

# Gender Differences in Higher Education from a Life Course Perspective: Transitions and Social Inequality between Enrolment and first Post-doc Position

## Problem & Research Questions

**Problem:** The **'leaky pipeline'** of academic careers; the **majority** of persons qualified to enroll to higher education is female but women still form a **minority** among post-docs or professors.

**Research Questions:**

- At which steps of the **academic career** do gender differences emerge?
- Which **transitions** are most **salient** for gender differences?
- Which **factors** lead to gender differences?
- Do **mechanisms** leading to dropout **differ** between women and men?

## Theory & Hypotheses

Theories: (1) **RCT:** Individual **decisions** based on expected benefits, costs, and success probabilities;  
(2) **Life course theory:** individuals act within various **contexts**.

**Hypotheses**

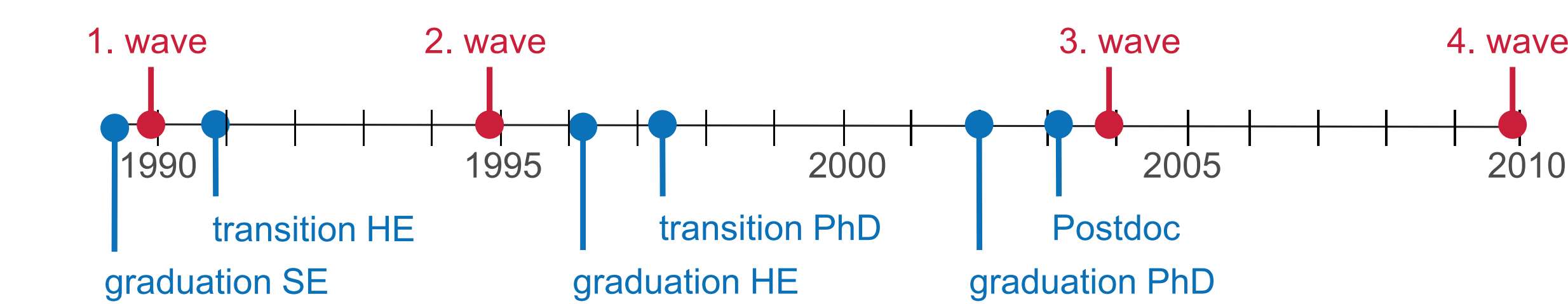
	higher education		doctoral programme		Post-doc position
	transition	graduation	transition	graduation	transition
performance	♀	♀	♂	♂	♂
motivations					
extrinsic motivation	♂		♂		
cost sensitivity					
intrinsic motivation					
family orientation	♂		♂		♂
education					
prior vocational education	♂		♀		
general school	♀	♀	♀		♀
field of study					
volume of work				*	
birth of child	*	*	*	*	

♀=increases female particip., ♂=increases male particip., \*=effects differ between sexes

## Data & Methods

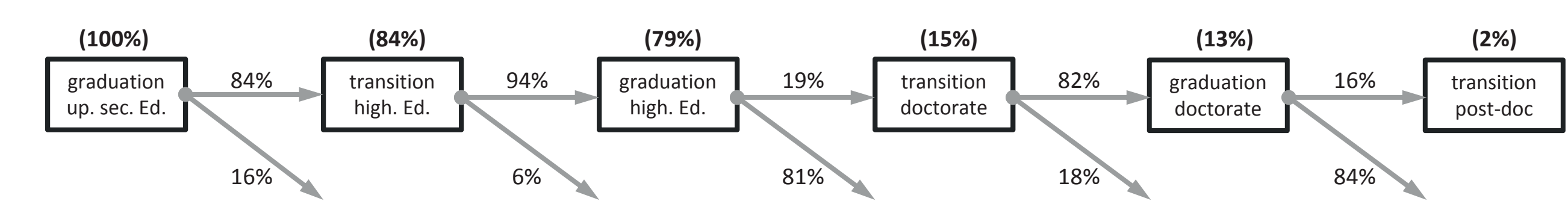
**Data:** DZHW-School-Leaver-Survey 1990-2010

