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# Analyzing Micro-Level Processes and Macro-Level Structures That Shape Educational Trajectories

Prof. Dr. Kaspar Burger

Jacobs Center for Productive Youth Development & Department of Sociology

**4th International TREE Conference**

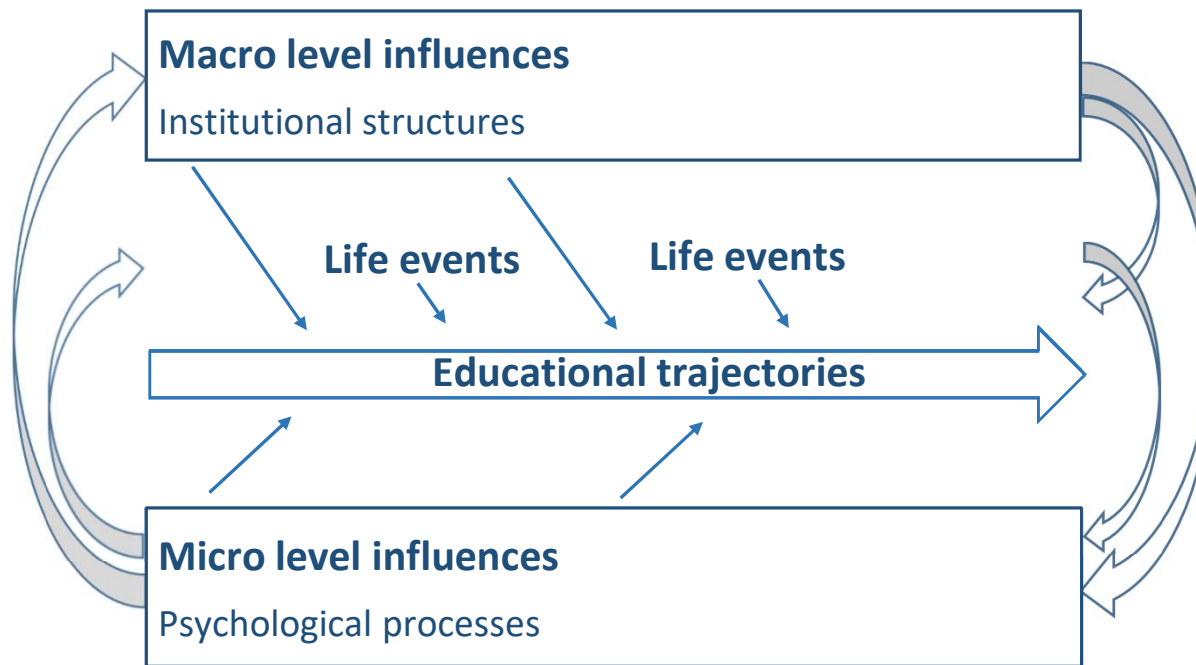
11/12 November 2021

# Life-Course Research

- Variation in life trajectories
- Influences of individual characteristics, life events, and institutions



# Educational Trajectories From a Life-Course Perspective



# **Processes and Structures That Shape Educational Trajectories**

# Educational Trajectories

## 1) Trajectories of failure

Samuel, R., & Burger, K. (2020). Negative life events, self-efficacy, and social support: Risk and protective factors for school dropout intentions and dropout. *Journal of Educational Psychology*, 112(5), 973–986.

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## 2) Structure and agency

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## 3) Social origins and future expectations

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# **Trajectories of Failure**

# Background

- Adolescents who leave school prior to completion are likely to display social, academic, behavioral, and economic vulnerabilities

(De Witte et al., 2013; Doll et al., 2013).

- Need to identify risk and protective factors for dropout
- School dropout
  - long-term process
  - endpoint of a long trajectory of academic disengagement and failure
  - that typically starts in early childhood

(Alexander et al., 2001; Dupéré et al., 2015; Jimerson et al., 2000).

# Background

- Temporary stressors and transitory psychological states might induce dropout (Eicher et al., 2014).
- More than one out of three dropouts do not exhibit clear signs of school failure, disengagement, or serious behavioral problems in the years prior to dropping out (Dupéré et al., 2015; Janosz et al., 2000).



# Background

- Short periods of increased stress could trigger dropout, even in the absence of a longer history of gradual school disengagement
- Or such periods might exacerbate preexisting risk and eventually lead to dropout.

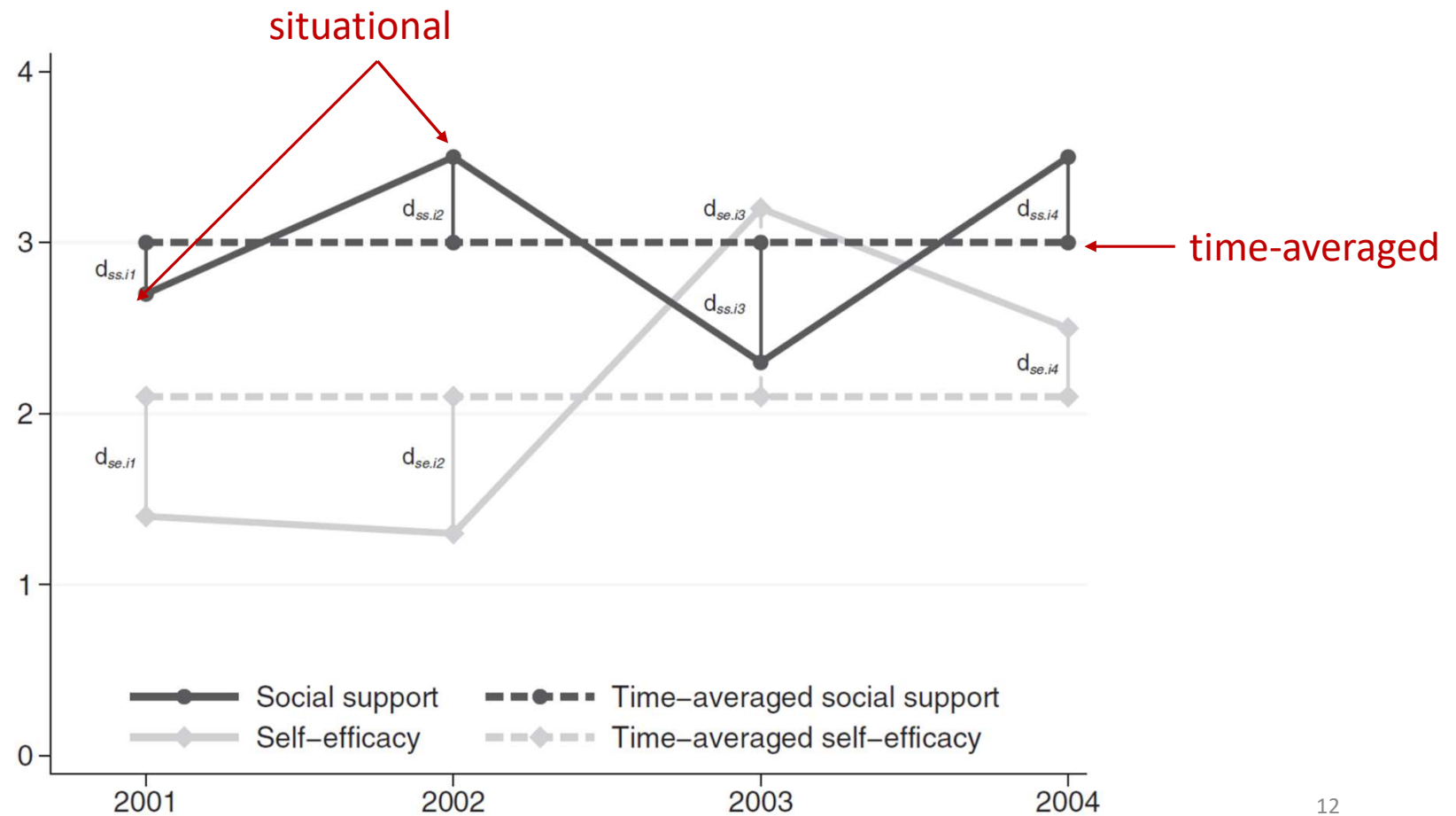
# This Study

- We examined how both *situational* and *temporally more stable* risk and protective factors were associated with dropout intentions and actual dropout.
- Vulnerability-stress perspective
  - long-held vulnerabilities
  - and exposure to transient stressors

# This Study

- We considered
  - Significant negative life events
  - Perceived self-efficacy
  - Perceived social support
- How these risk and protective factors jointly and interactively shape dropout (intentions).

