.13 (.84)
I have the freedom to choose which journals to publish in.	3.46 (.81)	3.55 (.81)
I have the freedom to choose when and where I work.**	3.68 (1.05)	4.03 (1.02)
Total freedom scale ($\alpha = .79$)	3.91 (.59)	3.99 (.63)

** $p < .01$

Table 28. Amount of freedom perceived by the combined sample of PhD students: mean and standard deviation

Freedom statement	Employed PhD students	PhD scholarship students
In my PhD project there is much room for my own ideas.	4.22 (.79)	4.33 (.74)
I have the freedom to make my own choices about the direction of my project and methods to be used.	3.92 (.83)	4.04 (.83)
I have the freedom to choose which conferences to attend.	3.89 (.87)	3.95 (.93)
I have the freedom to choose which courses to take.	4.11 (.82)	4.14 (.86)
I have the freedom to choose which journals to publish in.*	3.41 (.78)	3.58 (.84)
I have the freedom to choose when and where I work.***	3.70 (1.02)	4.05 (1.03)
Total freedom scale ($\alpha = .79$)**	3.88 (.56)	4.01 (.65)

 ** $p < .01$

 *** $p < .001$

8. Supervision

PhD students had to answer questions about both their daily and their primary supervisor about the following five topics: availability, academic support, personal support, autonomy support, and high expectations. The scale range was from 1 to 5; the higher the score, the more positive the PhD student was about his or her supervisor's availability and support. Regarding the last factor (high expectations), a high score means that the PhD student perceived his or her supervisor as having high expectations of him or her. For instance, the supervisor having the expectation that all papers are published before submitting the thesis or the PhD student having the perception that nothing is good enough for his/her supervisor. All scores except those with regard to high expectations were above the scale mean. We found no significant differences between employed PhD students and PhD scholarship students in 2018 (see Table 30). In 2017, however, some significant differences were found (Table 29): PhD scholarship students who filled out the survey in that year experienced more academic as well as autonomy support from both their supervisors and more personal support from their primary supervisor, and PhD scholarship students reported higher expectations by their daily supervisor.

Table 29. Availability and support of the daily and primary supervisor as experienced by the 2017 sample mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Availability daily supervisor ($\alpha = .87$)	4.40 (.74)	4.37 (.79)
Availability primary supervisor ($\alpha = .86$)	4.09 (.83)	4.27 (.65)
Total availability supervisors	4.22 (.73)	4.31 (.61)
Academic support daily supervisor ($\alpha = .91$)*	3.71 (.74)	3.91 (.67)
Academic support primary supervisor ($\alpha = .92$)*	3.38 (.80)	3.77 (.71)
Total academic support supervisors*	3.53 (.72)	3.83 (.67)
Personal support daily supervisor ($\alpha = .93$)	4.03 (.65)	4.17 (.53)
Personal support primary supervisor ($\alpha = .93$)*	3.87 (.68)	4.06 (.57)
Total personal support supervisors*	3.94 (.61)	4.11 (.51)
Autonomy support daily supervisor ($\alpha = .81$)*	4.02 (.58)	4.18 (.44)
Autonomy support primary supervisor ($\alpha = .82$)*	3.93 (.58)	4.11 (.47)
Total autonomy support supervisors*	3.99 (.55)	4.13 (.43)
High expectations daily supervisor ($\alpha = .69$)*	2.53 (.54)	2.75 (.52)
High expectations primary supervisor ($\alpha = .68$)	2.63 (.54)	2.73 (.51)
Total high expectations supervisors*	2.59 (.52)	2.74 (.50)

