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APPENDIX WITH TABLES

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2.2.1 Engagement

Table 1: Principal component analysis on items on job engagement

	Work engagement
My job inspires me	.817
I am enthusiastic about my job	.816
When I get up in the morning, I feel like going to work	.776
At my job, I feel strong and vigorous	.758
I am proud of the work that I do	.725
At my job, I feel like bursting with energy	.699
I am immersed in my work	.652
I am happy when I'm working intensely	.626
I get carried away when I'm working	.553
Eigenvalue	4,65
Cronbach's alfa	0,88

Table 2: Principal component analysis on items on work contribution

	Work contribution
I improve things with the work that I do	.861
I can make the world a better place with the work that I do	.859
I'm helping science move forward with the work that I do	.859
Eigenvalue	2,22
Cronbach's alfa	0,82

Table 3: Job engagement by background variables (N=694-710)

	Job engagement (on 10)
Gender	
Male	6,3 *
Female	6,0 *
PhD phase	
Starting phase	6,5 *
Executing phase	6,1
Finalizing phase	5,9 *
Total	6,2

/ indicates a significant difference between two categories of one indicator ($p < 0.05$)

Table 4: Job contribution by background variables (N=683-710)

		Job contribution (on 10)
Gender	Male	6,5 *
	Female	6,0 *
Nationality	Belgian	6,0 *
	European, non-Belgian	5,6 °
	Non-European	6,9 *°
Type of contract	Teaching assistant	6,1
	Personal mandate	6,2
	Project funding	5,9 *°
	I don't have a contract	6,9 *
	Other	6,7 °
Previous work experience	No	6,1 *
	Yes	6,3
	I still have another job	6,9 *
	Total	6,3

* / ° indicates a significant difference between two categories of one indicator (p<0.05)

2.2.2 Passion for PhD research

Table 5: Level of passion for the research by significant background variables (N 667-715)

		Passionate about PhD research (on 10)
PhD phase	Starting phase	8,1 *
	Executing phase	7,9 °
	Finalizing phase	7,5 *°
Previous job experience	No	7,9 *
	Yes	7,7
	I still have another job	8,3 *
Job engagement	Low	6,8 *
	Medium	8,2 *
	High	9,0 *
Job contribution	Low	6,9 *
	Medium	8,2 *
	High	8,9 *
total		7,9

* indicates a significant difference between two categories of one indicator (p<0.05)

2.2.1 Self-efficacy

Table 6: Principal component analysis on items on self-efficacy

	Self-efficacy
I will be able to successfully overcome many challenges	.829
When facing difficult tasks, I am certain that I will accomplish them	.815
I believe I can succeed at almost any endeavor to which I set my mind	.802
I am confident that I can perform many different tasks effectively	.790
Even when things are tough, I can perform quite well	.743
In general, I think I can obtain outcomes that are important to me	.743
Compared to other people, I can do most tasks very well	.724
I will be able to achieve most of the goals that I have set for myself	.702
Eigenvalue	4,74
Cronbach's alfa	0,90

Table 7: Self-efficacy by gender, nationality, previous work experience and type of contract (N=675-702)

	Level of self-efficacy (on 10)
Gender	
Male	6,6 *
Female	6,3 *
Nationality	
Belgian	6,2 *
European, Non-Belgian	6,4 °
Non-European	6,9 *°
Previous work experience	
No	6,3 *°
Yes	6,6 °
I still have another job	7,0 *
Type of contract	
Teaching assistant	6,4
Personal mandate	6,2 *
Project funding	6,3
I don't have a contract	6,9 *
Other	6,8
Job engagement	
Low	5,6 *
Medium	6,3 *
High	7,7 *
Job contribution	
Low	5,6 *
Medium	6,5 *
High	7,8 *

Passion for research	Low	5,3	*
	Medium	5,7	°
	High	6,9	*°
Total		6,5	

* / ° / *° indicates a significant difference between two or more categories of one indicator ($p < 0.05$)

2.2.3 Having a research plan

Table 8: Having a research plan (in %) by nationality, self-efficacy, time pressure, motivation, level of passion and expecting to work in academia (n= 669-713)

		Having a research plan	Not having a research plan
Nationality			
	Belgian	87,1	12,9
	European, non-Belgian	89,3	10,7
	Non-European	96,7	3,3
$\chi^2=15,7$ df=2 p<0,001			
Engagement			
	Low	87,8	12,2
	Medium	90,2	9,8
	High	94,9	5,1
$\chi^2=7,3$ df=2 p<0,05			
Contribution			
	Low	85,5	14,5
	Medium	93,0	7,0
	High	94,7	5,3
$\chi^2=12,9$ df=2 p<0,05			
Passion for research			
	Low	71,2	28,8
	Medium	88,2	11,8
	High	94,1	5,9
$\chi^2=31,7$ df=2 p<0,001			

2.3.1 Time pressure

Table 9: Principal component analysis on items on time pressure

	Time pressure
I have no time to do the things I have to do	.835
More is expected from me than I can handle	.797
I have to do more than I want to do	.776
I never have time for myself	.753

Too much is expected of me	.719
I frequently have to cancel arrangements I have made	.714
I never catch up with my work	.709
There are not enough hours in the day for me	.692
Eigenvalue	4,51
Cronbach's alfa	0,89

Table 10: Time pressure by background variables (N=680-689)

		Time pressure (on 10)
Doctoral School		
	DSh	4,4 *
	NSE	3,9 *°
	LSM	4,5 °
	Interdisciplinary	5,7
PhD phase		
	Starting phase	3,8 *
	Executing phase	4,1 °
	Finalizing phase	4,8 *°
Previous work experience		
	No	4,0 *
	Yes	4,3
	I still have another job	4,9 *
Job engagement		
	Low	4,8 *
	Medium	4,3 *
	High	3,5 *
Job contribution		
	Low	4,7 *
	Medium	4,3 *
	High	3,3 *
Self-efficacy		
	Low	4,9 *°
	Medium	4,1 *
	High	3,7 °
Passion for research		
	Low	4,6
	Medium	4,7 *
	High	4,0 *
	Total	4,2

* / ° indicates a significant difference between two categories of one indicator (p<0.05)

Table 11: Time pressure by tasks performed (N=689)

		Time pressure (on 10)
Teaching	Yes	4,2
	No	4,2
Assisting in other projects/third party services (not related to own research)	Yes	4,6 *
	No	4,0 *
Cooperation with industry/other sectors	Yes	4,8 *
	No	4,1 *
Total		4,2

* indicates a significant difference between two categories of one indicator (p<0.05)

Table 12: Time pressure by work times (N=653-686)

		Time pressure (on 10)	%
During office hours (8AM-6PM)	Never/seldom	4,4	2,6
	Occasionally	4,8	3,5
	Usually/always	4,2	93,9
In the evening (6PM-midnight)	Never/seldom	3,5 *	23,9
	Occasionally	4,3 *	45,6
	Usually/always	4,7 *	30,5
At night (after midnight)	Never/seldom	4,0 *°	79,3
	Occasionally	4,9 °	15,5
	Usually/always	5,2 *	5,2
During weekends	Never/seldom	3,7 *	26,5
	Occasionally	4,0 °	38,7
	Usually/always	4,8 *°	34,8
In the morning (before 8AM)	Never/seldom	4,1 *	74,3
	Occasionally	4,3	16,4
	Usually/always	4,9 *	9,3
Total		4,2	

* / ° indicates a significant difference between two categories of one indicator (p<0.05)

2.3.2 Work-family balance

Table 13: Principal component analysis on items on work family balance

	Work culture
I can adjust my working time to my family life	.809
I have enough influence on my working hours	.793
I have ample opportunities to take time off whenever that suits me	.778
The VUB/my supervisor offers sufficient opportunities for employees to adjust their tasks depending on their private situation	.737
I often have meetings at times that are difficult to match with my family situation	-.486
Eigenvalue	2,67
Cronbach's alfa	0,57

Table 14: Work-family balance by previous work experience, time pressure and competition (N=664-690)

	Work-family balance (on 10)
Nationality	
Belgian	7,3 °
European	7,2 *
Non-European	6,6 *°
DS	
DSh	7,1
NSE	7,3 *
LSM	6,8 *
Interdisciplinary	5,3
Previous work experience	
No	7,3 *
Yes	7,0 °
I still have another job	6,0 *°
Type of contract	
Teaching assistant	7,2
Personal mandate	7,5 *
Project funding	7,0
I don't have a contract	6,5 *
Other	6,4
Job engagement	
Low	6,8 *
Medium	7,1
High	7,3 *
Time pressure	
Low	8,1 *
Medium	7,0 *
High	5,9 *
Task performed: assisting in other projects	
Yes	6,8 *
No	7,2 *

