

# **What happened to the PISA 2000 cohort? Education-to-work transition 5 years later**

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# Structure

- 1. Introduction**
- 2. Swiss education system**
- 3. Research questions**
- 4. Data**
- 5. Empirical results**
- 6. Conclusion**

# Introduction

## 3 reasons for this paper

- 1) Transitions from school-to-work are constantly in the heat of political and scientific debate (youth unemployment rates preoccupy more than unemployment rates in general)**
- 2) In countries with apprenticeship training, there are two crucial transitions (from school-to-apprenticeship and from apprenticeship-to-work) – are they linked or independent?**
- 3) The PISA 2000 cohort in Switzerland was followed for 7 years in yearly surveys. Link between PISA data and subsequent labor market outcomes.**

# Swiss Education System

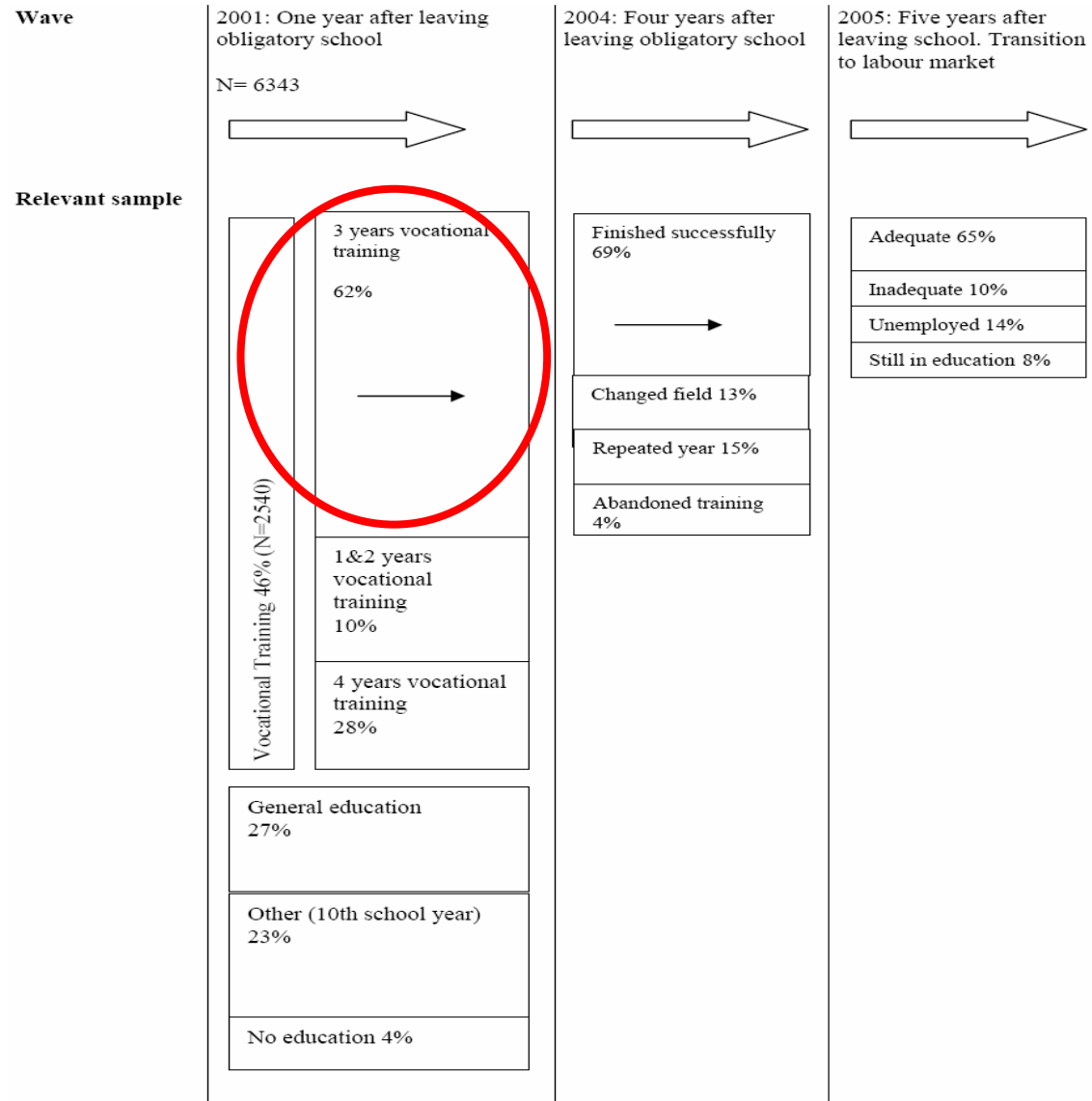
- **Compulsory: 6 years primary school and 3 years lower secondary school**
- **In lower secondary school pupils are sorted into different school tracks depending on intellectual abilities.**
- **Different paths in upper secondary school: Gymnasium, Specialized Middle Schools or Vocational Training.**