* $p < .05$

Table 30. Availability and support of the daily and primary supervisor as experienced by the 2018 sample mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Availability daily supervisor ($\alpha = .86$)	4.41 (.68)	4.50 (.66)
Availability primary supervisor ($\alpha = .88$)	4.17 (.82)	4.23 (.82)
Total availability supervisors	4.27 (.67)	4.35 (.66)
Academic support daily supervisor ($\alpha = .91$)	3.88 (.73)	3.89 (.73)
Academic support primary supervisor ($\alpha = .93$)	3.59 (.77)	3.60 (.84)
Total academic support supervisors	3.70 (.67)	3.73 (.72)
Personal support daily supervisor ($\alpha = .96$)	4.14 (.75)	4.12 (.72)
Personal support primary supervisor ($\alpha = .95$)	3.98 (.72)	4.03 (.72)
Total personal support supervisors	4.04 (.67)	4.06 (.67)
Autonomy support daily supervisor ($\alpha = .80$)	4.13 (.56)	4.23 (.49)
Autonomy support primary supervisor ($\alpha = .85$)	4.04 (.60)	4.07 (.60)
Total autonomy support supervisors	4.07 (.52)	4.13 (.51)
High expectations daily supervisor ($\alpha = .76$)	2.75 (.63)	2.79 (.67)
High expectations primary supervisor ($\alpha = .74$)	2.77 (.66)	2.75 (.61)
Total high expectations supervisors	2.77 (.63)	2.77 (.62)

Table 31. Availability and support of the daily and primary supervisor as experienced by the combined sample mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Availability daily supervisor ($\alpha = .87$)	4.41 (.70)	4.43 (.72)
Availability primary supervisor ($\alpha = .88$)	4.15 (.80)	4.25 (.76)
Total availability supervisors	4.26 (.68)	4.33 (.65)
Academic support daily supervisor ($\alpha = .91$)	3.80 (.74)	3.89 (.72)
Academic support primary supervisor ($\alpha = .92$)	3.50 (.77)	3.67 (.81)
Total academic support supervisors	3.62 (.68)	3.77 (.72)
Personal support daily supervisor ($\alpha = .95$)	4.07 (.70)	4.12 (.65)
Personal support primary supervisor ($\alpha = .95$)*	3.93 (.67)	4.04 (.62)
Total personal support supervisors*	3.99 (.63)	4.07 (.62)
Autonomy support daily supervisor ($\alpha = .81$)**	4.06 (.56)	4.21 (.48)
Autonomy support primary supervisor ($\alpha = .84$)*	3.99 (.56)	4.09 (.55)
Total autonomy support supervisors*	4.02 (.52)	4.13 (.48)
High expectations daily supervisor ($\alpha = .74$)**	2.63 (.61)	2.79 (.61)
High expectations primary supervisor ($\alpha = .72$)	2.70 (.62)	2.76 (.58)
Total high expectations supervisors	2.67 (.60)	2.77 (.58)

* $p < .05$

** $p < .01$

9. Atmosphere in research group

We asked PhD students several questions about their formal (academic) and informal (social) relationships with colleagues in their research group and the extent to which they felt at home in their research group (see Table 33 for the results from the 2018 group). Answers on the separate items were given on a scale of 1 (completely disagree) to 5 (completely agree). The higher the scale score, the more positive PhD students are about the (in)formal relationships at their department and the extent to which they feel they belong. The employed PhD students and PhD scholarship students did not differ significantly from each other on these factors and all the scores are above the scale mean. Similar results were found in 2017 and can also be seen in the combined group (see Table 32 and 34).

It can be concluded that both PhD scholarship and employed PhD students had good formal and informal relations in their research group and rate their sense of belonging as high.

Table 32. Factors related to the atmosphere in research group of 2017 sample: mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Formal relationships ($\alpha = .88$)	3.67 (.74)	3.63 (.53)
Informal relationships ($\alpha = .86$)	3.54 (.82)	3.43 (.67)
Sense of belonging ($\alpha = .87$)	3.99 (.66)	4.00 (.56)

Table 33. Factors related to the atmosphere in research group of 2018 sample: mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Formal relationships	3.78 (.64)	3.64 (.73)
Informal relationships	3.55 (.81)	3.46 (.85)
Sense of belonging	4.00 (.66)	4.00 (.66)

Table 34. Factors related to the atmosphere in research group of combined sample: mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Formal relationships	3.70 (.68)	3.63 (.65)
Informal relationships	3.53 (.80)	3.42 (.78)
Sense of belonging	3.99 (.65)	3.98 (.62)

10. Satisfaction, considering to quit, and workload

Satisfaction

We asked the PhD students to answer two questions regarding their satisfaction with their PhD on a scale from 1 (very dissatisfied) to 5 (very satisfied). In 2018, employed PhD scholarship students were significantly more satisfied with their overall PhD trajectory than scholarship students (Table 36), although the mean score is above the scale mean and the effect size is small. Both groups of PhD students were especially satisfied with the supervision they receive. In 2017, there were no significant differences in levels of satisfaction between the two groups of PhD students (see Table 35).