Task performed: cooperation with industry/other sectors

	Yes	6,5	*
	No	7,1	*
Having a research plan			
	Extended research plan	7,2	*
	Limited research plan	6,8	*°
	No research plan	7,8	°
Total		7,1	

* / ° indicates a significant difference between two categories of one indicator ($p < 0.05$)

2.3.4 Culture: level of competition

Table 15: Principal component analysis on items on work culture (competition)

	Work culture
Colleagues consider each other as competitors	.717
When decisions are made, everyone's opinion is taken into account	-.685
There are only a limited number of people involved in the decision-making process	.672
There is a competitive atmosphere within the research team	.554
The emphasis lies on good relationships with colleagues	-.533
More decisions are made informally than during formal meetings	.494
Eigenvalue	2,27
Cronbach's alfa	0,67

Table 16: Competition by background variables (n=645-671)

	Competition (on 10)		
Doctoral School			
	DSh	5,1	*
	NSE	4,6	*
	LSM	4,9	
	Interdisciplinary	6,1	
PhD phase			
	Starting phase	4,6	*
	Executing phase	4,8	°
	Finalizing phase	5,1	*°
Type of contract			
	Teaching assistant	4,8	
	Personal mandate	4,6	*
	Project funding	4,9	
	I don't have a contract	5,2	*
	Other	4,9	

Job engagement	Low	5,2	*°
	Medium	4,8	*
	High	4,5	°
Job contribution	Low	5,1	*
	Medium	4,8	*
	High	4,4	*
Self-efficacy	Low	5,2	*°
	Medium	4,8	°
	High	4,6	*
Time pressure	Low	4,5	*
	Medium	4,7	°
	High	5,4	*°
Passion for research	Low	5,0	
	Medium	5,2	*
	High	4,7	*
Work-family balance	Low	5,3	*
	Medium	4,9	*
	High	4,5	*
Total		4,8	

2.3.4 Victimization

Table 17: Principal component analysis on items on victimization

	Indirect victimization	Direct victimization
Did or said something to make you look bad	.865	.334
Said bad things about you to your coworkers	.856	.267
Lied to get you in trouble	.751	.565
Sabotaged your work	.729	.589
Threatened you with physical harm	.254	.878
Made an obscene comment or gesture in front of you	.477	.807
Cursed at you	.500	.582
Eigenvalue	3,60	1,03
Cronbach's alfa	0,81	0,68

Table 18: Indirect victimisation by background variables (n=665-670)

		Indirect victimisation (on 10)
Gender	Male	0,27 *
	Female	0,48 *

Job engagement	Low	0,55	*°
	Medium	0,28	*
	High	0,27	°
Time pressure	Low	0,18	*
	Medium	0,29	°
	High	0,73	*°
Level of competition	Low	0,13	*
	Medium	0,29	°
	High	0,78	*°
Work-family balance	Low	0,77	*°
	Medium	0,29	°
	High	0,19	*
Total		0,38	

Table 19: Direct victimisation by background variables (n=667)

		Direct victimisation (on 10)	
Level of competition	Low	0,04	*
	Medium	0,14	
	High	0,29	*
Work-family balance	Low	0,25	*
	Medium	0,08	*
	High	0,17	
Total		0,15	

2.3.5 Expectation to work in academia after graduation

Table 20: Expecting to work in academia after PhD (in %) by background variables (n=668-678)

		Not at all/ rather not	Somewhat	To a large extend/ definitely
Nationality	Belgian	41,4	34,8	23,8
	EU, non-Belgian	32,6	34,8	32,6
	Non-EU	15,2	26,3	58,5
$\chi^2=76,3$ df=4 p<0,001				
Previous work experience	No	35,4	34,6	30,0
	Yes	26,5	29,5	44,0
	I still have another job	23,6	27,8	48,6
$\chi^2=17,4$ df=4 p<0,01				

Self-efficacy				
	Low	40,9	32,0	27,1
	Medium	33,3	31,8	34,9
	High	20,7	32,2	47,1
$\chi^2=29,8$ df=4 p<0,001				
Job engagement				
	Low	45,8	30,8	23,5
	Medium	28,6	33,5	37,9
	High	15,9	32,2	51,9
$\chi^2=59,6$ df=4 p<0,001				
Job contribution				
	Low	46,4	35,4	18,1
	Medium	24,1	32,6	43,3
	High	21,1	25,4	53,5
$\chi^2=66,5$ df=4 p<0,001				
Level of competition in work culture				
	Low	25,5	29,9	44,6
	Medium	31,1	35,8	33,0
	High	37,6	31,2	31,2
$\chi^2=13,4$ df=4 p<0,05				
Passion for research				
	Low	63,8	19,1	17,0
	Medium	46,1	31,5	22,5
	High	21,6	33,6	44,8
$\chi^2=67,7$ df=4 p<0,001				
Having a research plan				
	Extended research plan	28,3	32,4	39,3
	Limited research plan	29,7	31,4	38,9
	No research plan	49,2	34,9	15,9
$\chi^2=16,2$ df=4 p<0,05				

3.1 Satisfaction with work environment

Table 21: Principal component analysis on items on satisfaction with the work environment

	Warmth working environment	Labour conditions	Structural conditions
The available expertise in the department	.820	.237	.284
Opportunities to present results to the department	.761	.221	.215

The introduction to the research group/department	.715	.280	.305
Is the overall support you receive within the university sufficient to develop your research?	.544	.499	.486
The available funding to go to conferences/summer schools	.285	.778	.253
The possibility to go on vacation/take some time off	.266	.740	.129
Income	.145	.704	.268
The training opportunities offered within the university	.479	.505	.223
The available space in the office	.221	.263	.877
The infrastructure (lab, materials, programs) to perform your research in a suitable manner	.386	.230	.868
Eigenvalue	3,47	1,25	1,11
Cronbach's alfa	0,69	0,69	0,72

3.1.1 Warmth of the working environment

Table 22: Multiple regression between warmth of the working environment and background variables

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Constant		*						
Gender (ref.: Male)	-0,09	*	-0,08	*	-0,06			
Nationality (ref.: Belgian)								
EU, non-Belgian	-0,06		-0,07		-0,06			
Non-EU	0,08		0,02		0,02			
Doctoral school (ref.: NSE)								
DSh	-0,17	**	-0,13	**	-0,11	**	-0,11	**
LSM	0,06		0,06		0,05		0,03	
Interdisciplinary	-0,07		-0,02		-0,01		-0,01	
Phase of the PhD (ref.: Executing phase)								
Starting phase	0,12	**	0,07		0,06			
Finalizing phase	-0,01		0,03		0,02			
Previous work experience (ref.: No)								
Yes	-0,03		-0,03		-0,02			
I still have another job	-0,01		0,00		-0,01			
Type of contract (ref.: Personal mandate)								
Teaching assistant	-0,01		0,00		0,00			
Project funding: PhD is only project	-0,01		0,03		0,03			
Project funding: multiple projects	-0,04		0,03		0,01			
No contract, self-financed	0,03		0,05		0,04			
Other	-0,01		0,03		0,01			
Research plan (ref.: Extended research plan)								
Limited research plan	-0,04		-0,01		0,01		0,01	

No research plan	-0,23	**	-0,16	**	-0,13	**	-0,13	**
Self-efficacy			0,04		-0,06			
Time pressure			-0,10	*	-0,06		-0,08	*
Competition			-0,31	**	-0,26	**	-0,27	**
Passion for PhD (ref.: medium)								
Low			-0,12	**	-0,07		-0,08	*
High			0,06		0,01		0,03	
Expecting to work in academia after PhD (ref.: Somewhat)								
Rather not/not at all			-0,03		-0,01			
To a large extend/definitely			0,00		-0,02			
Work-family balance			0,04		0,03			
Job engagement					0,11			
Job contribution					0,18	**	0,23	**
Indirect victimization					-0,13	**	-0,12	**
Direct victimization					0,01			
	N	568	556	538	551			
	Adjusted R ²	0,104	0,278	0,329	0,325			

** p<0,01 *p<0,05

Table 23: Bivariate relationship warmth of work environment and background variables (N=565-572)