# This Study



# Method

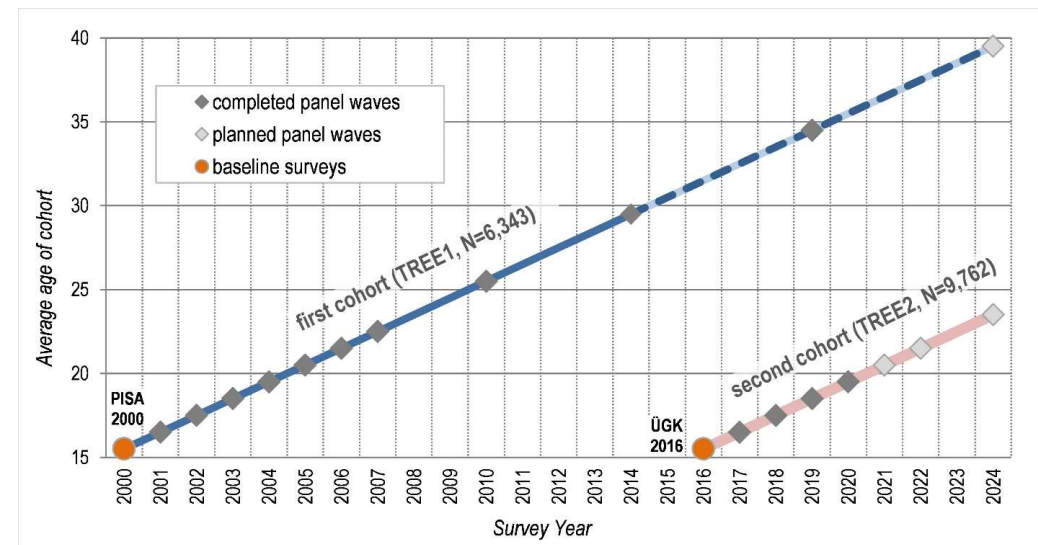
# Sample

- TREE survey
- First cohort
- Sampling

Educational and labor market trajectories

PISA 2000-cohort ( $N = 6,343$ )

PISA: two-stage stratified sampling procedure



Source:  
[www.tree.unibe.ch/study\\_profile/index\\_eng.html](http://www.tree.unibe.ch/study_profile/index_eng.html)

# Key Measures

## Dropout intentions

- Item: “As soon as I find something better, I will change my education/apprenticeship”
- Scale: “I think this...” (1 = hardly ever to 7 = almost always)

# Key Measures

## Dropout

- Item: “Since the last time we contacted you in <...>, did any of the following happen to you?”
- “I have quit school or an apprenticeship.”
- Scale: 0 = did not drop out, 1 = did drop out



# Key Measures

## Negative life events

- 7 items (response category: 0 = no, 1 = yes)
- *Examples*
- Has any of the following happened to you over the course of the preceding year?
  - “My parents got separated or divorced”
  - “I had a severe accident or got a severe illness”
  - “A person who was close to me died”
  - “I had trouble with the police”
  - ...

# Key Measures

## Self-efficacy

- 4 items (latent). Scale from 1 (completely wrong) to 4 (completely right).
- *Examples*
  - “I am confident that I can cope with difficult challenges because I can trust my abilities”
  - “When a problem arises, I can always find a solution by my own efforts”

# Key Measures

## **Perceived social support**

- 4 items. Scale from 1 (not at all) to 4 (very much).
- To what extent do the following persons take interest in your education/training
  - Your mother
  - Your father
  - Your partner/boyfriend/girlfriend
  - Your best friends at school

# Analytic Strategy

- Multilevel models to predict dropout intentions (linear) and dropout (logistic) from
  - Time-averaged levels of self-efficacy and social support (level 2)
  - Situational levels of self-efficacy and social support (level 1)

# Results

# Results

## Negative life events

- Negative life events were positively associated with *dropout intentions* and *dropout*.
- The experience of one additional life event was associated with an average increase of 1.3% in the likelihood of dropping out.
- Young people who experienced five negative life events up to the fourth observational period had on average a risk of 24.4% of dropping out,
- ...compared to a 3.3% risk of peers who did not experience any negative life events.

# Results

## Perceived self-efficacy

- *Time-averaged* perceived self-efficacy and a *within-person increase* in perceived self-efficacy were negatively associated with *dropout intentions*
  - but not with *actual dropout*.

# Results

## Perceived social support

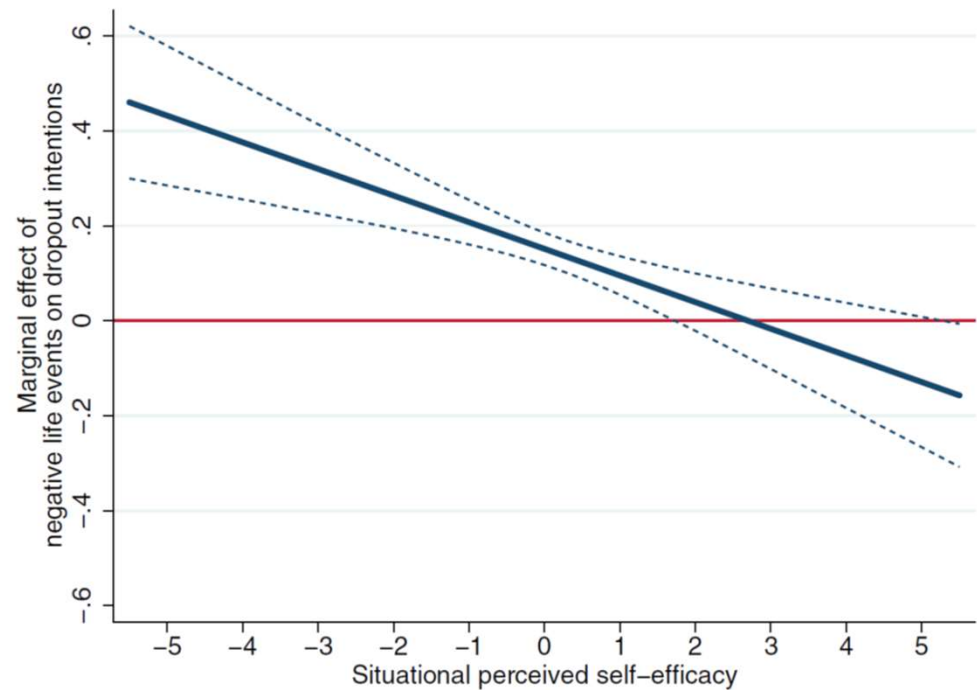
- *Time-averaged* perceived social support and a *within-person increase* in perceived social support were negatively associated with *dropout intentions*
  - but not with *actual dropout*.



# Results

## Interplay between negative life events and self-efficacy

- Higher-than-usual self-efficacy reduced the influence of adverse life events on dropout intentions.



*Figure 2.* Marginal effect of negative life events on dropout intentions across the range of values of situational perceived self-efficacy, with 95% confidence interval (dashed lines). See the online article for the color version of this figure.