Table 35. Satisfaction of the 2017 sample: mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Satisfaction with PhD trajectory	3.89 (.81)	3.88 (.74)
Satisfaction with supervision	4.27 (.99)	4.22 (.99)

Table 36. Satisfaction of the 2018 sample: mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Satisfaction with PhD trajectory**	3.90 (.79)	3.63 (.95)
Satisfaction with supervision	4.24 (.96)	4.03 (1.13)

Table 37. Satisfaction of the combined sample: mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Satisfaction with PhD trajectory*	3.90 (.80)	3.74 (.87)
Satisfaction with supervision	4.25 (.97)	4.11 (1.08)

Considering to quit

Of all first-year PhD students who filled out the survey in 2018, about three quarters have never considered to quit (see Table 39). The majority of PhD students who did indicate having considered to quit their PhD, indicated not to do so often. Among both groups of PhD students, the percentage of students who have considered quitting their PhD often or even very often is low.

Table 38. Answers by the 2017 sample to the question: Have you ever considered to quit your PhD project? in %

Answer category	Employed PhD students	PhD scholarship students
Yes, very often	2	0
Yes, often	2	0
Yes, sometimes	12	13
No, never	83	87

Table 39. Answers by the 2018 sample to the question: Have you ever considered to quit your PhD project? in %

Answer category	Employed PhD students	PhD scholarship students
Yes, very often	1	2
Yes, often	2	2
Yes, sometimes	22	22
No, never	76	74

Table 40. Answers by the combined sample to the question: Have you ever considered to quit your PhD project? in %

Answer category	Employed PhD students	PhD scholarship students
Yes, very often	1	1
Yes, often	2	1
Yes, sometimes	18	18
No, never	78	80

Workload

We asked the PhD students how they perceived their workload. In the 2018 data (Table 42), there are no clear differences in perceived work load between employed PhD students and PhD scholarship students. In the 2017 data (Table 41), employed PhD students more often perceive their workload as high.

Table 41. Answers by the 2017 sample to the question: How would you describe the workload in your PhD project? in %

Answer category	Employed PhD students	PhD scholarship students
Too high	2	2
High	45	33
Normal	52	64
Low	1	1

Table 42. Answers by the 2018 sample to the question: How would you describe the workload in your PhD project? in %

Answer category	Employed PhD students	PhD scholarship students
Too high	4	3
High	45	43
Normal	50	54
Low	1	0

Table 43. Answers by the combined sample to the question: How would you describe the workload in your PhD project? in %

Answer category	Employed PhD students	PhD scholarship students
Too high	3	2
High	44	39
Normal	52	58
Low or too low	1	0

11. Job prospects and plans

We asked PhD students how they would rate their job prospects in general, inside academia, and outside of academia, on a scale of 1 (= very bad) to 5 (= very good). Both types of PhD students indicated to be rather satisfied with their job prospects, as all scores

are above the scale mean of 3.0. The only statistically significant difference between the two groups of PhD students is that employed PhD students were significantly more satisfied with their job prospects in general than PhD scholarship students (Table 45). Furthermore, both groups of PhD students were more satisfied with the job prospects outside of academia than with those inside academia. In 2017, results regarding job prospects and plans were similar but none of the differences in mean scores of the two groups of PhD students were statistically significant (Table 44).

Table 44. Perceptions of job prospects by the 2017 sample: mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Job prospects in general	3.89 (.86)	3.73 (.77)
Job prospects inside academia	3.13 (.91)	3.39 (.84)
Job prospects outside of academia	3.71 (.89)	3.51 (.74)

Table 45. Perceptions of job prospects by the 2018 sample: mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Job prospects in general**	3.96 (.80)	3.61 (.96)
Job prospects inside academia	3.27 (.82)	3.21 (.93)
Job prospects outside of academia	3.64 (1.01)	3.35 (.99)

Table 46. Perceptions of job prospects by the combined sample: mean and standard deviation

Factor	Employed PhD students	PhD scholarship students
Job prospects in general**	4.00 (.92)	3.77 (.99)
Job prospects inside academia	3.36 (1.07)	3.39 (1.01)
Job prospects outside of academia	3.83 (1.09)	3.63 (1.11)