		Warmth of work environment (on 10)	
DS	DSh	7,1	*°
	NSE	7,8	*
	LSM	7,7	°
	Interdisciplinary	6,4	
Research plan	Extended research plan	7,7	*
	Limited research plan	7,5	°
	No research plan	6,6	*°
Time pressure	Low	8,0	*
	Medium	7,6	°
	High	6,9	*°
Competition	Low	8,2	*
	Medium	7,4	*
	High	6,9	*
Passion for PhD	Low	6,3	*
	Medium	7,2	*
	High	7,8	*
Job contribution	Low	7,0	*
	Medium	7,7	*
	High	8,2	*

Indirect victimization	Never	7,8 *
	At least once	7,0 *
<hr/>		
Total		7,6

3.1.2 Labour conditions

Table 24: Multiple regression between labour conditions and background variables

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Constant		**		**		*		
Gender (ref.: Male)	-0,01		0,02		0,04			
Nationality (ref.: Belgian)								
EU, non-Belgian	-0,01		-0,03		-0,03		-0,04	
Non-EU	-0,11	*	-0,12	*	-0,10	*	-0,12	**
Doctoral school (ref.: NSE)								
DSh	-0,10	*	-0,07		-0,08			
LSM	-0,09		-0,05		-0,04			
Interdisciplinary	-0,05		-0,02		-0,02			
Phase of the PhD (ref.: Executing phase)								
Starting phase	-0,02		-0,06		-0,06			
Finalizing phase	-0,02		0,00		-0,01			
Previous work experience (ref.: No)								
Yes	-0,04		-0,03		-0,03			
I still have another job	-0,02		0,00		0,01			
Type of contract (ref.: Personal mandate)								
Teaching assistant	-0,03		0,00		0,01		0,00	
Project funding: PhD is only project	0,07		0,10	*	0,11	*	0,10	*
Project funding: multiple projects	-0,09		-0,02		-0,01		-0,02	
No contract, self-financed	-0,22	*	-0,18	**	-0,16	*	-0,18	**
Other	-0,08		-0,02		-0,03		-0,03	
Research plan (ref.: Extended research plan)								
Limited research plan	-0,08		-0,04		0,00			
No research plan	0,02		0,00					
Self-efficacy			0,11	**	0,11	*	0,08	*
Time pressure			-0,19	**	-0,18	**	-0,18	**
Competition			-0,13	**	-0,12	**	-0,13	**
Passion for PhD (ref.: medium)								
Low			0,02		0,01			
High			-0,08		-0,08			
Expecting to work in academia after PhD (ref.: Somewhat)								
Rather not/not at all			0,01		0,03			
To a large extend/definitely			0,02		0,01			
Work-family balance			0,24	**	0,24	**	0,25	**
Job engagement					0,06			
Job contribution					-0,04			
Indirect victimization					-0,03			
Direct victimization					0,02			
N	568		556		538		556	
Adjusted R ²	0,105		0,285		0,277		0,284	

Table 25: Bivariate relationship labour conditions and background variables (N=546-569)

		Labour conditions (on 10)
Nationality		
	Belgian	7,4 *
	European, non-Belgian	7,2
	Non-European	6,8 *
Type of contract		
	Teaching assistant	7,3 □
	Personal mandate	7,3 ♦
	Project funding, solely working on PhD research	7,6 •*°
	Project funding, also involved in other projects	6,8 +*
	No contract, self-financed	5,8 □♦♦+
	Other	6,7 °
Self-efficacy		
	Low	6,8 *
	Medium	7,1
	High	7,5 *
Time pressure		
	Low	7,8 *
	Medium	7,1 *
	High	6,5 *
Competition		
	Low	7,6 *°
	Medium	7,0 °
	High	6,8 *
Work-family balance		
	Low	6,2 *
	Medium	7,2 *
	High	7,7 *
Total		7,2

3.1.3 Structural issues

Table 26: Multiple regression between structural issues and background variables

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Constant								
Gender (ref.: Male)	0,08		0,07		0,05			
Nationality (ref.: Belgian)								
EU, non-Belgian	0,02		0,01		0,01		0,01	
Non-EU	-0,14	**	-0,08		-0,08		-0,10	*
Doctoral school (ref.: NSE)								
DSh	0,08		0,05		0,05			
LSM	0,03		0,04		0,04			
Interdisciplinary	0,02		-0,01		-0,01			
Phase of the PhD (ref.: Executing phase)								
Starting phase	-0,04		-0,00		-0,01			
Finalizing phase	0,01		-0,01		-0,02			
Previous work experience (ref.: No)								
Yes	-0,01		-0,00		-0,01			
I still have another job	-0,04		-0,04		-0,03			
Type of contract (ref.: Personal mandate)								
Teaching assistant	-0,07		-0,07		-0,07			
Project funding: PhD is only project	-0,04		-0,06		-0,06			
Project funding: multiple projects	-0,01		-0,07		-0,06			
No contract, self-financed	0,06		0,04		0,02			
Other	-0,04		-0,06		-0,07			
Research plan (ref.: Extended research plan)								
Limited research plan	0,08		0,06		0,06		0,04	
No research plan	0,16	**	0,10	*	0,11	*	0,11	*
Self-efficacy			-0,04		-0,01			
Time pressure			0,11	*	0,10		0,12	**
Competition			0,15	**	0,14	**	0,17	**
Passion for PhD (ref.: medium)								
Low			0,09	*	0,08		0,09	*
High			-0,01		0,03		-0,05	
Expecting to work in academia after PhD (ref.: Somewhat)								
Rather not/not at all			0,02		-0,01			
To a large extend/definitely			-0,07		-0,05			
Work-family balance			-0,04		-0,03			
Job engagement					-0,12			
Job contribution					0,01			
Indirect victimization					0,03			
Direct victimization					-0,03			
N	568		556		538		561	
Adjusted R ²	0,045		0,104		0,103		0,104	

** p<0,01 *p<0,05

Table 27: Bivariate relationship structural issues and background variables (N=564-569)

		Structural issues (on 10)
Nationality	Belgian	2,8 *
	European, non-Belgian	2,8 °
	Non-European	2,0 *°
Research plan	Extended research plan	2,2 *
	Limited research plan	2,5 °
	No research plan	3,5 *°
Time pressure	Low	2,0 *
	Medium	2,5 °
	High	3,1 *°
Competition	Low	1,9 *°
	Medium	2,8 °
	High	3,0 *
Passion for PhD research	Low	3,6 *
	Medium	3,0 °
	High	2,2 *°
Total		2,5

3.2 Satisfaction with supervisor

Table 28: Principal component analysis on items on satisfaction with the supervisor

	Support	Freedom
The quality of meetings	.858	.350
Stimulation/inspiration to solve research problems/issues	.838	.498
The expertise she/he has on the research subject	.797	.301
The frequency of meetings	.785	.310
Is your supervisor involved in your research?	.752	.186
The support you receive in writing articles	.743	.498
The introduction to other prominent researchers in your field of interest by your supervisor(s)	.687	.557
The possibility to attend conferences/specialist training courses	.406	.887
The possibility to attend transferable skills training courses	.311	.885
The freedom you get to develop your own research ideas	.467	.535
Eigenvalue	5,07	1,31

3.2.1 Satisfaction with the support of the supervisor

Table 29: Multiple regression between support of the supervisor and background variables

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Constant		*						
Gender (ref.: Male)	-0,12	**	-0,08	*	-0,07		-0,07	*
Nationality (ref.: Belgian)								
EU, non-Belgian	-0,02		-0,04		-0,03			
Non-EU	0,13	**	0,07		0,08			
Doctoral school (ref.: NSE)								
DSh	-0,04		-0,01		-0,02			
LSM	0,04		0,05		0,04			
Interdisciplinary	-0,02		0,03		0,04			
Phase of the PhD (ref.: Executing phase)								
Starting phase	0,09	*	0,03		0,01			
Finalizing phase	-0,03		0,03		0,02			
Previous work experience (ref.: No)								
Yes	-0,04		-0,05		-0,05			
I still have another job	0,02		-0,01		-0,02			
Type of contract (ref.: Personal mandate)								
Teaching assistant	-0,01		0,00		0,01			
Project funding: PhD is only project	0,00		0,05		0,05			
Project funding: multiple projects	-0,09	*	-0,03		-0,03			
No contract, self-financed	-0,01		0,06		0,04			
Other	-0,02		0,00		-0,01			
Research plan (ref.: Extended research plan)								
Limited research plan	-0,12	**	-0,09	**	-0,08	*	-0,08	*
No research plan	-0,26	**	-0,19	**	-0,18	**	-0,18	**
Self-efficacy			0,05		-0,01			
Time pressure			-0,12	**	-0,09	*	-0,11	**
Competition			-0,22	**	-0,17	**	-0,19	**
Passion for PhD (ref.: medium)								
Low			-0,12	**	-0,07		-0,07	
High			0,15	**	0,12	**	0,12	**
Expecting to work in academia after PhD (ref.: Somewhat)								
Rather not/not at all			-0,13	**	-0,12		-0,12	**
To a large extend/definitely			0,02		0,02		0,04	
Work-family balance			0,04		0,04			
Job engagement					0,15	**	0,15	**
Job contribution					0,01			
Indirect victimization					-0,09	*	-0,10	**

