MAX PLANCK PhDnet

Doctoral Training and Working Conditions in the Max-Planck Society

Financial support, supervision, and career aspirations of doctoral students

Results from the 3rd Max Planck PhDnet survey 2009

by

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Motivations for beginning PhD studies at an MPI

"I want to taste [a] different culture."

"Location and job possibilities for my wife in the city".

"Language – wanted to become fluent in German."

"Previous collaboration."

"The subject, and the (good) experience of other people in this particular MPI group."

"A very interesting project in a great multidisciplinary institute."

"The possiblity of an English program (i.e. no need to speak German)."

"Little or no university work."

"Great research field available in Germany only at the MPI."

PhDnet survey report

www.phdnet.mpg.de

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1. The aim of the survey

The Max Planck Society (MPS) attaches particular importance to promoting junior scientists[2]. In 2010, the MPS was once again ranked as the most desirable future employer by students in the natural sciences (The Universum German Student Survey). However, a comprehensive assessment of the working conditions and the satisfaction of MPS PhD students with respect to their training and financial support has been lacking. This is in part due to the autonomy of the Max Planck Institutes (MPIs) within the MPS. Furthermore, since the MPS itself may not grant degrees, students conducting doctoral research within the MPS are affected by a wide variety of differing rules and practices in the many different university departments in which they are enrolled. These structural factors result in considerable variation in the working conditions of PhD students across the different institutes or departments within the institutes. To gain a broader perspective, the Max Planck PhD network (PhDnet) has conducted surveys of doctoral students throughout the MPS since 2006. The authors of this report initiated and designed the third such survey, the most representative to date (see below). The aim of this report is to provide a scientific analysis of the third survey, assessing the training and working conditions of a representative sample of PhD students within the MPS.

A major shift in the funding of doctoral students is underway in the MPS, with more students every year being funded through stipends and fewer employed on contracts. In light of this fact, we investigated the financial differences associated with funding through a contract vs. a stipend, and students' awareness of the legal differences of the two. Secondly, a major feature of the doctoral experience has traditionally been the close supervision and mentoring by a senior researcher. We thus assessed the satisfaction of doctoral students with their supervision as well as factors influencing it. In particular, we examined the extent to which these or other fundamental elements of the PhD experience differ among students of different genders and nationalities, or between parents and non-parents. Next, we investigated the effect of the "structured" graduate education within the International Max Planck Research Schools (IMPRS) on PhD students' experiences and outcomes. Since their introduction in 2000, 55 such schools have been founded and are increasingly changing the nature of graduate education in the MPS Finally, we investigated the career aspirations of doctoral students within the MPS and assess the extent to which students feel their doctoral education has prepared them for their future careers.

A high participation rate for representative results

In total, 2157 doctoral students from 80 MPIs participated in the study, more than twice as many participants than in the past two surveys. This participation rate is equivalent to approximately 62 % of the doctoral students funded by the MPS (according to the MPS annual report 2009[3]) and can thus be considered a representative sample of doctoral students within the MPS. The doctoral students of the individual institutes were contacted via the network of PhD representatives at the MPIs that are organized in the MPS PhDnet. The survey was conducted online and was open from May 25th to June 21st, 2009.

State-of-the-art privacy protection

A survey that assesses so many work-related and personal issues of a large number of students must take great care in protecting the participants' privacy. For the authors of this survey this was of paramount importance. All data acquired in this survey were thus made anonymous before storing them. This also included acquiring the institute affiliation of each student such that it could not be linked to the rest of the data set. Technically, this was implemented by storing this information in a separate, unlinked database. This privacy control was necessary because, for example, a female student at a small CPT institute might otherwise have been easily identified despite the anonymised responses.

The Max Planck PhDnet

The Max Planck PhDnet (http//www.phdnet.mpg.de) is the only MPS-wide student association and one of the largest PhD student organisations in Germany. Founded in 2003, the PhDnet consists of students from the entire MPS who work together to organize interdisciplinary workshops and soft-skill seminars. Our legal group gathers and disseminates information about specific laws and insurance issues affecting PhD students and the Offspring group publishes an annual magazine with reports from these and other working groups. A steering group coordinates the various activities within the association and the PhDnet spokesperson serves as a contact point between the network and the MPS president and other officials. Once each year, PhD student representatives from all institutes of the MPS are invited to join our annual meeting where we discuss – among ourselves and with the MPS president or vice-president – common problems that may impede our doctoral education

and common concerns about working conditions, and try to find practical solutions. One of the most central aspects of these discussions is our regular assessment of the experiences of PhD students and the problems they face through MPS-wide surveys. We are excited to report here on the most representative such survey ever conducted.

Statistical methods

In order to test the significance of our results we employed various statistical tests. The results of these tests are given in footnotes. We only report results as statistically significant if the tests indicate greater than 95% confidence in the result.

List of abbreviations used

PhDnet – Max Planck PhDnet
MPS – Max Planck Society
MPI – Max Planck Institute
IMPRS – International Max Planck Research School
PAC – PhD Advisory Committee

Sections of the Max Planck Society:

BM – Biology and Medicine
CPT – Chemistry, Physics and Technology
HUM – Humanities
NA – no answer

[2] http://www.mpg.de/english/aboutTheSociety/researchFuture/excellencePrinciple/index.html
[3] http://www.mpg.de/english/illustrationsDocumentation/documentation/annualReport/2009/

Scarce jobs and short-term contracts make high mobility and acceptance of unemployed periods in-between inevitable. I am not cut out for that life style.

[I have given up aiming for a permanent research position because of the] questionable evaluation of scientific excellence by simple bibliometrical analysis.

having a child during your PhD time seems quite impossible I... and ...I it is also very obviously not appreciated. Apart from that my job is great.

Research is a passion of mine – can't imagine doing anything else.

[...] the job is ridiciously underpayed..but i love it.

Comments from survey

The directors expect you to dedicate your life to your research.

I do not feel that my supervision is good enough to prepare me sufficiently to apply for a research position after my PhD.

The Scientific research today seems to me to be intense in details, and lack an overall view and appreciation of the beauty of science. [...] I dont know if a permanent research post would actually make me love or, ironically, hate science in general.

I am very happy with my PhD position and the progress of my thesis is satisfactory. But I get discouraged when I think about my future in research because of the salary and that most positions are just for three years.

2. Introducing the doctoral students of the Max Planck Society

Who we are

The majority of the respondents were working in the CPT or the BM section and fewest did their PhD in the HUM Section. This approximately mirrors the distribution of students across the three scientific sections of the MPS. As expected, more male PhD students are employed in the CPT Section whereas female PhD students are more frequent in the HUM section (see Table 2.1).

As can be seen in Figure 2.1, most of the doctoral students were of German origin, followed by students from other European countries and from Asia. Only 2.2 % came from North America; 4.0 % came from South America, Africa, or Australia.

		Percent of respondents per MPS section	Split up according to gender	
			Female	Male
MPS section	Chemistry, Physics and Technology	46.2 %	13.6%	32.6%
	Biology and Medicine	42.4 %	20.3%	22.1%
	Humanities	11.4 %	7.4%	4.1%

Table 2.1: Who answered the survey?

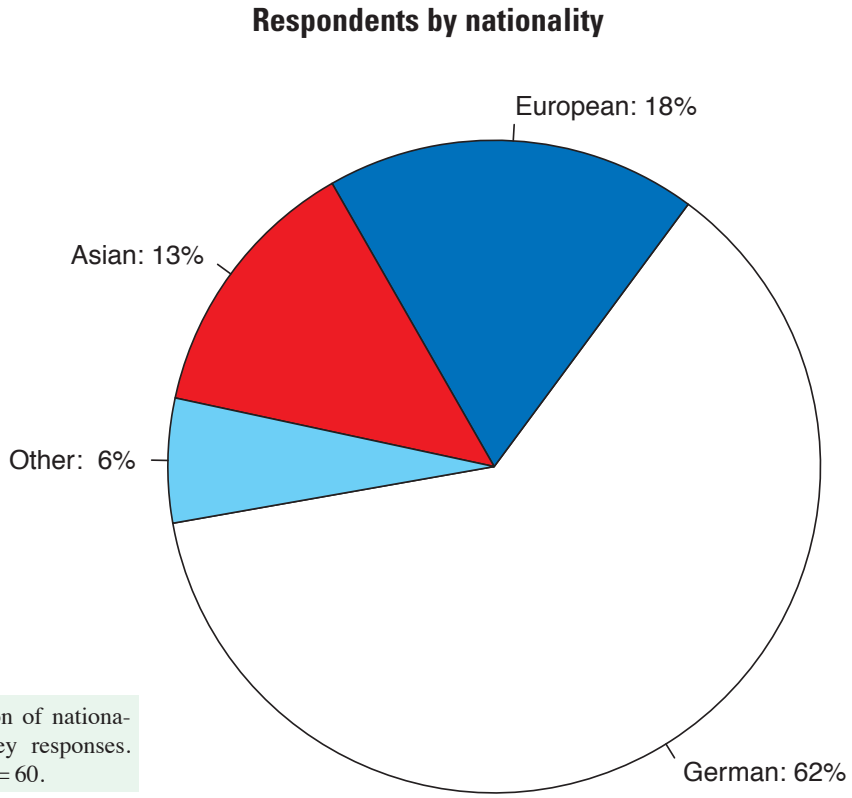
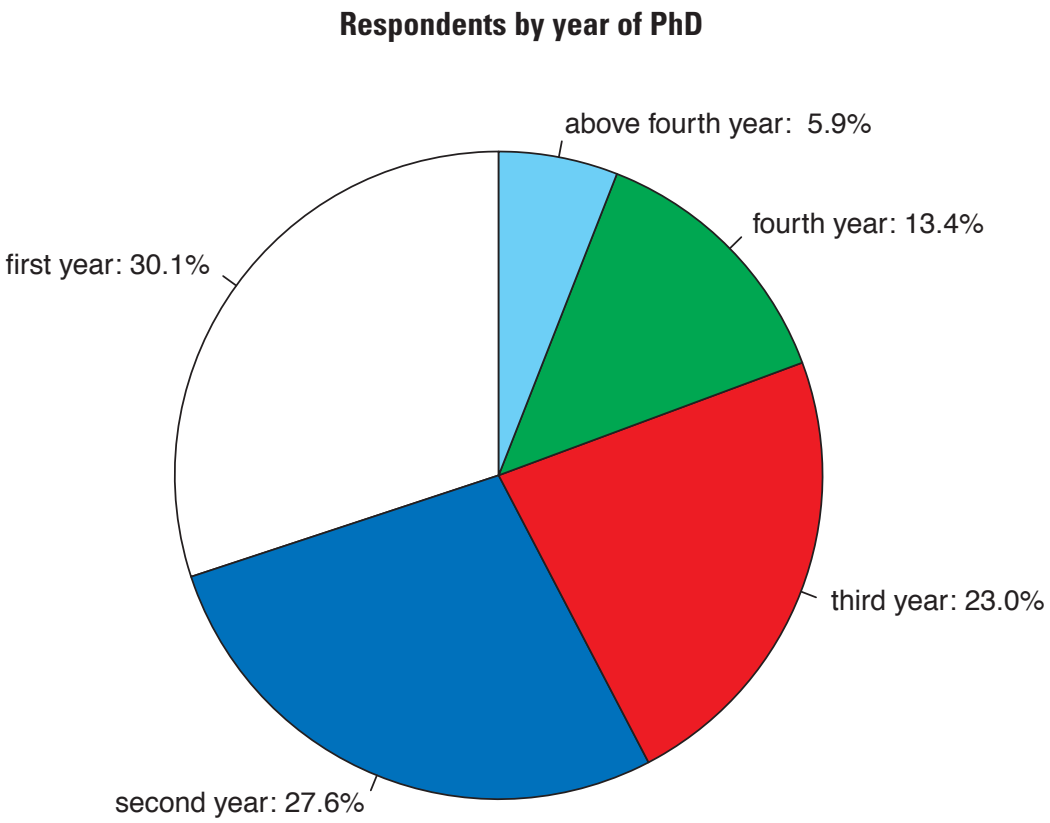


Fig. 2.1: Distribution of nationalities among survey responses. N = 1997, Missing = 60.



About one-third of the responding PhD students were in their first or second year of the thesis, a smaller portion was in their third year or fourth year, 5.9 % were in their fifth year or above (see Figure 2.2).

The median age of the doctoral students was 28.37 years (25th percentile: 27 years, 75th percentile: 30 years).

Fig. 2.2: Distribution of respondents by year of PhD. Students who started their PhD in the second half of 2008 or the first half of 2009 were considered to be in their first year, and analogously for other years. The survey was conducted May-June 2009. N = 2135, Missing = 22.

3. Types of employment and funding

Let's talk money

Questions

- How do pay and benefits differ for PhD students with stipends and contracts?
- Do PhD students with stipends and contracts differ in the use of work time for their PhD and for work unrelated to their PhD?
- Are PhD students informed about the differences between stipends and contracts? If yes, which payment type do they prefer?

Modes of employment

In our survey, 1080 respondents (50% of all respondents) reported financing their PhD through a stipend. Of these, 855 reported being funded by the MPS (40% of all respondents, with no payment source reported for 30 stipend-holders). The mean pay of all stipend-holders was EUR 1237; the median was EUR 1200. As can be seen in Table 3.1, stipend holders in the HUM section earn less than stipend holders in the CPT and BM section[4]. Stipends are most frequent in the HUM section, followed by the BM and CPT section[5] (see Table 3.2).

As can be seen in Figure 3.1, the number of stipends has increased steadily over the past 5 years, with stipends now being the main funding source for about half of the PhD students within the MPS[6]. It is therefore important to examine closely the advantages and disadvantages of this employment type as well as the appropriateness of the stipend as a form of funding for doctoral students.

Table 3.3 shows that the median stipend amount is only slightly below the net income from a student contract, after excluding all benefits. However, what the table does not show is that stipend holders have additional expenses that contract holders do not have because they are covered by the employer.

In particular, most stipend-holders must pay for health insurance (and long-term care insurance) from their stipend – indeed, non-EU citizens and any students who enroll at a university are legally required to have health insurance. In order to obtain insurance coverage comparable to that offered by the gesetzliche Krankenversicherung, it is usually necessary for stipend holders to pay about 200 Euros per month (either to a private insurance or as a "freiwilliges Mitglied der GKV").

Table 3.1: Median stipend amount per MPS section

MPS section		Stipend amount Median (1-3 quartile)
CPT	n = 424	1250 (1103 - 1350)
BM	n = 452	1250 (1103 - 1350)
HUM	n = 155	1200 (1103 - 1200)
Overall	N = 1031	1200 (1103 - 1350)

Table 3.2: Frequency of stipends and contracts per MPS section

MPS section		Percent stipends	Percent contracts	Percent other or unknown
CPT	n = 969	45%	48%	7%
BM	n = 893	51%	43%	6%
HUM	n = 241	65%	32%	3%
Overall		50%	43%	7%

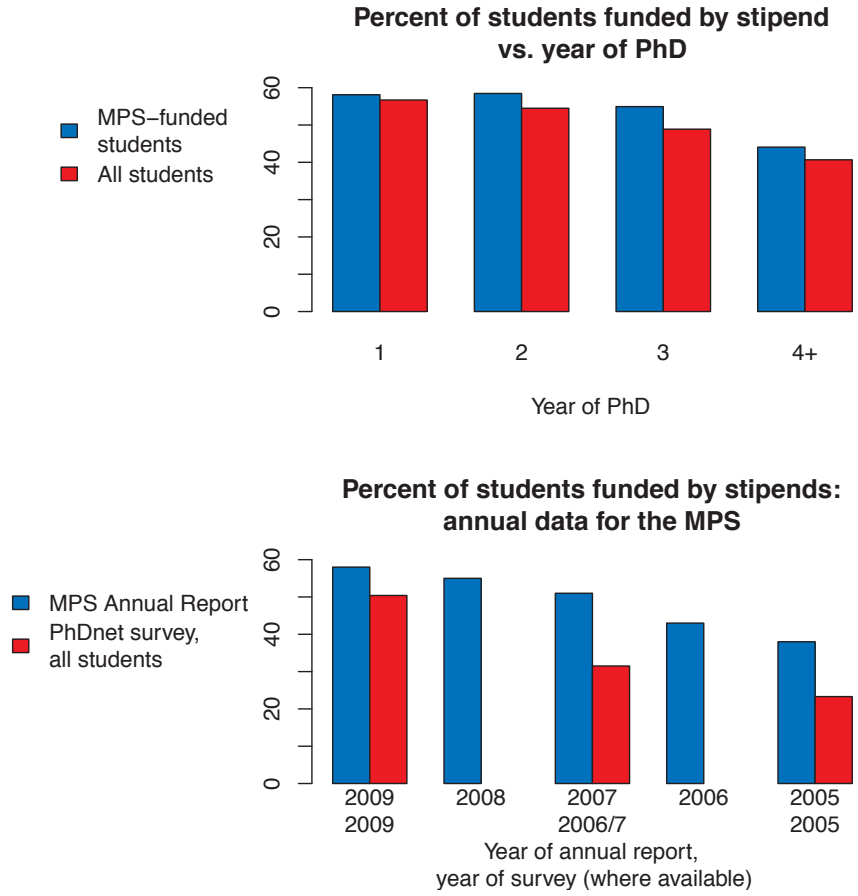


Fig. 3.1: Percent of MPS doctoral students funded by stipends. Top: percent of students funded by stipends, among students with MPS funding (73 %) and all students, by students' year of PhD (N = 2135 for all students, N = 1563 for MPS-funded students, Missing = 22). Bottom: historical data 2005 – 2009. Data are from the MPS annual report, which includes only students funded by the MPS, and from the current and past PhDnet surveys, which include a broader sample of students pursuing doctoral work in the MPS.