Furthermore, we asked whether the PhD students currently wish to pursue a career inside or outside of academia. PhD scholarship students were more likely to be interested in a career inside academia (see Table 48): 43% of PhD scholarship students said they definitely or probably wanted to work inside academia, compared to one third of employed PhD students. Employed PhD students were more likely to be interested in a career outside of academia: 36% of employed PhD students said that they definitely or probably wanted to work outside of academia, compared to 27% of PhD scholarship students. Slightly over a quarter of PhD students in both groups indicated being unsure whether they wanted to stay inside academia or pursue a career outside of academia after finishing their PhD. In 2017, the percentages of employed PhD students and PhD scholarship students who said that they were interested in a career outside academia were considerably more similar, and the percentage of employed PhD students that indicated being unsure about their career plans was significantly higher than in 2018 (see Table 47).

Table 47. Career plans of the 2017 sample in %

Characteristic	Employed PhD students	PhD scholarship students
Definitely inside	9	13
Probably inside	23	30
I don't know	39	26
Probably outside	17	22
Definitely outside	7	2
I don't aspire to pursue a career at all	0	1
I already have a career	1	5
Other	5	0

Table 48. Career plans of the 2018 sample in %

Characteristic	Employed PhD students	PhD scholarship students
Definitely inside	10	13
Probably inside	24	31
I don't know	27	28
Probably outside	30	21
Definitely outside	5	6
I don't aspire to pursue a career at all	1	0
I already have a career	1	0
Other	2	1

Table 49. Career plans of the combined sample in %

Characteristic	Employed PhD students	PhD scholarship students
Definitely inside	10	13
Probably inside	23	30
I don't know	31	28
Probably outside	25	21
Definitely outside	6	5
I don't aspire to pursue a career at all	1	1
I already have a career	1	2
Other	3	1

12. Questions for PhD scholarship students only, in the 2018 survey

A number of additional questions was asked to PhD scholarship students only in the 2018 survey. One of the objectives of these additional questions was to get a better idea of the degree to which those students were aware of the conditions of the PhD scholarship and how those differ from the conditions of the contract of an employed PhD student. Slightly less than one-third of the PhD scholarship students indicated that they were aware at the start of their trajectory of the difference in conditions between the two types of contracts (Table 50). When filling out the survey in September 2018, nearly two-third of the PhD scholarship students indicate that they are aware of the differences (Table 51). Since many PhD scholarship students seem to have become (more) aware of the differences between the contracts only during their PhD, they were also asked to answer the question whether they would have chosen to start their PhD with scholarship conditions, or not, if they had been aware of these conditions prior to starting it. A majority of PhD scholarship students (59%) answered that question in an affirmative way (Table 52). Less than one-tenth of the students (8%) said that they would not have chosen to start their PhD if they had been aware of the conditions of the PhD scholarship before starting it, and the remaining one-third of students said not to know whether they would have done so, or not.

Table 50. PhD scholarship students' awareness of the differences between the conditions of their contract versus the contract of an employed PhD student, when starting their PhD (given in %)

Answer category	
No	17
Somewhat	52
Yes	31

Table 51. PhD scholarship students' current awareness of the differences between the conditions of their contract versus the contract of an employed PhD student (given in %)

Answer category	
No	10
Somewhat	25
Yes	65

Table 52. Whether or not PhD scholarship students would have chosen to start their PhD had they been aware of the conditions before starting it (given in %)

Answer category	
No	8
Yes	59
Don't know	34

We asked the PhD scholarship students two open questions about what they thought about the advantages and the disadvantages of being a PhD scholarship student. Of the 161 PhD scholarship students in the sample, 97 (60%) answered the open question of what they see as advantages of being a PhD scholarship student. Their answers can be classified into several topics. As shown in Table 53, the most often mentioned advantages concern freedom regarding the project, flexibility regarding working hours and place, and that teaching is not mandatory.

Table 53. What do you see as the advantages of being a PhD scholarship student?