Direct victimization					-0,05
N	688	659	635	643	
Adjusted R ²	0,102	0,310	0,328	0,326	

** p<0,01 *p<0,05

Table 30: Bivariate relationship support supervisor and background variables (N=669-688)

		Support supervisor (on 10)	
Gender			
	Male	7,5	*
	Female	7,1	*
Research plan			
	Extended research plan	7,7	*
	Limited research plan	7,2	*
	No research plan	5,8	*
Time pressure			
	Low	7,9	*
	Medium	7,3	*
	High	6,7	*
Competition			
	Low	8,1	*
	Medium	7,1	*
	High	6,6	*
Passion for PhD research			
	Low	5,5	*
	Medium	6,5	*
	High	7,8	*
Job engagement			
	Low	6,4	*
	Medium	7,6	*
	High	8,2	*
Indirect victimization			
	Never	7,5	*
	At least once	6,5	*
Total		7,3	

3.3.2 Satisfaction with supervisor

Table 31: Multiple regression between freedom of supervisor and background variables

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Constant								
Gender (ref.: Male)	-0,01		0,04		0,05			
Nationality (ref.: Belgian)								
EU, non-Belgian	0,10	*	0,08		0,08		0,09	*
Non-EU	0,06		0,02		0,03		0,07	
Doctoral school (ref.: NSE)								
DSh	0,00		0,01		0,01			
LSM	-0,04		-0,04		-0,06			
Interdisciplinary	-0,04		0,01		0,03			
Phase of the PhD (ref.: Executing phase)								
Starting phase	0,00		-0,06		-0,06			
Finalizing phase	-0,01		0,00		0,00			
Previous work experience (ref.: No)								
Yes	0,01		0,01		0,00			
I still have another job	-0,04		-0,03		-0,05			
Type of contract (ref.: Personal mandate)								
Teaching assistant	-0,03		-0,02		0,00		-0,01	
Project funding: PhD is only project	-0,05		0,00		0,01		-0,01	
Project funding: multiple projects	-0,11	**	-0,05		-0,05		-0,07	
No contract, self-financed	-0,11	*	-0,07		-0,09		-0,11	*
Other	-0,05		-0,02		-0,03		-0,03	
Research plan (ref.: Extended research plan)								
Limited research plan	-0,08		-0,05		-0,05			
No research plan	-0,05		-0,01		-0,01			
Self-efficacy			0,13	**	0,10	*	0,18	**
Time pressure			-0,07		-0,03			
Competition			-0,14	**	-0,10	*	-0,11	**
Passion for PhD (ref.: medium)								
Low			-0,04		-0,02			
High			0,03		0,02			
Expecting to work in academia after PhD (ref.: Somewhat)								
Rather not/not at all			-0,07		-0,04			
To a large extend/definitely			0,06		0,06			
Work-family balance			0,18	**	0,17	**	0,20	**
Job engagement					0,10			
Job contribution					0,02			
Indirect victimization					-0,16	**	-0,14	**
Direct victimization					0,05			

	N	688	659	635	655
	Adjusted R ²	0,015	0,162	0,179	0,169

** p<0,01 *p<0,05

Table 32: Bivariate relationship between freedom of supervisor and background variables (N=662-688)

		Freedom of supervisor (on 10)
Type of contract	Teaching assistant	7,8
	Personal mandate	8,1 *
	Project funding, solely working on PhD research	7,8
	Project funding, also involved in other projects	7,3 *
	No contract, self-financed	7,5
	Other	7,8
Self-efficacy	Low	7,3 *
	Medium	7,7 *
	High	8,2 *
Competition	Low	8,4 *°
	Medium	7,6 °
	High	7,3 *
Work-family balance	Low	6,9 *
	Medium	7,9 *
	High	8,4 *
Indirect victimization	Never	8,0 *
	At least once	7,1 *
Total		7,8

3.3 Perceived obstacles

Table 33: Principal component analysis on items on perceived obstacles

	Personal obstacles	Research related obstacles
Personal reasons	.742	-.203
The unbalanced combination of work and family	.663	-.192
I didn't have the ambition to do a PhD in the first place	.658	-.245
I doubt my own capabilities	.655	-.265
The research topic is not that interesting after all	.598	-.473
Lack of guidance by my supervisor(s)	.250	-.853

Lack of stimulating research environment	.327	-0.819
Lack of results/failed experiment(s)	.273	-0.711
Eigenvalue	2,92	1,29
Cronbach's alfa	0,68	0,73

Table 34: Multiple regression between personal obstacles and background variables

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Constant		**						
Gender (ref.: Male)	0,13	**	0,06		0,06			
Nationality (ref.: Belgian)								
EU, non-Belgian	-0,02		-0,03		-0,04			
Non-EU	-0,09	*	-0,02		-0,02			
Doctoral school (ref.: NSE)								
DSh	0,08		0,06		0,05		0,08	*
LSM	0,00		0,01		0,01		0,03	
Interdisciplinary	0,08	*	0,03		0,02		0,04	
Phase of the PhD (ref.: Executing phase)								
Starting phase	0,03		0,09	*	0,09	*	0,08	*
Finalizing phase	0,03		-0,03		-0,03		-0,03	
Previous work experience (ref.: No)							0,06	
Yes	0,01		0,04		0,04			
I still have another job	-0,04		-0,02		-0,02			
Type of contract (ref.: Personal mandate)								
Teaching assistant	0,05		0,05		0,06		0,06	
Project funding: PhD is only project	0,14	**	0,12	**	0,12	**	0,12	**
Project funding: multiple projects	0,10	*	0,05		0,05		0,05	
No contract, self-financed	0,07		0,08		0,09		0,08	
Other	0,00		0,03		0,03		0,03	
Research plan (ref.: Extended research plan)								
Limited research plan	0,10	*	0,02		0,03			
No research plan	0,04		-0,03		-0,04			
Self-efficacy			-0,31	**	-0,28	**	-0,31	**
Time pressure			0,18	**	0,18	**	0,18	**
Competition			0,08	*	0,08	*	0,08	*
Passion for PhD (ref.: medium)								
Low			0,05		0,05		0,04	
High			-0,18	**	-0,15	**	-0,19	**
Expecting to work in academia after PhD (ref.: Somewhat)								
Rather not/not at all			0,02		0,02			
To a large extend/definitely			0,01		0,02			
Work-family balance			-0,01		0,00			

Job engagement					-0,02
Job contribution					-0,07
Indirect victimization					0,00
Direct victimization					-0,05
	N	703	657	633	663
	Adjusted R ²	0,045	0,300	0,296	0,304

** p<0,01 *p<0,05

3.3.1 Personal obstacles

Table 35: Bivariate relationship between personal obstacles and background variables (N=668-703)

		Personal obstacles (on 10)
DS	DSh	3,2 *
	NSE	2,7 *
	LSM	3,0
	Interdisciplinary	4,6
Self-efficacy	Low	4,0 *
	Medium	3,0 *
	High	2,1 *
Time pressure	Low	2,3 *
	Medium	2,8 *
	High	3,8 *
Competition	Low	2,4 *°
	Medium	3,1 °
	High	3,4 *
Passion for PhD research	Low	4,3 *
	Medium	3,9 °
	High	2,5 *°
Total		2,9

3.3.2 Research related obstacles

Table 36: Multiple regression between research related obstacles and background variables

