

# LABOR MARKET RETURNS TO VOCATIONAL SECONDARY EDUCATION

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## This paper

### What?

- Studies the causal effects of admission to vocational versus general secondary education

### How?

- Follows Finnish cohorts for 15 years after admission to secondary education (roughly 31 years old)
- Uses a RDD created by the centralized admissions process to secondary education

## Theoretical arguments for and against vocational education

### Benefits in the short term

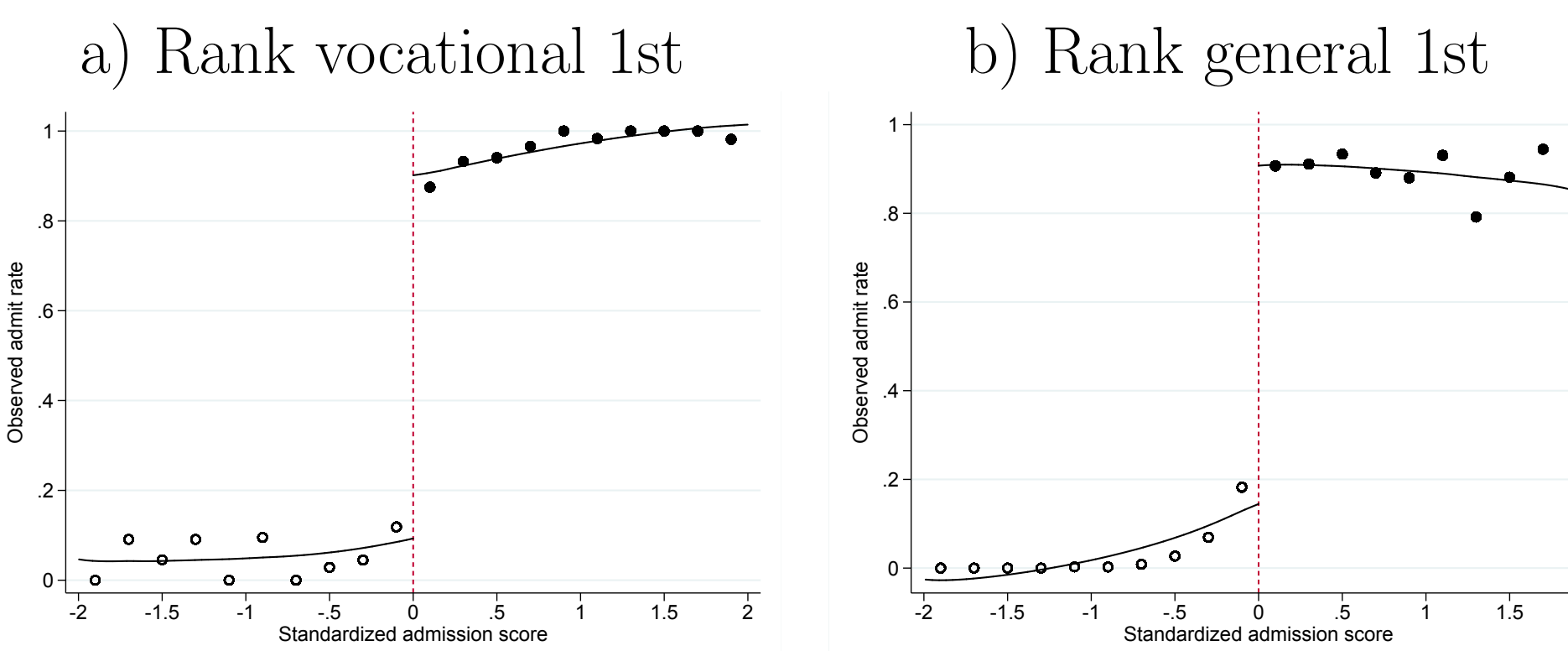
- Facilitates transition to the labor market
- May match the varied abilities and aspirations of students

### Adverse impacts in the longer term

- Harder to adapt to changes in technology, the economy, etc.
- Vocational skills become obsolete in the long-run