Advantage	Number of PhD students who mentioned it
Freedom to work on own project	25
Flexibility regarding working time, place, and holidays	23
No mandatory teaching	23
There are no advantages	19
Having the opportunity to pursue a PhD	10
Receiving student discounts (e.g. ACLO)	9
Other	5

Of the 161 PhD scholarship students in the sample, 100 (62%) answered the open question of what they see as disadvantages of being a PhD scholarship student. These answers could also be placed into different categories (see Table 54). 68 PhD scholarships in the sample indicate the lower salary and/or the absence of a yearly increase as a disadvantage. Almost half of those who answered this question also mention the lack of bonuses. These results show that the disadvantages that PhD scholarship students experience are mainly related to their lower income as compared to PhD students with an employment position.

Table 54. What do you see as the disadvantages of being a PhD scholarship student?

	Number of PhD students who mentioned it
Lower salary / no yearly raise	68
No bonuses (holiday and/or end-of-year money)	49
No pension	21
Unfair (you do exactly the same as an employed PhD student)	21
Teaching is not allowed / not expected / hard to arrange	20
Student status (second class PhD student, negative image for CV)	18
Less rights than employed PhD students	9
Other	37

Next, the PhD scholarship students were asked about their motives for taking the PhD scholarship (see Table 55). On average, endorsement was highest for the statement that there was either no employed position in the respondent's field or there was but they were not able to obtain such a position. In agreement with this, it is not surprising that endorsement was relatively low for the statement that the respondent was not aware of there being other types of PhD positions.

Table 55. Reasons to take a PhD scholarship: mean and standard deviation

Reason	Mean (<i>SD</i>)
Because I wanted to write my own research proposal.	3.15 (1.24)
Because I liked the freedom it would offer.	3.29 (1.24)
Because there was no employed position in my field of interest or I could not obtain an employed position.	3.70 (1.27)
Because I did not know about other types of PhD positions.	2.52 (1.32)
Because my current PhD supervisor offered it to me.	3.26 (1.31)

Note: Answers on these items were given on a scale of 1 (completely disagree) to 5 (completely agree).

PhD scholarship students' satisfaction with several aspects of the PhD scholarship was also investigated. On average, the students were rather satisfied with their choice to take a PhD scholarship (Table 56). Moreover, they were moderately satisfied with their research budget and with the courses of the Career Perspectives Series. On average, the PhD scholarship students did indicate to be slightly dissatisfied with their income and with the fact that they do not have to teach or supervise students – which is in line with the answers given to the open questions as discussed above.

Table 56. Satisfaction with several aspects of PhD scholarship: mean and standard deviation

Aspect	Mean (<i>SD</i>)
Satisfied with choice to take a PhD scholarship	3.32 (1.17)
Satisfied with income	2.74 (1.19)
Satisfied with research budget	3.07 (1.27)
Satisfied with not having to teach or supervise students	2.66 (1.24)
Satisfied with the offer of courses of the Career Perspectives Series (CPS)	3.15 (.96)

Note: Answers on these items were given on a scale of 1 (very dissatisfied) to 5 (very satisfied).

Lastly, PhD scholarship students in the sample were presented with a number of statements concerning their perception of their treatment, access to research facilities, research budget and amount of freedom as a PhD scholarship student in comparison to that of employed PhD students. The PhD scholarship students strongly felt that supervisors have as much time and attention for them as they have for their employed PhD students and that their colleagues do not treat them any different than employed PhD students (Table 57). Moreover, PhD scholarship students perceived their access to research facilities to be close to or similar to that of their employed counterparts. To a lesser degree, the PhD scholarships students indicated feeling just as valuable as PhD students. The same holds for the statement of having the same research budget as employed PhD students. In both cases, agreement was close to neutral. PhD scholarship students in this sample did not indicate to notice a clear difference in freedom between themselves and employed PhD students.

Table 57 . Comparisons with employed PhD students: mean and standard deviation

Comparison	Mean (<i>SD</i>)
I feel just as valuable as employed PhD students.	3.29 (1.31)
My supervisors have as much time and attention for me as their employed PhD students.	4.28 (.79)
My colleagues treat me the same as they treat employed PhD students.	4.28 (.76)
I have access to the same research facilities as employed PhD students.	4.36 (.76)
I have the same research budget as employed PhD students.	3.12 (1.33)
I notice that I have more freedom than employed PhD students.	2.86 (1.26)

Note: Answers on these items were given on a scale of 1 (completely disagree) to 5 (completely agree).

13. To conclude

After having set out surveys in two cohorts of first- and (starting) second-year PhD students (in total almost 600 PhD students), we can draw the following conclusions regarding the comparison between PhD students with an employee status and those with a scholarship.