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Constant		*						
Gender (ref.: Male)	0,13	**	0,10	*	0,09	*	0,07	*
Nationality (ref.: Belgian)								
EU, non-Belgian	0,03		0,02		0,02			
Non-EU	0,02		0,07		0,08			
Doctoral school (ref.: NSE)								
DSh	-0,02		-0,03		-0,04			
LSM	-0,07		-0,04		-0,04			
Interdisciplinary	-0,02		-0,05		-0,07			
Phase of the PhD (ref.: Executing phase)								
Starting phase	-0,01		0,03		0,05			
Finalizing phase	-0,01		-0,07		-0,07			
Previous work experience (ref.: No)								
Yes	-0,04		-0,04		-0,04			
I still have another job	-0,05		-0,04		-0,04			
Type of contract (ref.: Personal mandate)								
Teaching assistant	0,01		0,02		0,01			
Project funding: PhD is only project	0,07		0,04		0,03			
Project funding: multiple projects	0,04		-0,01		-0,01			
No contract, self-financed	0,00		-0,03		-0,02			
Other	-0,02		-0,03		-0,02			
Research plan (ref.: Extended research plan)								
Limited research plan	0,10	**	0,05		0,05			
No research plan	0,11	**	0,06		0,06			
Self-efficacy			-0,05		-0,01			
Time pressure			0,17	**	0,15	**	0,13	**
Competition			0,18	**	0,16	**	0,15	**
Passion for PhD (ref.: medium)								
Low			0,10	*	0,09	*	0,10	**
High			-0,10	*	-0,09		-0,10	*
Expecting to work in academia after PhD (ref.: Somewhat)								
Rather not/not at all			0,06		0,06			
To a large extend/definitely			-0,01		-0,00			
Work-family balance			0,00		-0,02			
Job engagement					0,01			
Job contribution					-0,13	*	-0,13	**
Indirect victimization					0,02			
Direct victimization					-0,03			
N	703		657		633		652	
Adjusted R ²	0,017		0,139		0,141		0,142	

** p<0,01 *p<0,05

Table 37: Bivariate relationship between research related obstacles and background variables (N=668-703)

		Research related obstacles (on 10)
Gender	Male	3,8 *
	Female	4,4 *
Time pressure	Low	3,3 *
	Medium	4,1 *
	High	4,8 *
Competition	Low	3,4 *°
	Medium	4,2 °
	High	4,6 *
Passion for PhD research	Low	5,6 *
	Medium	4,7 °
	High	3,6 *°
Total		4,0

3.4 PhD on the right track

Table 38: Multiple regression between being on the right track and background variables

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Constant		**		**		**		**
Gender (ref.: Male)	-0,07		-0,05		-0,02			
Nationality (ref.: Belgian)								
EU, non-Belgian	0,01		-0,01		-0,02			
Non-EU	0,07		0,00		-0,01			
Doctoral school (ref.: NSE)								
DSh	0,03		0,04		0,02		0,00	
LSM	0,05		0,02		0,01		-0,00	
Interdisciplinary	0,05		0,09	*	0,09	*	0,10	**
Phase of the PhD (ref.: Executing phase)								
Starting phase	-0,03		-0,07	*	-0,08	*	-0,08	*
Finalizing phase	0,12	**	0,16	**	0,16	**	0,15	**
Previous work experience (ref.: No)								
Yes	0,03		0,03		0,02			
I still have another job	0,03		0,01		-0,01			
Type of contract (ref.: Personal mandate)								
Teaching assistant	0,00		-0,02		-0,01			
Project funding: PhD is only project	-0,04		-0,02		-0,02			
Project funding: multiple projects	-0,07		-0,04		-0,04			
No contract, self-financed	-0,05		-0,05		-0,06			
Other	-0,04		-0,05		-0,05			
Research plan (ref.: Extended research plan)								
Limited research plan	-0,13	**	-0,10	**	-0,09	*	-0,07	*
No research plan	-0,25	**	-0,16	**	-0,14	**	-0,15	**
Self-efficacy			0,16	**	0,15	**	0,17	**
Time pressure			-0,20	**	-0,16	**	-0,18	**
Competition			-0,05		0,00			
Passion for PhD (ref.: medium)								
Low			-0,16	**	-0,15	**	-0,15	**
High			0,16	**	0,14	**	0,15	**
Expecting to work in academia after PhD (ref.: Somewhat)								
Rather not/not at all			-0,10	*	-0,09	*	-0,11	**
To a large extend/definitely			-0,01		0,00		0,00	
Work-family balance			-0,05		-0,05			
Job engagement					0,08			
Job contribution					-0,01			
Indirect victimization					-0,16	**	-0,09	**
Direct victimization					0,12	**		
N	709		657		633		666	
Adjusted R ²	0,066		0,268		0,276		0,271	

** p<0,01 *p<0,05

Table 39: Bivariate relationship between being on the right track and background variables (N=667-709)

		Being on the right track (on 5)
Phase in PhD		
	Starting phase	3,5 *
	Executing phase	3,6 °
	Finalizing phase	3,8 *°
Research plan		
	Extended research plan	3,8 *
	Limited research plan	3,6 *
	No research plan	3,1 *
Self-efficacy		
	Low	3,3 *
	Medium	3,7 *
	High	4,0 *
Time pressure		
	Low	3,9 *
	Medium	3,7 *
	High	3,4 *
Passion for PhD research		
	Low	2,8 *
	Medium	3,4 *
	High	3,9 *
Expecting to work in academia		
	Not at all/rather not	3,3 *°
	Somewhat	3,7 *
	To a large extent/definitely	3,9 °
Indirect victimization		
	Never	3,7 *
	At least once	3,4 *
Total		3,7

3.5 Submitting PhD successfully

Table 40: Multiple regression between submitting PhD successfully and background variables

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Constant		**		**		**		**
Gender (ref.: Male)	-0,10	**	-0,04		-0,04			
Nationality (ref.: Belgian)								
EU, non-Belgian	0,09	*	0,08	*	0,08	*	0,08	*
Non-EU	0,17	**	0,10	*	0,09	*	0,09	*
Doctoral school (ref.: NSE)								
DSh	-0,04		-0,04		-0,04			
LSM	0,04		-0,01		-0,02			
Interdisciplinary	0,01		0,05		0,05			
Phase of the PhD (ref.: Executing phase)								
Starting phase	0,00		-0,03		-0,04		-0,03	
Finalizing phase	0,15	**	0,18	**	0,19	**	0,18	**
Previous work experience (ref.: No)								
Yes	-0,01		-0,03		-0,03			
I still have another job	0,03		-0,01		-0,01			
Type of contract (ref.: Personal mandate)								
Teaching assistant	0,05		0,02		0,03		0,03	
Project funding: PhD is only project	-0,09	*	-0,06		-0,07		-0,07	
Project funding: multiple projects	-0,07		-0,05		-0,06		-0,04	
No contract, self-financed	-0,08		-0,07		-0,09	*	-0,10	**
Other	-0,04		-0,05		-0,06		-0,07	
Research plan (ref.: Extended research plan)								
Limited research plan	-0,12	**	-0,08	*	-0,07	*	-0,05	
No research plan	-0,20	**	-0,10	**	-0,09	**	-0,11	**
Self-efficacy			0,34	**	0,32	**	0,35	**
Time pressure			-0,17		-0,14	**	-0,14	**
Competition			0,03		0,06			
Passion for PhD (ref.: medium)								
Low			-0,19	**	-0,17	**	-0,18	**
High			0,10	*	0,08	*	0,09	*
Expecting to work in academia after PhD (ref.: Somewhat)								
Rather not/not at all			-0,08	*	-0,07			
To a large extend/definitely			-0,05		-0,05			
Work-family balance			-0,05		-0,06			
Job engagement					0,08			
Job contribution					0,00			
Indirect victimization					-0,10	*		
Direct victimization					0,00			
N	709		657		633		686	
Adjusted R ²	0,077		0,335		0,338		0,325	

** p<0,01 *p<0,05

Table 41: Bivariate relationship between submitting PhD successfully and background variables (N=683-709)

		Submitting PhD successfully (on 10)
Nationality		
	Belgian	7,6 *
	European, non-Belgian	7,9
	Non-European	8,2 *
Phase in PhD		
	Starting phase	7,7 *
	Executing phase	7,8 °
	Finalizing phase	8,3 *°
Research plan		
	Extended research plan	8,1 *
	Limited research plan	7,8 *
	No research plan	7,0 *
Self-efficacy		
	Low	7,0 *
	Medium	7,9 *
	High	8,6 *
Time pressure		
	Low	8,3 *
	Medium	7,9 °
	High	7,4 *°
Passion for PhD research		
	Low	6,2 *
	Medium	7,4 *
	High	8,2 *
Total		7,9