Because health insurance and long-term-care insurance are an indispensable part of income, we define the "net" income of a TVöD contract to include the after-tax income, plus employer and employee contributions to statutory health and long-term-care insurance. However, we exclude from "net" income the estimated income taxes (for a single adult with no children), unemployment insurance, and, importantly, payments into the German pension system (Deutsche Rentenkasse).

Thus calculated, the median PhD student stipend in our survey (EUR 1200 per month) is only about 80% of the net pay from a TVöD 13/2 contract. A student who is paid by such a stipend for three years receives less money than a student paid by a TVöD13/2 contract: this adds up to an approximate total of EUR 9223.05[8]. In addition, the student with the contract has paid into the pension system for three years. The value of this particular investment is impossible to determine exactly, but it is almost certainly greater than zero. To equal the total net pay of a TVöD 13/2 contract over three years, a monthly stipend would have to be EUR 1456 (the maximum stipend possible under current funding rules is EUR 1468[9]).

74% of all students were funded by their MPI and 16% by an external funding agency (e.g. DFG). The rest were funded by various other sources. External funding was the most lucrative source of funding on average, especially in the HUM section, so students are well-advised to seek external funding if possible (Figure 3.2 and Figure 3.3).

Stipend vs. Contract: Use of working time

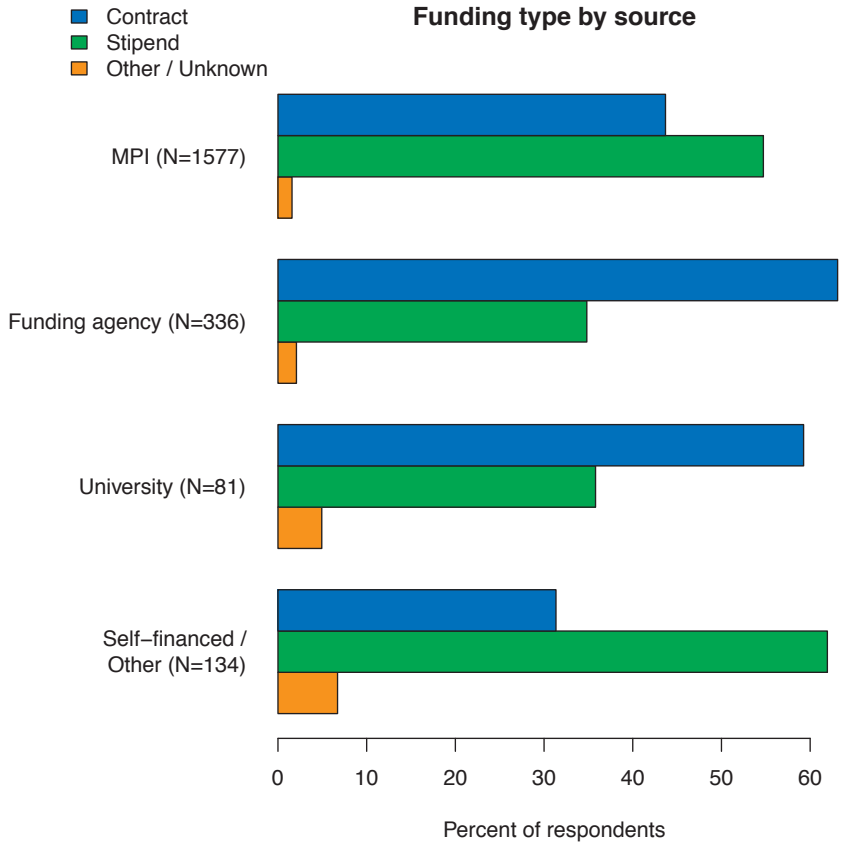
Another area of difference between stipends and contracts is the formal nature of the relationship between the PhD student and the institute. As regular employees of their institutes, PhD students paid by contracts may be required to do work for their institutes that is not related to their thesis project. In contrast, stipends are intended

	TVöD 13/2 Stufe 1	TVöD 13/2 Stufe 2	Stipend 1200 (median MPS)
(a) After-tax income, plus statutory health insurance, statutory long-term care insurance, pension, and unemployment insurance	20809.71	22758.35	14400
(b) «Annual net income» After-tax income, plus statutory health insurance and statutory long-term care insurance	16489.67	17966.69	14400
(c) After-tax income, excluding all benefits	13419.45	14561.29	14400

Table 3.3: Gross and net annual income of doctoral students in the MPS. For each of the two most frequent funding types (contract with two levels and stipend), we calculated the total annual income including all benefits (a), including only legally required benefits (b) and excluding all benefits (c). We define (b) as "annual net income". Values for contracts are approximate and based on estimated income and payroll taxes for a single adult with no children.[7]

as a personal subsistence allowance enabling the stipend holders (by the terms of the stipend) to spend all their working time on their thesis project. In practice, however, stipend holders also report spending time on work for the institute that is unrelated to their PhD thesis, but at a somewhat lower rate than students on contracts. Stipend holders in the HUM section estimate that they spend only 13% of their working time on such tasks, vs. 23% for contract holders. In the CPT and BM sections, however, the difference is small: the fraction of time spent on

Fig. 3.2: Percent of students by funding type and source. For each funding source (e.g. "MPI") the funding type was either a contract, a stipend or "other". N = 2128, Missing = 29.



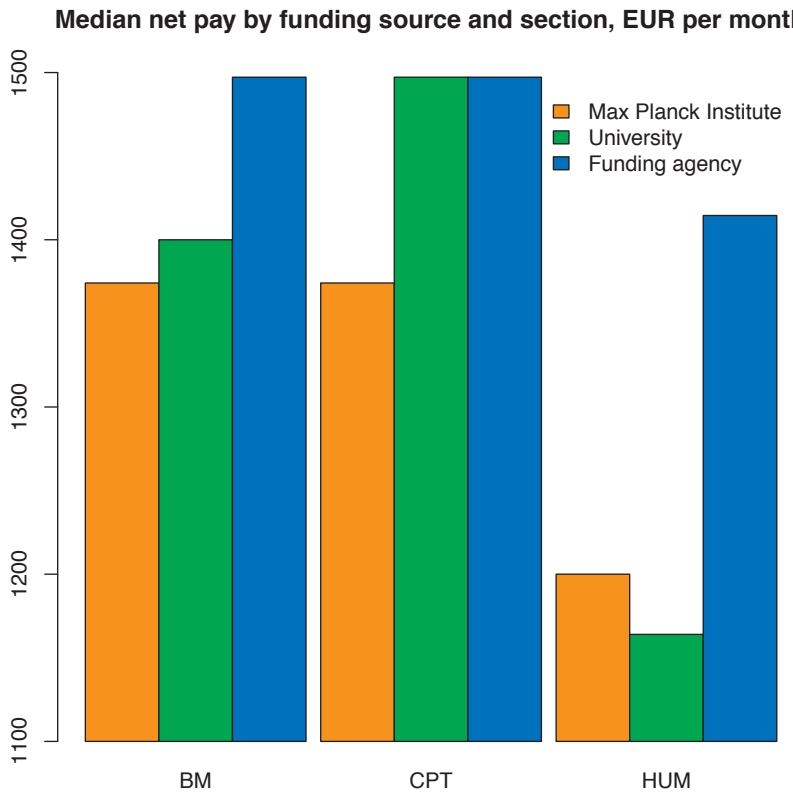


Fig. 3.3: Median net pay by funding source and MPS section. For our definition of «net pay» of contract holders, see text and Tab 3.3. N = 1875, Missing = 282.

Table 3.4: Self-reported use of time per funding type and MPS section (see Tab 7.1 for the effects of IMPRS membership).

Biology and Medicine				
	Overall	Stipend	Half contract	Full contract
N	889	452	364	17
Work for PhD thesis	85 %	86 %	83 %	87 %
Coursework	7 %	7 %	7 %	5 %
Work for the institute unrelated to the PhD project	10 %	8 %	12 %	8 %

Chemistry, Physics and Technology				
	Overall	Stipend	Half contract	Full contract
N	962	433	347	113
Work for PhD thesis	80 %	81 %	79 %	81 %
Coursework	9 %	10 %	9 %	6 %
Work for the institute unrelated to the PhD project	12 %	10 %	14 %	14 %

Humanities				
	Overall	Stipend	Half contract	Full contract
N	240	155	76	1
Work for PhD thesis	72 %	74 %	70 %	90 %
Coursework	13 %	16 %	9 %	10 %
unrelated to the PhD project	18 %	14 %	23 %	NA

Making an informed choice about stipends and contracts

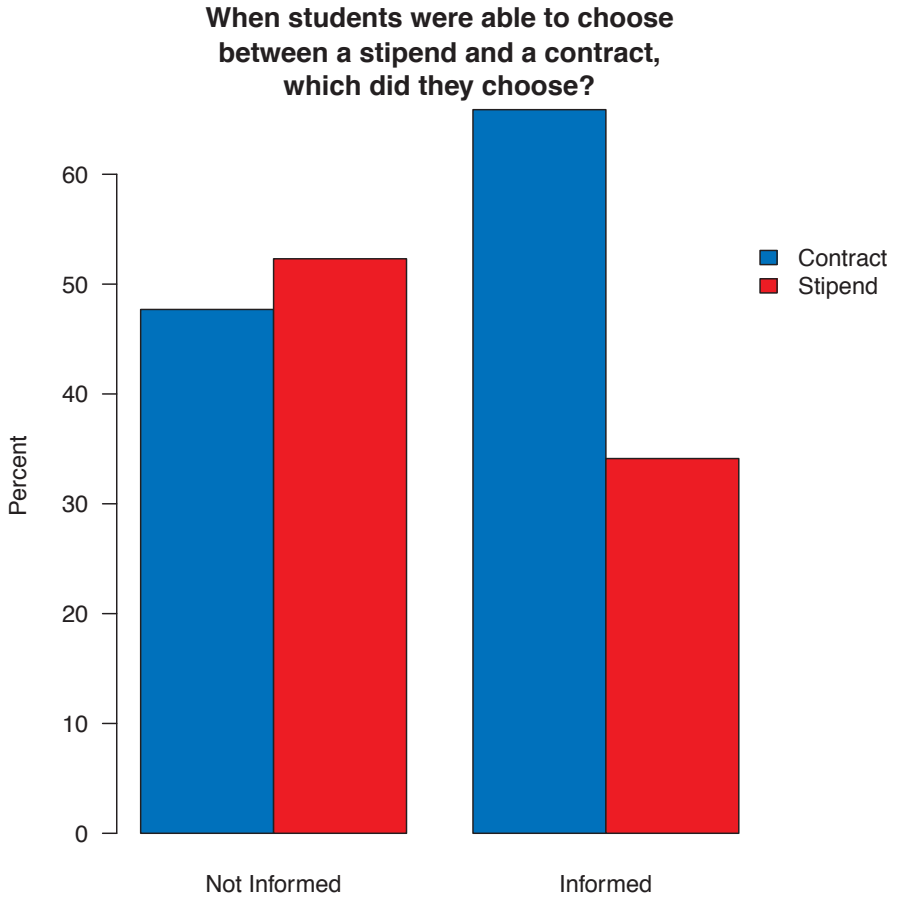


Fig.3.4: Percent of students who chose a stipend vs. a contract, among the group that reported that they were able to make such a choice (13 %), depending on whether they had been informed about the legal differences between the two modes of payment (N = 67 could choose but were not informed; N = 172 could choose and were informed).

work unrelated to the PhD thesis by students in the CPT section is 10 % (stipend) vs. 13 % (half contract); in the BM section it is 8 % (stipend) vs. 11 % (half contract).

These data are consistent with the view that in the CPT and BM section, there is in practice very little difference between the work done by students paid by a contract and those paid by a stipend.

A majority of students (55 %) said they were not informed about the differences between a stipend and a contract. Of those who were informed, only 36 % were informed by the local MPI administration, while 64 % were informed by other sources, such as other PhD students. Furthermore, only 13 % of students were offered a choice between a stipend and a contract.

Whether an individual student would prefer a stipend or a contract depends partly on his or her personal and family situation. In this survey, we did not ask directly which payment mode students would prefer. However, we did ask whether students were informed about the differences between the two modes of payment, and whether they were able to choose. When students who were offered a choice between a stipend and a contract were not informed about the differences, almost 50 % chose a stipend. However, when students were informed and able to choose, more than 60 % chose a contract. Hence, students were more likely to favor a contract if informed about the legal differences between stipends and contracts (see Figure 3.4).[10]

Still, when able to make an informed choice, a large minority of students chose a stipend, which shows that stipends are an attractive option for some students. There are several situations in which this is clearly the case. In the humanities, being paid by a stipend might be associated with a higher degree of flexibility and autonomy. This appears to be less true in the CPT and BM sections, where there is only a minimal difference in the average time use between stipend-holders and contract-holders.

Stipends issued at the maximum level are economically competitive with half-contracts (at least after neglecting the pension payments). Finally, stipends are often financially advantageous for students who have health insurance coverage through a spouse or parent, and can have tax advantages for a student with an employed spouse.

Summary

In our survey, 50 % of all respondents reported financing their PhD through a stipend. The median stipend amount was EUR 1250 in the CPT and BM sections and EUR 1200 in the HUM section. Because stipends do not include benefits, especially health insurance and payments into the German social pension system, a stipend is associated with financial disadvantages for many students. A typical student funded by a EUR 1200 stipend receives roughly EUR 9000 less over three years than a typical student funded by a contract[11].

Furthermore, the time use of students funded by stipends should differ from the time use of those funded by contracts. Stipend holders are not bound by a contract to perform services for the institute that are unrelated to their PhD project. Nonetheless, a substantial number of stipend holders indicated that they spend time on work for the institute which is unrelated to their PhD thesis, at a rate similar to students with contracts.

A majority of students (55 %) said they were not informed of the differences between a stipend and a contract. Of those who were informed, only 36 % were informed by the local MPI administration, with the remainder having been informed by other sources, such as other PhD students. Only 13 % of students were offered a choice between a stipend and a contract. If offered a choice and informed about the legal differences between contracts and stipends, PhD students were more likely to choose a contract.

4 $F(2, 1028) = 7.48, p < .01$

5 $\chi^2 (6, N = 2091) = 111.2, p < .01$

6 $\chi^2 (1, N = 1838) = 19.7, p < 0.1$

7 See also the more detailled Ph.D. Stipend vs. Contract comparison downloadable as PDF from the PhDnet Wiki Download page, http://www.phdnet.mpg.de/wiki/index.php/Downloads

8 Assuming for contract: Level 1 in first year, Level 2 in second and third year

9 Students from countries with which Germany has a social security agreement (e.g. the U.S.) can transfer their pension credits to their home country. Others can get back their pension payments (the employee contribution).

10 $\chi^2 (1, N = 213) = 7.7, p < 0.1$

11 The most common type of contract offered to PhD students in the MPS at present follows the payscale of the collective-bargaining agreement "Tarifvertrag für den öffentlichen Dienst (TVöD)", and is set at 50 % of the salary of TVöD level 13.

4. Factors predicting satisfaction with PhD supervision

Guidance is critical

Questions

- How satisified are PhD students with their supervision?
- Which factors are related to a reduced satisfaction with supervision?
- How much does a PhD student depend on satisfactory supervision?

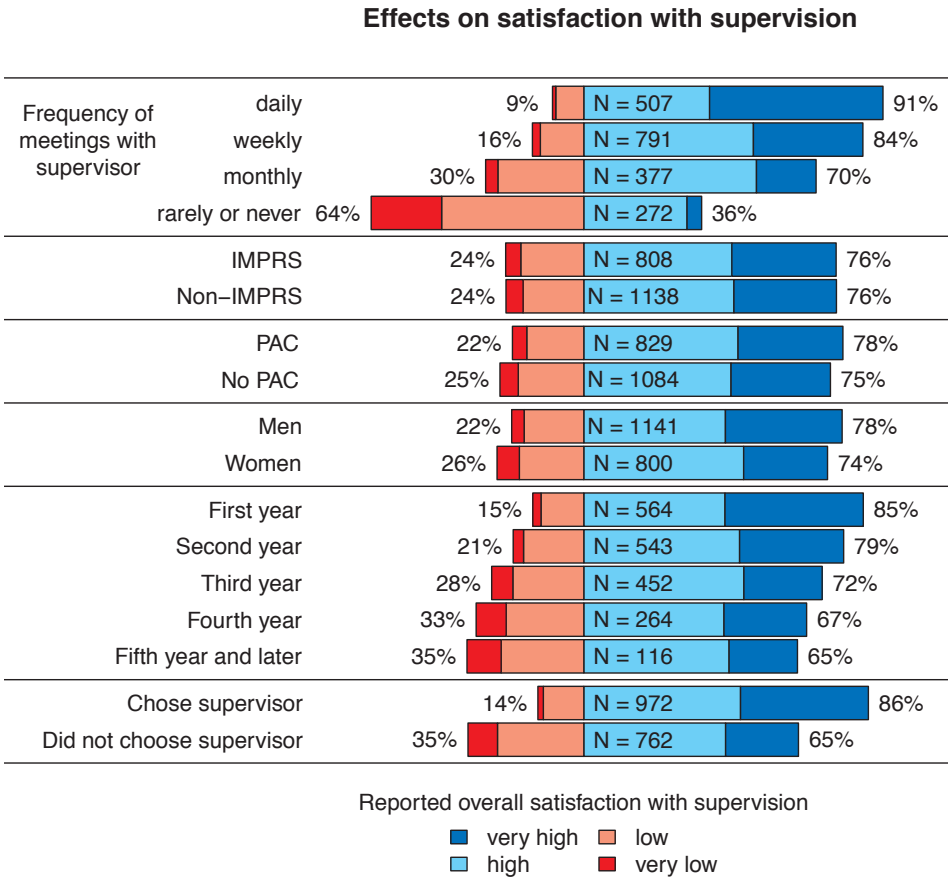
High overall satisfaction with supervision

The overall satisfaction with supervision was quite high: 77 % report being highly or very highly satisfied with their supervision. As a comparison, in the THESIS survey, which included PhD students at different institutions in Germany, 64 % of PhD students were mostly or entirely satisfied.[12, 13] Although a satisfaction rate of 77 % is hence a comparatively good result, this also means that about a fourth of the doctoral students reported low or very low satisfaction with the supervision. As will be described in more detail below, a good relationship with one's supervisor is a critical aspect for a successful PhD thesis. In the following, we thus examined factors that contributed to satisfaction with supervision.