1. PhD scholarship students more often than employed PhD students indicated that they have had a significant contribution in the design of their own project (30% of PhD scholarship versus 12% of employed PhD students entirely or mostly designed the project themselves).
2. PhD scholarship students more often than employed PhD students work on projects that are a follow-up of their master's research (41% vs. 23%). PhD scholarship students' projects are more often than those of employed PhD students stand-alone projects: They are the only ones in their department working on their topic, and the project is less often closely linked to their colleagues' research.
3. Regarding the value attached to certain rights and benefits, PhD scholarship students find a regular income, good access to sports and (mental) health facilities, and being able to go abroad during their PhD to do research at another university more important than employed PhD students. The latter attach more value to having flexible working hours. Overall, PhD scholarship students find rights and benefits slightly more important than employed PhD students, although in both groups the scores were high which means that those aspects are important for employed as well as scholarship students.
4. PhD scholarship students experience slightly more freedom than employed PhD students. This mainly concerns the perceived freedom to choose when and where to work and the freedom to choose which journals to publish in. There were no significant differences between the two types of PhD students regarding having much room for their own ideas, having the freedom to make their own choices about the direction of the PhD project, and having freedom to choose which conferences to attend and which courses to take: both employed PhD students and PhD scholarship students score high on these aspects.
5. Regarding supervision, PhD scholarship students rate their supervisors' personal support and autonomy support slightly higher than employed PhD students. In addition, PhD scholarship students – more than employed PhD students – indicate that their daily supervisor has high expectations of them.
6. There are no differences between the two types of PhD students regarding their formal relationships, informal relationships, and sense of belonging at work.

7. PhD scholarships are less satisfied than employed PhD students with their PhD trajectory, but the overall mean of 3.74 on a scale of 1 to 5 still indicates that on average, PhD scholarship students are quite satisfied.
8. Neither employed PhD students nor PhD scholarship students consider quitting often: about 80% never considered this.
9. PhD scholarship students slightly more often perceive their workload as 'normal', whereas employed PhD students more often characterize their workload as 'high'.
10. Employed PhD students are slightly more positive about their job prospects in general.
11. More PhD scholarship than employed PhD students aspire a career inside academia (43% vs. 33%).

The main conclusions from the additional questions that were asked to PhD scholarship students only in the survey of September 2018 are listed below.

12. At the start of their PhD, two-thirds of the PhD scholarships students turned out to be not fully aware of the conditions of a scholarship as compared to an employed status. At the time of the survey, one-third was still not fully aware of differences. If they had to make the choice again whether or not to take a PhD scholarship, only 8% definitely would not.
13. The PhD scholarship students who replied to the open questions mentioned the lower income as the main disadvantage of a scholarship, i.e., the lack of a yearly pay rise, the lack of holiday money and of an end-of-year bonus. Advantages of the scholarship status that were mentioned were the freedom to work on their own project, the flexibility in work time and place and that teaching is not mandatory.
14. The most important motive to take a PhD scholarship position was the lack of vacancies offering an employed PhD student position.

In summary, the questions in both the 2017 and 2018 surveys posed to scholarship PhD students and employed PhD students showed differences in answers on specific items as well as differences between the two cohorts. The differences between the 2017 and 2018 data show that there are not many clear trends yet and that more data should be collected in the following years before reliable conclusions can be drawn.

In general both types of students are satisfied with their supervision, the formal and informal relationships and sense of belonging. PhD scholarship students indicated more often that they designed the project, whereas employed PhD students more often are working on a project that is designed by the supervisor.

The answers to the additional questions that were asked to PhD scholarship students in the survey of September 2018 showed that PhD scholarship students are satisfied with their choice to take a PhD scholarship and that they feel just as valuable as employed PhD students. They indicate that their supervisors and colleagues treat them the same as employed PhD students and that they have access to the same research facilities. They are slightly dissatisfied with their income and with not having to teach or supervise PhD students and slightly disagree with the statement that they notice that they have more freedom than employed PhD students. A large majority of PhD scholarship students indicate that, if they had to choose whether or not to take a PhD scholarship again, they would have chosen to take the scholarship, i.e., 59% answered this question with 'yes' and only 8% with 'no'.