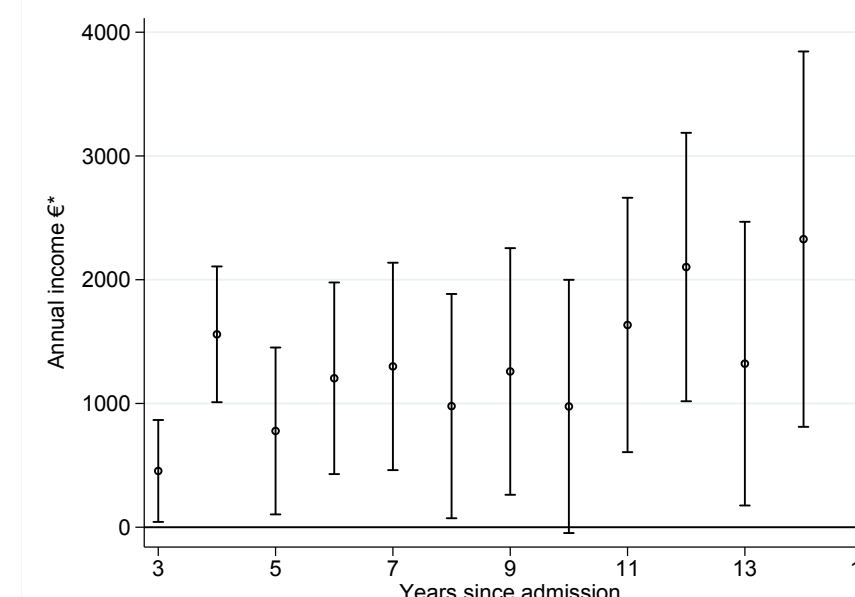
## 1st stage

### Admission to vocational track

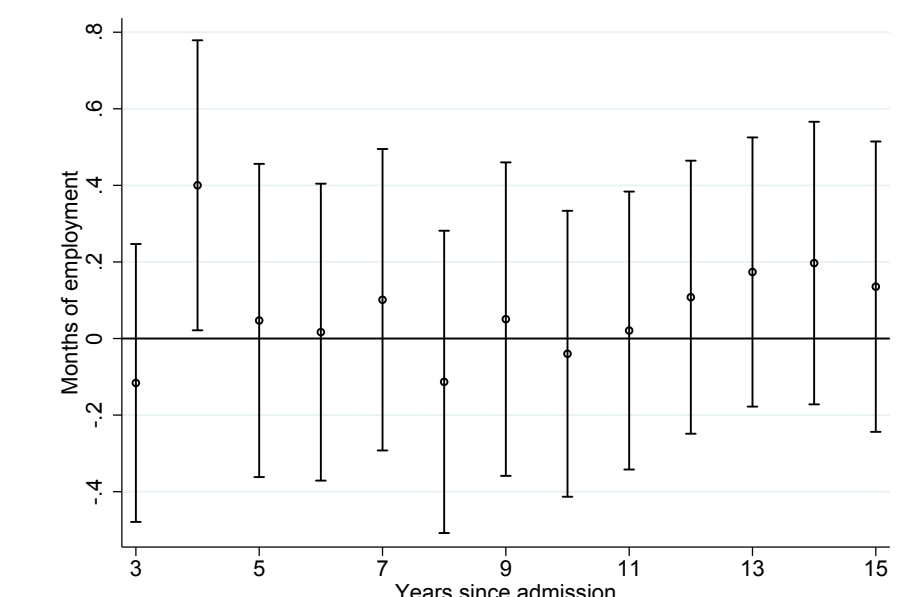


## Year-by-year estimates

### Effect on earnings