Factors related to satisfaction with supervision

Figure 4.1 gives an overview of some of the factors that might be considered relevant for satisfaction with supervision. Most students meet with their primary supervisor at least weekly (26 % daily, 41 % weekly), 19 % meet with their supervisor only monthly and 13 % only "rarely" (and out of 1948 responses to this question, 8 students responded "never"). As can be seen in Figure 4.1, there was a clear relationship of the frequency of meetings to the overall satisfaction with supervision. Those stu-

Fig.4.1: Satisfaction with supervision among various subsets of the survey sample. Non-responses are neglected, number of responses for each subsample is reported in the figure.



dents who met their supervisor more frequently reported higher overall satisfaction. In contrast, enrollment in an IMPRS, or being supervised by a PhD advisory committee (PAC) did not relate to a (statistically significant) higher satisfaction with supervision. Women were slightly less satisfied with their supervision than men[14], which appears to be related to the fact that women were less likely to have chosen their supervisors and that women met with their supervisors less frequently (see also section 4: Gender and Family). Overall, the satisfaction of students with their supervision decreases over the course of the PhD. Finally, students who chose their supervisors were far more satisfied with their supervision, while choice of dissertation topic had a positive, but much smaller effect on satisfaction with supervision.

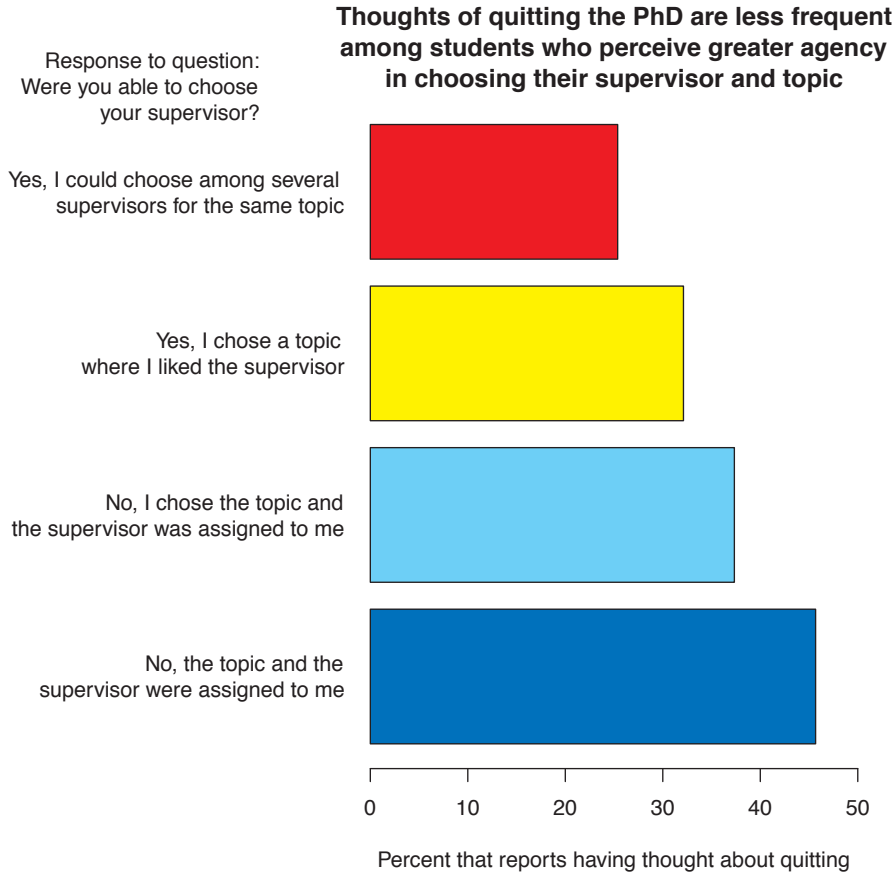
Supervision is a crucial factor in a PhD thesis

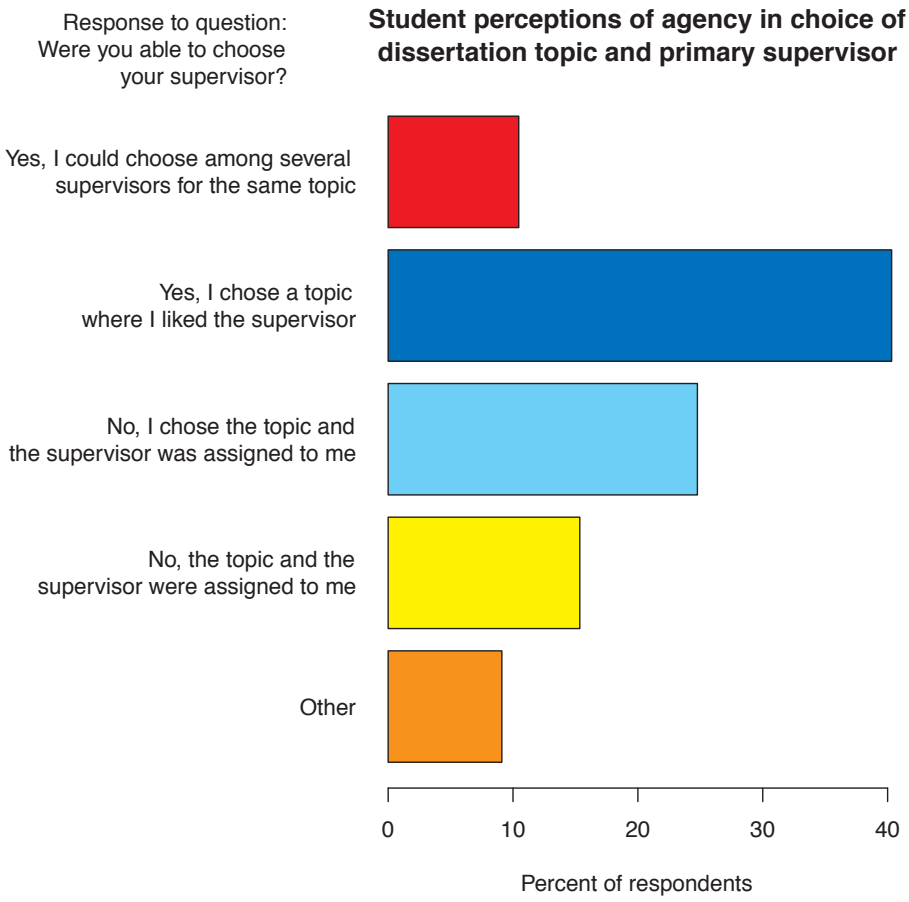
The supervisor is an important figure in the individual PhD thesis. Overall, 41 % of the PhD students indicated that changing supervisors would result in considerable changes to their thesis or force them to stop their PhD: 26% would have to stop their PhD; 10 % would continue with large modifications; 5 % would continue without supervision. In addition, 51 % indicated that they did not know whether it is possible to change the primary supervisor.

Thoughts of giving up the PhD thesis are less frequent among PhD students who report that they chose their supervisor

33 % of the PhD students indicated that they had thought about giving up their PhD thesis. 53 % of those thinking about giving up did so because of work-related or personal difficulties with their supervisor (12 % and 8 % of the whole sample, respectively). However, students who could choose a supervisor (about 66 % in this survey) were less likely to have considered quitting, particularly due to personal or work-related difficulties with their supervisor[15]. This suggests that a greater influence on the topic and the supervisor is related to reduced thoughts of quitting[16] (see also Figure 4.2). About half of the PhD

Fig.4.2: Thoughts of quitting the PhD are less frequent among students who perceive greater agency in choosing their supervisor and topic. Bar shows the percent of students who reported they have thought about quitting their PhD, depending on their responses to the question of whether they were able to choose their supervisor. N = 1907, Missing = 150.





students reported to have chosen their supervisor. A majority of those that have chosen their supervisor have gone by their preference for a specific supervisor in the choice of the topic (see Figure 4.3).

Fig.4.3: Distribution of responses to the question "Were you able to choose your supervisor?", indicating that most students chose a topic based on a preference for a supervisor. N = 1922, Missing = 235.

Summary

The overall satisfaction with supervision is very high in the MPS. More than three out of four students reported they were either "highly" or "very highly" satisfied with their supervision. However, about 23% of the PhD students indicated that they were at least somewhat unsatisfied with their supervision. This can be a serious issue because for most students, the success of the primary supervisor relationship strongly determines the success of the dissertation: the vast majority believe that changing supervisors would result in large modifications of the PhD thesis or even force them to stop their current PhD thesis.

One in three PhD students reported having thought about giving up their PhD thesis at some point. Importantly, more than half of the students who thought about quitting did so due to personal or work-related problems with their supervisors. Thoughts of quitting are reduced among PhD students who report that they chose their supervisor, as opposed to having been assigned to their supervisors. Factors related to a higher overall satisfaction with supervision include having frequent meetings with the supervisor. Being in an IMPRS or having a PAC was not related to a higher satisfaction with supervision.

[12] Bayrisches Staatsinstitut für Hochschulforschung und Hochschulplanung, München 01/2005, "Zur Situation der Doktoranden in Deutschland – Ergebnisse einer bundesweiten Doktorandenbefragung" in "Beiträge zur Hochschulforschung" (http://www.ihf.bayern.de/dateien/beitraege/Beitr_Hochschulf_1_2005.pdf)

[13] In the THESIS questionnaire, students chose between 5 options, and 64 % chose the top two. In our survey, students chose between 4 options, and 77 % chose the top two.

[14] χ^2 (3, N = 1925) = 25.8, p < .01

[15] χ^2 (1, N = 598) = 6.8, p < .01 and χ^2 (1, N = 598) = 6.5, p = .01, respectively

[16] χ^2 (4, N = 1907) = 27.3, p < .01

5. Effects of gender and parenthood on the PhD experience

Family matters

Overview – Gender in the Max Planck Society

The Max Planck Society aims to create equal employment opportunities for women and men and to support a long-term increase in the participation of women in scientific research and scholarship. The MPS was one of the first research institutions to be certified with the 'berufundfamilie' award (Audit)[17]. In the 'Pakt für Forschung und Innovation', the Max Planck Society made a voluntary commitment to increase the representation of female researchers by 5% over five years. A particular emphasis was given to increasing the proportion of women among junior researchers. In this section, we compare the experiences of male and female PhD students, with respect to working conditions, pay, and satisfaction with the PhD program.

As can be seen in Table 1.1., 42 % of the PhD students responding to the questionnaire were women, which is representative of the MPS as a whole (for comparison: in 2006, 39.9 % of the PhD students in the MPS were women[18]; in 2008, 41.9 % of PhDs obtained in Germany were obtained by women – Bildung in Deutschland 2010). The proportion of women was highest in the HUM section and lowest in the CPT section. This reflects the differences in the fractions of students studying in different subject areas. Further, female PhD students were as frequent as male PhD students in the IMPRS and among the international students.

Questions

- Are there gender-related differences in salary, overall satisfaction with one's PhD thesis work or satisfaction with supervision?
- Are female and male PhD students affected differently if they become parents during their PhD?
- What does the MPS (through its institutes) offer for PhD students with children during their PhD? To what extent are the PhD students aware of these offers?

Gender differences in salary, satisfaction with PhD and supervision

Gender and pay: women are most common in the lower-paid HUM section

With an average gross monthly income of EUR 1590, women earn significantly less than men (average gross monthly income EUR 1722). However, this difference can be almost entirely explained by the unequal distribution of the genders among research disciplines, with more men in the CPT section where the salaries are higher. The degree of difference in salary structures between disciplines

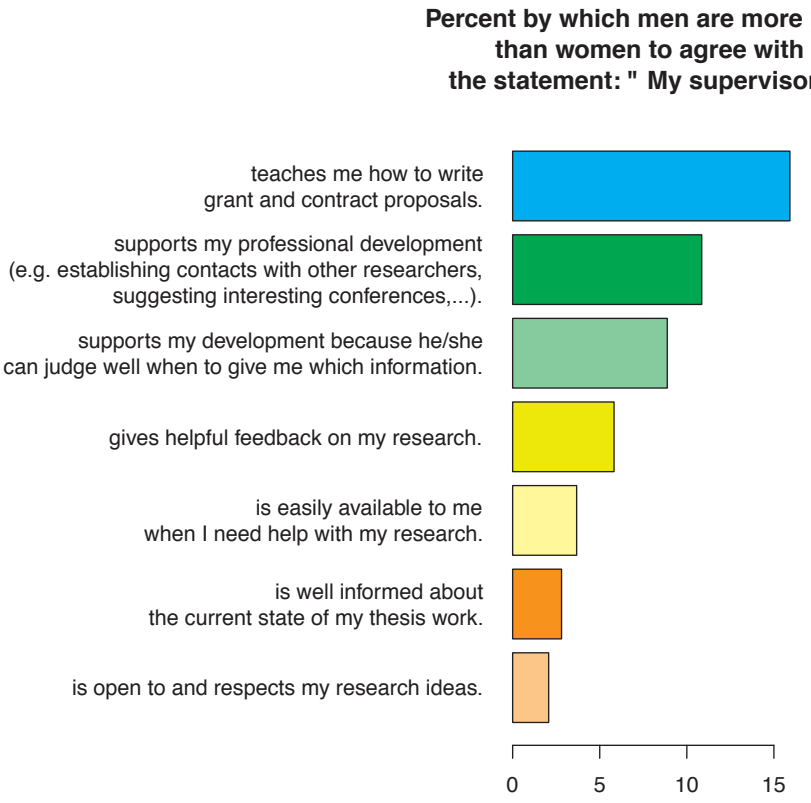


Fig.5.1: Percent by which men are more likely than women to agree with statements about positive mentoring. The percents shown are the relative differences, i.e. ([percent of men agreeing] / [percent of women agreeing] - 1)*100. "Not applicable" response treated as non-response. Missing = 232, 217, 239, 211, 206, 213, 216. "Not applicable" responses = 426, 43, 58, 11, 11, 13, 14.

is illustrated by the fact that doctoral students in the CPT section are 25 times more likely to receive a ¾ or a full contract than in the other sections.

Women are equally satisfied with the PhD overall, but slightly less satisfied with PhD supervision

We found no significant gender effect on the overall satisfaction of students with the PhD program. However, women reported lower satisfaction with their supervision than men; in particular, only 23 % of women reported very high satisfaction, compared to 33 % of men. This difference is at least in part attributable to the fact that female PhD students were less likely[19] to have chosen their own supervisor, and met less frequently with their supervisor[20]. Additionally, women were on average 7 % less likely than men to fully or partially agree with statements related to positive mentoring (see Figure 5.1).

Finally, women were more likely than men to report having thought about quitting their PhD[21].

Gender-related differences in family planning and work-life balance

Overall, 7.6 % of respondents to our survey have children, and 14.9 % report that they or their partners are pregnant or plan a pregnancy during the PhD. This suggests that PhD students in the MPS are somewhat less likely to have children than their peers of a similar age and educational background: a 2008 survey of women aged 25 – 29 living in Germany found that 15.0 % of those with a tertiary degree (from a university or technical school, Fachhochschule) were mothers, as were 30.7 % of all women in this age group[22].

Male and female PhD students were equally likely to already be parents, and equally likely to plan to have children during the course of the PhD.

We did find one gender-related difference in family planning: Men were more likely to have a child if their female partner worked reduced hours. Childless men were far more likely to plan to have children if their partners worked less than 20 hours per week, while women whose partner works less were slightly less likely to plan a pregnancy. (see Figure 5.2). Also, while childless men and women work similar hours, mothers work fewer hours each week than fathers (see Figure 5.3).

Hence, although men and women in similar family circumstances are equally likely to have or plan to have children, we find that the presence of children has a different impact on women's working lives than on men's. Women with children work significantly reduced hours[23], being 3.7 times more likely to work 40 hours or fewer per week, while having children had no significant effect on men's working hours[24]; note that working hours are self-estimated.

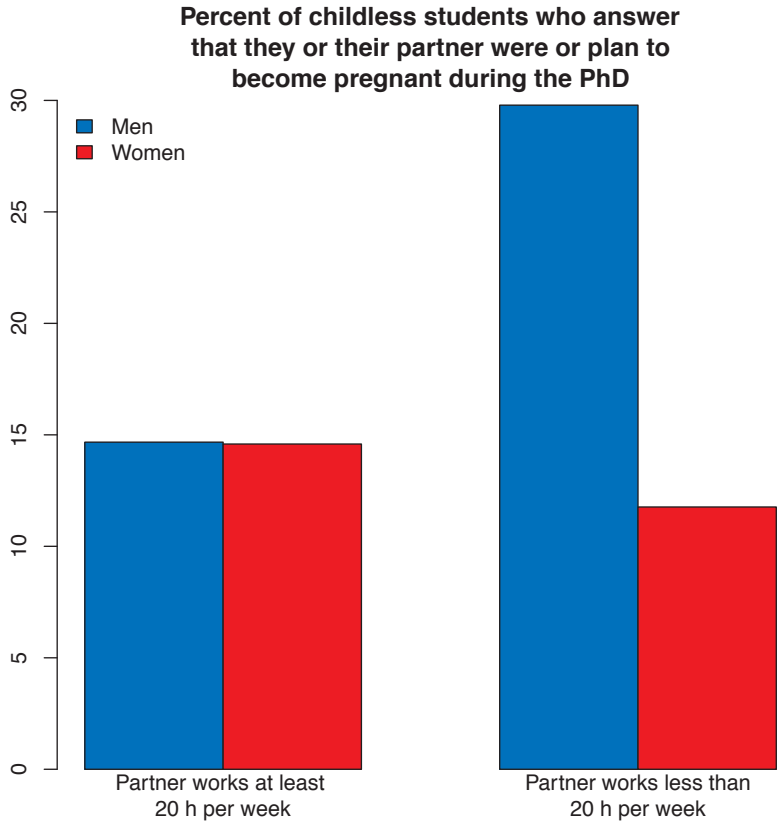


Fig.5.2: Percent of childless students who answer that they or their partner were pregnant or plan to become pregnant during the course of the PhD, by gender and working hours of partner. N = 2040, Missing = 117.