# Summary

- Negative life events were associated with an increase in both dropout intentions and the likelihood of dropping out.
- Individuals who perceived high levels of social support and self-efficacy (habitually and situationally) reported fewer dropout *intentions*.
- However, they were not less likely to drop out of school.
- The impact of negative life events on dropout *intentions* was minimized in young people who perceived higher-than-usual self-efficacy.

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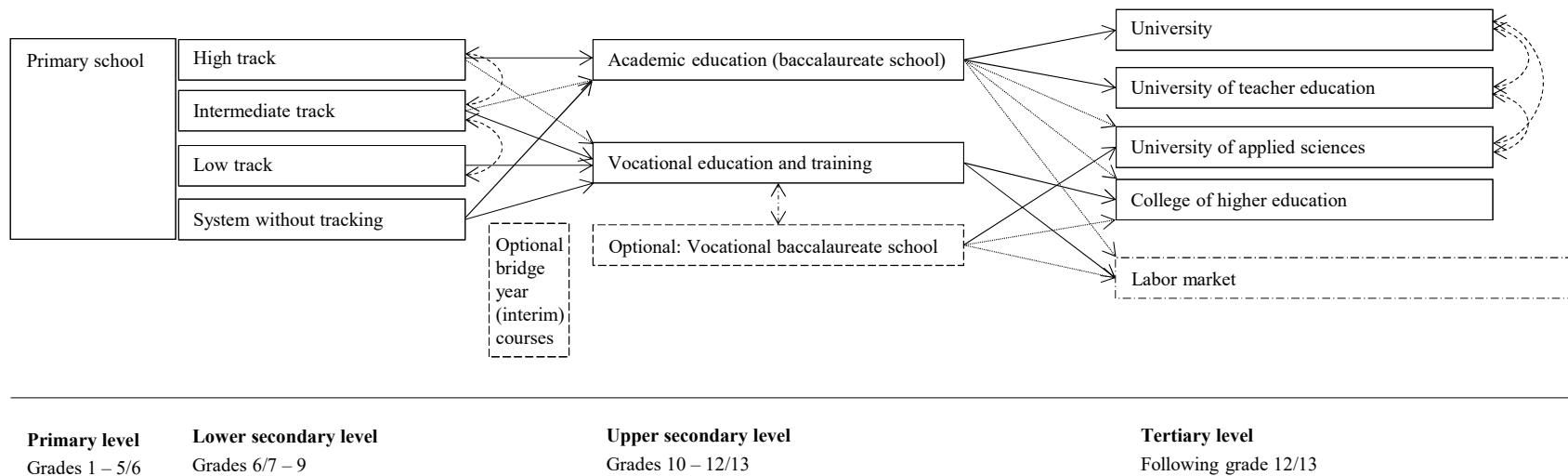
# **Structure and Agency**

# Background

- Education systems across the world are stratified
- They sort students into distinct educational paths, structuring students' careers in school and their prospects after graduation  
(Dauber et al., 1996; Gamoran, 2018; Pallas, 2003)
- Sorting machines  
(Spring, 1976)
- Education systems lay the foundation for later life inequalities  
(Domina et al., 2017)

# The Swiss Education System

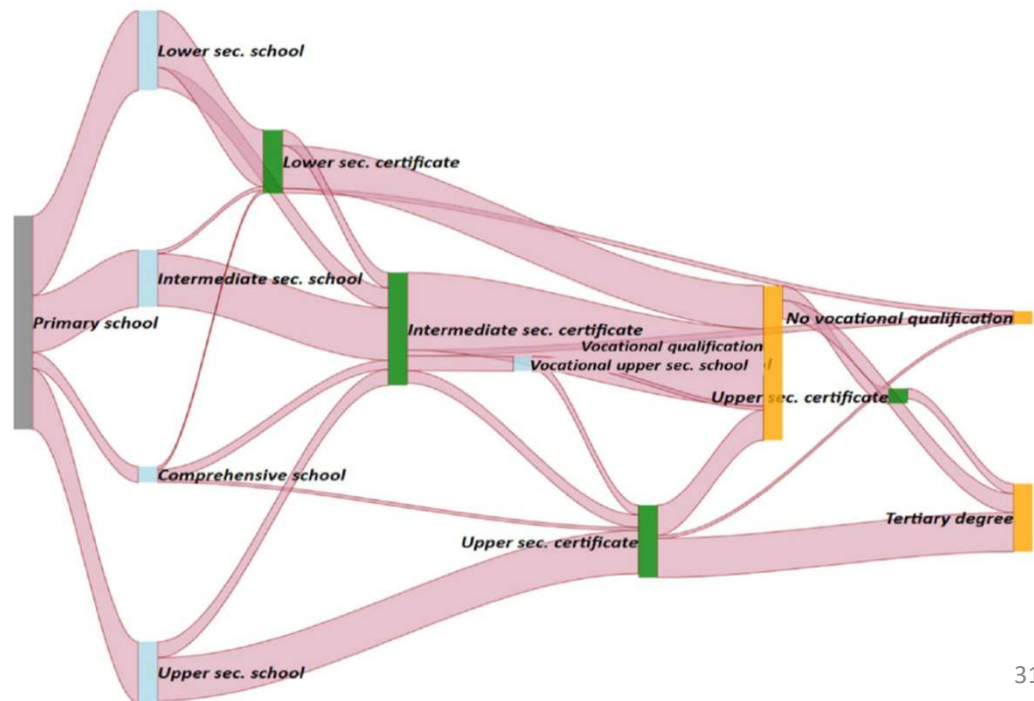
## Rigid but permeable channeling structure



- Qualitatively different pathways that may converge at a later stage.
- Normative and nonnormative trajectories.

# Background

- Scholars have analyzed educational trajectories in stratified systems (Biewen & Tapalaga, 2017; Breen & Jonsson, 2000; Meyer, 2018; Tieben, 2011).
- e.g., in Germany (NEPS, 1970-80 cohorts) (Henninges et al., 2019).



# Background

- What is the role of individual human agency in educational trajectories?
- Education systems may channel individuals into specific trajectories by imposing institutional constraints.
- However, individuals choose which educational goals to engage with, pursuing their own educational projects.



# This Study

## Objective

- To understand the extent to which both *structure* (tracks) and *human agency* (study effort and persistence) predict educational trajectories.

# Method

# Measures

- Key study variables

# Measures

- Persistence

- 4 items, 4-point scale
- Example items:

“I complete whatever I start”

“Even if I encounter difficulties, I persistently continue”

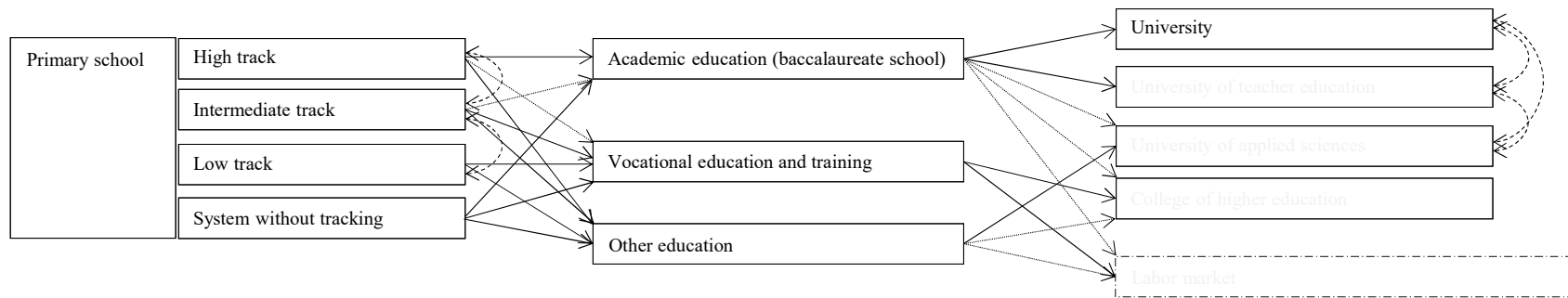
- Study effort

- 3 items, 4-point scale
- Example items:

