

School resources and post-schooling outcomes in initial vocational education in Finland

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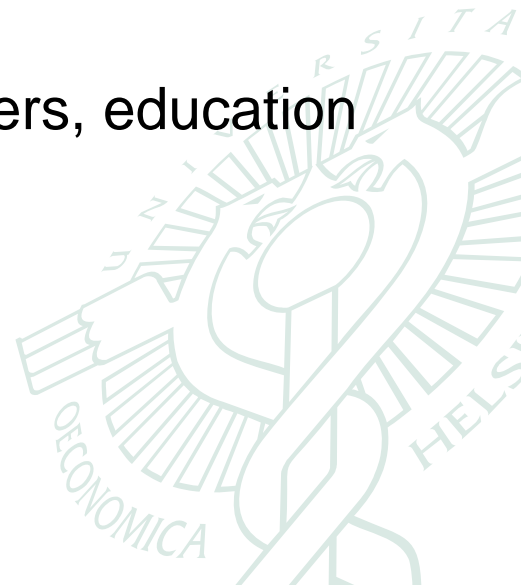
Outline

- Question and Motivation
- Literature review
- Data construction
- Descriptive statistics
- Results
- Conclusions



Question and Motivation

- Quality of vocational education important for producing skilled labour
- Performance based funding introduced to initial vocational education and training (VET) in Finland
- This study examines the determinants of students' labour market status after the VET
- Uses a rich data set on students, teachers, education organisations and companies



Previous Literature

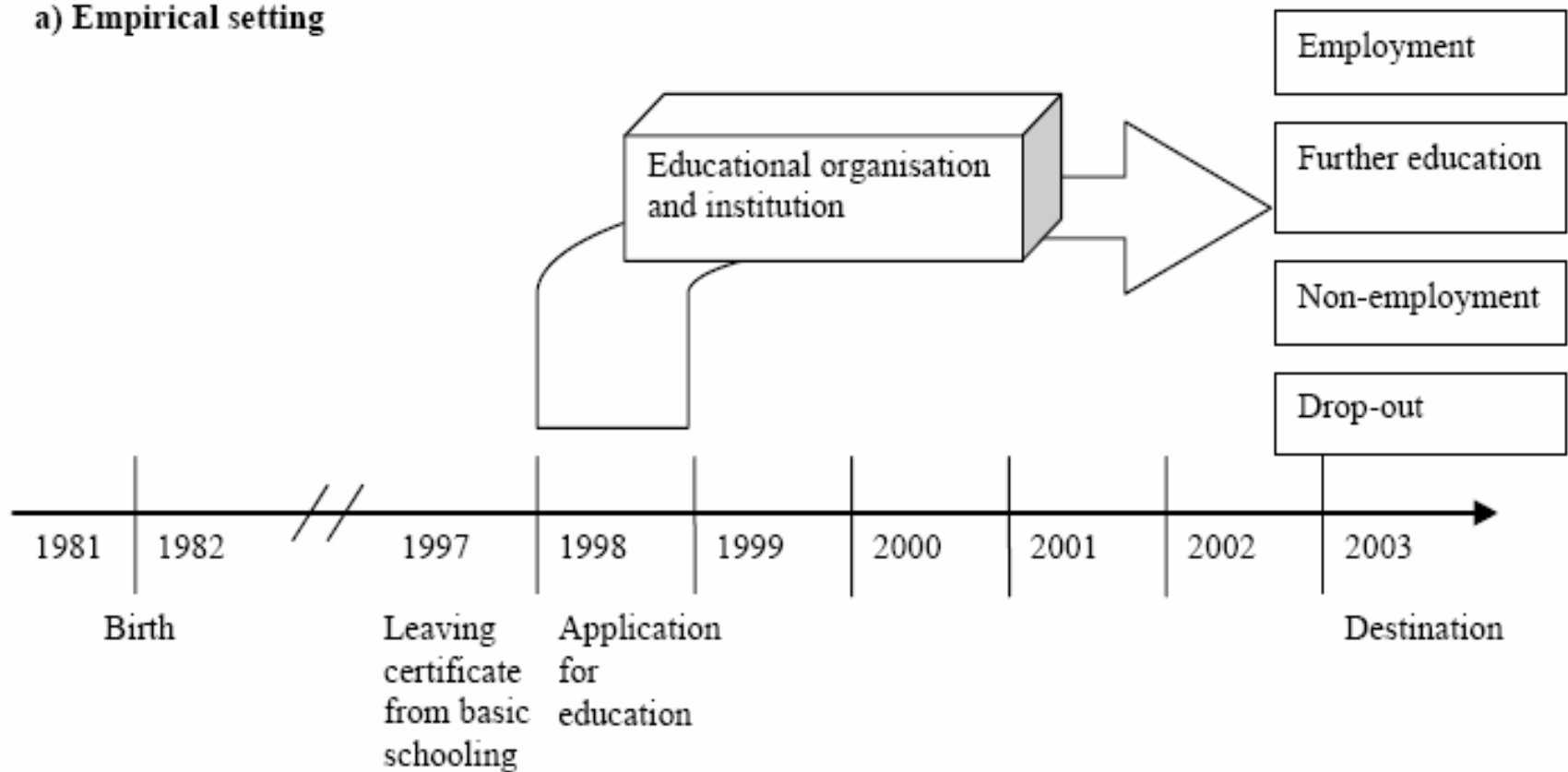
- Vast literature on education production
 - Summarized e.g. in Hanushek (JEL '86), Webbink (Journal of Economic Surveys '05)
- Attempts to overcome the selection issues
 - Krueger (QJE '99), Angrist and Lavy (QJE '99), Hoxby (QJE '00), Rivkin, Hanushek & Kain (Etrica '05)
- Results ambiguous and only small effects detected
- Lead to increased interest towards the effects of incentive systems
 - Angrist and Lavy (NBER '02), Lavy (JPE '02)