Institute support for combining family and career

We listed eight different family-friendly policies that might be offered at the workplace to make it easier to combine raising a family with pursuing an academic career. Such measures benefit parents of both genders, and may be especially helpful in retaining women for scientific careers.

Of the eight policies we asked about, only 26 % of all PhD students and 50 % of parents and prospective parents knew of at least one family-friendly measure that was implemented at their institutes. Only 34 % of parents and prospective

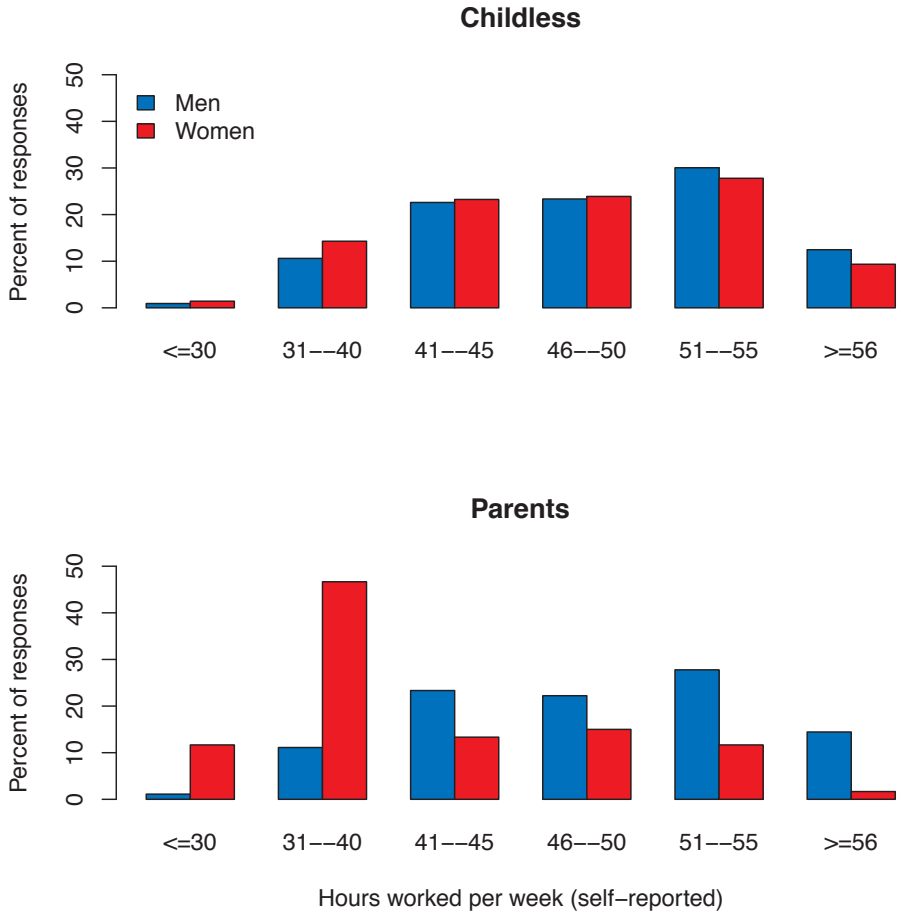


Fig.5.3: Distribution of self-reported working time (hours worked per week) by gender and parenthood. N = 1995, Missing = 162.

parents knew of two or more family-friendly policies (see Table 5.1).

The most commonly named means of support was making it possible to bring the children to the institute for several hours (58 % of parents were aware of such a policy). Institute-based childcare was the second most commonly known policy, with 48 % of parents responding that this is available to them[25]. The least commonly named policies were home-based work (25 %) and part-time work (17 %).

Table 5.1: Offers of family-friendly policies and awareness of these among Ph.D. students with children. (a) Percent of respondents who are aware of the policy, (b) percent responding that such a policy did not exist and (c) percent responding they don't know whether or not such a policy existed.

Policy description	a "aware"	b "doesn't exist"	c "don't know"
Special offices that allow bringing your children for several hours to the institute	58%	12%	30%
Institute-based childcare facilities	48%	39%	13%
Extra funding support for childcare	45%	22%	33%
Funding for bringing your children with you to national or international conferences	40%	1%	58%
Tandem solutions for part-time work	35%	4%	61%
Help in placing children in an appropriate third-party daycare facility	33%	34%	34%
Home-based work	25%	36%	38%
Part-time work	17%	32%	51%

Students were more likely to know about at least one support measure if they had or planned to have children. Additionally, such policies were most widely mentioned in the Humanities section, women were more likely to know of such policies than men, and Germans knew of such policies more often than non-Germans, with non-Europeans knowing about such policies least often. Our data thus indicate that parents are often not aware of all the possible support available to them. This is also true for support which should be available in all institutes within the MPS (e.g. locating and reimbursing child care support[26]).

Summary

We find that there is almost no difference in payment by gender after controlling for differences in gender distribution across MPS sections. However, women are less satisfied with their PhD supervision than men. Specifically, women are less satisfied with the mentoring of their professional development provided by their supervisor. Also, women were more likely than men to consider quitting their PhD.

Overall, only 7.6 % of respondents are parents, while 14.9% report that they or their partners are pregnant or plan a pregnancy during the PhD. Men and women of the same age and family status were equally likely to plan for either a first or additional child during the PhD. However, women were more likely than men to work fewer hours if they had a child during their PhD.

Institute support for students with children, or at least awareness of such support, is limited: only 34 % of parents and prospective parents knew of two or more measures to support parents at their institutes in combining care for children with their career.

[17] http://www.mpg.de/english/aboutTheSociety/researchFuture/excellencePrinciple/index.html

[18] From: Chancengleichheit in der Max-Planck-Gesellschaft. Susanne Beer, ed. Proportions of women in the Max Planck Society (1.1.2006):
Scientific staff (overall): 23.7 %
PhD students: 39.9 %
Postdoctoral researchers: 32.9 % (including research group leaders: 21.2 %; junior research group leaders: 23.3 %; research fellows: 15.4 %)
Institute directors: 5.7 %
The representation of women in each of these areas more than doubled between 1997 and 2006.

[23] $F(1) = 44.47$, $p < 0.001$

[24] $F(1) = 0.1549$, $p = 0.694$ (> 0.05)

[25] In fact, the institutes may cooperate with external child care facilities, but may not own them.

[26] For instance, the Max Planck Society has a contract with a company (Familienservice pme GmbH) that helps locate appropriate child care for employees, stipend-holders and guests, with the MPS paying the fee for this service. However, out of 48 parents who said that they had no access to institute-based childcare facilities, 12 said that no such support was available (25 %), while 20 did not know (42 %). Also, while it is possible for all institutes within the MPS to reimburse some child care expenses upon request, only 45 % of parents said their institutes provided such support, while 22 % said the institute did not and 33 % did not know. (Rundschreiben 70/2009 and Brochure: Kinderbetreuung in der MPG)

6. International students in the Max Planck Society

Scientific ambassadors

Overview

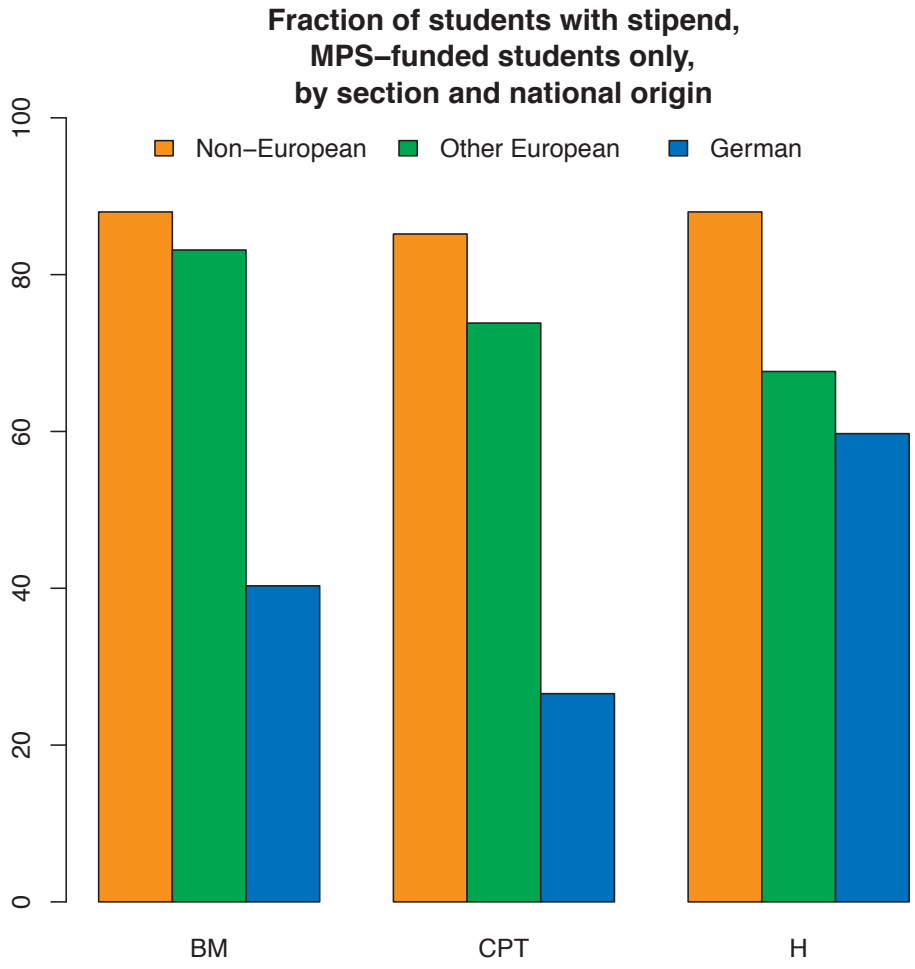
Attracting international students is an important goal for the Max Planck Society and was an explicit goal behind the initiation of the International Max Planck Research Schools (IMPRS). In the first PhDnet survey, conducted in 2005, 37% of the respondents were non-German; 38% of the respondents in the current survey were non-German. In light of the large number of international PhD students, it is important to recognize that the experience of international PhD students differs from that of German PhD students in a variety of ways. They may face additional bureaucratic, practical, language and social barriers to success, and they may have more limited financial means than German nationals.

Fig.6.1: Percent of students with stipend, by section and national origin, only MPS-funded students. N = 2103, Missing = 54.

If the MPS can find ways to better support international students in such situations, it will help improve their experience in Germany and may help attract more international PhD students.

European vs. Non-European students

In most of the following discussion and throughout this report, we distinguish between German nationals, European (non-German) nationals, and non-European nationals. The experience of non-German European students is special among the international students because they are mostly from EU member states, and therefore integrated into the EU social system. This probably explains why European students are far more likely to be paid with a contract than non-Europeans (see below). Additionally, European students are closer to their home countries and less likely to experience discriminatory treatment in Germany on the basis of their ethnic or national origin.



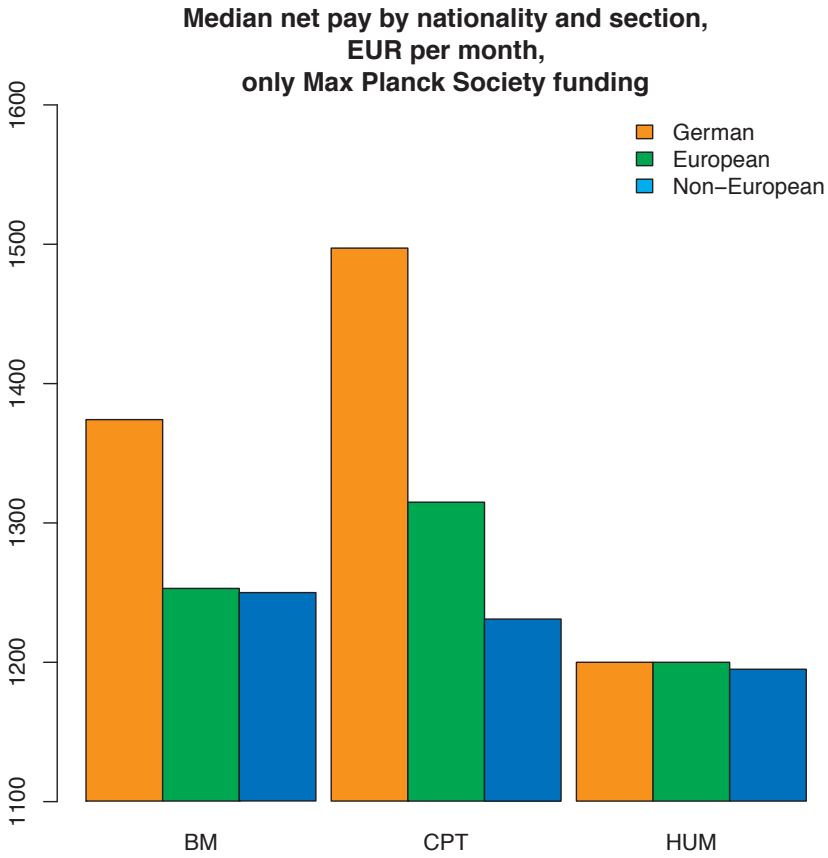


Fig.6.2: Median net pay by nationality and section, among students funded by the MPS, in EUR per month. N = 1986, Missing = 171.

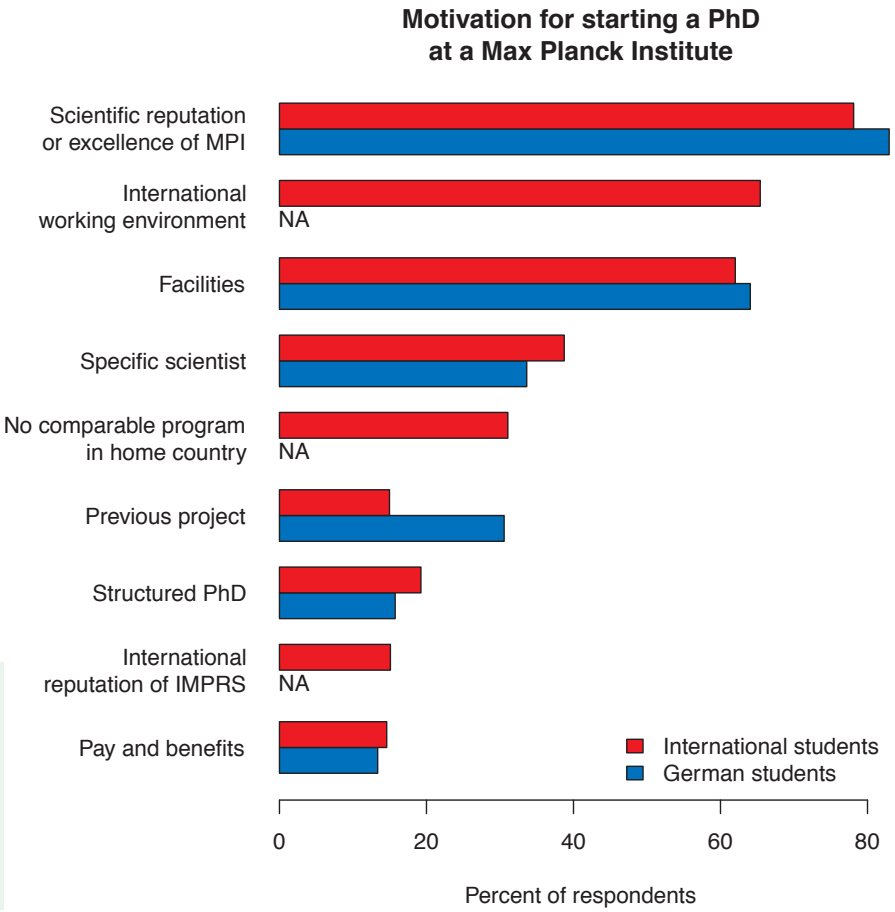


Fig.6.3: Percent of all survey respondents who named the respective aspect as a reason motivating them to do their PhD at an MPI. Multiple reasons could be indicated. Certain questions were posed only to international students, these are indicated with "NA".

Questions

- Do international and German PhD students differ in their salary?
- What motivates international students to take up PhD research within the Max Planck Society?
- To what extent do international students perceive the additional hurdles they face as prohibitive in their pursuit of a PhD?

Lower pay and benefits for international students

International students are far more likely to be paid by a stipend. Overall, 35 % of German students report having a stipend, compared to 69 % of non-German Europeans and 82 % of non-Europeans[27].

Considering all students paid by the MPS (73% of our sample), we find substantial differences in median net pay. Across all sections, net pay for Germans was 1450 EUR; for Europeans, 1300 EUR; for Non-Europeans, 1200 EUR (see also Figure 6.2 for net pay by section). Again, the gap is largest in the CPT section, where the median net monthly pay of non-European students is 266 EUR less than the median net monthly pay of German students[28]. These differences are mainly due to the higher net pay associated with contracts[29].