“When studying, I put forth my best effort”

“When studying, I keep working even if the material is difficult”

# Measures



**Primary level**  
Grades 1 – 5/6

**Lower secondary level**  
Grades 6/7 – 9

**Upper secondary level**  
Grades 10 – 12/13

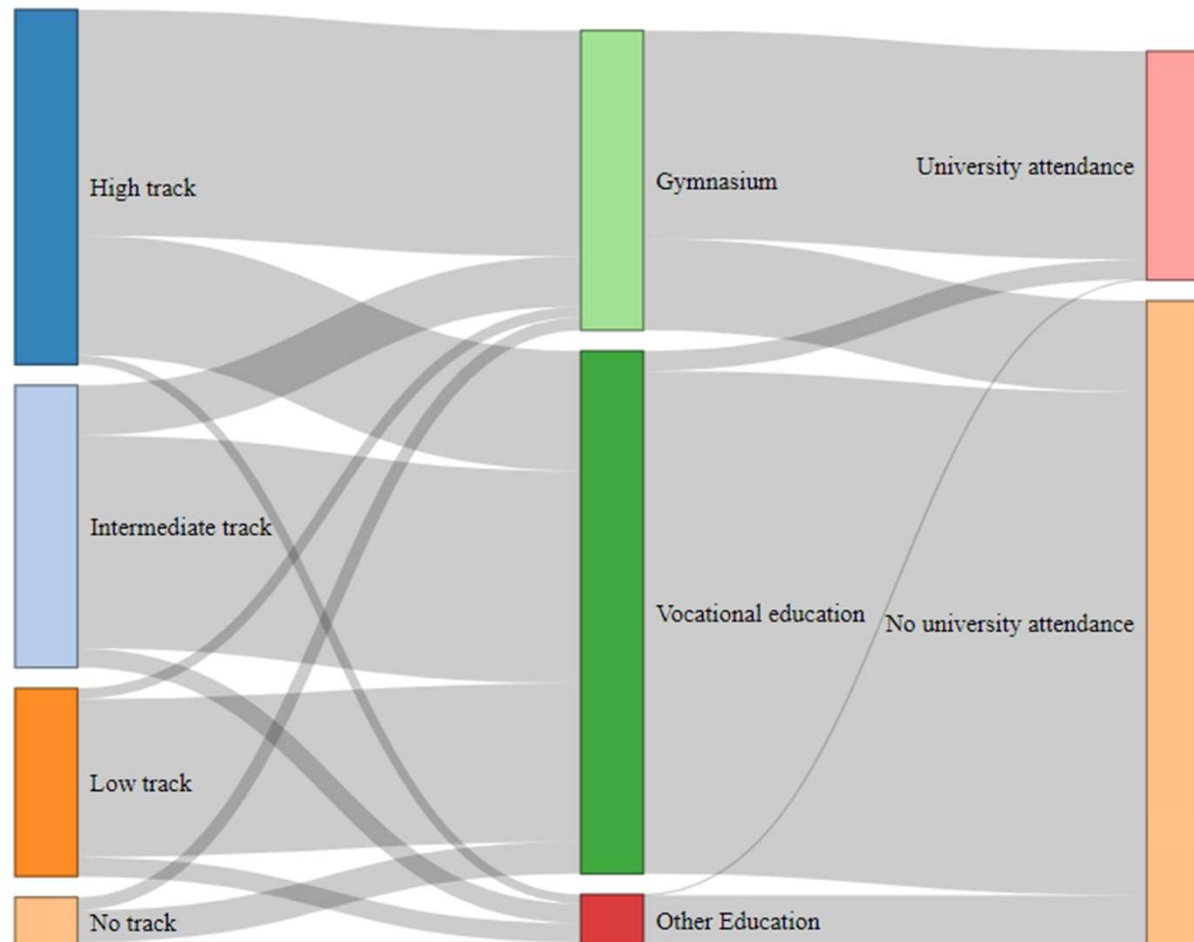
**Tertiary level**  
Following grade 12/13

# Analytic Strategy

- Structural equation modeling

# Results

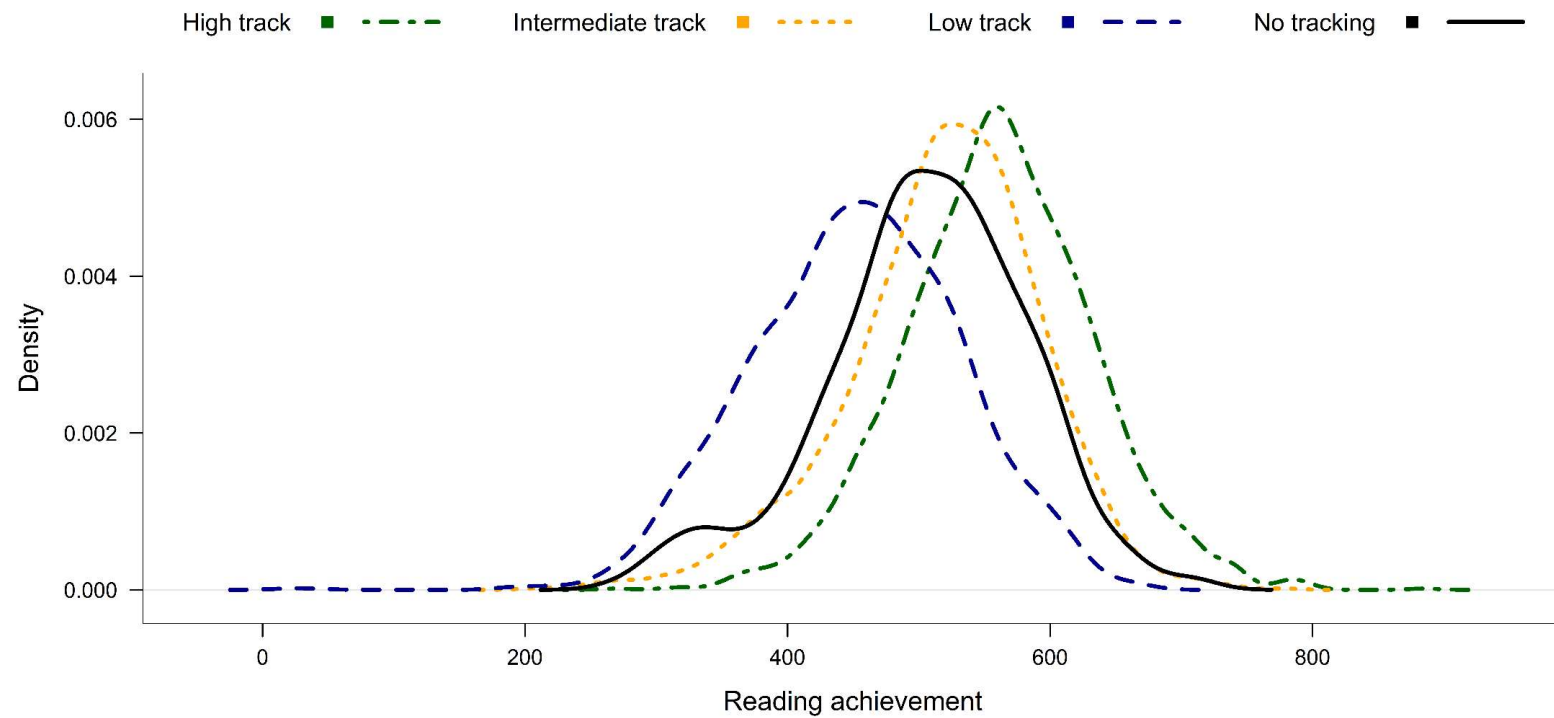
## Proportions of Students who Followed Distinct Pathways