Data construction

- Sample based on students registered in vocational education in 1999 and 2000
 - applied for secondary education in autumn 1997 or spring 1998
 - born in 1982 and 1981
- Information on education providers and teacher characteristics
- Regional controls
- Information on students and their placement from the Finnish Longitudinal Employer-Employee Data (FLEED)

Empirical Setting

a) Empirical setting



Destination of students in 2003 by field of education

Occupation	Natur.	Technology	Adm.&Commerce	Hotel	Social&Health	Culture	Humanist	Total
Employment	428 62.12	5,226 63.40	1,905 59.11	1,778 63.07	1,224 64.69	296 50.34	67 67.68	10,924 62.23
Studies	85 12.34	1,112 13.49	410 12.72	264 9.37	248 13.11	122 20.75	6 6.06	2,247 12.80
Non-employment	101 14.66	1,271 15.42	468 14.52	543 19.26	230 12.16	97 16.50	7 7.07	2,717 15.48
Drop-out	75 10.89	634 7.69	440 13.65	234 8.30	190 10.04	73 12.41	19 19.19	1,665 9.49
Total	689 100.00	8,243 100.00	3,223 100.00	2,819 100.00	1,892 100.00	588 100.00	99 100.00	17,553 100.00

Descriptive Statistics

Continuous variables	Mean	Std
Teaching exp./student (1000€)	3.80	1.07
University degree teachers (%)	29.2	17.9
Formal qualified teachers (%)	27.4	13.2
-34 year teachers (%)	11.2	5.5
50- year teachers (%)	38.4	8.7
Size of organisation (00s)	7.5	7.9
Grade difference in element. sch.	-0.54	0.68
Peer effect of elementary sch.	0.8	0.1
Size of elementary school (00s)	3.5	1.6
Parent's schooling years	12.2	2.1
Employment growth in region (%)	-0.6	3.1
Separations of the above 50-years old per all workers in the business sector of the region ("retirements" in region) (%)	7.6	1.2

Descriptive Statistics cont'd

Binary variables	Proportion (%)
Rewarded for quality (organisation)	9.4
Rewarded for conduct (organisation)	21.2
Switching education field	3.2
Male student	59.6
Born in 1982 (ref. 1981)	90.5
Selected to first request	72.7
Senior high school studies	6.0
Parent's earnings > 30 000 euros	14.3
Finnish-speaking student	94.6
<i>Number of observations</i>	<i>17 553</i>