Most international PhD students are attracted by the excellent international reputation of their MPI.

We asked German and international PhD students what motivated them to do a PhD at an MPI. As can be seen in Figure 6.3, the most frequently named motivations were the excellent international reputation of the MPI or the specific working group as well as the good scientific equipment. Fewer international PhD students decided to join the MPS because of the attractiveness of the pay or the possibility to join an IMPRS. (Only Non-German students were asked to rate the international reputation of the IMPRS and the attractiveness of the international working environment.)

Special obstacles faced by international students

International students face additional hurdles during the course of their PhD. These include, for instance, bureaucratic hurdles such as obtaining a visa and having their documents recognized by the university, or possible language barriers, since most international students do not speak German fluently upon arrival. International students often have access to fewer resources: many come from countries less wealthy than Germany, and they are less likely to be able to count on practical support from their families.

Figure 6.4 gives an overview of the most frequently indicated obstacles faced by international PhD students. Almost half of the international students (47 %) perceived that at least one of these hurdles complicated their pursuit of a PhD

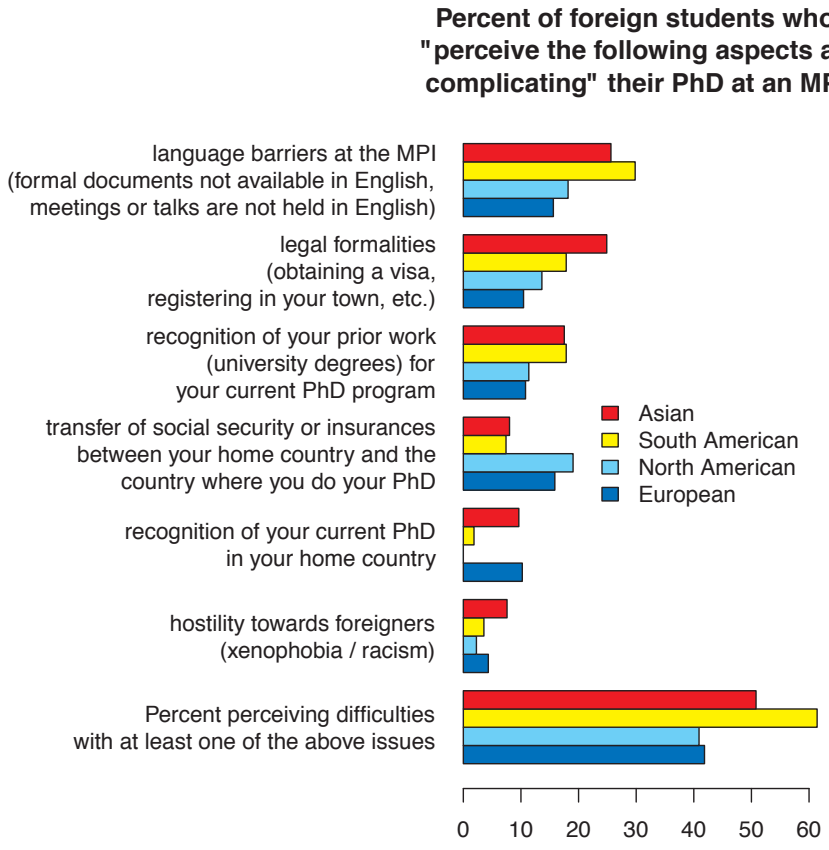


Fig.6.4: Percent of international students from different continents who perceive that various aspects related to their national origin complicated their PhD at an MPI "very much" or "a lot". Results are shown for Asian (N = 280), South American (N = 62), North American (N = 46), and (non-German) European (N = 386) students. Australian and African respondents are not shown due to the small number of respondents from those continents (4 and 17, respectively). Missings = 81, 89, 90, 128, 122, 106.

very much or a lot, with (non-German) Europeans and North Americans somewhat less likely to face perceived obstacles than others. The obstacles most frequently reported were language barriers at the MPI (formal documents not available in English or meetings not held in English), difficulties with legal formalities, and the recognition of university degrees from the home country. Xenophobia was perceived to be a significant problem by only 36 students (5 % of all international PhD students who responded to this question). Xenophobia was faced most often by African and Asian students (7 % and 8 %, respectively, reported significant problems). African and Asian students also experienced the most problems with legal formalities such as visas (27 % and 25 %, respectively). Recognition of prior degrees was most often a problem for Asian students (18 %) and South American students (18 %). Transfer of social security and insurances to the home country, on the other hand, was more likely to be perceived as a problem by North American and European students.

Summary

It is a stated goal of the Max Planck Society to attract international students to pursue their PhD within a Max Planck Institute. International students were most attracted by the excellent international reputation of the MPI or the specific working group and the good scientific equipment. Among the most common special problems faced by international students are language barriers at the MPI, the transfer of social security and insurances to their home country, and legal formalities such as obtaining a visa. Significant problems with xenophobia are rare, but do occur, especially for Asian and African students (8 % and 7 %, respectively). On average, international students earn less than German students, independent of whether they are paid by a stipend or by a contract.

[27] χ^2 (2, N = 1822) = 314.9, p < .01

[28] On average, IMPRS students earn less than non-IMPRS students (1300 vs. 1374 EUR median monthly net income, MPS-funded students only) and are 59 % more likely to have a stipend. However, the pay gap for international students also persists after controlling for IMPRS membership, so it cannot be attributed to the IMPRS system's higher fraction of international students. In fact, the pay gap is smaller for IMPRS students: 174 EUR vs. 247 EUR for non-IMPRS students (difference in median monthly net pay; only students paid by MPS).

[29] However, we find that a pay gap remains among stipend holders funded by the MPS in the CPT and BM sections: Germans are paid more than non-German Europeans, who are paid more than non-Europeans. Among MPS-paid stipend-holders, Germans earn 74 EUR more than non-Europeans in the CPT section and 37 EUR more in the BM section on average (two-sample t-Test). Among MPS stipend-holders in the CPT section, 77 % of Germans are paid more than 1200 EUR per month, compared to only 46 % of non-Europeans. A gap between the MPS stipend paid to Germans and non-Europeans remains even after controlling for the year of the PhD program, the number of peer-reviewed articles and self-reported working hours.
It should be emphasized that while we are unable to explain this pay gap, it is not necessarily evidence of discriminatory treatment of foreigners, and might be explained by some factor not included in our survey. For example, it is possible that institutes with higher stipend levels may also hire relatively fewer international students. In addition, while the differences in stipend pay between Germans and non-Germans appear to be real, they are smaller than the standard variation of stipend pay among Germans in the same MPS section (BM: 131 EUR, CPT: 125 EUR)

7. IMPRS and PAC

Breaking new grounds

New models of PhD supervision and PhD education: The International Max Planck Research schools and the PhD Advisory Commitees

Questions

- Are IMPRSs especially attractive for international PhD students?
- Do students enrolled in an IMPRS differ from those not enrolled with respect to the completion of their PhD in time and satisfaction with the PhD?
- What are the expected and experienced benefits of a PAC?

The International Max Planck Research Schools: History and Goals

Since 2000, PhD students in the MPS have increasingly been enrolled in International Max Planck Research Schools (IMPRS), including 41.3 % of the respondents in the present survey (there are now at least 55 such schools according to the MPS website). Reflecting the increase in the number of IMPRS in recent years, those students who started their PhD more recently are more likely to report being IMPRS members[30]. The goals of an IMPRS may include offering a more structured education in the field of study through formal course work, often in interdisciplinary fields, and improving supervision through the introduction of PhD advisory committees, shortening the length of time spent on the PhD, and providing training in "soft skills". The introduction of the IMPRS structure has been closely linked to the more frequent payment of PhD students with stipends, discussed above.

Demographics of IMPRS students

The demographics of the students in the IMPRS schools differ from that of non-IMPRS students in two respects. First, IMPRS students are somewhat younger with a mean age of 28.1 years, compared to a mean of 28.6 years for non-IMPRS students[31]. Second, a far greater fraction of them are international students[32]. Of the German PhD students, 32% are enrolled in an IMPRS, in contrast to 53% of those from elsewhere in Europe and 60% of those from outside of Europe

Our data thus suggest that the IMPRS programs are succeeding in attracting students both from abroad and

Table 7.1: Self-reported use of time and IMPRS membership (see Tab. 3.4 for the correlation with MPS section).

Biology and Medicine			
	Overall	IMPRS	Non-IMPRS
N	2034	846	1185
Research for PhD thesis	83.1	83.9	82.6
Coursework	7.2	8.6	6.2
Unrelated work	9.1	7.5	10.2

Chemistry, Physics and Technology			
	Overall	IMPRS	Non-IMPRS
N	2241	1062	1164
Research for PhD thesis	78.4	77.8	79.0
Coursework	8.8	11.3	6.5
Unrelated work	12.0	10.3	13.6

Humanities			
	Overall	IMPRS	Non-IMPRS
N	510	210	297
Research for PhD thesis	70.0	66.3	72.5
Coursework	12.5	16.5	9.7
Unrelated work	16.5	17.2	16.1

from within Germany who may otherwise have been less likely to begin a PhD at an MPI. Many IMPRS students cited their interest in joining a structured PhD program as one motivation for beginning their PhD at an MPI (45 % of German IMPRS students and 31% of international IMPRS students). Also, 23 % of international IMPRS students cited the international reputation of the IMPRS as a reason for beginning their PhD at the MPI (we did not ask this question of the German students).

Effect of IMPRS on PhD

Overall satisfaction with PhD and supervision

Being in an IMPRS did not have any effect on the students' overall satisfaction or satisfaction with supervision[33]. Also, after controlling for the time since the student started the PhD program, we found no statistically significant relationship between the self-estimated total time to complete the PhD and enrollment in an IMPRS[34].

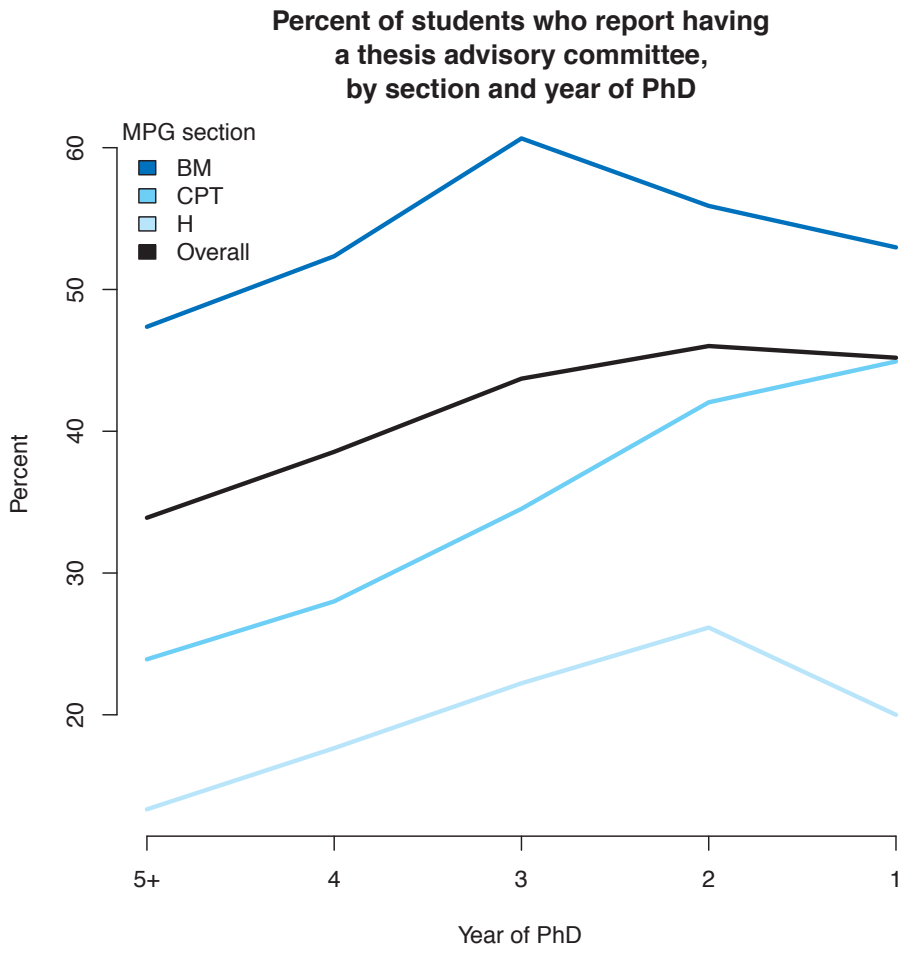
Supervision by a thesis committee

IMPRS students were more than twice as likely to have a thesis committee: 59 % of IMPRS students and 25 % of non-IMPRS students reported having such a committee. Also, IMPRS students were slightly more likely to choose their supervisor[35], with 50% of IMPRS students and 42 % of non-IMPRS students having done so.

Time spent on PhD and coursework

Since students enrolled in an IMPRS must fulfill formal coursework requirements, we expect to find that these students spend a greater fraction of their time on coursework. This is clearly the case in the humanities section (16.5 % IMPRS vs. 9.7 % Non-IMPRS) and the CPT section (11.3% IMPRS vs. 6.5% Non-IMPRS). The difference in time spent on courses is smallest in the BM section (8.6 % IMPRS vs. 6.2 % Non-IMPRS).

Fig.7.1: Percent of students who report having a PAC, by number of years since the student started the PhD, for each MPS section and overall. Note that horizontal axis is reversed, i.e. students who started their PhDs earliest are at the left and those who started their PhDs most recently are at the right, so the rising lines imply the apparent increasing frequency of PACs over time, i.e. for students who started more recently. N = 1924, Missing = 233.



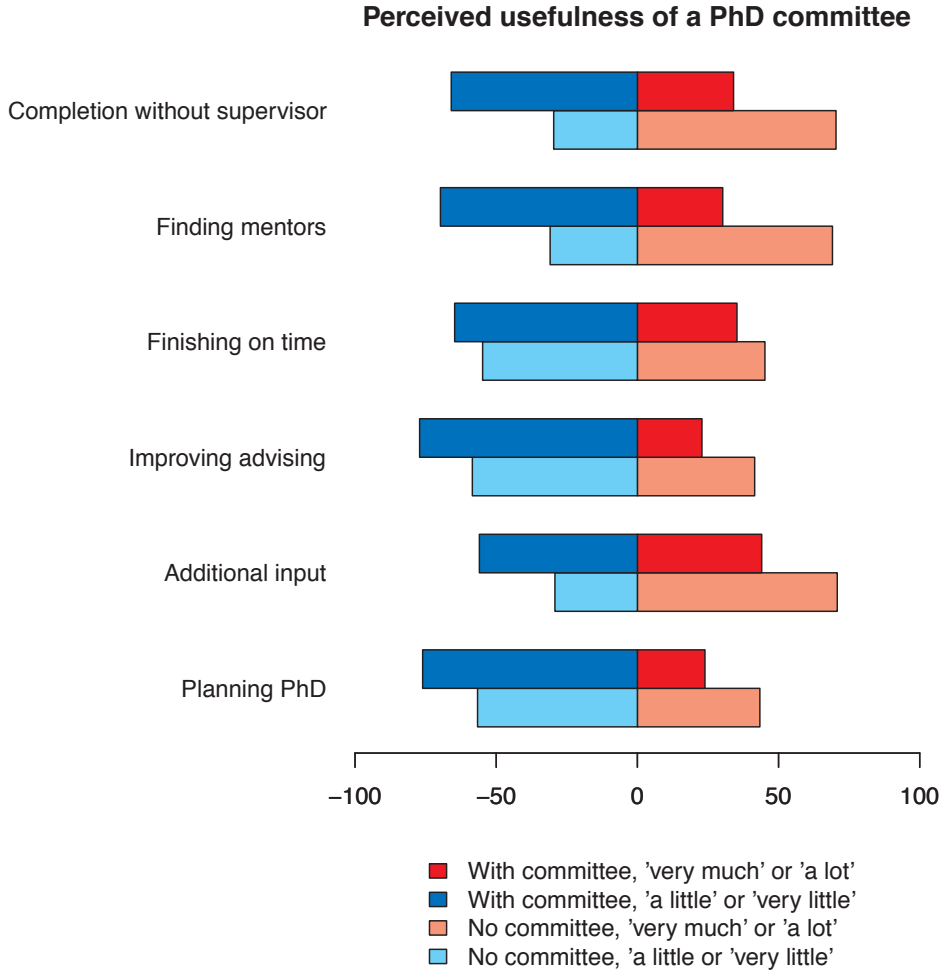


Fig.7.2: Perceived or expected usefulness of PACs in achieving various desired outcomes, depending on whether students have a PAC. Red bars at right indicate the percent of respondents who perceive (dark shade) or expect (light shade) that PACs contribute "very much" or "a lot" to PhD studies; blue bars at left indicate percents responding "a little" or "very little". "Don't know" responses were treated as non-responses, so that the total of each pair of corresponding bars is 100 %. Missings = 567, 565, 564, 565, 565, 553. Percent "don't know" responses (with PAC / no PAC) = 38/29, 14/23, 16/25, 14/24, 10/23, 10/25.

The "PhD advisory committee" model of PhD student supervision

Increasingly, the research of PhD students at Max Planck Institutes is overseen by a thesis committee to which the student must formally report several times during the course of the PhD (often called a PhD advisory committee or "PAC"). In the current survey, 39% of all respondents reported having a PAC. Supporting the increase in the number of PACs, students who started their PhD recently were overall more likely to have a thesis committee: 45 % of respondents in the first year of their PhD had a thesis committee, compared to only 34% of those in at least the fifth year (see Figure 7.1)[36]. PACs are most frequent in the BM section (51 %), followed by the CPT section (35 %) and the HUM section (20 %)[37].