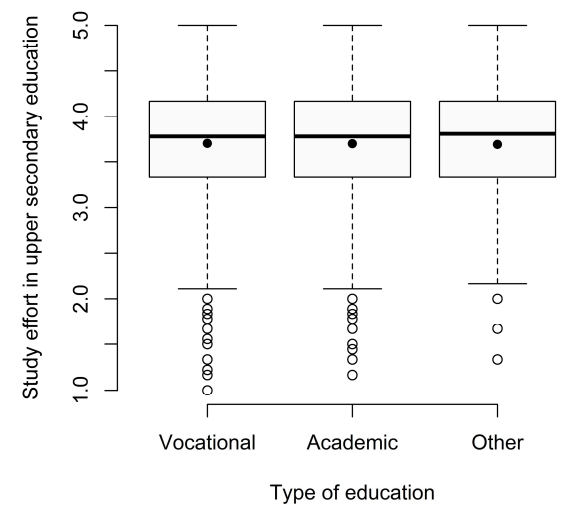
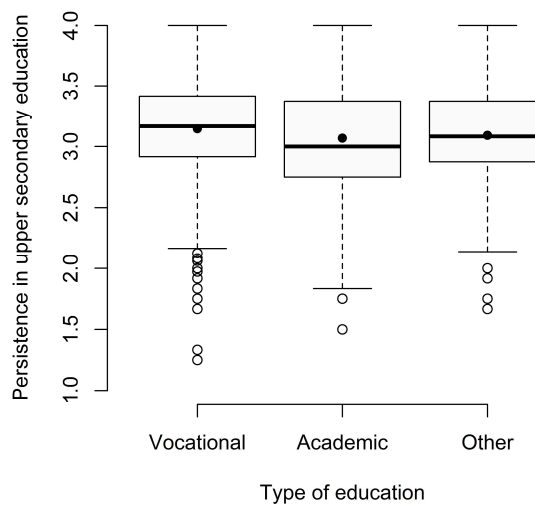
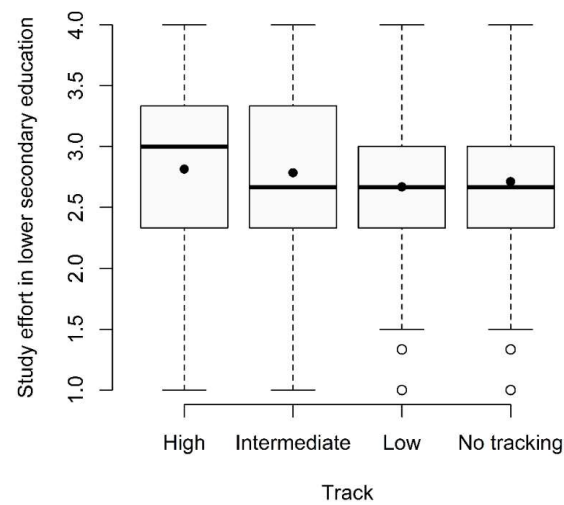
*Source*  
 Brack and Burger (2021,  
 unpublished manuscript)



