

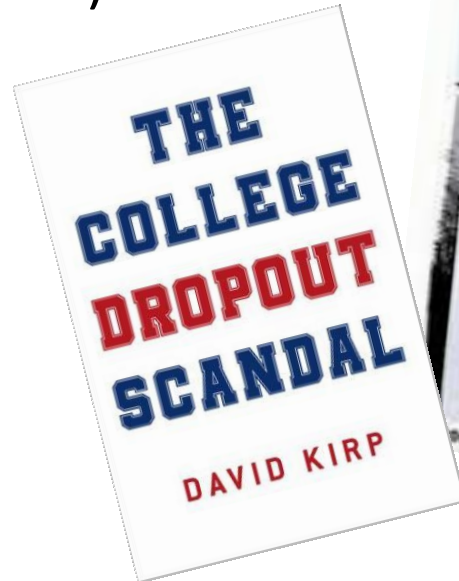
Not only enrolment and retention: Comparing the study trajectories of students at German universities and Universities of Applied Sciences

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Motivation and relevance: why a focus on study trajectories?

- Higher education (HE) attainment often considered as binary (e.g. graduation vs. dropout)



Source: <https://quotesgram.com/school-drop-out-of-quotes/>
<https://www.insidehighered.com/news/2019/08/01/author-discusses-his-book-college-dropout-scandal>

Motivation and relevance: why a focus on study trajectories?

- Shortcoming: undermines processual aspect: more than a singular event
- OECD average
 - 39% BA students complete studies in theoretical duration
(= standard study duration)
 - **28% BA students complete in theoretical duration + 3 years**
 - 33% BA students do not complete within theoretical duration + plus 3

(OECD 2019, Table B5.1. <https://doi.org/10.1787/f8d7880d-en>)

A trajectory perspective on HE attainment

Higher education attainment

- Compared to prior educational stages not compulsory & more choice → less standardized
- Students are agents of their study trajectories
- Sociological perspective: contextually embedded → university types and other contextual aspect shape study trajectories

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Working definition of study trajectories

“Diverse set of enrollment patterns experienced by students between first-time higher education enrolment and graduation (or terminal dropout), encompassing the study duration, the outcome (graduation vs. non-completion of a study programme), study interruptions and study switches”

Study trajectories in the context of different higher education institutions

	University	University of applied sciences
Research orientation & mission	Basic More research-focused	More applied Greater teaching orientation
Study offer/ regulations	Historically less regulated Usually comprehensive study offer	More school-like More practical oriented & applied More pathways for students w/ non-traditional access qualification

Study trajectories in the context of different higher education institutions

Over-time development: Tendencies of convergence

- In terms of missions: “academic drift” of the UAS and “blurring boundaries” (de Weert 2015; Kyvik and Lepori 2010; Witte, van der Wende, and Huisman 2008)
- In terms of study structures (alignment of degrees, modularization)

Research questions

- What characterizes study trajectories in German universities and universities of applied sciences (UAS)?
- What are the commonalities and differences in study trajectories across these university types?
- Why do they differ?
 - Institutional structures
 - Student-specific characteristics (sociodemographic background; educational pathways)

Data source



National Educational Panel Study First Year Students Cohort (NEPS SC5) in German higher education

Survey, > 10 waves

Reconstructed time frame

09/2010–02/2016

Analytic sample

Students in winter term 2010 enrolled for a BA degree

Excluded: Students in long degrees (*Staatsexamen*), dual study programmes, private HE

N = 6.382; N (original sample) = 17.909

Methods and approach

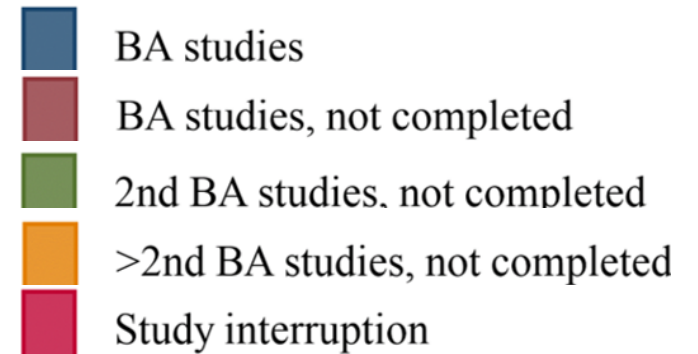
- NEPS survey data: educational biography