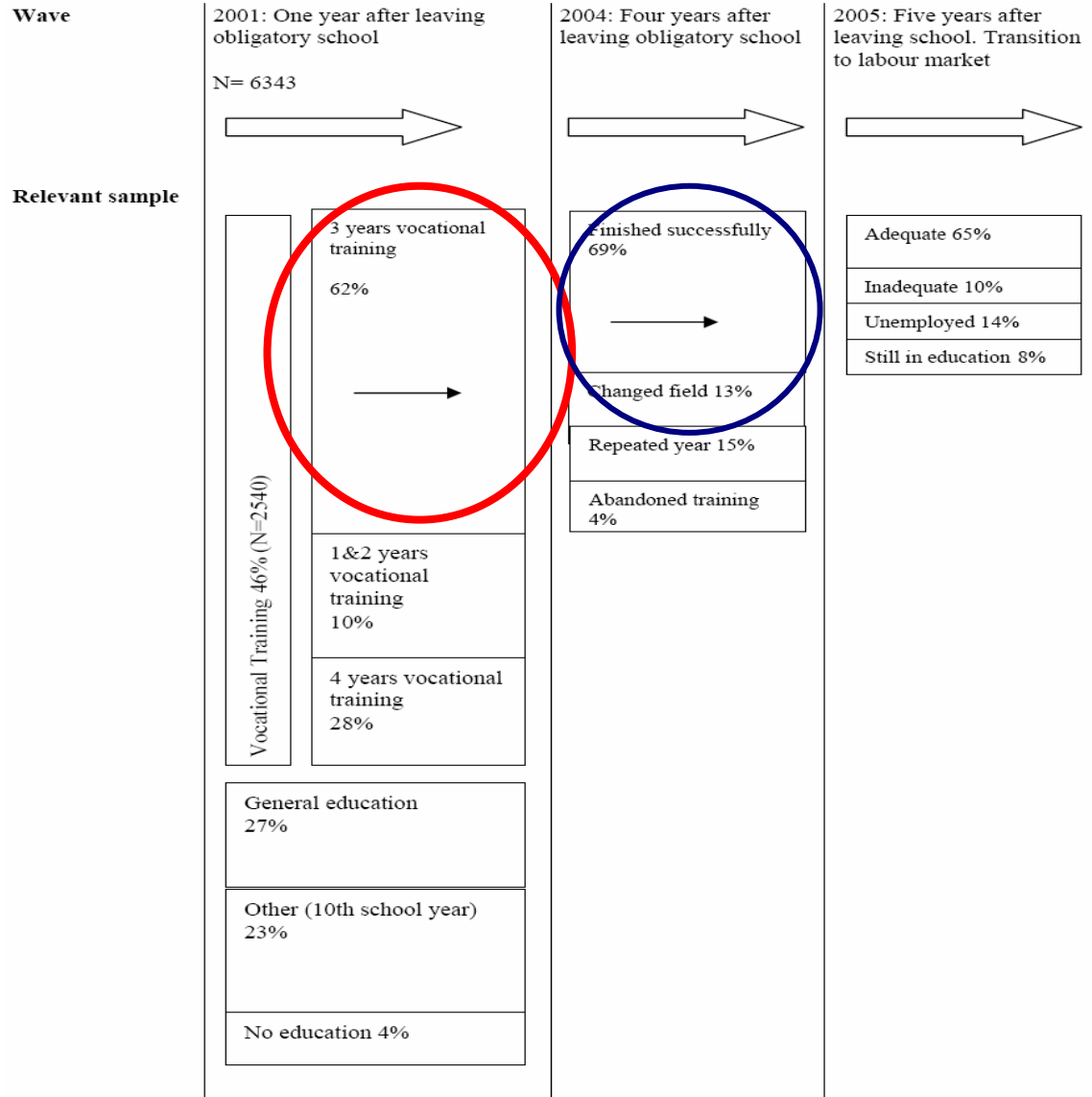
## Research questions

- **Is there a connection between difficulties at the end of compulsory school and problems in the labour market entry?**
- **Do weak compulsory school pupils (measured by PISA) have problems later on, independently of what they did afterwards?**
- **Büchel (2002) concluded from a multi-cohort study in Germany that earlier cohorts had the same chances in the labor market after apprenticeship training independently of their school background. However, in the more recent cohort weak pupils had significantly more problems even after the successful completion of apprenticeship training.**