# Achievement Distributions in Lower-Secondary School Tracks

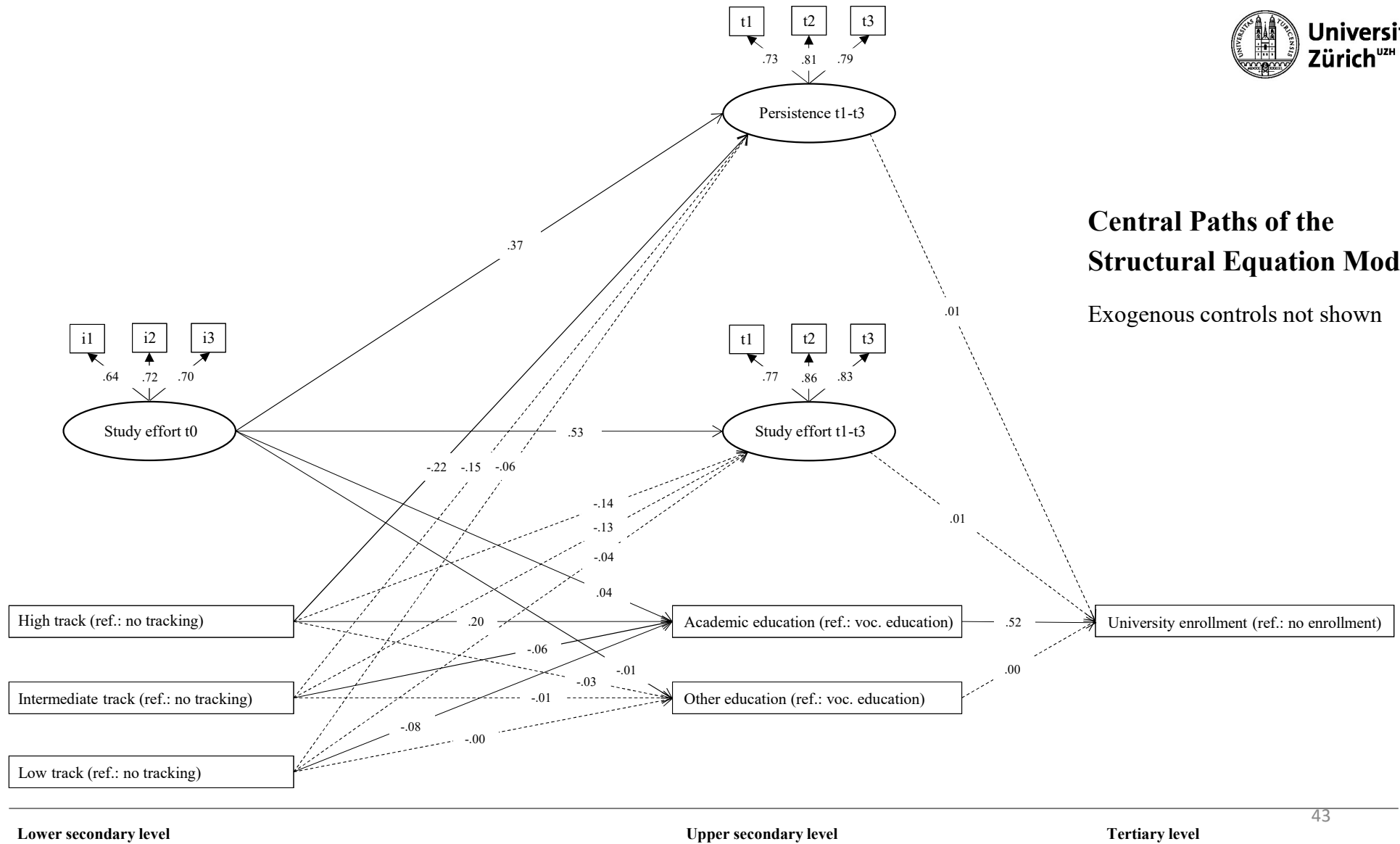


# Study Effort and Persistence Across Tracks

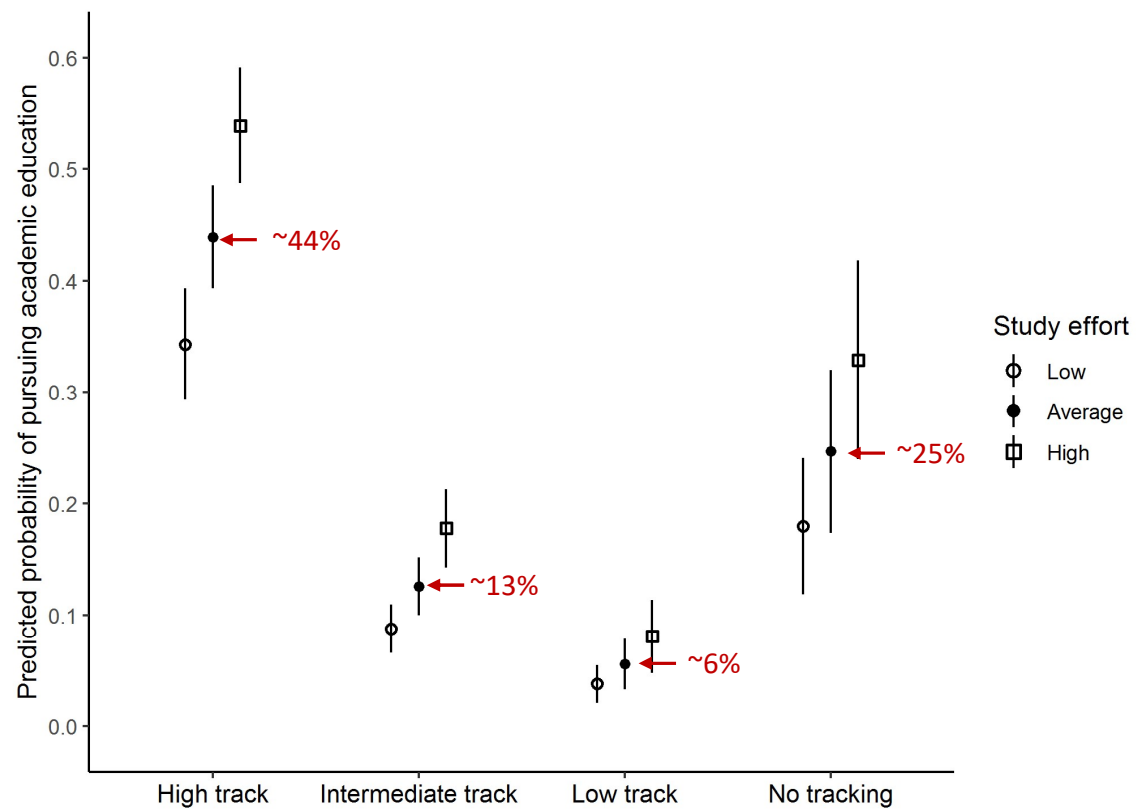


## Central Paths of the Structural Equation Model

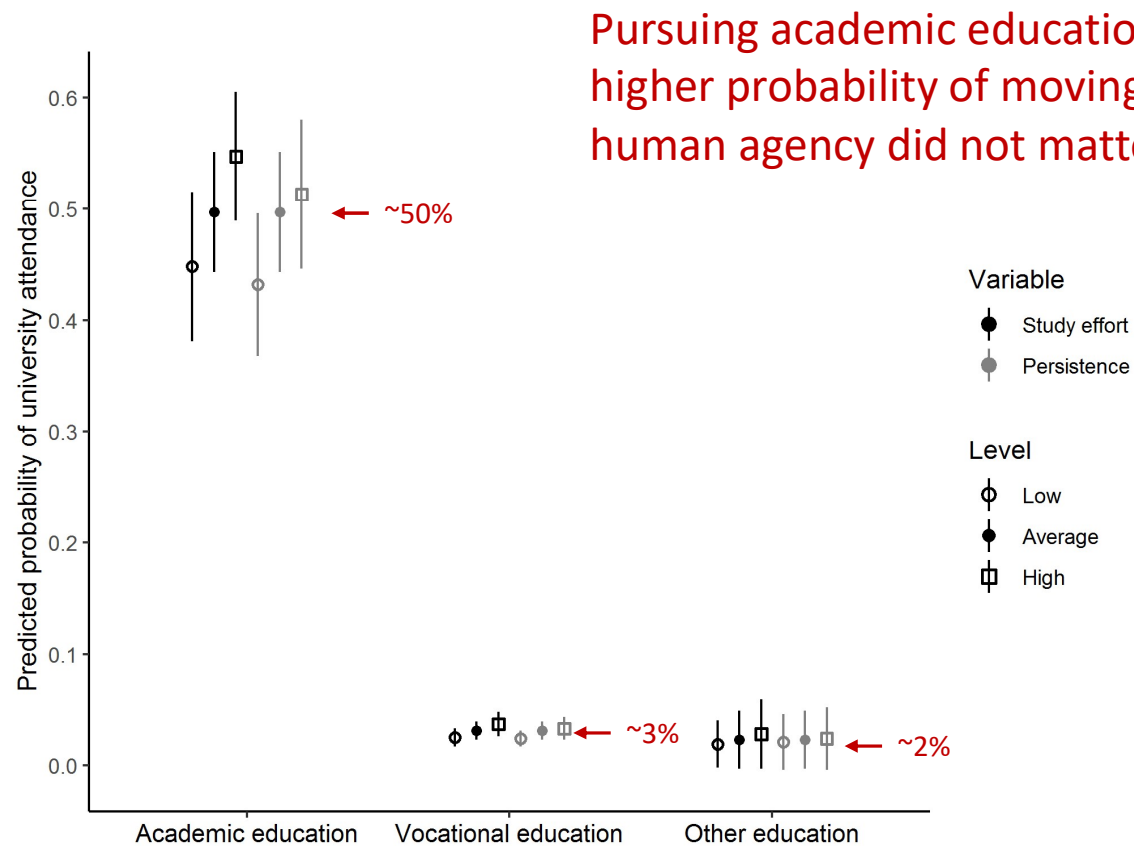
Exogenous controls not shown



# Predicted Probabilities of Transitioning to Academic Education



# Predicted Probabilities of Transitioning to University



# Summary

- The educational pathway that students took influenced their educational trajectories.
- Human agency played a comparatively minor role in this regard.
- The education system channeled educational trajectories
- ...but the power of the channeling effect varied across the different junctures of the system.

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# **Social Origins and Future Expectations**



# Social Origins and Future Expectations

- Individuals of more *advantaged socioeconomic origin* and those with loftier *expectations about the future* typically have higher educational attainment.
- But which is the stronger predictor – socioeconomic origins or future expectations?

# Social Origins

- Socioeconomic origin is positively linked with children's educational outcomes.  
(e.g., Bourdieu & Passeron, 1970; Burger, 2019; Combet & Oesch, 2021).

# Future Expectations

- Just as socioeconomic origins can shape educational attainment so can individuals' expectations about their own future  
(Burger & Mortimer, 2021).
- Expectations ~ subjective appraisals of the likelihood that specific events will occur  
(Oettingen & Mayer, 2002)
- They influence goal-setting, planning, motivation, and goal-oriented behavior  
(Bozick et al., 2010; Schoon et al., 2021)