→ Step 1: Cleaning and transforming into study trajectories (=time-order data)
Each month: enrolment status
Reconstruction of study trajectories of up to 65 months or (1st) BA completion

→ Step 2: Sequence analysis: comparing sequences
→ Identifying (dis)similarities between sequences
Focus on order of elements instead of duration

→ Step 3: Cluster analysis (hierarchical)
→ Result: five trajectory types

→ Step 4: Multivariate logistic regressions

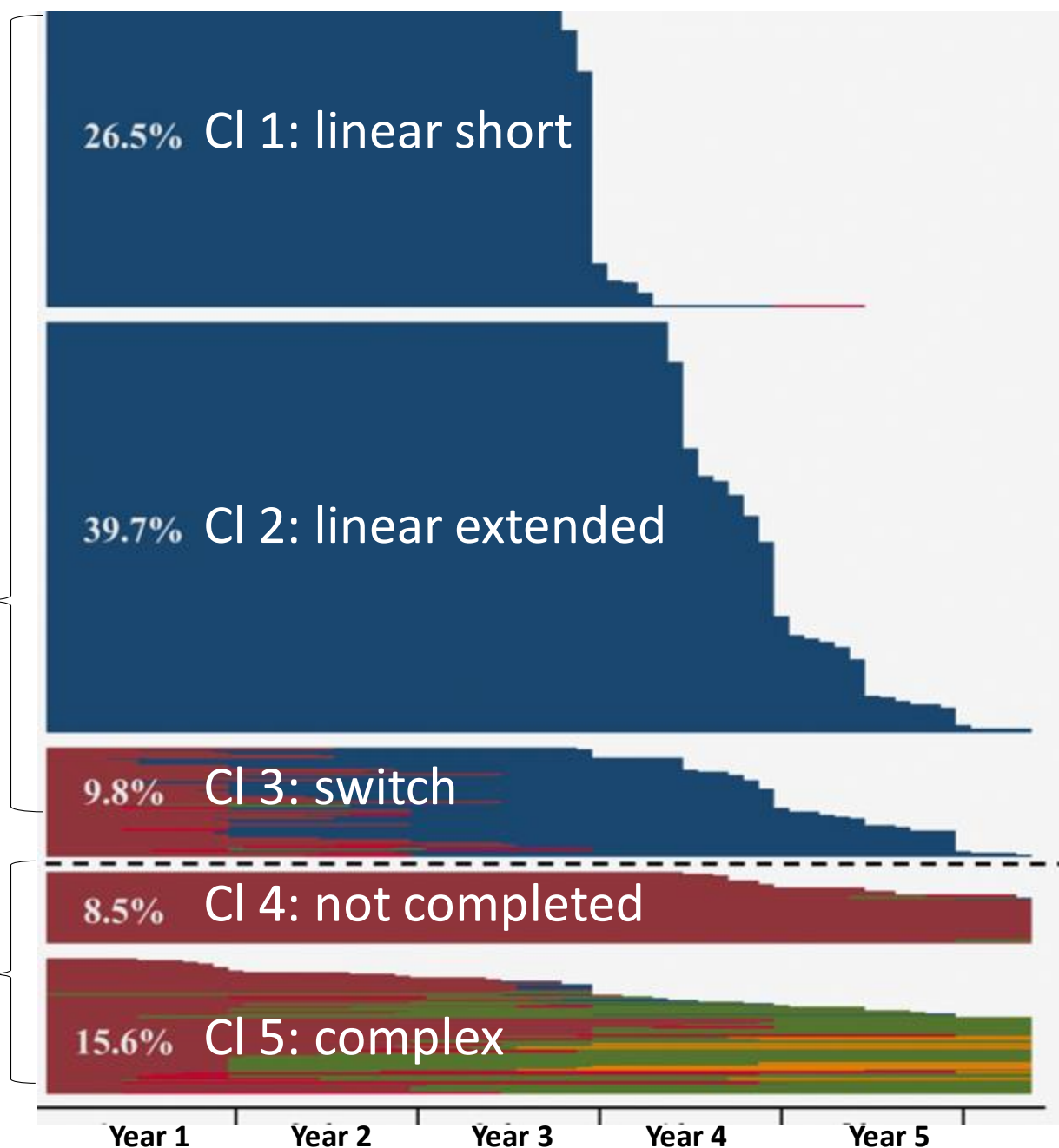


Descriptive results: Sequence index plot of study trajectories

- BA studies
- BA studies, not completed
- 2nd BA studies, not completed
- >2nd BA studies, not completed
- Study interruption