4.1 Cluster determination

Table 42: Latent class analysis

		Moderate N=271	Doubtful, unsatisfied N=160	Confident & satisfied N=135	R ²
Research related obstacles					0,25
	Low	0,3205	0,0924	0,6684	
	Medium	0,3786	0,2909	0,2623	
	High	0,3010	0,6167	0,0693	
	Mean	2,0195	1,4757	2,5991	
Personal obstacles					0,17
	Low	0,2891	0,1473	0,6331	
	Medium	0,3738	0,3317	0,2803	
	High	0,3371	0,5211	0,0866	
	Mean	2,0479	2,3738	1,4536	
Satisfaction with support supervisor					0,39
	Low	0,2764	0,6737	0,0185	
	Medium	0,4345	0,2778	0,1866	
	High	0,2891	0,0485	0,7949	
	Mean	2,0127	1,3748	2,7763	
Satisfaction with freedom received from supervisor					0,28
	Low	0,3092	0,5255	0,0259	
	Medium	0,4197	0,3583	0,2047	
	High	0,2711	0,1162	0,7694	
	Mean	1,9620	1,5908	2,7435	
Satisfaction warmth working environment					0,27
	Low	0,3528	0,5445	0,0359	
	Medium	0,3957	0,3372	0,2176	
	High	0,2514	0,1183	0,7465	
	Mean	1,8986	1,5738	2,7106	
Structural issues					0,20
	Low	0,2489	0,2177	0,6322	
	Medium	0,3571	0,3499	0,2755	
	High	0,3940	0,4324	0,0923	
	Mean	1,8549	1,7853	2,5399	
Labour conditions					0,14
	Low	0,4137	0,4413	0,0588	
	Medium	0,3630	0,3566	0,2421	
	High	0,2234	0,2021	0,6992	
	Mean	1,8097	1,7609	2,6404	
Being on the right track					0,42
	Not at all/rather not	0,0177	0,4253	0,0125	
	Undecided	0,1249	0,3282	0,1063	
	Rather/totally	0,8574	0,2466	0,8812	
	Mean	2,8397	1,8213	2,8687	
Successfully submitting PhD					0,28
	Low	0,0039	0,0948	0,0017	
	Medium	0,2406	0,6664	0,1674	
	High	0,7555	0,2389	0,8309	
	Mean	2,7515	2,1441	2,8292	

4.2.1 The moderate cluster

Table 43: Logistic regression analysis between the moderate cluster and background variables

	Model 1		Model 2		Model 3		Model 4	
	OR	Sig.	OR	Sig.	OR	Sig.	OR	Sig.
Constant	0,82		0,49	*	0,52		0,51	*
Gender (ref.: Male)	1,02		1,04		1,00			
Nationality (ref.: Belgian)								
EU, non-Belgian	1,00		1,01		0,92			
Non-EU	0,80		0,95		0,89			
Doctoral school (ref.: NSE)				*		*		*
DSh	1,48		1,67	*	1,51		1,59	*
LSM	1,91	**	2,25	**	2,16	**	2,09	**
Interdisciplinary	2,1E+9		2,9E+9		3,5E+9		2,9E+9	
Phase of the PhD (ref.: Executing phase)		*		**		**		**
Starting phase	0,77		0,75		0,79		0,72	
Finalizing phase	1,66	*	2,12	**	2,11	**	2,00	**
Previous work experience (ref.: No)		*		*		*		**
Yes	1,60	*	1,69	*	1,58	*	1,62	*
I still have another job	0,60		0,58		0,50		0,51	
Type of contract (ref.: Personal mandate)								
Teaching assistant	0,75		0,77		0,81		0,73	
Project funding: PhD is only project	0,92		0,88		0,86		0,90	
Project funding: multiple projects	0,86		0,80		0,79		0,82	
No contact, self-financed	0,99		0,82		0,81		0,94	
Other	0,48		0,44	*	0,47		0,42	*
Research plan (ref.: Extended research plan)								
Limited research plan	0,88		0,93		0,96			
No research plan	0,51	*	0,63		0,59			
Self-efficacy			0,92		1,07			
Time pressure			0,88		0,90			
Competition			1,01		1,02			
Passion for PhD (ref.: medium)				**		**		**
Low			0,62		0,46		0,60	
High			2,37	**	2,65	**	2,23	**
Expecting to work in academia after PhD (ref.: Somewhat)				*				*
Rather not/not at all			0,83		0,79		0,84	
To a large extend/definitely			0,53	**	0,59	*	0,57	*
Work-family balance			0,96		0,96			
Job engagement					0,82			
Job contribution					0,86			
Indirect victimization					0,76	*		
Direct victimization					1,64	*		
N	544		532		515		543	
Adjusted R ²	0,096		0,158		0,182		0,144	

** p<0,01 *p<0,05

4.2.2 The doubtful and unsatisfied cluster

Table 44: Logistic regression analysis between the doubtful and unsatisfied cluster and background variables

	Model 1		Model 2		Model 3		Model 4	
	OR	Sig.	OR	Sig.	OR	Sig.	OR	Sig.
Constant	0,24	**	0,54		0,44		0,31	**
Gender (ref.: Male)	0,70		0,76		0,85			
Nationality (ref.: Belgian)		*						
EU, non-Belgian	0,71		0,74		0,81			
Non-EU	0,46	**	0,66		0,71			
Doctoral school (ref.: NSE)								
DSh	0,90		0,66		0,77			
LSM	0,62		0,49		0,57			
Interdisciplinary	0,00		0,00		0,00			
Phase of the PhD (ref.: Executing phase)		*		**		**		**
Starting phase	1,06		1,66		1,63		1,60	
Finalizing phase	0,46	**	0,22	**	0,21	**	0,29	**
Previous work experience (ref.: No)								
Yes	0,80		0,76		0,79			
I still have another job	1,25		1,79		2,44			
Type of contract (ref.: Personal mandate)								
Teaching assistant	1,27		1,40		1,25			
Project funding: PhD is only project	1,10		0,96		0,98			
Project funding: multiple projects	2,12	*	1,56		1,80			
No contact, self-financed	2,08		2,57		2,51			
Other	1,64		1,60		1,62			
Research plan (ref.: Extended research plan)		**		**		**		**
Limited research plan	1,97	**	1,66		1,55		1,70	*
No research plan	4,56	**	3,71	**	3,84	**	3,80	**
Self-efficacy			0,58	**	0,56	**	0,60	**
Time pressure			1,90	**	1,73	**	2,10	**
Competition			1,50	**	1,43	*	1,49	**
Passion for PhD (ref.: medium)				**		**		**
Low			2,45		2,38		1,83	
High			0,27	**	0,30	**	0,30	**
Expecting to work in academia after PhD (ref.: Somewhat)								*
Rather not/not at all			2,11	*	1,94	*	2,32	**
To a large extend/definitely			1,66		1,51		1,56	
Work-family balance			0,83		0,83			
Job engagement					0,77			
Job contribution					1,17			
Indirect victimization					1,38	*		
Direct victimization					0,64	*		
N	544		532		515		559	
Adjusted R ²	0,139		0,480		0,494		0,446	

** p<0,01 *p<0,05

4.2.1 The satisfied and confident cluster

Table 45: Logistic regression analysis between the satisfied and confident cluster and background variables

	Model 1		Model 2		Model 3		Model 4	
	OR	Sig.	OR	Sig.	OR	Sig.	OR	Sig.
Constant	0,30	**	0,27	**	0,29	*	0,16	**
Gender (ref.: Male)	1,43		1,28		1,27			
Nationality (ref.: Belgian)		**						*
EU, non-Belgian	1,47		1,01		1,07		1,08	
Non-EU	2,80	**	1,58		1,55		1,90	*
Doctoral school (ref.: NSE)								
DSh	0,62		0,54		0,55			
LSM	0,66		0,55		0,56			
Interdisciplinary	0,00		0,00		0,00			
Phase of the PhD (ref.: Executing phase)								
Starting phase	1,36		0,99		0,85			
Finalizing phase	1,09		1,54		1,45			
Previous work experience (ref.: No)								
Yes	0,62		0,58		0,60			
I still have another job	1,37		0,90		0,80			
Type of contract (ref.: Personal mandate)								
Teaching assistant	1,16		1,16		1,14			
Project funding: PhD is only project	0,97		1,09		1,03			
Project funding: multiple projects	0,46		0,58		0,54			
No contact, self-financed	0,53		0,69		0,64			
Other	1,65		2,46		2,29			
Research plan (ref.: Extended research plan)		**						
Limited research plan	0,58	*	0,73		0,74			
No research plan	0,29	*	0,37		0,38			
Self-efficacy			2,01	**	1,55	*	1,57	**
Time pressure			0,56	**	0,59	**	0,58	**
Competition			0,62	**	0,65	**	0,58	**
Passion for PhD (ref.: medium)								
Low			0,14		0,25			
High			1,03		0,86			
Expecting to work in academia after PhD (ref.: Somewhat)				*				
Rather not/not at all			0,47	*	0,55			
To a large extend/definitely			1,41		1,41			
Work-family balance			1,29		1,27			
Job engagement					1,60	*	1,73	**
Job contribution					1,09			
Indirect victimization					0,91			
Direct victimization					0,66			
N	544		532		515		544	
Adjusted R ²	0,148		0,418		0,421		0,348	