# This Study

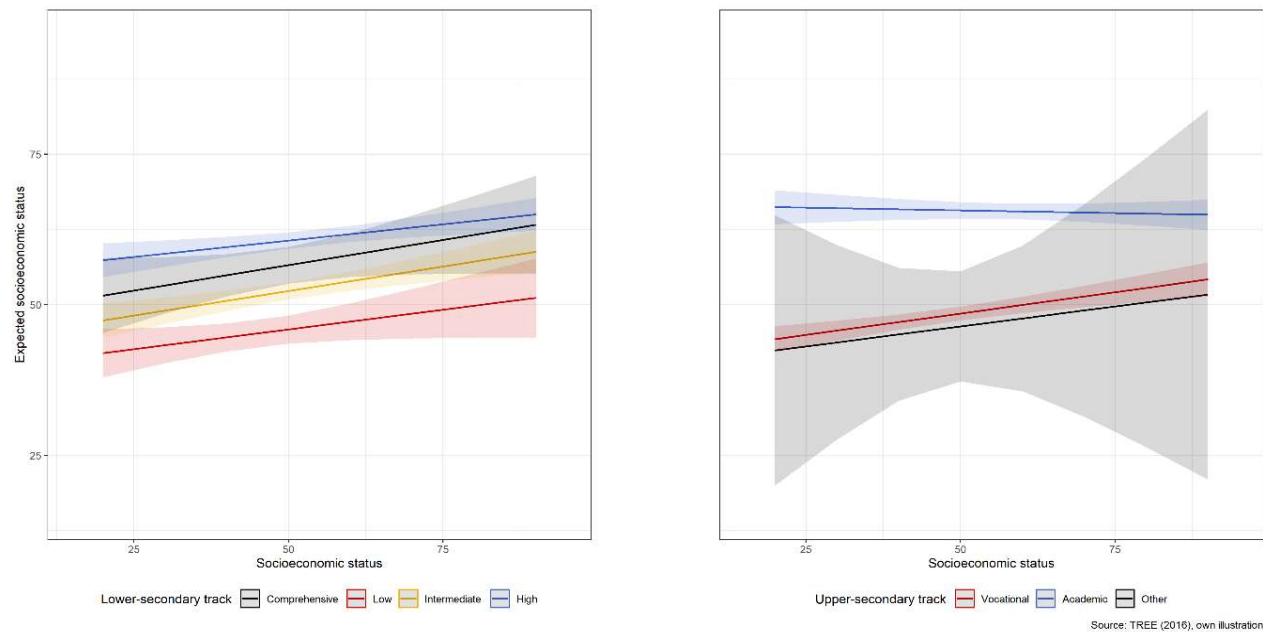
## Objective

- Disentangle the relative importance of socioeconomic origin and subjective expectations about one's own future socioeconomic status for educational attainment.
- Is educational attainment largely determined by the structural context of socioeconomic dis/advantage in which people grow up?
- If future expectations strongly influence educational attainment processes, they might enable intergenerational social mobility.

# Note

- This analysis is feasible because socioeconomic origins and future expectations are largely independent of each other

(Bandelj & Lanuza, 2018; Burger et al., 2020; Mortimer et al., 2020; see also Beckert, 2016).



# Research Questions

- To which extent does socioeconomic origin predict educational attainment, once future expectations are controlled for?
- To which extent do future expectations predict educational attainment, once socioeconomic origin is controlled for?

# Method

# Key Measures

## Socioeconomic origin

- Parents' standard international socio-economic index of occupational status (ISEI) score (Ganzeboom et al., 1992).



# Key Measures

## **Expected socioeconomic status**

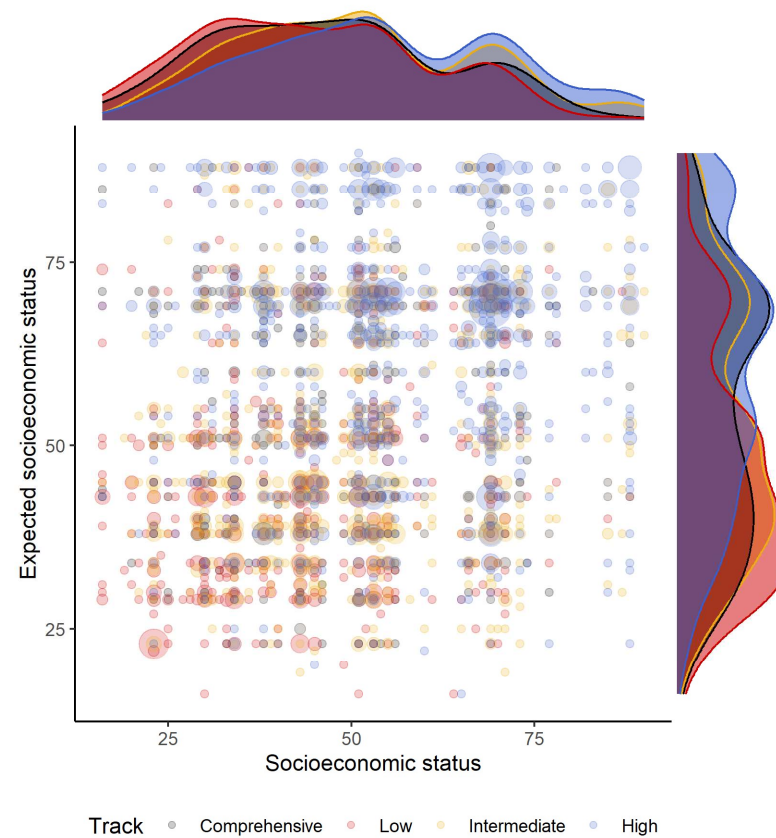
- ISEI score
- 15-year-olds were asked what kind of job they expect to have when they are ~ 30 years old.