**Bachelor degree
obtained (75.9%)**

**Bachelor degree not
obtained (24.1%)**



Multivariate logistic regression results

- Predict likelihood to follow a specific trajectory type against reference category of linear study trajectory
- Control variables: parental education, gender, migration background, practical-technical and research interest, major, age, GPA, type of HE access qualification)
- To account for (self-)selection into UAS vs. university: inverse probability of treatment weighting (IPTW) → weighting as if the students enrolling for university vs. UAS would have similar background characteristics
- Results as average marginal effects (AMEs); Interpretation: percentage point differences in the probability of a trajectory type for a one-unit change of the respective predictor

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	Trajectory type	UAS (ref category: university)	
		Standard	IPTW
Bachelor degree obtained	Linear short/long	+15.3%	+15.3%
	Switch	-4.3%	-4.6%
Bachelor degree not (yet) obtained	Not completed/late dropout	-5.1%	-4.6%
	Complex/early dropout	-5.8%	-6.1%

Source: NEPS SC5 13.0.0. N=6.382. All effects stat. significant on a 0.01 level

Conclusion

- ***Purpose of this presentation***

- Alternative approach to think, operationalize & analyze study trajectories
- Providing an illustration on how to reconstruct study trajectories using sequence analysis

- ***Major limitations***

- Right-censored data; high panel attrition
- Students' intentionality remains unobserved

- ***Major findings***

- The study trajectories of UAS students are more linear compared to those of university students
- Cannot be attributed to students' characteristics → remaining inst. differences despite conversion tendencies

*Thank you for your
attention!*



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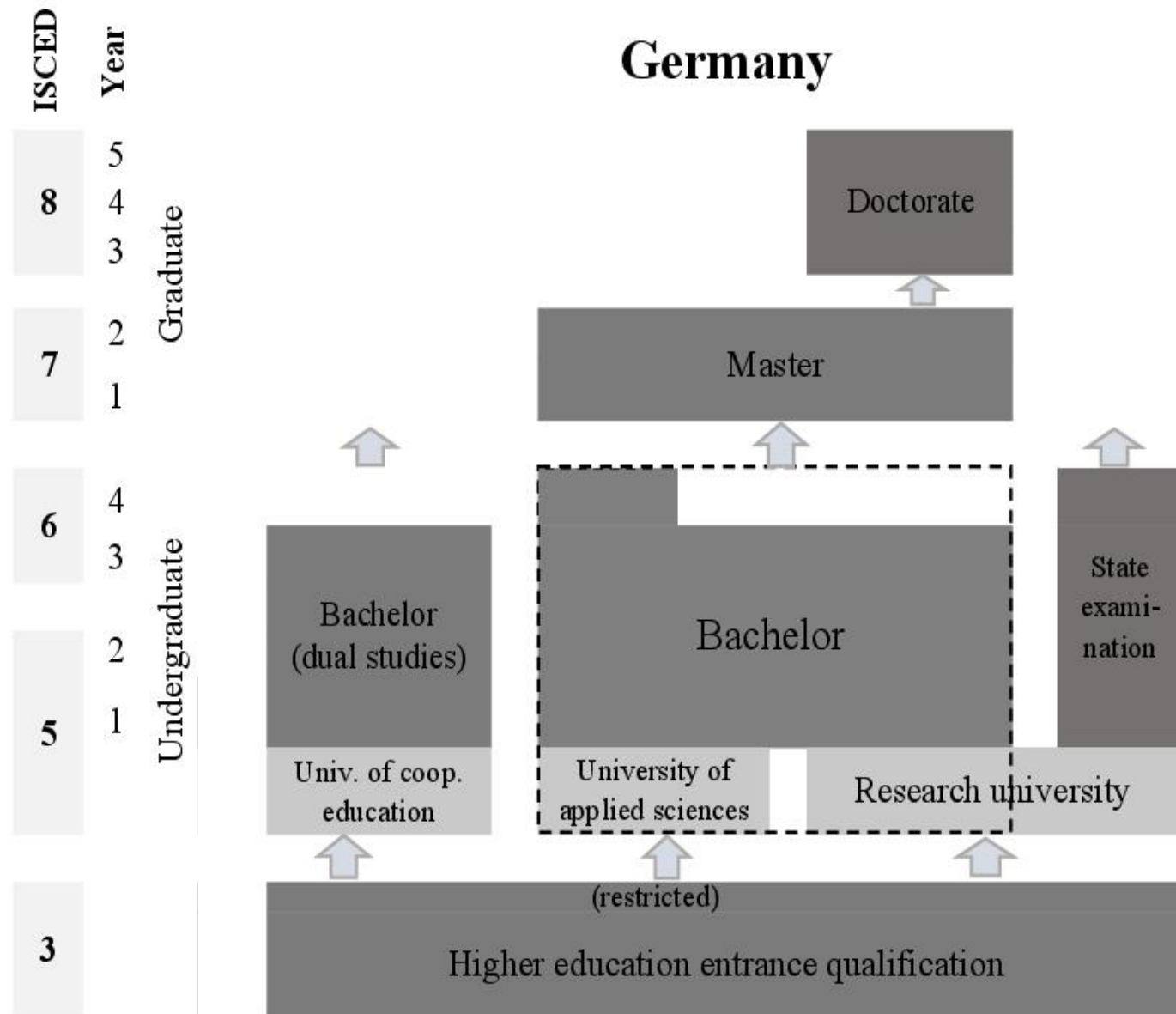
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Operationalisation of covariates