** p<0,01 *p<0,05

4.2.4 Bivariate relationships between clusters and background variables

Table 46: bivariate relationships between clusters and significant background variables

	Cluster 1	Cluster 2	Cluster 3	Total mean
Self-efficacy	6,4 *	5,4 *	7,4 *	6,4
Work engagement	6,2 *	5,2 *	7,2 *	6,1
Work contribution	6,1 *	5,3 *	7,4 *	6,2
Time pressure	4,1 *	5,2 *	3,0 *	4,2
Competition	4,8 *	5,4 *	4,1 *	4,8
Indirect victimization	0,3 *	0,7 *°	0,1 °	0,4
Passion for PhD research	8,0 *	6,7 *	8,8 *	7,8
Work-family balance	7,1 *	6,7 °	7,9 *°	7,2

Table 47: Bivariate effects between clusters and significant background variables (in %)

	Cluster 1	Cluster 2	Cluster 3	Total
Nationality				
Belgian	49,1	56,3	34,8	47,7
EU, non-Belgian	20,7	18,1	15,6	18,7
Non-EU	30,3	25,6	49,6	33,6
$\chi^2=22,8$ df=4 p<0,001				
Doctoral school				
DSh	33,2	34,4	25,2	31,6
NSE	39,1	45,0	56,3	44,9
LSM	26,6	20,0	18,5	22,8
Interdisciplinary	1,1	0,6	0,0	0,7
$\chi^2=13,2$ df=6 p<0,05				
Expecting to work in academia after PhD				
Rather not/not at all	28,9	49,4	14,2	31,2
Somewhat	37,8	26,3	30,6	32,8
To a large extend/definitely	33,3	24,4	55,2	36,0
$\chi^2=54,5$ df=4 p<0,001				
Having a research plan				
Extended plan	50,9	32,5	58,5	47,5

Limited plan	41,0	48,1	37,8	42,2
No plan	8,1	19,4	3,7	10,2

$\chi^2=33,6$ df=4 p<0,001

6. Longitudinal analysis: changes over time

Table 48: multilevel analysis between being on the right track, time and background variables

	Model 1	Model 2
Constant	3.824 ***	3.820 ***
Time specifications		
Year of measurement (ref.: 2018)		
2019	.046 n.s.	.090 n.s.
2020	-.076 n.s.	-.103 n.s.
Years passed: Candidate	-.002 n.s.	-.003 n.s.
Years passed: measurement	-.017 n.s.	-.053 n.s.
Background		
Gender (ref.: male)		
Female	-.123 *	-.153 *
Doctoral school (ref.: NSE)		
DSh	-.075 n.s.	-.098 n.s.
LSM	.001 n.s.	-.051 n.s.
Interdisciplinary	.245 n.s.	.127 n.s.
Type of contract (ref.: Personal mandate)		
Research/Teaching Assistant	-.166 *	-.211 *
Project funding	-.040 n.s.	.058 n.s.
No contract, self-financed	-.025 n.s.	.178 n.s.
Other	-.085 n.s.	-.190 n.s.
Missing	-.023 n.s.	.105 n.s.
Previous work experience (ref.: no)		
Yes	.107 *	.078 n.s.
Still have another job	.087 n.s.	.077 n.s.
Interactions Years passed: Measurement		
Time*Female		.135 n.s.
Time*DSh		-.060 n.s.
Time*LSM		-.016 n.s.
Time*interdisciplinary		.311 n.s.
Time*Research/Teaching assistant		-.007 n.s.
Time*Project funding		-.107 n.s.
Time*No contract		.065 n.s.
Time*Other		-.092 n.s.
Time*Missing		-.116 n.s.
Time*Yes		.087 n.s.
Time*Still have another job		0.000 n.s.
Interactions year of measurement		
2019*Female		.025 n.s.
2020*Female		-.075 n.s.
2019*DSh		-.047 n.s.
2020*DSh		.193 n.s.
2019*LSM		.004 n.s.
2020*LSM		.183 n.s.
2019*Interdisciplinary		-.142 n.s.
2020*Interdisciplinary		.183 n.s.
2019*Research/Teaching assistant		.116 n.s.
2020*Research/Teaching assistant		.112 n.s.
2019*Project funding		-.117 n.s.
2020*Project funding		-.021 n.s.
2019*No contract/self-financed		-.369 *
2020*No contract/self-financed		-.320 n.s.
2019*Other contract		.222 n.s.
2020*Other contract		.217 n.s.
2019*Contract missing		-.215 n.s.
2020*Contract missing		-.016 n.s.
2019*Previous work experience		.049 n.s.
2020*Previous work experience		-.070 n.s.
2019*Still have another job		.063 n.s.
2020*Still have another job		-.047 n.s.
-2LL	-2,770.472	-2,791.855
AIC	5,576.943	5,685.711
BIC	5,678.655	5,973.894
N observations	2,102	2,102

Table 49: multilevel analysis between support of the supervisor, time and background variables

	Model 1	Model 2
Constant	7.462 ***	7.395 ***
Time specifications		
Year of measurement (ref.: 2018)		
2019	.333 **	.222 n.s.
2020	.480 **	.836 *
Years passed: Candidate	-.139 ***	-.134 ***
Years passed: measurement	-.400 ***	-.520 **
Background		
Gender (ref.: male)		
Female	-.349 **	-.392 *
Doctoral school (ref.: NSE)		
DSh	-.094 n.s.	.010 n.s.
LSM	-.048 n.s.	-.118 n.s.
Interdisciplinary	-.310 n.s.	.649 n.s.
Type of contract (ref.: Personal mandate)		
Research/Teaching Assistant	-.282 n.s.	-.289 n.s.
Project funding	.042 n.s.	.113 n.s.
No contract, self-financed	-0.000 n.s.	-.046 n.s.
Other	.114 n.s.	-.050 n.s.
Missing	.144 n.s.	.298 n.s.
Previous work experience (ref.: no)		
Yes	.156 n.s.	.209 n.s.
Still have another job	.330 n.s.	.529 *
Interactions Years passed: Measurement		
Time*Female		.048 n.s.
Time*DSh		.186 n.s.
Time*LSM		.071 n.s.
Time*interdisciplinary		.638 n.s.
Time*Research/Teaching assistant		-.145 n.s.
Time*Project funding		-.041 n.s.
Time*No contract		-.057 n.s.
Time*Other		-.055 n.s.
Time*Missing		-.478 n.s.
Time*Yes		.119 n.s.
Time*Still have another job		.133 n.s.
Interactions year of measurement		
2019*Female		.168 n.s.
2020*Female		-.064 n.s.
2019*DSh		-.196 n.s.
2020*DSh		-.354 n.s.
2019*LSM		.136 n.s.
2020*LSM		.069 n.s.
2019*Interdisciplinary		-1.489 n.s.
2020*Interdisciplinary		-1.929 n.s.
2019*Research/Teaching assistant		.154 n.s.
2020*Research/Teaching assistant		.210 n.s.
2019*Project funding		.078 n.s.
2020*Project funding		-.178 n.s.
2019*No contract/self-financed		.294 n.s.
2020*No contract/self-financed		.037 n.s.
2019*Other contract		.350 n.s.
2020*Other contract		.338 n.s.
2019*Contract missing		.063 n.s.
2020*Contract missing		.181 n.s.
2019*Previous work experience		-.047 n.s.
2020*Previous work experience		-.349 n.s.
2019*Still have another job		-.108 n.s.
2020*Still have another job		-.718 n.s.
-2LL	-4,273.397	-4,278.285
AIC	8,582.793	8,658.569
BIC	8,684.220	8,945.945
N observations	2,069	2,069