## Data

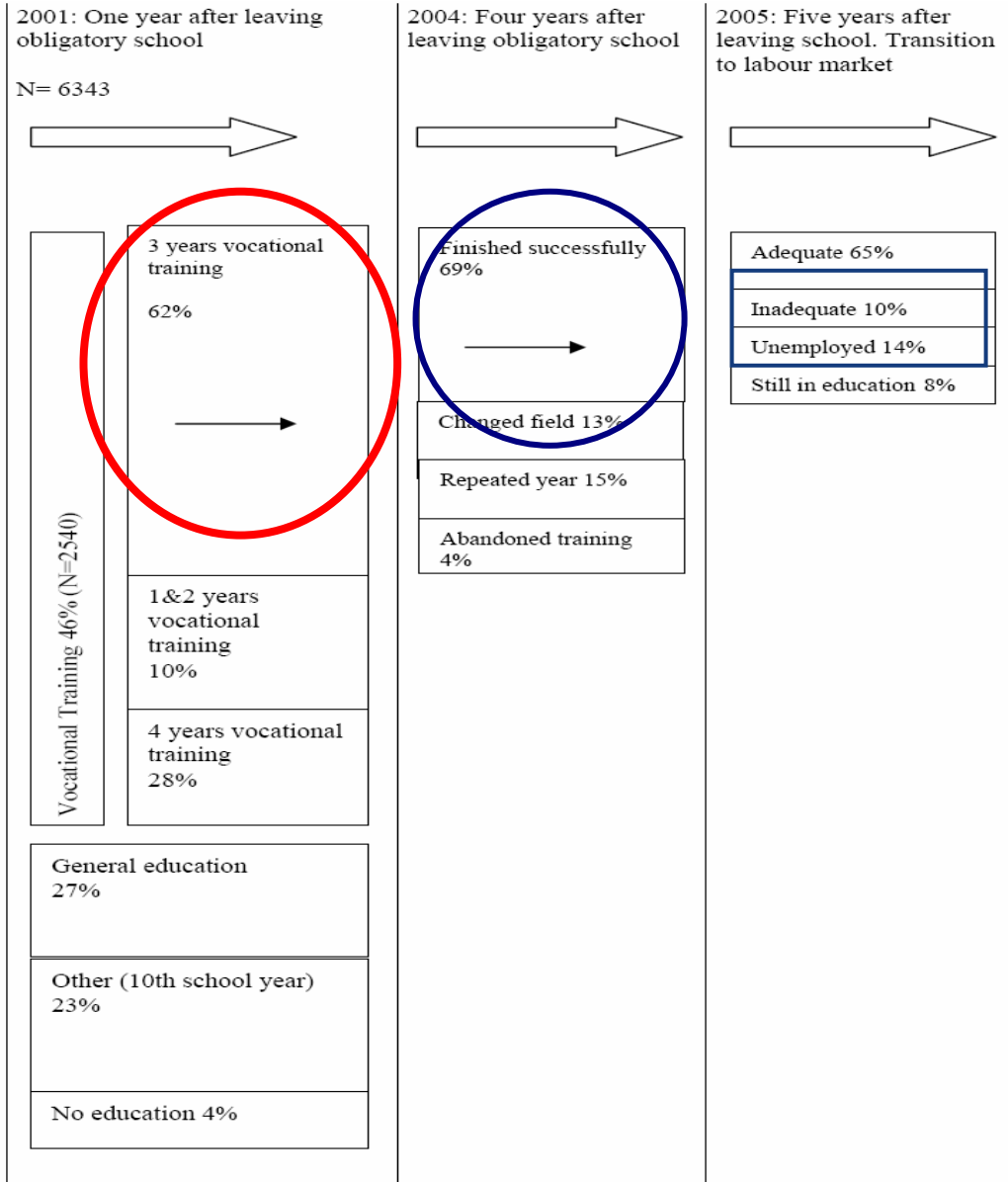
- **Nearly 6'000 9th graders who had participated in the PISA 2000 test in Switzerland participated in a yearly follow-up survey till 2007.**
- **Allows to link the rich background data from the PISA survey to labour market data. So far the cross-sectional data from PISA did not allow much causal analyses.**
- **We had the data up the 5th wave (2005).**
- **We analyze only those compulsory school leavers who followed the vocational education path.**
- **We classify vocational training into higher and lower intellectual level.**