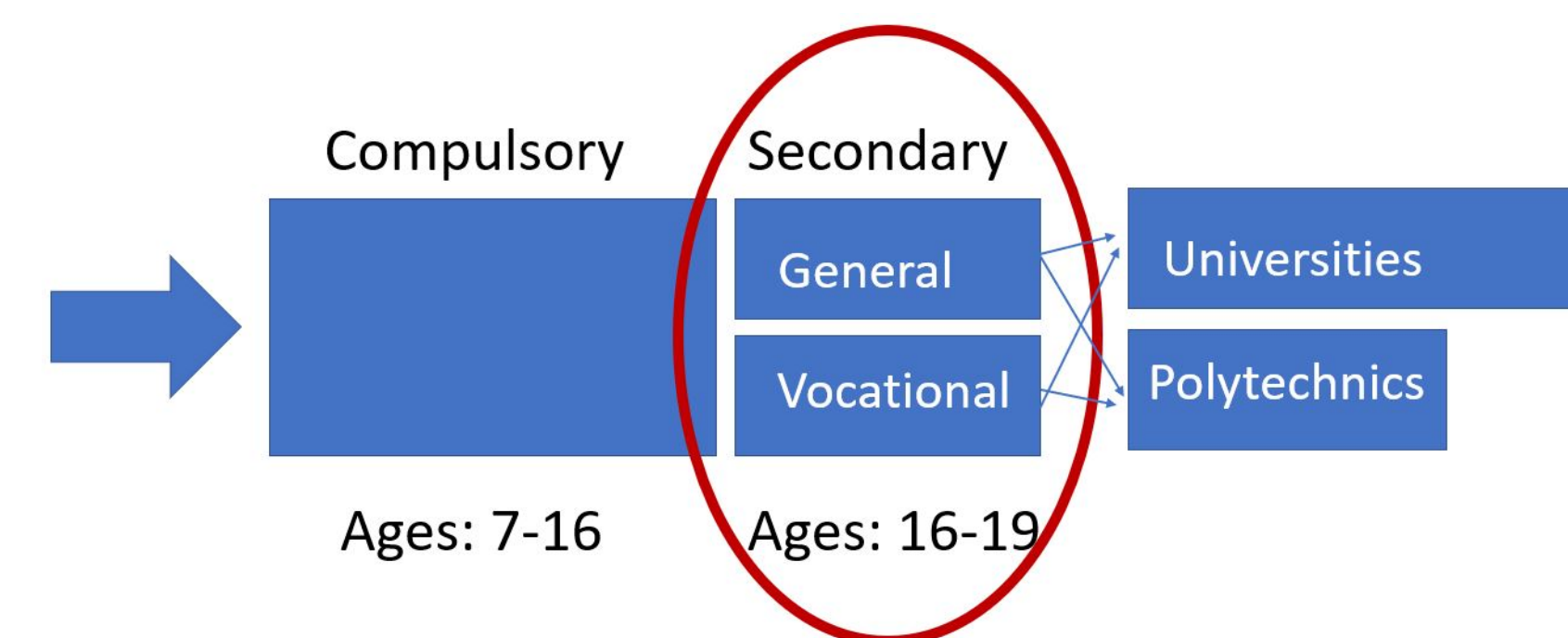


### Effect on employment



- Admission to the vocational track increases annual income by €1,800 (7%) 15 years after admission
- No effect on employment