Table 50: multilevel analysis between freedom of the supervisor, time and background variables

	Model 1	Model 2
Constant	7.896 ***	7.874 ***
Time specifications		
Year of measurement (ref.: 2018)		
2019	-.272 **	-.411 n.s.
2020	.341 *	.383 n.s.
Years passed: Candidate	-.030 n.s.	-.026 n.s.
Years passed: measurement	-.172 *	-.117 n.s.
Background		
Gender (ref.: male)		
Female	-.174 n.s.	-.290 n.s.
Doctoral school (ref.: NSE)		
DSh	.122 n.s.	.116 n.s.
LSM	-.261 n.s.	-.310 n.s.
Interdisciplinary	.153 n.s.	.774 n.s.
Type of contract (ref.: Personal mandate)		
Research/Teaching Assistant	-.377 *	-.411 *
Project funding	-.266 *	-.208 n.s.
No contract, self-financed	-.471 **	-.609 **
Other	-.329 n.s.	-.428 n.s.
Missing	-.327 n.s.	-.023 n.s.
Previous work experience (ref.: no)		
Yes	.224 *	.384 **
Still have another job	.058 n.s.	.399 n.s.
Interactions Years passed: Measurement		
Time*Female		-.085 n.s.
Time*DSh		.061 n.s.
Time*LSM		.075 n.s.
Time*interdisciplinary		.933 n.s.
Time*Research/Teaching assistant		-.179 n.s.
Time*Project funding		-.283 n.s.
Time*No contract		-.230 n.s.
Time*Other		-.236 n.s.
Time*Missing		-.097 n.s.
Time*Yes		.239 n.s.
Time*Still have another job		.214 n.s.
Interactions year of measurement		
2019*Female		.250 n.s.
2020*Female		.218 n.s.
2019*DSh		.049 n.s.
2020*DSh		-.096 n.s.
2019*LSM		.059 n.s.
2020*LSM		.029 n.s.
2019*Interdisciplinary		-.720 n.s.
2020*Interdisciplinary		-1.823 n.s.
2019*Research/Teaching assistant		.247 n.s.
2020*Research/Teaching assistant		.257 n.s.
2019*Project funding		.171 n.s.
2020*Project funding		.072 n.s.
2019*No contract/self-financed		.539 n.s.
2020*No contract/self-financed		.255 n.s.
2019*Other contract		.248 n.s.
2020*Other contract		.443 n.s.
2019*Contract missing		-.301 n.s.
2020*Contract missing		-.500 n.s.
2019*Previous work experience		-.413 n.s.
2020*Previous work experience		-.423 n.s.
2019*Still have another job		-.463 n.s.
2020*Still have another job		-.867 n.s.
-2LL	-4,226.637	-4,230.020
AIC	8,489.273	8,562.040
BIC	8,590.700	8,849.416
N observations	2,069	2,069

Table 51: multilevel analysis between labour conditions, time and background variables

	Model 1	Model 2
Constant	7.774 ***	7.907 ***
Time specifications		
Year of measurement (ref.: 2018)		
2019	-.733 ***	-.980 ***
2020	-.247 n.s.	-.481 n.s.
Years passed: Candidate	-.032 n.s.	-.030 n.s.
Years passed: measurement	.081 n.s.	.132 n.s.
Background		
Gender (ref.: male)		
Female	-.002 n.s.	-.050 n.s.
Doctoral school (ref.: NSE)		
DSh	-.422 ***	-.511 **
LSM	-.536 ***	-.825 ***
Interdisciplinary	-.266 n.s.	1.257 n.s.
Type of contract (ref.: Personal mandate)		
Research/Teaching Assistant	-.014 n.s.	-.001 n.s.
Project funding	.141 n.s.	.207 n.s.
No contract, self-financed	-1.210 ***	-1.474 ***
Other	-.445 **	-.556 n.s.
Missing	-.128 n.s.	-.419 n.s.
Previous work experience (ref.: no)		
Yes	-.070 n.s.	-.041 n.s.
Still have another job	-.201 n.s.	-.813 *
Interactions Years passed: Measurement		
Time*Female		.097 n.s.
Time*DSh		-.184 n.s.
Time*LSM		.123 n.s.
Time*interdisciplinary		-.500 n.s.
Time*Research/Teaching assistant		-.140 n.s.
Time*Project funding		-.036 n.s.
Time*No contract		.466 n.s.
Time*Other		-.646 *
Time*Missing		.058 n.s.
Time*Yes		-.094 n.s.
Time*Still have another job		.029 n.s.
Interactions year of measurement		
2019*Female		.060 n.s.
2020*Female		-.017 n.s.
2019*DSh		.201 n.s.
2020*DSh		.287 n.s.
2019*LSM		.311 n.s.
2020*LSM		.377 n.s.
2019*Interdisciplinary		-.711 n.s.
2020*Interdisciplinary		-2.411 n.s.
2019*Research/Teaching assistant		.109 n.s.
2020*Research/Teaching assistant		.023 n.s.
2019*Project funding		-.092 n.s.
2020*Project funding		-.060 n.s.
2019*No contract/self-financed		.137 n.s.
2020*No contract/self-financed		-.105 n.s.
2019*Other contract		.463 n.s.
2020*Other contract		1.019 n.s.
2019*Contract missing		.049 n.s.
2020*Contract missing		.748 n.s.
2019*Previous work experience		.058 n.s.
2020*Previous work experience		-.016 n.s.
2019*Still have another job		.757 n.s.
2020*Still have another job		.596 n.s.
-2LL	-3,209.604	-3,201.435
AIC	6,455.207	6,504.870
BIC	6,552.917	6,781.715
N observations	1,683	1,683

Table 52: multilevel analysis between personal obstacles, time and background variables

	Model 1	Model 2
Constant	2.187 ***	2.028 ***
Time specifications		
Year of measurement (ref.: 2018)		
2019	.223 *	.771 **
2020	.201 n.s.	.629 n.s.
Years passed: Candidate	.051 n.s.	.053 n.s.
Years passed: measurement	-.032 n.s.	-.401 *
Background		
Gender (ref.: male)		
Female	.615 ***	.988 ***
Doctoral school (ref.: NSE)		
DSh	.448 ***	.609 **
LSM	.057 n.s.	-.004 n.s.
Interdisciplinary	.866 n.s.	-.533 n.s.
Type of contract (ref.: Personal mandate)		
Research/Teaching Assistant	.373 *	.346 n.s.
Project funding	.198 n.s.	.078 n.s.
No contract, self-financed	.047 n.s.	-.020 n.s.
Other	.105 n.s.	-.076 n.s.
Missing	-.135 n.s.	-.071 n.s.
Previous work experience (ref.: no)		
Yes	.005 n.s.	-.107 n.s.
Still have another job	-.110 n.s.	.223 n.s.
Interactions Years passed: Measurement		
Time*Female		.295 n.s.
Time*DSh		.272 n.s.
Time*LSM		-.074 n.s.
Time*interdisciplinary		-.243 n.s.
Time*Research/Teaching assistant		-.134 n.s.
Time*Project funding		.247 n.s.
Time*No contract		.081 n.s.
Time*Other		.784 **
Time*Missing		.268 n.s.
Time*Yes		.035 n.s.
Time*Still have another job		-.227 n.s.
Interactions year of measurement		
2019*Female		-.714 ***
2020*Female		-.786 **
2019*DSh		-.475 n.s.
2020*DSh		-.401 n.s.
2019*LSM		.045 n.s.
2020*LSM		.183 n.s.
2019*Interdisciplinary		1.693 n.s.
2020*Interdisciplinary		2.453 n.s.
2019*Research/Teaching assistant		-.049 n.s.
2020*Research/Teaching assistant		.267 n.s.
2019*Project funding		-.207 n.s.
2020*Project funding		.263 n.s.
2019*No contract/self-financed		-.053 n.s.
2020*No contract/self-financed		.186 n.s.
2019*Other contract		-.069 n.s.
2020*Other contract		-.695 n.s.
2019*Contract missing		-.486 n.s.
2020*Contract missing		-.020 n.s.
2019*Previous work experience		.259 n.s.
2020*Previous work experience		.065 n.s.
2019*Still have another job		-.109 n.s.
2020*Still have another job		-.286 n.s.
-2LL	-4,375.371	-4,361.124
AIC	8,786.742	8,824.249
BIC	8,888.403	9,112.286
N observations	2,096	2,096