However, of the doctoral students who have a committee, a majority perceive these committees as being of little help in achieving various desired outcomes of a PAC. Students who have a PAC were most likely to see it as helpful in obtaining additional input about the PhD project (37.9 %) and in completing the PhD on time (28.2 %)[38]. Interestingly, as can be seen in Figure 7.2, PhD students who did not have a PAC generally expected PACs to be more beneficial than students with a PAC felt they were[39]. Also, after controlling for year of PhD, students with and without a PAC did not differ in their estimated overall duration of the PhD.

Summary

Our data reflect the success of the IMPRS in attracting international PhD students: 50 % of IMPRS students in our survey were from outside of Germany, compared to only 28 % of non-IMPRS students. Many of these students cited their interest in joining a structured PhD program or the international reputation of the IMPRS as a contributing factor motivating them to pursue their PhDs at a Max Planck Institute.

The experience of IMPRS students differs from that of non-IMPRS students in at least two ways. First, they are far more likely to have a PhD advisory committee overseeing the supervision of their dissertation (60 % of IMPRS students and 25 % of non-IMPRS students reported having such a committee, missing = 239). Second, IMPRS students spend a somewhat larger fraction of their working time pursuing coursework, which reflects the "structured graduate studies" aspect of the IMPRS project. However, PhD students enrolled in an IMPRS did not differ from those not enrolled with respect to the expected duration of the PhD, their overall satisfaction with their PhD, or their overall satisfaction with PhD supervision.

The number of PhD students being supervised by a PAC is increasing. Students with and without a PAC do not differ in their overall satisfaction with supervision, overall satisfaction with their PhD and in the estimated duration of their PhDs. In contrast, when asked about various desired outcomes such as completing a PhD in time or finding mentors, the expectations of usefulness among students without PACs are higher than the actual usefulness perceived by students who have a PAC.

[30] χ^2 (4, N = 2102) = 19.4, p < .01

[31] F (1,2079) = 10.7, p < 0.01

[32] χ^2(2, N = 2090) = 121.03, p < .01

[33] t = .87, p = .39, and t = -.5, p = .64, respectively.

[34] t = 1.5, p = .14

[35] χ^2(1, N = 1968) = 64.4, p < .01

[36] χ^2(4, N = 1902) = 9.4, p < .05

[37] χ^2(2, N = 1922) = 98.2, p < .01

[38] t = -.6, p = .60. Similarly, after controlling for the duration of their PhD, students with and without a PAC did not differ in their overall satisfaction with the PhD and their overall satisfaction with supervision: t = 1.6, p = .12, and t = 1.5, p = .15, respectively.

[39] F(1,1371) = 207.9, p <.01 on the mean positive and negative ratings across the six questions

8. PhD student attitudes towards research careers

Between passion and ambivalence

Questions

- Do PhD students aim for an academic career after their PhD? If not, what are the reasons for deciding against a scientific career?
- Which PhD students are most likely to take up a career in academia?
- How well does a PhD in the MPS prepare its students for their future careers?

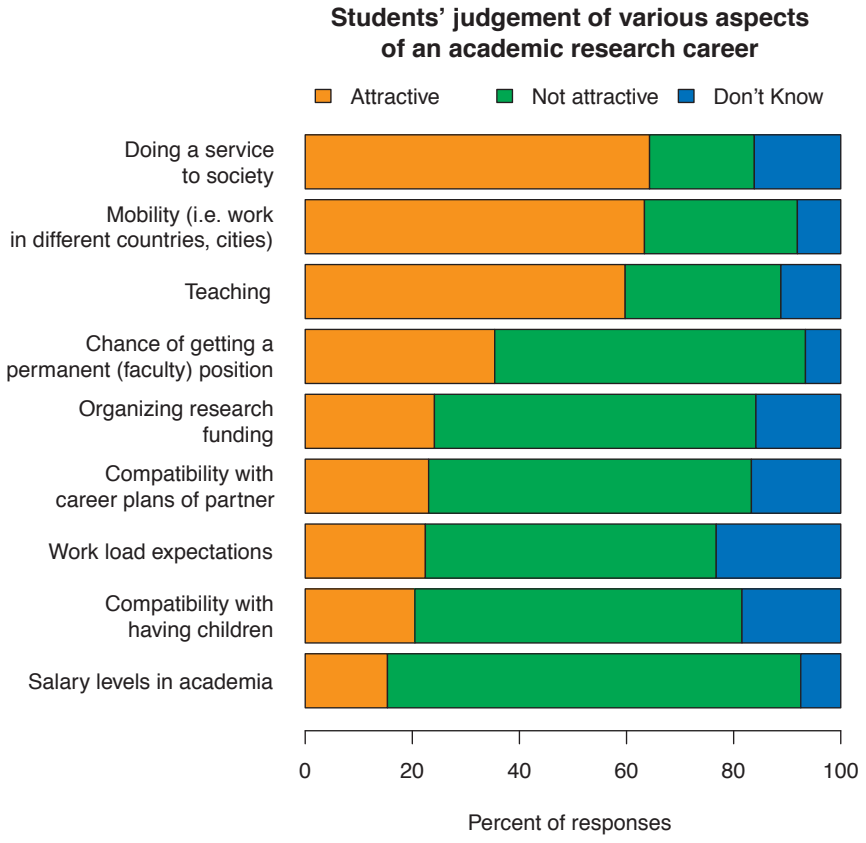
Students' views of careers in academia

We asked the participants of the survey to judge various aspects of an academic research career. As can be seen in Figure 8.1, teaching, doing a service to society, and mobility (i.e. work in different countries, cities) were mostly rated as attractive qualities of such a career. Aspects of an academic career perceived as less attractive were the expected salary levels, the chance of getting a permanent (faculty) position, the need for organizing research funding, the workload expectations, and the compatibility of students' own career plans with the career plans of their partners and with having children.

Interestingly, as evident in Figure 8.2, except for the aspects of teaching and doing a service to society, non-German PhD students rated all aspects of an academic career as more attractive than German PhD students.

One more dramatic difference is in students' views towards the "compatibility of [their] own career plans with career plans of [their] partner[s]": 68 % of Germans and 55% of Europeans considered this an unattractive feature of an academic career while only 37 % of non-Europeans did.[40] There was no difference between male and female respondents.

Fig.8.1 Percent of respondents rating various aspects of an academic research career as "attractive", "not attractive", or "don't know". Missing = 286, 280, 269, 261, 288, 287, 312, 292, 256.



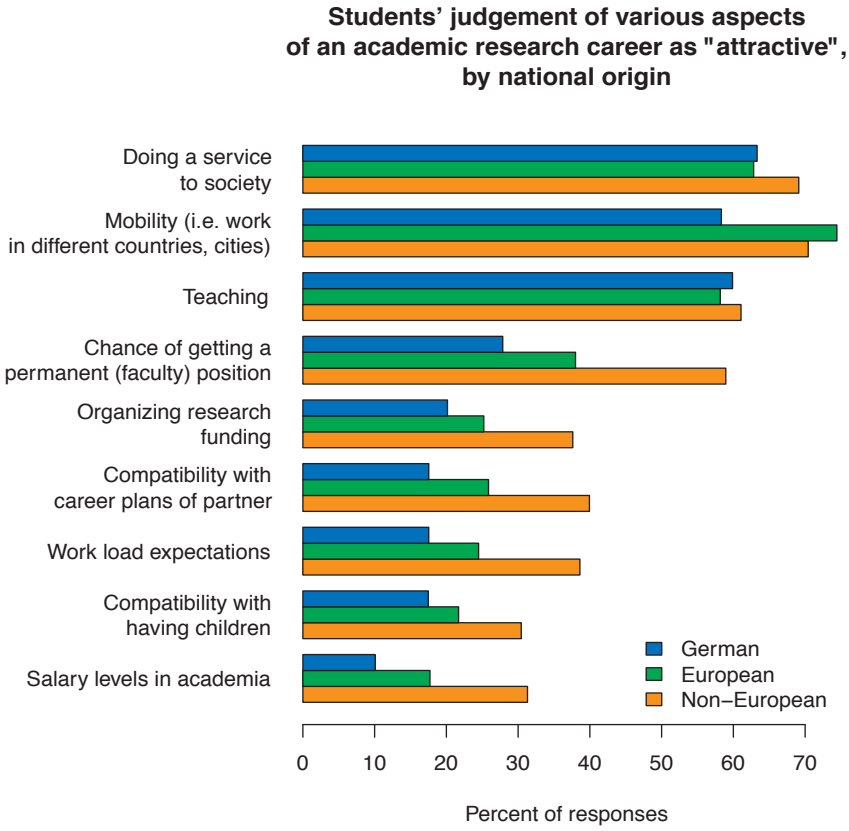


Fig.8.2: Percent of respondents rating various aspects of an academic research career as "attractive", by national origin. Missing = 292, 286, 275, 267, 294, 293, 318, 198, 262.

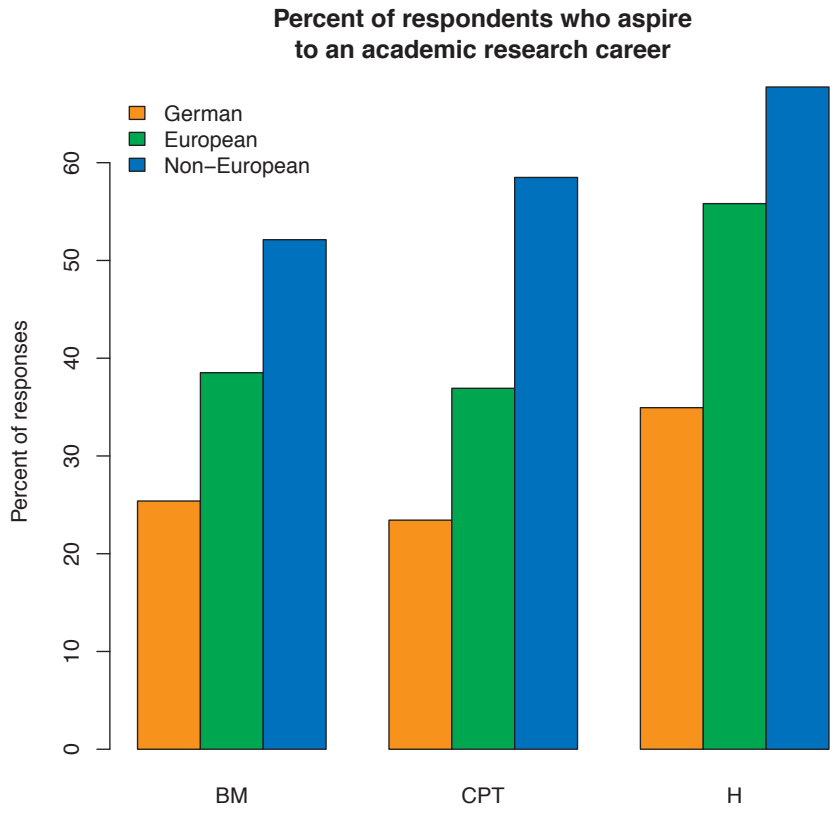


Fig.8.3: Percent of respondents who aspire to an academic research career, by section and national origin. N = 1931. Missing = 226.

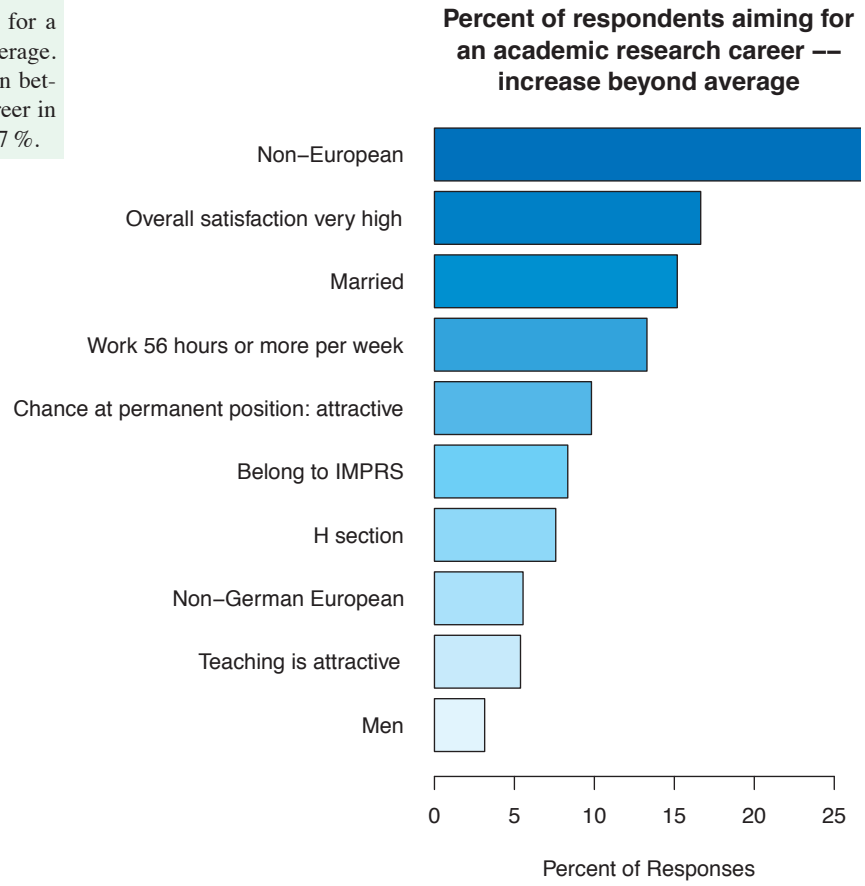


Fig.8.4: Percent of respondents aiming for a career in research – increase beyond average. For each group, the difference is shown between the percent aiming for such a career in that group and the overall average of 37 %.

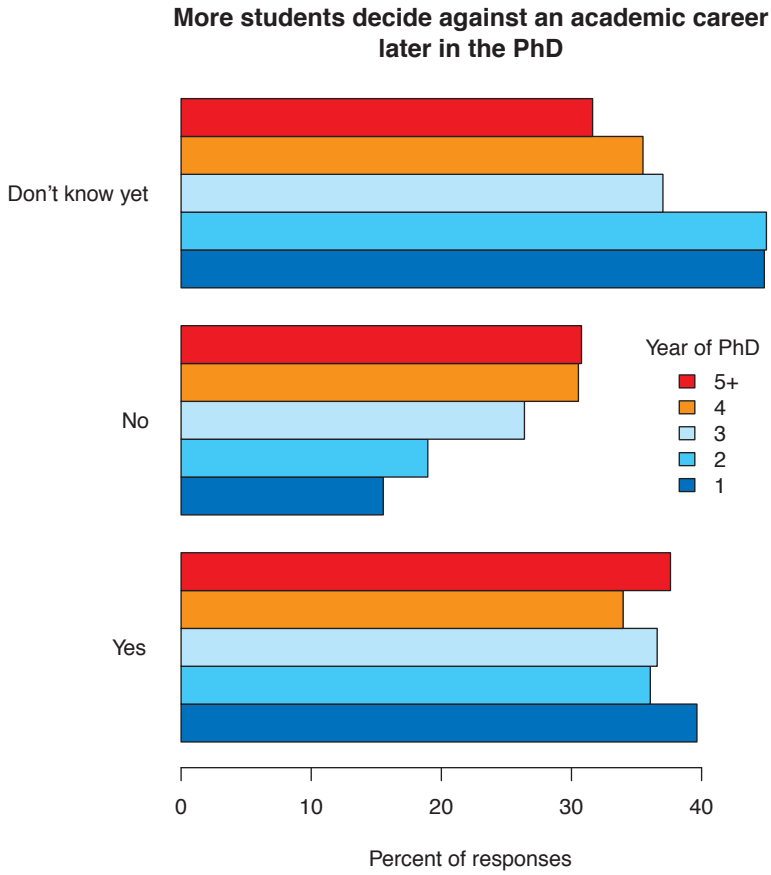


Fig.8.5: Frequency of responses to the question "Do you aim for an academic research career", by the students' year of the PhD.

Aiming for an academic research career

Although about 70 % of respondents would choose scientific research or science-related jobs as their future occupational field, only 37 % of the PhD students indicated that they aim for an academic career (e.g. aspiring to a professorship or permanent research position). Twenty-two percent of respondents answered that they are not pursuing an academic career, and 41 % are still undecided. One reason for this discrepancy might be the relative unattractiveness of several typical characteristics of an academic research career as we will discuss in the next section.