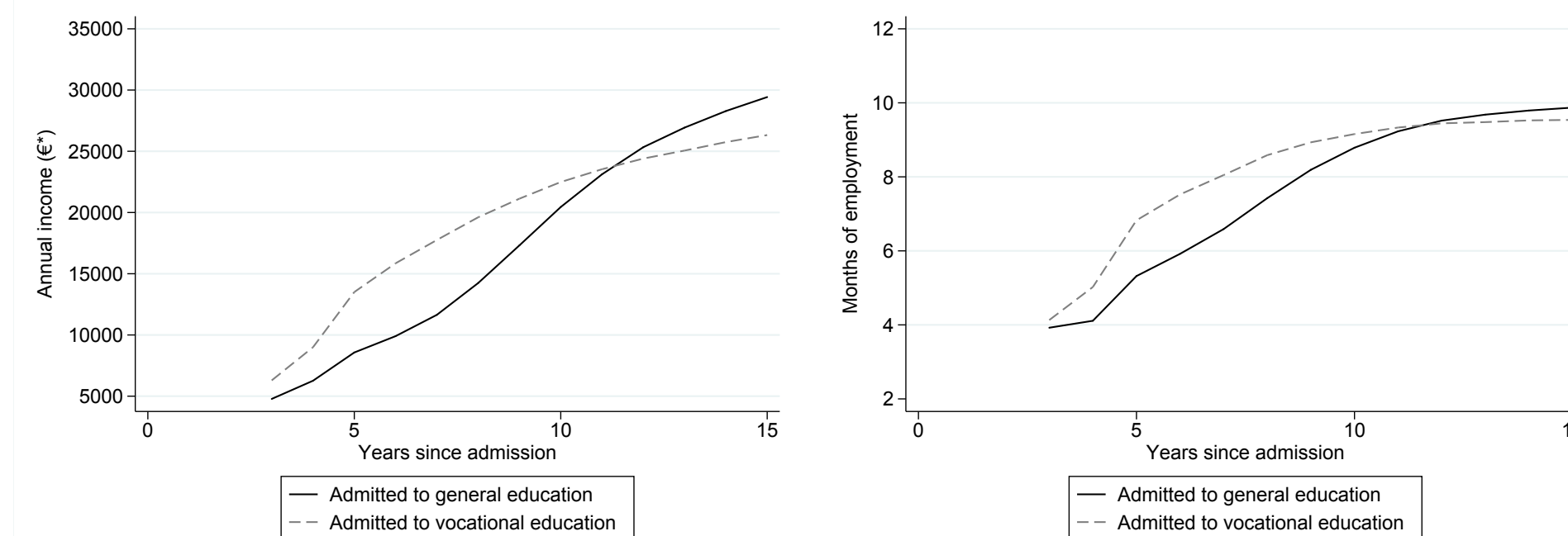
## Finnish education system



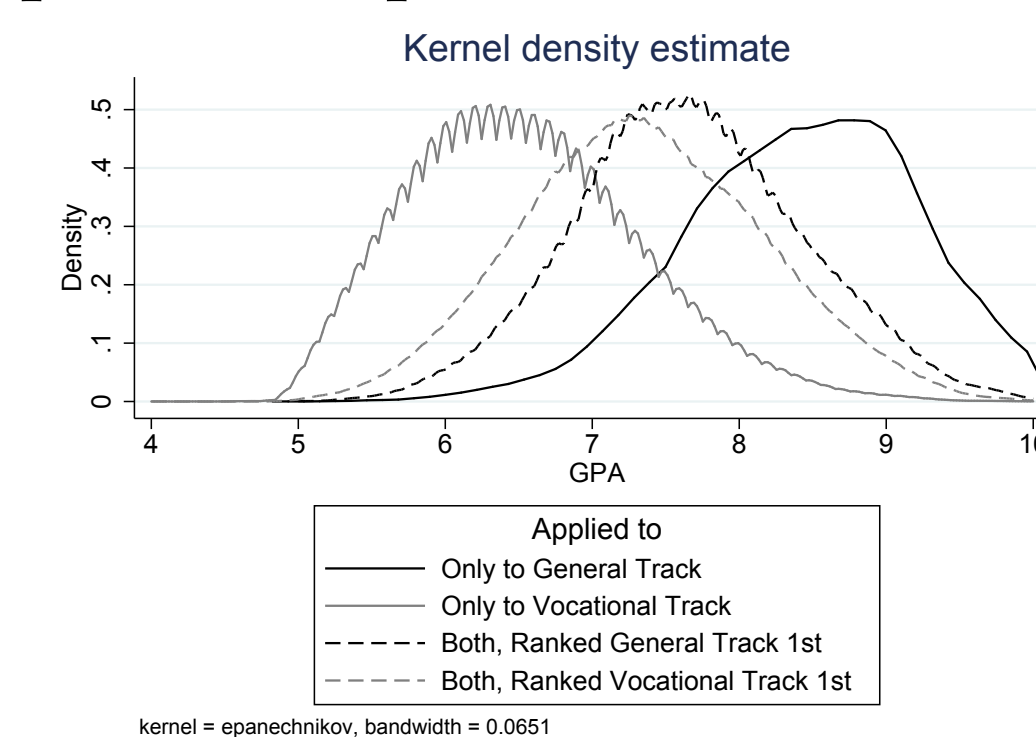
- Approx. 47% of 17 year olds enroll to vocational education