**Relevant sample**



**Table A1: Descriptive Statistics**

	<i>Adequate</i>	<i>Inadequate</i>	<i>Total</i>
PISA score in reading	509.298 (5.156)	482.153 (8.625)	502.787 (4.537)
Higher-Intellectual-level	0.821 (0.028)	0.179 (0.028)	0.598 (0.03)
Lower-Intellectual-level	0.669 (0.049)	0.331 (0.049)	0.402 (0.03)
Upper-level School Track	0.796 (0.0271)	0.204 (0.0271)	0.721 (0.029)
Lower-level School Track	0.704 (0.056)	0.296 (0.056)	0.279 (0.029)
Socio-economic status index	-0.576 (0.083)	-0.344 (0.057)	-0.396 (0.049)
Final score	4.819 (0.023)	4.733 (0.039)	4.799 (0.020)
Full-time vocational school	0.701 (0.075)	0.299 (0.075)	0.096 (0.015)
Dual Apprenticeship	0.777 (0.027)	0.223 (0.027)	0.904 (0.015)
Female	0.796 (0.028)	0.204 (0.028)	0.508 (0.03)
Male	0.742 (0.043)	0.258 (0.043)	0.492 (0.03)
Total	0.769 (0.026)	0.231 (0.026)	
Number of observations	502	140	642

Standard errors in parentheses

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**Table A2: Probit model of the probability of finding an adequate job**

	(1)	(2)	(3)	(4)	(5)
PISA score in reading/10	0.028 (0.011)*	0.025 (0.011)*	0.017 (0.013)	0.01 (0.013)	-0.002 (0.015)
Final score		0.286 (0.23)		0.43 (0.233)+	0.441 (0.248)+
Higher-intellectual-level			0.366 (0.197)+	0.45 (0.200)*	0.553 (0.203)**
Full-time vocational school					-0.428 (0.257)+
Upper-level school track*female					0.375 (0.177)*
Lower level school track*female					-0.098 (0.292)
Lower-level school track*male					0.386 (0.337)
Older than 16					-0.085 (0.208)
Socio-economic index					0.14 (0.092)
Foreign language					-0.022 (0.408)
Immigrant					-0.039 (0.384)
Countryside					0.032 (0.17)
French region					-0.233 (0.192)
Italian region					-0.077 (0.312)
Constant	-0.679 (0.58)	-1.895 (1.158)	-0.331 (0.614)	-2.08 (1.177)+	-1.629 (1.358)
$\bar{x}'\beta$	0.872	0.986	0.901	0.756	-0.16
Observations	642	642	642	642	642

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# Biases

- **Endogeneity** in the variable „higher-intellectual-level“
- **Selection bias** due to drop-outs, e.g. weaker students could just drop out more easily from apprenticeship training with higher intellectual requirements
  
- We run a simultaneous trivariate probit (following specifications of Capellari and Jenkins, 2003):
  - Probit 1: Selection into higher-intellectual-level” apprenticeship
  - Probit 2: Drop-out from apprenticeship
  - Probit 3: Transition into the labor market



(B)

*Higher-intellectual-level (N=992)*

PISA score in reading	0.0054	0.001**
Upper-level school track*female	0.014	0.102
Lower-level school track*female	-0.732	0.136**
Lower-level school track*male	-0.904	0.154**
Motivation index	0.123	0.059*
Older than 16	-0.208	0.104*
Socio-economic index	0.155	0.057**
Immigrant	0.239	0.145
Foreign language	0.3	0.162+
Countryside	-0.332	0.095**
French region	0.173	0.104+
Italian region	0.482	0.157**
Constant	-1.98	0.395**

(C)

*Successful (N=992)*

PISA score in reading	0.005	0.001**
Higher-intellectual-level	-0.574	0.661
Events	-0.078	0.036*
Full-time vocational school	-0.687	0.146**
Upper-level school track*female	-0.021	0.099
Lower-level school track*female	-0.296	0.203
Lower-level school track*male	-0.36	0.223
Older than 16	-0.315	0.101**
Socio-economic index	0.023	0.069
Immigrant	-0.037	0.151
Foreign language	0.069	0.159
Countryside	0.11	0.136
French region	-0.483	0.154**
Italian region	-0.377	0.224+
Constant	-0.95	0.378**
<hr/>		
$\rho_{12}$	-0.181	0.523
$\rho_{13}$	-0.245	0.615
$\rho_{23}$	0.56	0.381

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## Conclusions

- **No evidence that PISA results have a direct effect on labour market outcomes.**
- **Inadequate employment after apprenticeship training is predominantly a phenomena of apprenticeships with lower intellectual demands (controlling for selection into these apprenticeships and sample selection).**
- **But: Poor school performance at the end of compulsory school increases the likelihood to be in an profession with low intellectual standards and also the danger to drop out of apprenticeship training: PISA matters!**



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Five Years Later?**

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**Thank you!**