Regression Results

	Emp. b/se	Studies b/se	Non-emp. b/se	Drop-out b/se
Educational organisation/institution				
Teaching exp./student,1000€	-0.003 (0.008)	0.003 (0.004)	0.003 (0.006)	-0.003 (0.003)
Univer. degr. teachers,%	0.001* (0.000)	-0.000+ (0.000)	-0.000 (0.000)	-0.000+ (0.000)
Formal qualif. teachers,%	-0.001* (0.001)	0.000 (0.000)	0.001+ (0.000)	0.001*** (0.000)
-34 year teachers,%	0.002 (0.001)	-0.001 (0.001)	-0.002+ (0.001)	0.001 (0.001)
50- year teachers,%	0.001 (0.001)	-0.000 (0.000)	-0.000 (0.001)	0.000 (0.000)
Size of organisation,00s	0.001 (0.001)	-0.001 (0.000)	-0.000 (0.001)	0.000 (0.000)
Rewarded for quality	-0.054* (0.024)	0.031* (0.012)	0.016 (0.014)	0.007 (0.007)
Rewarded for conduct	0.002 (0.017)	0.002 (0.007)	-0.005 (0.011)	0.001 (0.007)
"Special-case" student share	-0.331* (0.157)	0.029 (0.078)	0.244** (0.089)	0.057 (0.063)

Regression Results cont'd

Characteristics of student				
Grade dif. in element. sch.	0.040*** (0.007)	0.063*** (0.004)	-0.031*** (0.005)	-0.073*** (0.004)
Peer effect of element. sch.	-0.140* (0.056)	0.297*** (0.038)	0.136** (0.044)	-0.293*** (0.024)
Size of element. sch.,00s	0.011*** (0.003)	-0.004** (0.002)	-0.006** (0.002)	-0.001 (0.001)
Switching edu. field	-0.097*** (0.025)	0.062** (0.020)	-0.057*** (0.013)	0.092*** (0.019)
Male student	0.047*** (0.013)	-0.030*** (0.009)	-0.019* (0.009)	0.002 (0.005)
Born in 1982 (ref. 1981)	0.047*** (0.012)	0.006 (0.009)	-0.034** (0.011)	-0.019** (0.007)
Selected to first request	0.035*** (0.008)	-0.016** (0.006)	-0.002 (0.006)	-0.017*** (0.005)
Senior high school studies	-0.019 (0.024)	-0.010 (0.009)	0.004 (0.017)	0.025* (0.012)
Parent's schooling years	-0.008*** (0.002)	0.008*** (0.001)	-0.000 (0.001)	0.001 (0.001)
Parent's earnings > 30 000 €	0.043*** (0.011)	-0.009 (0.006)	-0.019* (0.009)	-0.015** (0.005)
Finnish-speaking	-0.039* (0.018)	-0.019 (0.013)	0.045*** (0.012)	0.013 (0.008)

Regression Results cont'd

	Emp.	Studies	Non-emp.	Drop-out
	b/se	b/se	b/se	b/se
Local business conditions				
Emp. growth in region	0.005** (0.002)	-0.000 (0.001)	-0.004** (0.001)	-0.001+ (0.001)
Retirements in region	0.007 (0.005)	0.000 (0.003)	-0.006+ (0.003)	-0.000 (0.002)
N	17553			
pseudo R ²	0.065			
log likelihood	-17574.2			

Note: Coefficients refer to the average marginal effects. Robust standard errors in parentheses, clustered on the basis of the educational organisation and the main field of education (446 clusters)
 + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Additional Estimations

- Separately for boys and girls:
 - Higher share of teachers with university degree increases the employment probability of girls, no effect on boys
 - Quality reward system affects only the outcomes of girls
 - Local business conditions have an effect for boys but not for girls
- For students not selected to their first request
- Excluding fields with application tests
- Measuring the outcomes at the end of 2003

Conclusions

- Not clear policy suggestions for improving quality
- An incentive system a possible solution
- Room for improvement in the current system
 - value added versus cream-skimming
 - controlling for fields of education
 - different regional environments
- Providing further possibilities for evaluating the effects of incentive systems required (implementing incentive systems in steps etc.)