## Descriptive statistics

### Mean earnings and employment profiles



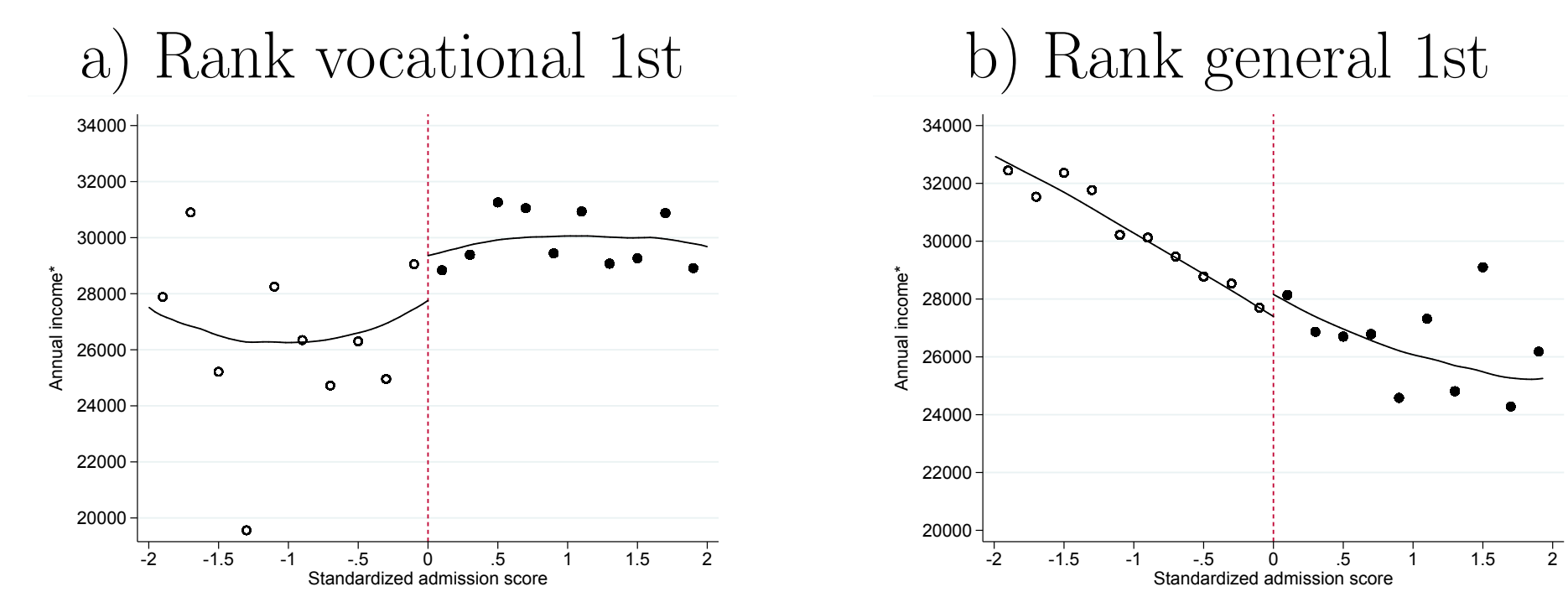
### Application preferences and GPA



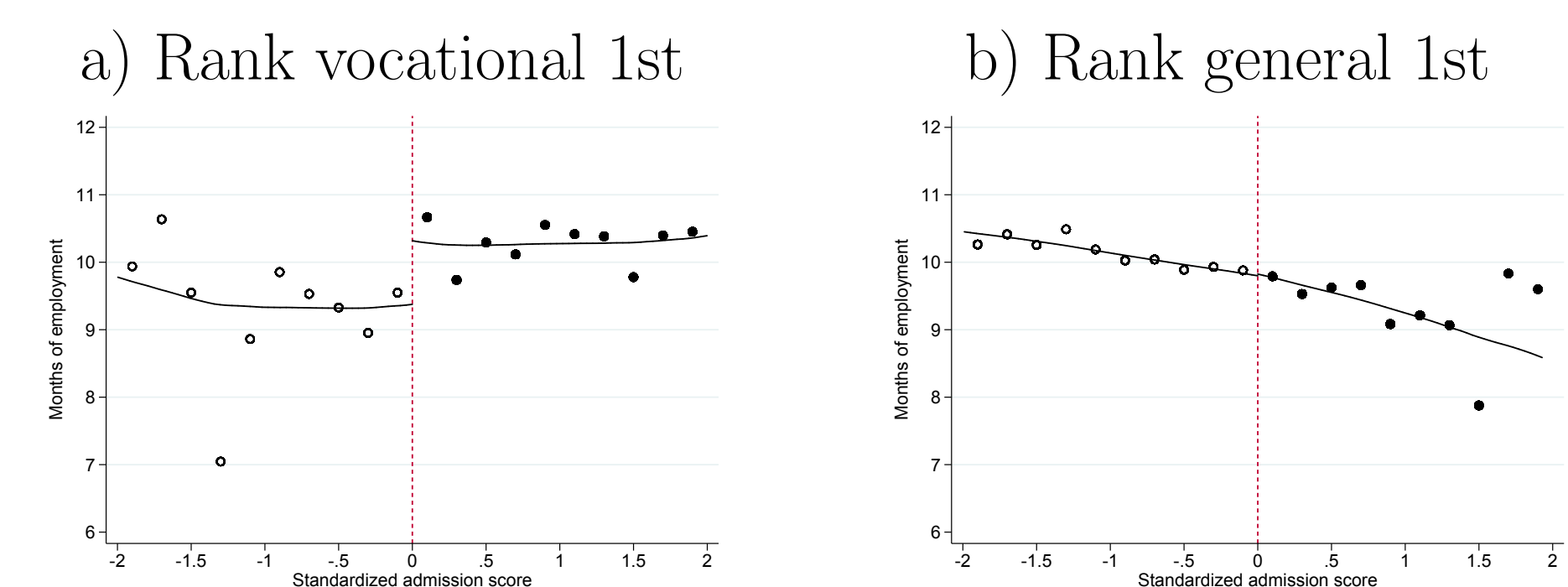
## Outcomes across the cutoff

### Outcomes measured 15 years after admission

#### Earnings

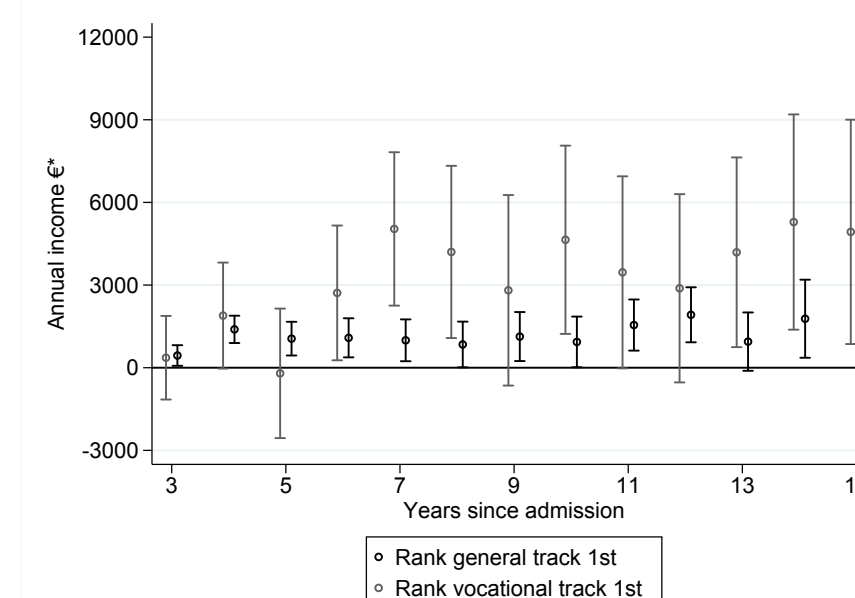


#### Employment

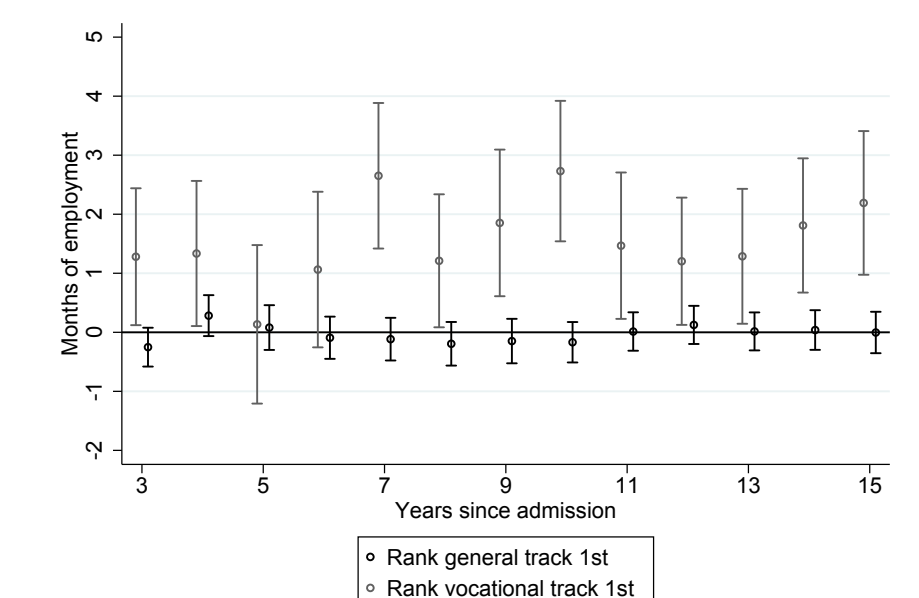


## Estimates by preferences

### Effect on earnings



### Effect on employment



- For those who prefer the vocational track, admission to vocational education increases employment by approximately 2 months a year (20%) 15 years after admission

## Admission process

- Centralized application system
- Individuals rank and apply to up to five programs
- Supply of spots is fixed
- Student selection follows DA algorithm

## Data and sample

- **Linked register data**
  - Compulsory school graduates, 1996-2000 (N=278,000)
- **RDD sample**
  - Those who apply to both education types
  - Oversubscribed tracks (Final sample N=22,000)

## Empirical specification

### • Reduced form:

$$y_{ik} = \rho Z_{ik} + (1 - Z_{ik})f_{0k}(r_{ik}) + Z_{ik}f_{1k}(r_{ik}) + \alpha_k + \epsilon_{ik}$$

- **Instrument admission to vocational by crossing cutoff**
- **Employ non-parametric estimation**

$y_{ik}$ : outcome variable (for applicant  $i$  to program  $k$ )  
 $Z_{ik}$ : above/below admissions cutoff  
 $r_{ik}$ : running variable (standardized admission score)  
 $\alpha_k$ : cutoff specific fixed effects

## Discussion

### Summary of results

- Admission to the vocational track increases earnings for applicants at the admissions margin
- Benefits show no signs of diminishing with time
- Heightened benefits for those ranking vocational education first

### Conclusions

- Together, our results suggest that there may be significant room for expanding the choice of vocational education in other developed countries