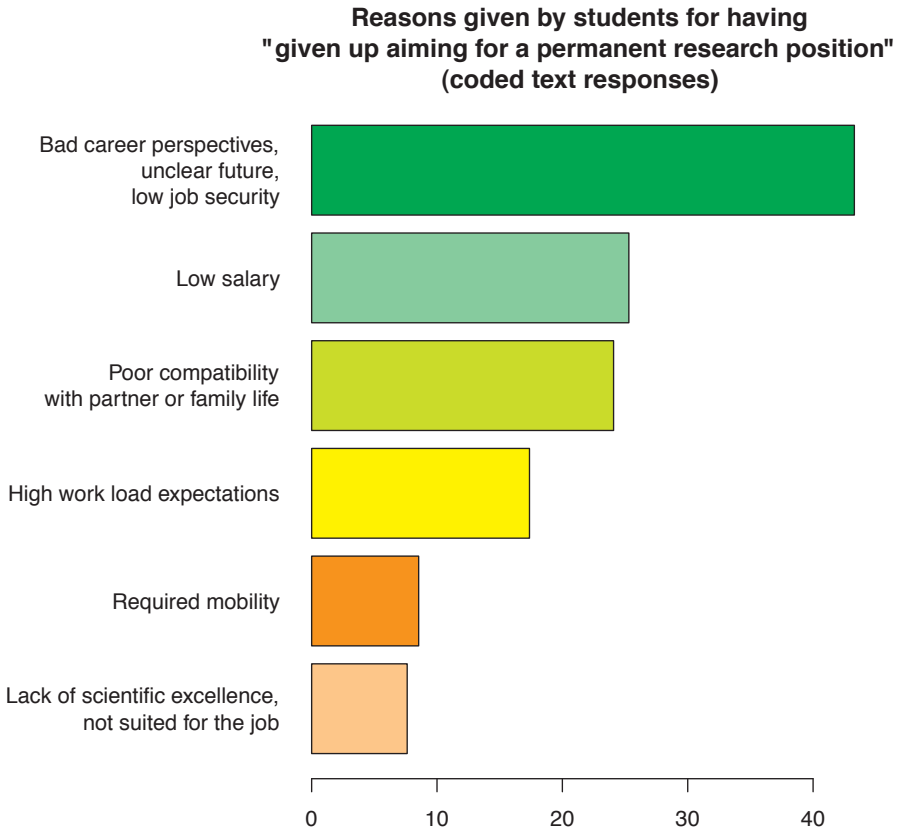
Overall, HUM students are more likely to aim for a career in academia (45 %) than BM (35 %) or CPT (37 %) students (see Figure 8.3)[41]. Figure 8.4 shows the increase beyond the overall average in the percent of respondents among different groups who aim for an academic career. Groups of respondents who answered 'yes' more frequently than average included students who were non-European, who were very satisfied overall with the PhD thesis, who were married, who work a (self-reported) long week, who are optimistic about their own chance of obtaining a permanent position in research, who are enrolled in an IMPRS, and who belong to the HUM section. Men were somewhat more likely than women to aspire to a scientific career in academia. The gender gap is largest in the BM section where men were 2.5 times more likely to have answered "Yes[, I aim for an academic research career]".

One of the more interesting results of our survey is that the fraction of PhD students who aim for a career in science is comparable among PhD students in their 1st to 5th year, at aprroximately 35 %. However, the fraction of students who don't know yet whether they want such a career decreases from 45 % (1st year) to 37 % (3rd year) and 35 % (4th year). This is paralleled by an increase in the fraction of students who do not aim for an academic career from 16 % (1st year) to 26 % (3rd year) and 31 % (4th year) (see Figure 8.5).

Reasons for not pursuing a career in academia

Of the 22 % of the PhD students who do not aim for a research career (anymore) most (80 %) explained why in a written answer. Forty-three percent of those indicated that the uncertain job outlook in academia with short-term jobs and lack of tenure-track offers stopped them from pursuing such a career. And although the MPS has participated in the "Audit berufundfamilie" certification program for family-friendly employers since 2006[42], on-

Fig.8.6: Reasons given by students for having "given up aiming for a permanent research position", from text responses that were categorized by hand, as percent out of the total of 328 text responses given to this question. The total is more than 100 % because some students named more than one reason in the text response.



ly relatively few PhD students know of measures to improve the compatibility of career and family (see Section Gender and Family). About every fourth PhD student who no longer aims for a research career says that the incompatibility of such a career with a family life or life with a partner was the decisive reason. The examples that were named for this incompatibility most often included the difficulty of also finding a job for the partner when their own research job's funding is limited to only a few years. Only 8% of those who explained why they no longer aim for a research career said it was because they felt they were not competent enough or would be unable to compete on the job market. Similarly, the number of papers a student has already published appears to have only a small effect on their career plans. Taken together, the evidence from our survey suggests that the students' wish to pursue a career in academia is mostly driven by their perception of the career path, rather than their own (real or perceived) competence as researchers.

Preparation for future careers outside of academia

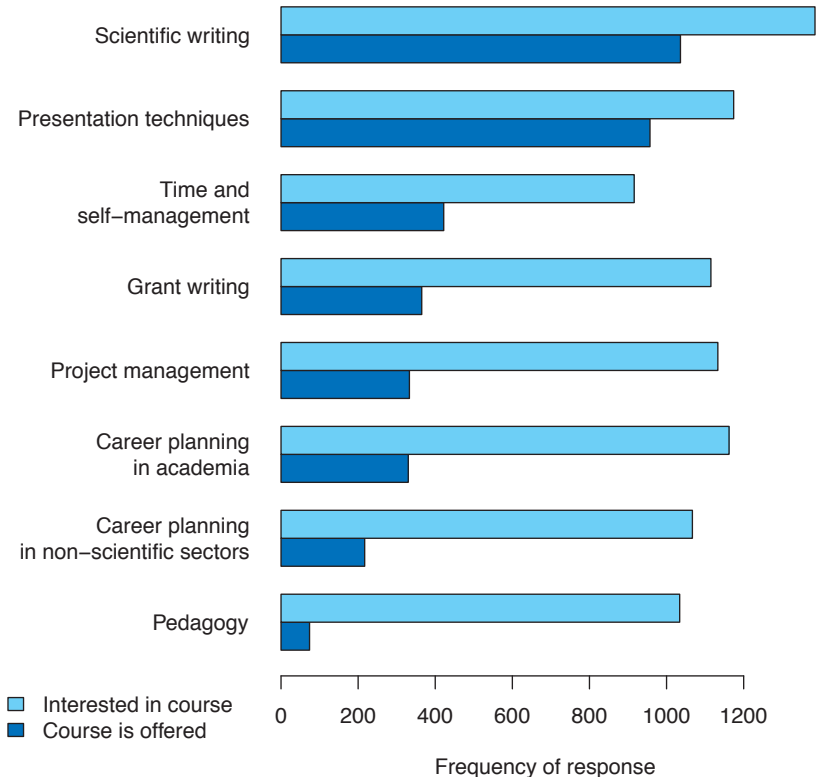
Regardless of the pessimistic views on academic research careers, a large fraction of the students surveyed (70%) prefer scientific or science-related jobs. We asked whether a PhD increases the students' job opportunities in a number of areas in and outside of research. Within research fields (in acadamia, private organizations and science-related jobs), on average 70 % agreed that a PhD is helpful.

We also asked about non-scientific jobs like "working as a teacher" or in an "international governmental organization" or "as a consultant". There, on average 30 % answered "yes", their PhD improved their job opportunities in these fields, some 28 % said "no" and the rest was unsure. Among the non-scientific jobs, a PhD was rated most helpful for seeking a job as consultant (39 % agreement).

Qualification during the PhD with supplementary courses

Most PhD students would like to take part in supplementary courses during their PhD but only the courses about "presentation techniques" and "scientific writing" are offered almost frequently enough to meet the demand (see Figure 8.7). In the context of career planning, the gap between course availability and student interest is most striking for the career planning courses and it is noteworthy that students expressed interest in such courses both for careers in academic and in non-scientific sectors.

Fig.8.7: Number of students reporting interest in soft skill courses by topic, compared to number of students reporting the availability of such a course.



Summary

Most PhD students in the MPS feel well-prepared for employment in scientific research. However, many would desire supplementary courses in planning careers within and outside of academia during their PhD, which are only rarely available. The fact that only about one third of the PhD students want to pursue an academic research career, underlines the necessity of discussing alternative careers. During the course of the PhD, the number of students who remain undecided about pursing a career in academia decreases, as increasing numbers decide against such a career. More than 75 % of the respondents found most major aspects of academic life unattractive. The most commonly cited reasons for not or no longer aiming for a research career were uncertain career prospects, high work load expectations, low salary and high required mobility. These were also the factors most often made responsible for a perceived incompatibility of a research career with a partner and family life. Interestingly, the students' wish to pursue a career in academia is mostly driven by their perception of the career path, rather than their own (real or perceived) competence as researchers. Finally, non-German PhD students were more likely than German PhD students to aim for a research career and to rate aspects of academic life as attractive.

[40] This effect becomes even stronger when focusing only on those PhD students living in a relationship: 70 % of married Germans and 60 % of married Europeans rated "partner and career compatibility" as unattractive, compared to only 30% of non-European married PhD students.

[41] $\varkappa^2$ (4, N = 1938) = 9.9, p = 0.04

[42] Annual Report 2009, p.99

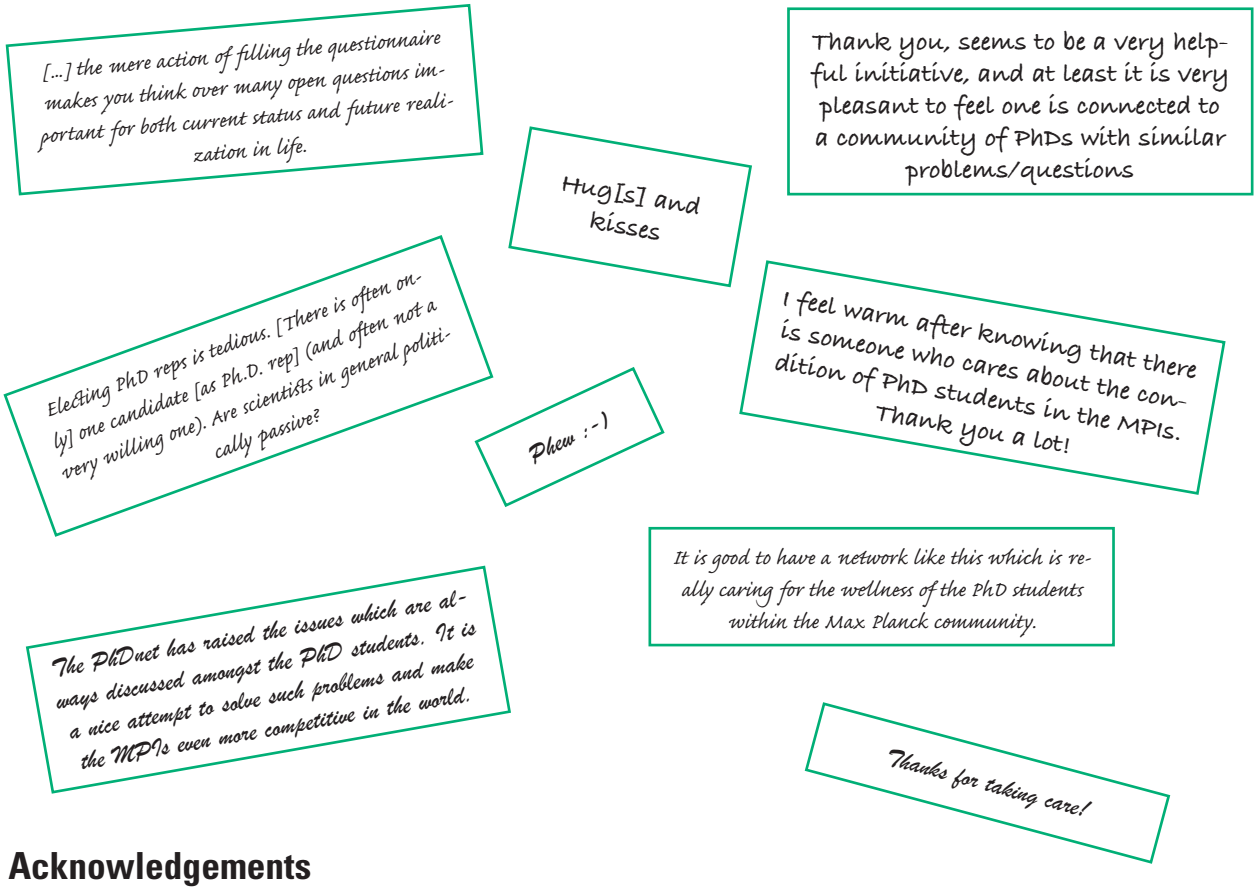
Compare: At Cross Purposes: What the experiences of today's doctoral students reveal about doctoral education. (USA, 2001)

9. Who knows the PhDnet?

In this very brief section we report on the awareness of the PhDnet and its activities among the respondents. These results will help us to assess and improve our networking efforts.

Sixty-six percent of all respondents knew about the PhDnet even before having heard about the survey. Naturally, first year students were less likely to have heard about the PhDnet before the survey (43 %) than fourth year students (82%). In HUM, almost four out of five students (77 %) had heard about the PhDnet, whereas in BM (67 %) and CPT (62 %) this number is somewhat reduced. Only 25 % of all students have ever read our magazine OFFSPRING. Thirty-six percent of all students who know about the PhDnet have read OFFSPRING, 90 % like it or like it very much.

Comments on the survey



Acknowledgements

The authors wish to acknowledge the support and help of a number of people without whom the survey could not have been conducted. First, the PhDnet's secretary group, led by Alexander Buck who helped to inform all institute representatives about the survey. Without them, the survey could not have reached such a high participation rate. We would also like to thank all PhD representatives in the institutes who continue to maintain the contact lists on the PhDnet wiki and who informed 'their' students about the survey. We needed your local support to convince everyone to participate.

We also want to thank INCHER, the International Centre for Higher Education Research in Kassel, that provided the infrastructure for performing the survey. We enjoyed working with Harald Schomburg and his colleagues at INCHER in a friendly and professional atmosphere.

Heidi Schuster from the Max Planck Administrative Headquarters supported us with assuring privacy protection.

Axel Quetz, Karin Meißner and Carmen Müllerthann (MPI for Astronomy, Heidelberg) transformed our document into this enjoyable layout.

Last, but not least, we would like to thank all survey participants for taking the time to answer our questions.

We thankfully acknowledge financial support from the Max Planck Society through its president Prof. Peter Gruss.

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  ISBN 978-3-7639-1992-5, Best.-Nr. 6001820b

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◄ ►

3rd Survey on the Situation of PhD Students in the Max Planck Society

Open from the 25th of May until the 21th of June

One of the main tasks of the PhDnet – the Max Planck-wide Ph.D. student's network - is to gather information about the ups and downs of doing a PhD in the Max Planck Society.
This survey will help us collect information about the working conditions of the PhD students, information in which the MPS is very often lacking. This will be extremely important if we want to succeed with concrete claims to the General Administration and the President.
As an example, the last surveys have already brought to light that the number of stipend holders among PhD students is increasing. This brings about problems in the (social) insurance status, which the General Administration is now trying to solve.
In order for this survey to succeed, it is very important that most of the 4000 PhD students in the Max Planck Society participate. In order for this survey to succeed, it is very important that most of the 4000 PhD students in the Max Planck Society participate.

Participation in this survey is voluntary. You are also free to leave out questions which you do not want to answer. Individual responses will be used only in the framework of this survey and will not be shared with third parties. The results of the survey will be published anonymously. This also means that the data on institute membership will be stored separately from the rest of the survey data and will be only used to assess the participation rate.

ANY INFORMATION YOU SUBMIT WILL BE TREATED STRICTLY CONFIDENTIAL.

The questionnaire will take about 20-30 minutes to complete and contains questions about your background, working conditions, supervision, funding and insurances as well as career plans after your Ph.D.. You can also interrupt filling out of the survey and continue at a later time point.

Feel free to contact us in case of technical problems at guist(at)incher.uni-kassel.de and for all other questions about the survey at haemmerer(at)mpib-berlin.mpg.de.
Dorothea Hämmerer (Survey coordinator, PhDnet), Leonard Burtscher (Spokesperson, PhDnet), Harald Schomburg (Senior researcher, INCHER-Kassel)

General Information about your PhD and Socio-Demographic Information

In this section we are also interested in how your PhD is funded. This will be important when comparing the financial situation of PhD students holding stipends or contracts.

G1 In which year and quarter of the year did you start your PhD?

Variables: G1_1 G1_2

1	☐ 2009	1	☐ Quarter 1
2	☐ 2008	2	☐ Quarter 2
3	☐ 2007	3	☐ Quarter 3
4	☐ 2006	4	☐ Quarter 4
5	☐ 2005		
6	☐ 2004		
7	☐ 2003		
8	☐ 2002		
9	☐ 2001		
10	☐ 2000		

G2 What is the type of your funding for your PhD?

Variables: G2 G2_TE

1 ☐ Scholarship / stipend
2 ☐ TVÖD 13 (half contract) at an MPI (or payment according to ~)
3 ☐ TVÖD 13 (3/4 or full contract) at an MPI (or payment according to ~)
4 ☐ Other: ..... bitte eintragen

G3 What is the main source of your funding for your PhD?

Variables: G3_1 G3_TE

1 ☐ MPI
2 ☐ University
3 ☐ Funding agency (e.g. DFG)
4 ☐ Money from family / my partner / my own money
5 ☐ Other: ..... bitte eintragen

G4 Are you currently enrolled in an International Max Planck Research School?

Variables: G4

1 ☐ Yes
2 ☐ No

G5 How much money do you receive from your stipend monthly?

Variables: G5

1 ☐☐☐☐ Euro

G6 Which percentage of your grant/income do you spend on the rent for your apartment (including utilities and heating)?

Variables: G6

1 ☐☐☐ Percent

G7 How much money do you pay monthly for the following insurances?

Variables:

health insurance	☐☐☐☐	☐ I don't have such an insurance
pension scheme	☐☐☐☐	☐ I don't have such an insurance
unemployment insurance	☐☐☐☐	☐ I don't have such an insurance
other insurance	☐☐☐☐	

G8 Are you male or female?

Variables: G8

1 ☐ Female
2 ☐ Male

G9 In which year were you born?

Variables: G9

Year: 19☐☐

G10 What is your origin?

Variables: G10

1 ☐ German
2 ☐ Non-German-European
3 ☐ North American
4 ☐ South American
5 ☐ Asian
6 ☐ Australian
7 ☐ African

G11 What is your current family status?

Variables: G11

1 ☐ single
2 ☐ in a relationship
3 ☐ married

G12 During your Ph.D., have you (your partner) been pregnant or do you (your partner) plan to become pregnant?