# Analytic Strategy

- Nonlinear probability path models

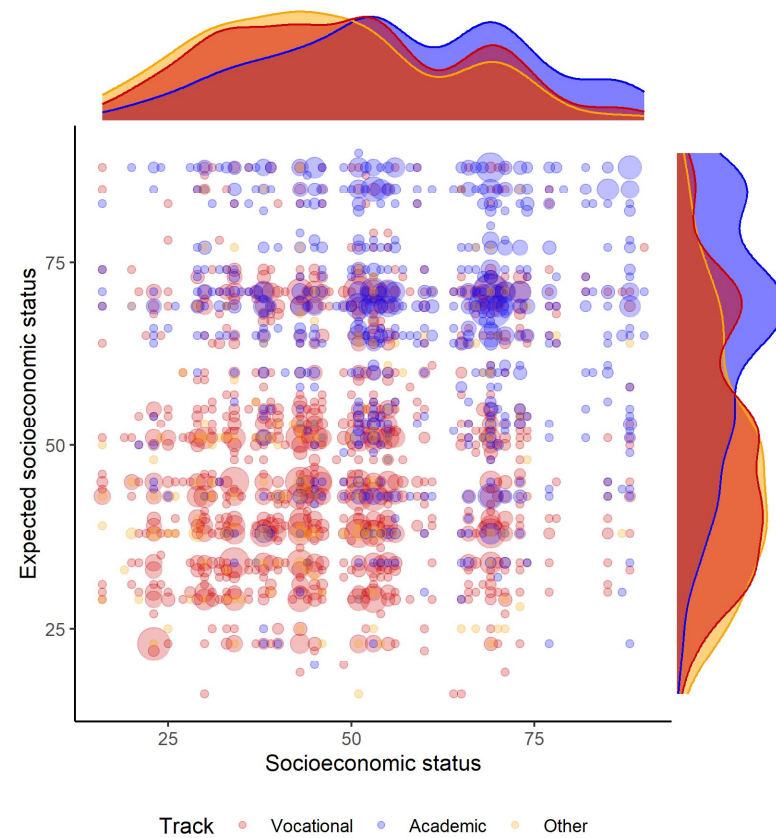
# Results

# Social Origin and Expectations Across Tracks



Source: TREE (2016), own illustration

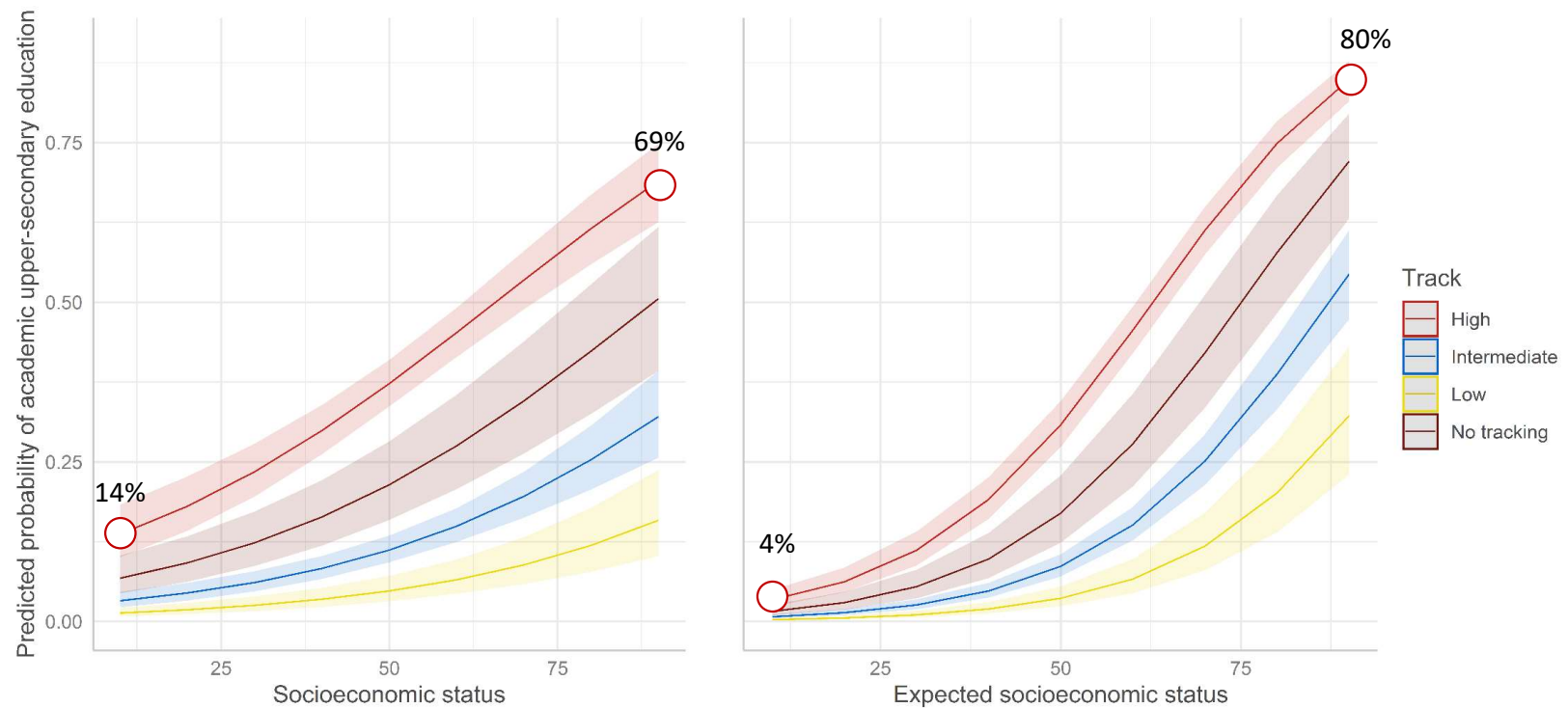
# Social Origin and Expectations Across Tracks



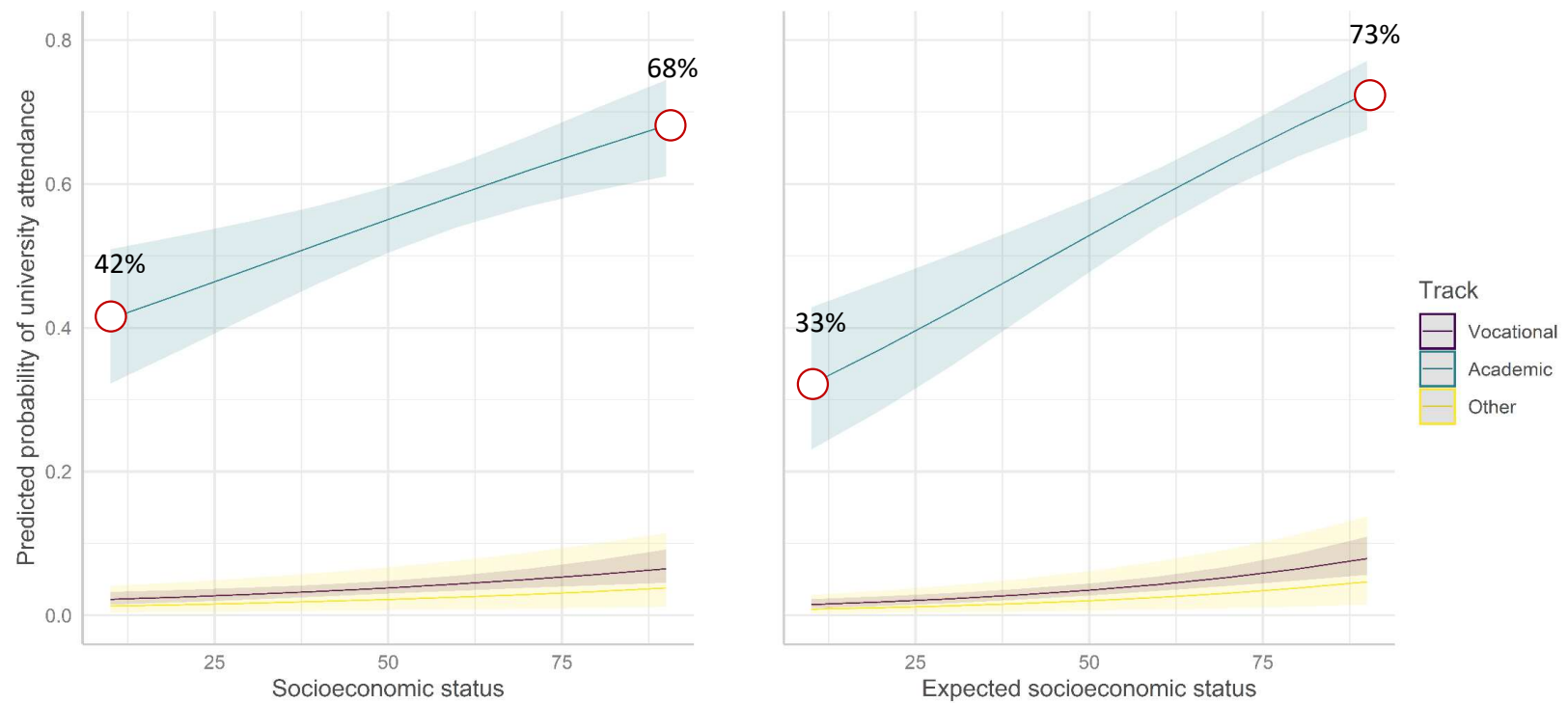
Source: TREE(2016), own illustration

# Predicted Transition Probabilities

Expectations ~ a more powerful predictor of academic trajectories than SES?



# Predicted Transition Probabilities



# Summary

- Young people from more advantaged families progressed along more academic paths.
- However, relative to socioeconomic origin, expectations about the future socioeconomic status predicted academic trajectories even more powerfully.



# **General Conclusion**

# General Conclusion

- Variation in educational trajectories explained by
  - Individual characteristics (e.g., human agency, future expectations)
  - Significant life events and situational psychological states
  - Institutional structures
- Life course scholarship can advance our understanding of how micro-level processes and macro-level structures influence educational trajectories.



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I acknowledge funding from the European Union's Horizon 2020 research and innovation program under the Marie Skłodowska-Curie Grant Agreement No. 791804 and from the Swiss National Science Foundation under the Grant Agreement No. PCEFP1\_181098.

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Dr. Kaspar Burger  
SNSF Eccellenza Professor - University of Zurich  
Honorary Associate Professor - University College London

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