Variable	Categories / range
Major at initial enrolment	Languages/cultural studies/art Business/law/social sciences Science/technology/engineering/health
Gender	Male Female
Migration background	None 1st generation 2nd generation
Age at initial enrolment	
Parents' highest level of education	Low: up to middle sec. schooling without voc. qualification Middle: middle sec. schooling with voc. qualification up to technician degree High: HE degree
Final sec. school GPA	Excellent/very good Good Satisfactory/sufficient
Pre-HE pathway	Traditional access / no VET Traditional access / VET Alternative access / no VET Alternative access / VET
Interests (wave 1)	Practical-technical (range: 1-5) Intellectual-investigative (range: 1-5)



Variable	Categories / range	UAS	University	Total
HE sector		0.37	0.63	1.00
Major at initial enrolment	Languages/cultural studies/art	0.05	0.31	0.22
	Business/law/social sciences	0.35	0.26	0.29
	Science/technology/engineering/health	0.60	0.43	0.49
Gender	Male	0.58	0.47	0.51
	Female	0.42	0.53	0.49
Migration background	None	0.84	0.81	0.82
	1st generation	0.05	0.04	0.04
	2nd generation	0.11	0.15	0.13
Age at initial enrolment		22.46 (0.19)	21.77 (0.33)	22.02 (0.22)
Parents' highest level of education	Low: up to middle sec. schooling without voc. qualification	0.18	0.11	0.13
	Middle: middle sec. schooling with voc. qualification up to technician degree	0.49	0.41	0.44
	High: HE degree	0.33	0.48	0.43
Final sec. school GPA	Excellent/very good	0.07	0.16	0.13
	Good	0.50	0.52	0.51
	Satisfactory/sufficient	0.44	0.31	0.36
Pre-HE pathway	Traditional access / no VET	0.43	0.84	0.69
	Traditional access / VET	0.11	0.09	0.10
	Alternative access / no VET	0.20	0.03	0.09
	Alternative access / VET	0.26	0.04	0.12
Interests (wave 1)	Practical-technical (range: 1-5)	3.20 (0.08)	2.78 (0.05)	2.94 (0.05)
	Intellectual-investigative (range: 1-5)	3.18 (0.05)	3.14 (0.04)	3.15 (0.03)

Source: NEPS SC5 15.0.0. N = 6,381. Weighted proportions. Mean (std. err.) for continuous variables; proportion for categorical variables. Missing value category not shown.