Variables: G12

1 ☐ Yes
2 ☐ No

G13 **Do you have children?**

Variables: G13_1 G13_2

1 ☐ Yes how many: ☐☐

2 ☐ No

G14 **How many hours does your partner work per week?**

Variables: G14

1 ☐☐☐☐ hours

G15 **To which section does your MPI belong to?**

Variables: G15

1 ☐ Biology and Medicine Section

2 ☐ Chemistry, Physics and Technology Section

3 ☐ Humanities Section

Details on your PhD at an MPI

In this section we are interested in some logistical aspects of your PhD including the time spent on various kinds of work and the requirements for obtaining your degree. We are also interested in your motivation for doing your PhD at an MPI and your satisfaction with your PhD program.

D1 **Which of the following aspects motivated you to do your current PhD within an MPI:**

Choose all that apply!

Variables: D1_1 D1_2 D1_3 D1_4 D1_5 D1_6

1 ☐ Scientific excellence of the MPI or the specific working group

2 ☐ Interest in joining a structured PhD program such as an IMPRS

3 ☐ Interest in working with a specific scientist

4 ☐ Continued on previous scientific project (master thesis, internship, etc.)

5 ☐ Scientific equipment / working facilities

6 ☐ Attractiveness of pay and benefits

D2 **Which of the following aspects motivated you to do your current PhD within an MPI:**

Choose all that apply!

Variables: D2_1 D2_2 D2_3 D2_4 D2_5 D2_6 D2_7 D2_8 D2_9 D2_10 D2_TE

1 ☐ Excellent international reputation of MPI or working group

2 ☐ Excellent international reputation of IMPRS

3 ☐ Interest in joining a structured PhD program such as an IMPRS

4 ☐ Interest in working with a specific scientist

5 ☐ Continued on previous scientific project (master thesis, internship, etc.)

6 ☐ My home country/ country where I completed my studies does not provide a comparable PhD program in my research field of interest

7 ☐ Interest in an international working environment

8 ☐ Scientific equipment / working facilities

9 ☐ Attractiveness of pay and benefits

10 ☐ Other .....

bitte eintragen

D3 **Please estimate the total duration of your PhD - from the day you started until your oral exam/defense!**

EXCLUDE parental leave and loss of time due to family or health reasons!

Variables: D3

1 ☐ over 1 to 1.5 years

2 ☐ over 1.5 to 2 years

3 ☐ over 2 to 2.5 years

4 ☐ over 2.5 to 3 years

5 ☐ over 3 to 3.5 years

6 ☐ over 3.5 to 4 years

7 ☐ over 4 to 4.5 years

8 ☐ over 4.5 to 5 years

9 ☐ over 5 to 5.5 years

10 ☐ over 5.5 to 6 years

11 ☐ over 6 years

D4 **If you exceed the maximum allowed time of three years, how will your PhD be funded?**

Variables: D4

1 ☐ contract, stipend, funding from the MPG will be extended
2 ☐ OTHER contract, stipend, funding from the MPG
3 ☐ additional money from a new external funding source
4 ☐ academic employment UNRELATED to Ph.D. project
5 ☐ non-academic employment UNRELATED to Ph.D. project
6 ☐ unemployment pay (does not apply for stipend holders)
7 ☐ Money from my parents / my partner / my own money
8 ☐ Don't know

D5 **How many hours per week do you usually work for your PhD and the institute and/or university (courses, PhD project, teaching, assistance, supervision, etc.)?**

Variables: D5

1 ☐ less than 20 hours
2 ☐ 20 to 25 hours
3 ☐ 26 to 30 hours
4 ☐ 31 to 35 hours
5 ☐ 36 to 40 hours
6 ☐ 41 to 45 hours
7 ☐ 46 to 50 hours
8 ☐ 51 to 55 hours
9 ☐ 56 to 60 hours
10 ☐ 61 to 65 hours
11 ☐ 66 to 70 hours
12 ☐ more than 70 hours

D6 **What percentage of your weekly working time do you spend on average on the following tasks? Please give your best estimate!**

Variables: D6_1 D6_2 D6_3

1 scientific work directly related to your PhD project: ☐☐☐ percent
2 attending courses (e.g. IMPRS courses): ☐☐☐ percent
3 work for your institute not directly related to your PhD: ☐☐☐ percent

D7 **Which of the following tasks are you currently doing or have you done during your Ph.D. time. Please also indicate for each task if you are required to do it or if you are NOT allowed to do it.**

If the task is neither required nor NOT allowed, do NOT mark the option.

Variables:

done / doing currently	required	I am NOT allowed to do it	
☐	☐	☐	classes and coursework
☐	☐	☐	teaching
☐	☐	☐	publications in journals
☐	☐	☐	scientific monograph
☐	☐	☐	participation in workshops or conferences
☐	☐	☐	writing grant proposals
☐	☐	☐	organizing conferences / workshops
☐	☐	☐	supervision of interns or diploma students

D8 **Which of the following courses are offered during your PhD; in which of the courses did you or would you like to participate?**

If the course is NOT offered, leave 'offered' and 'don't know' open. Please indicate nonetheless whether you would be interested in such a course or not.

Variables:

offered	don't know	interested	not interested	
☐	☐	☐	☐	scientific writing
☐	☐	☐	☐	grant writing
☐	☐	☐	☐	learning how to teach
☐	☐	☐	☐	presentation techniques
☐	☐	☐	☐	project management
☐	☐	☐	☐	time and self-management
☐	☐	☐	☐	career planning in academia
☐	☐	☐	☐	career planning in NON scientific sectors
☐	☐	☐	☐	

D9 **Please indicate the number of the following types of publications that resulted from your PhD research so far:**

Please enter the number! Multiple answers are possible, if several options apply for one publication please choose the ONE option that fits best!

Variables: D9_1 D9_2 D9_3 D9_4 D9_5 D9_6 D9_7

1 ☐☐☐ posters
2 ☐☐☐ articles in peer-reviewed journals
3 ☐☐☐ articles in OTHER scientific journals
4 ☐☐☐ articles in public journals (including online articles)
5 ☐☐☐ book chapters
6 ☐☐☐ scientific monographs
7 ☐☐☐ patent applications

D10 **Have you ever had the impression that your work has been used for a publication without naming you as a co-author?**

Variables: G10_1 D10_2

1 ☐ yes please specify: .....

2 ☐ No

D11 **Which of the following offers for employees with children exist at your MPI:**

Variables: D11_1 D11_2 D11_3 D11_4 D11_5 D11_6 D11_7 D11_8 D11_9 D11_TE

	No	Don't know	Yes	
1	☐	☐	☐	institute-based childcare facilities
2	☐	☐	☐	part-time work
3	☐	☐	☐	home-based work
4	☐	☐	☐	tandem solutions for part-time work (i.e. sharing your job with somebody else to reduce working hours
5	☐	☐	☐	special offices that allow bringing your children for several hours to the institute
6	☐	☐	☐	extra funding support for childcare
7	☐	☐	☐	help in placing children in an appropriate third-party daycare facility
8	☐	☐	☐	funding for bringing your children with you to national or international conferences
9	☐	☐	☐	other:

D12 **To what extent did you perceive the following aspects as complicating your PhD at an MPI:**

Variables:

very much	a lot	a little	not at all	not applicable	
☐	☐	☐	☐	☐	legal formalities (obtaining a visa, registering in your town, etc.)
☐	☐	☐	☐	☐	language barriers at the MPI (formal documents not available in English, meetings or talks are not held in English)
☐	☐	☐	☐	☐	recognition of your prior work (university degrees) for your current PhD program
☐	☐	☐	☐	☐	recognition of your current PhD in your home country
☐	☐	☐	☐	☐	transfer of social security or insurances between your home country and the country where you do your PhD
☐	☐	☐	☐	☐	hostility towards foreigners (xenophobia / racism)
☐	☐	☐	☐	☐	

D13 **Have you ever thought about giving up your PhD?**

Variables: D13

1 ☐ Yes

2 ☐ No

D14 **Why did you think about giving up your PhD?**

Choose all that apply!

Variables: D14_1 D14_2 D14_3 D14_4 D14_5 D14_6 D14_7 D14_8 D14_TE

1 ☐ wrong topic

2 ☐ not enough money

3 ☐ no or poor results

4 ☐ feeling lost / stressed

5 ☐ work-related difficulties with your supervisor

6 ☐ personal difficulties with your supervisor

7 ☐ uncertain career path

8 ☐ other: .....

bitte eintragen

D15 **When did you think about giving up?**

Variables: D15

1 ☐ 1st year

2 ☐ 2nd year

3 ☐ 3rd year or later

D16 **How good is the cooperation between your university (at which you are registered for your PhD) and your MPI?**

The cooperation is...

Variables: D16

	very good	good	bad	very bad
1	☐	☐	☐	☐

D17 **Please rate the overall satisfaction with your PhD program**

My overall satisfaction is...

Variables: D17

	very high	high	low	very low
1	☐	☐	☐	☐

Supervision

Previous PhDnet surveys have shown a wide variety in quality and quantity of supervision. In this section, we would like to ask you about several aspects of the supervision of your PhD.

In the following questions, **Supervisor** means the person you consider to be your primary research supervisor or advisor. This may or may not be your formal PhD supervisor in terms of university registration (Doktorvater/Doktormutter).

S1 Who is your primary research supervisor?

(The person you consider to be your primary research supervisor or advisor. This may or may not be your formal PhD supervisor)

Variables: S1 S1_TE

1 ☐ The formal PhD supervisor (Doktorvater/Doktormutter)
2 ☐ Other professor(s)
3 ☐ Other senior scientist(s)/research scientist(s)
4 ☐ A postdoctoral scientist
5 ☐ External experts
6 ☐ Other: ..... bitte eintragen

S2 How many PhD students does your supervisor have (as primary supervisor), including you?

Variables: S2

1 ☐☐☐

S3 How often do you meet with your supervisor?

Variables: S3

1 ☐ daily
2 ☐ weekly
3 ☐ monthly
4 ☐ rarely
5 ☐ never

S4 Were you able to choose your supervisor?

Variables: S4 S4_TE

1 ☐ yes, I could choose among several supervisors for the same topic
2 ☐ yes, I chose a topic where I liked the supervisor
3 ☐ no, I chose the topic and the supervisor was assigned to me
4 ☐ no, the topic and the supervisor were assigned to me
5 ☐ other ..... bitte eintragen

S5 Please rate how well the following statements describe your supervision:

Variables:

fully agree	partially agree	partially disagree	fully disagree	not applicable	
☐	☐	☐	☐	☐	My supervisor has excellent knowledge of my field of research.
☐	☐	☐	☐	☐	My supervisor is easily available to me when I need help with my research.
☐	☐	☐	☐	☐	My supervisor is open to and respects my research ideas.
☐	☐	☐	☐	☐	My supervisor gives helpful feedback on my research.
☐	☐	☐	☐	☐	My supervisor supports my development because he/she can judge well when to give me which information.
☐	☐	☐	☐	☐	My supervisor is well informed about the current state of my thesis work.
☐	☐	☐	☐	☐	My supervisor supports my professional development (by e.g. establishing contacts with other researchers, suggesting interesting conferences,...).
☐	☐	☐	☐	☐	My supervisor teaches me how to write grant and contract proposals.

S6 If you are unsatisfied with your supervision, is it possible to change your primary supervisor?

Variables: S6

1 ☐ don't know
2 ☐ no, I would have to stop my PhD or move to another institution
3 ☐ no, I would have to complete my PhD without supervision
4 ☐ yes, without consequences for my PhD project
5 ☐ yes, but I would continue my work with large modifications under new supervision
6 ☐ yes, but I would continue my work with small modifications under new supervision

S7 Please rate your overall satisfaction with your PhD supervision.

My overall satisfaction is...

Variables: S7

	very high	high	low	very low
1	☐	☐	☐	☐

For some PhD students, the thesis work is overseen by a thesis committee or PhD advisory committee (PAC), consisting of several MPI-internal and external PhD supervisors. This committee typically meets annually to review the student's progress on the PhD thesis.

Variables:

S8 Do you have a thesis committee?

Variables: S8

1 ☐ Yes
2 ☐ No

S9 **How much do you feel the thesis committee contributes to the following aspects of PhD studies? If you do not have a thesis committee, to what extent do you expect that a thesis committee would contribute to each of these aspects?**

Variables:

very much	a lot	a little	very little	don't know	
☐	☐	☐	☐	☐	planning your PhD
☐	☐	☐	☐	☐	obtaining additional input from experts other than your PhD advisor
☐	☐	☐	☐	☐	improving the quality of advising and/or communication with supervisor
☐	☐	☐	☐	☐	completing PhD in time
☐	☐	☐	☐	☐	building mentoring relationships to experts other than your PhD advisor
☐	☐	☐	☐	☐	ensuring the completion of your PhD in case one supervisor can not continue supervising you

Legal issues and Insurances

PhD students in the MPS can have either a contract or a stipend – each comes with a different legal status.

Stipend holders are legally not considered as employees, and hence do not benefit from employer contributions to various insurance policies (health, accident and disability insurance, employee liability insurance, contributions to pension scheme, etc.). They are also not eligible for unemployment support (ALG I) or for parental leave benefits above the minimum of 300 Euros per month. In contrast, all social security services are fully provided if a student is employed with a work contract. The PhDnet aims at achieving the most equality among PhD students possible, but first more insights into the current situation of stipend holders are necessary.

L1 **Were you offered the choice between a contract or a stipend?**

Variables: L1

1 ☐ yes
2 ☐ no
3 ☐ not applicable, because funding is external

L2 **Were you informed about the legal differences between stipends and contracts (insurance, working obligations, consideration of work experience for prospective jobs, etc.)? If yes, who informed you?**

Variables: L2

1 ☐ no
2 ☐ yes, the local MPI administration informed me
3 ☐ yes, I was informed by another source (e.g. fellow PhD students)
4 ☐ not applicable

L3 **Did you ever (accidentally) damage anything at work and did you have to pay for it?**

Variables: L3_1

1 ☐ No
2 ☐ Yes, I damaged something (accidentally) and had to pay Euro out of Euros. (if you did not pay anything enter 0 in the left box and estimate the total costs in the right box) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

L4 **Have you encountered any difficulties or disadvantages because of your pregnancy or your partners pregnancy during your PhD**

Variables: L4 L4_TE

1 ☐ No
2 ☐ Yes. Please specify: .....
bitte eintragen

L5 **Have you ever taken/ are you planning to take parental leave?**

Variables: L5_1 L5_2

1 ☐ yes, for (months): ☐☐☐
2 ☐ yes, but for months I will work part-time (hours/week) ☐☐☐☐☐☐
3 ☐ No

Career after PhD

C1 Which of the following domains would you prefer for your future work?

Variables: C1 C1_TE

1 ☐ scientific research
2 ☐ science-related jobs (e.g. public relations, science management)
3 ☐ public NON-scientific job
4 ☐ private NON-scientific job
5 ☐ Other: ..... bitte eintragen
6 ☐ Don't know yet

C2 Do you feel that your PhD increases your job opportunities in the following domains:

Variables:

Yes	No	don't know	
☐	☐	☐	scientific research in an academic context
☐	☐	☐	scientific research in the private sector (e.g. development department)
☐	☐	☐	science-related jobs (e.g. public relations, science management)
☐	☐	☐	working as a teacher
☐	☐	☐	public non-scientific job
☐	☐	☐	international governmental organization
☐	☐	☐	working as a freelancer
☐	☐	☐	working as a consultant
☐	☐	☐	Other

C3 How do you judge the following aspects of an academic research career?

Variables:

attractive	not attractive	don't know	
☐	☐	☐	Salary levels in academia
☐	☐	☐	Chance of getting a permanent (faculty) position
☐	☐	☐	Teaching
☐	☐	☐	Organizing research funding
☐	☐	☐	Doing a service to society
☐	☐	☐	Work load expectations
☐	☐	☐	Mobility (i.e. work in different countries, cities)
☐	☐	☐	Compatibility of own career plans with career plans of partner
☐	☐	☐	Compatibility of own career plans with having children

C4 Do you aim for an academic research career (i.e. aspiring to a professorship or other permanent research position)?

Variables: C4

1 ☐ yes
2 ☐ no
3 ☐ Don't know yet

C5 In case you have given up aiming for a permanent research position, please indicate why:

Variables: C5_1 C5_2

.....
.....
.....
.....

1 ☐ not applicable

C6 To what extent would it be possible for you to work after your PhD in a different place?

Variables: C6_1 C6_2 C6_3 C6_4

	fully agree	partially agree	partially DISagree	fully DISagree	not applicable	
1	☐	☐	☐	☐	☐	I do NOT want to leave the town of my PhD
2	☐	☐	☐	☐	☐	I could leave the town of my PhD but would like to stay in the country
3	☐	☐	☐	☐	☐	I could move to a different country WITHIN the EU
4	☐	☐	☐	☐	☐	I could move to a different country OUTSIDE the EU

PhDnet

P1 **Did you know about the PhDnet before you were informed about the questionnaire?**

Variables: P1

1 ☐ yes

2 ☐ no

P2 **Have you ever read the magazine of the PhDnet, OFFSPRING?**

Variables: P2

1 ☐ yes

2 ☐ no

P3 **How did you like the OFFSPRING magazine?**

Variables: P3 P3_TE

	like it very much	like it	don't like it	don't like it at all
1	☐	☐	☐	☐

Do you have any suggestions for improving OFFSPRING?

.....

.....

.....

.....

P4 **Did you participate in the last survey (End of 2006/ Beginning of 2007?)**

Variables: P4

1 ☐ yes

2 ☐ no

3 ☐ Don't know

Concluding remarks

R1 **Please feel free to give us feedback and comments about the questionnaire and/or the work of the PhDnet!**

Variables: R1

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Imprint

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