**Sample:** German upper secondary graduates (n = 6.646)

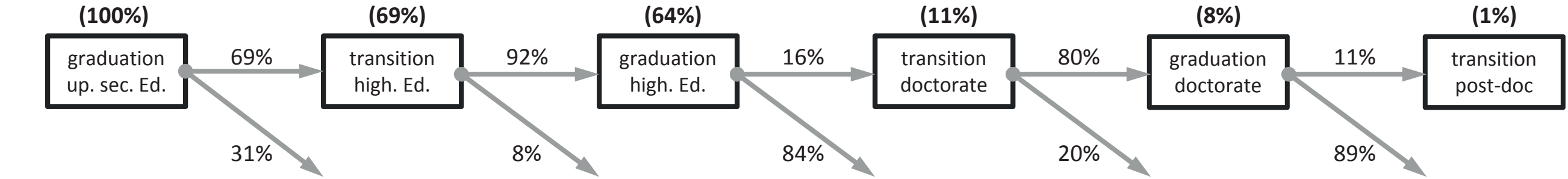


**Descriptives:**

**men:**



**women:**



## Results I

**Table 3** Logistic regressions on five steps of the academic career (average marginal effects)

	Transition 1 (higher education)		Graduation 1 (higher education)		Transition 2 (doctoral programme)		Graduation 2 (doctorate)		Transition 3 (post-doc position)	
	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2
Gender										
Male (vs. female)	.15***	.13***	.02*	.02**	.09***	.05**	.06	.05	.03	.05
Performance										
Final school grade		.04***		.04***		.03**		.03		.03
Final exam grade						.10***		.05**		.01
Final doctorate grade										.09***
Motivations										
Extrinsic motivation		.01*		.00		.02*		.01		-.00
Cost sensitivity		-.1***		-.00		-.02*		.01		-.03
Intrinsic motivation		.08***		.00		.03***		.02		.00
Family orientation		-.01*		-.01		-.02**		-.02		.02
Educational biography										
Prior training: yes (vs. no)		.14***		-.01		-.07***		-.04		-.01
Type of school: general (vs. vocational)		.16***		.02		-.05		.03		-.01
Field of study:										
-Science (univ. applied science)				.00						
-Engineering (univ. applied science)				.03*						
-Economics (univ. applied science)				.02						
-Humanities (univ. applied science)				.05***						
-Science (trad. university)				.00		.28***		.09*		.00
-Engineering (trad. university)				.03*		.12***		-.00		-.08
-Medicine (trad. university)				.01		.50***		.11**		.09
-Humanities (trad. university)				.00		.00		-.08		.16
-(Ref. economics trad. university)										
Volume of work										
1 to 50 %				.01		-.01		-.01		-.04
51 to 100 % (vs. non)				-.05***		.03		-.07*		.02
Family commitments										
Birth of child: yes (vs. no)		-.10*		-.06**		-.03		-.11**		.02
Control variables										
Academic parents (vs. non-academic)		.09***		.02**		.06***		.03		-.01
Age		.00		-.00		-.00		.00		.00
Region: West (vs. east)		.02		.01		.03		-.02		.01
n	6,646	6,646	5,253	5,253	3,126	3,126	830	830	578	578
Wald-Chi²	172	827	6	268	28	573	6	75	1	46
Pseudo R²	.03	.23	.00	.10	.01	.29	.01	.13	.00	.10

Data source: DZHW School Leavers Survey 1990 (4th wave); \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

## Results II

**Table 4** Logistic regressions on five steps of the academic career differentiated by gender (average marginal effects)

	Transition (higher education)		Graduation (higher education)		Transition (doctoral programme)		Graduation (doctorate)		Transition (post-doc position)	
	female	male	female	male	female	male	female	male	female	male
Educational biography										
Prior training: yes (vs. no)	.09**	.17***	-.03*	.00	-.05	-.09**	.01	-.04	.01	-.04
Type of school: general (vs. vocational)	.17***	.11***	.00	.03**	-.08**	-.03	-.01	.05	-.05	.02
Field of study:										
-Science (univ. applied science)			-.02	.00						
-Engineering (univ. applied science)			.04	.02						
-Economics (univ. applied science)			-.03	.01						
-Humanities (univ. applied science)			.12**	.04						
-Science (trad. university)			.00	-.00	.23***	.25***	.13	.07	.02	-.03
-Engineering (trad. university)			.01	.03	.08	.13***	-.03	-.00	-.06	-.12
-Medicine (trad. university)			.01	.03	.36***	.39***	.11	.12	.07	.07
-Economics (trad. university)			-.01	.01	.01	.03	-.11	-.03	.06	-.16*
-(Ref. humanities trad. university)										
Performance										
Final school grade	.05***	.03***	.04***	.04***	-.01	.04***	.03	.01	.02	.04
Final exam grade					-.08***	.12***	.06*	.05*	-.01	-.01
Final doctorate grade									.06	.12***
Motivations										
Extrinsic motivation	.01	.01*	.00	.00	.01	.03*	.01	.01	.04	-.02
Cost sensitivity	-.12***	-.07***	.00	-.01	-.03*	-.02	-.01	.01	-.02	-.02
Intrinsic motivation	.10***	.06***	.01	.00	.04***	.03*	.02	.01	.01	-.00
Family orientation	-.01	-.01	-.00	-.01*	-.01	.03**	-.06*	.02	-.01	.03
Volume of work										
1 to 50 %			.03	.01	-.04	.01	.04	-.05	.02	-.07
51 to 100 % (vs. non)			-.03*	-.05***	-.00	.05	-.15**	-.01	.15*	-.03
Family commitments										
Birth of child: yes (vs. no)	.01	-.10**	-.08***	-.02	-.02	-.03	-.13*	-.05	-.08	.05
Control variables										
Academic parents (vs. non-academic)	.10***	.09***	.02*	.01	.06**	.07***	.02	.04	-.02	-.02
Age	.03***	-.02***	-.00	-.00	.02*	-.03*	.01	.01	-.00	.00
Region: West (vs. east)	-.05	.07***	.02	.00	-.03	.09*	-.04	-.01	.03	-.01
n	3,242	3,404	2,363	2,890	1,478	1,648	324	506	206	372
Wald-Chi²	974	459	129	155	441	507	72	28	15	38
Pseudo R²	.25	.15	.11	.12	.33	.27	.26	.07	.12	.14

Data source: DZHW School Leavers Survey 1990 (4th wave); \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

## Conclusion

- Gender differences are **more pronounced** in the **beginning** of the academic career and fade out at later stages
- Gender differences occur most strongly at **transitions** to the next educational stage rather than being caused by different graduation rates
- Gender differences are partially explained by **performance** but only to a very **minor extent** (a high proportion of variance is left unexplained)
- Differing mechanisms:** Men and women differ in their reasons to start or stop an academic career (in particular family circumstances have different consequences)