



**WISCAPE Brown Bag Forum**

## **The Changing Influence of Social Background and Academic Ability on College Aspirations**

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## Three background papers

**Petr Matějů and Michael L. Smith: The Perceived Value of Education and the Formation of Educational Aspirations in the Czech Republic: The change between 1989 and 2003**

**Petr Matějů (Michael L. Smith, Petr Soukup, and Josef Basl): College expectations in cross-national comparative perspective. The Role of Individual and Structural Factors in the Determination of College Expectations in OECD Countries**

**Petr Matějů, Blanka Řeháková and Natalie Simonová: "Structural Growth of Inequality in Access to Higher Education in the Czech Republic" - unabbreviated version of the chapter 15 from Y. Shavit, , G. Menahem, R. Arum, and A. Gamoran (eds.). Stratification in Higher Education: A Comparative Study. Stanford: Stanford University Press, 2007.**

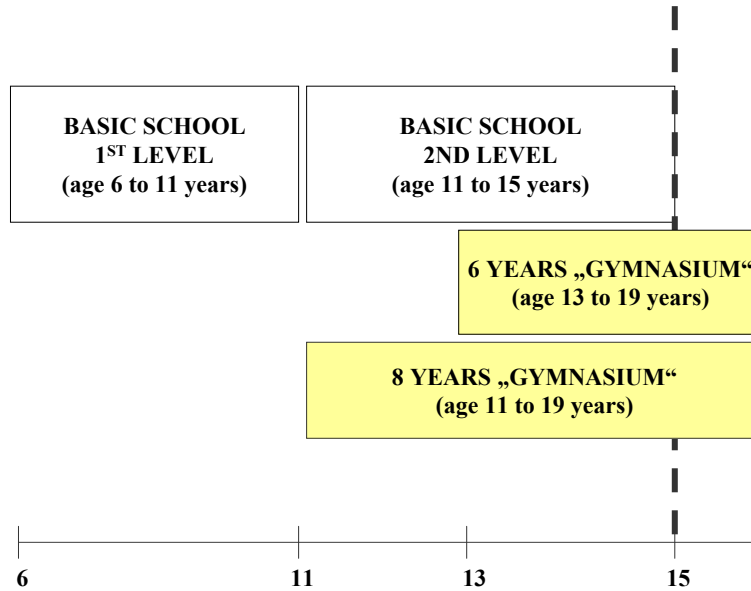
## Structure

- Educational aspirations in stratification research: three main paradigms
- The role of socio-economic transformation in the development of aspirations
- Main results of prior comparative research in educational aspirations in the Czech Republic
- Hypotheses
- Data
- Structural model
- Results
- Conclusions

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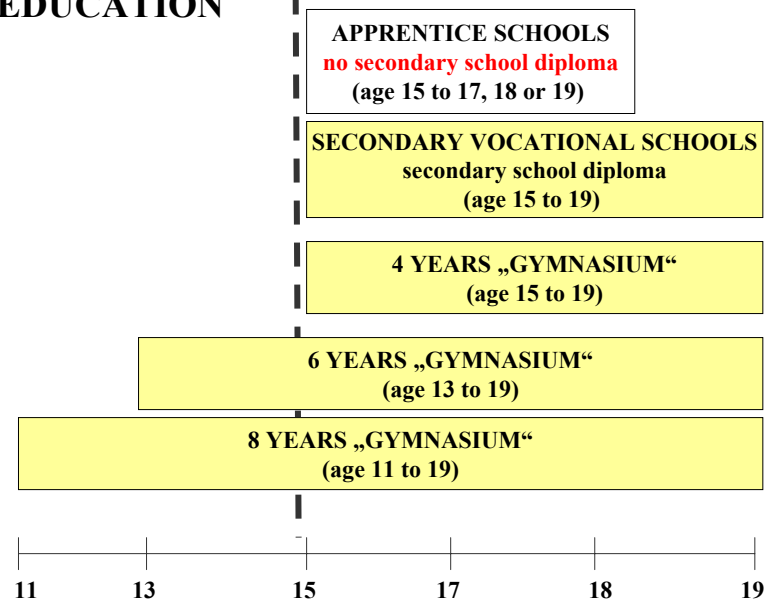
## **Structure of the Czech educational system**

## COMPULSORY EDUCATION

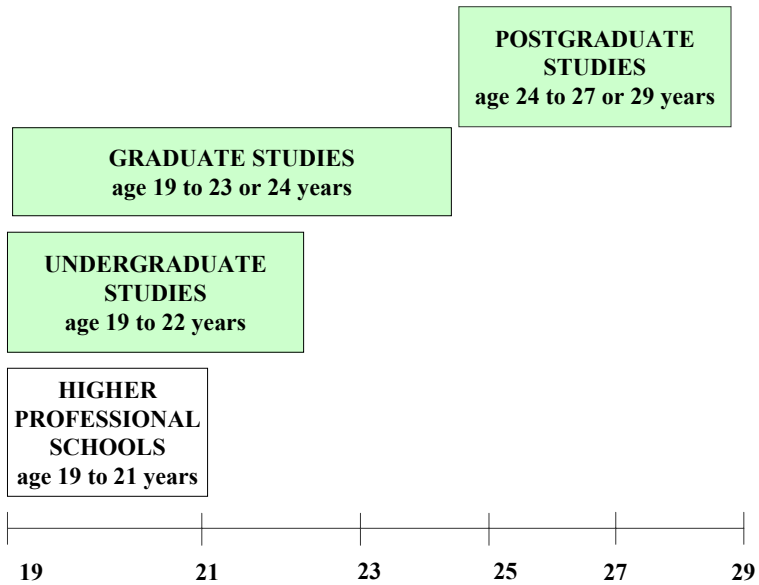


## COMPULSORY EDUCATION

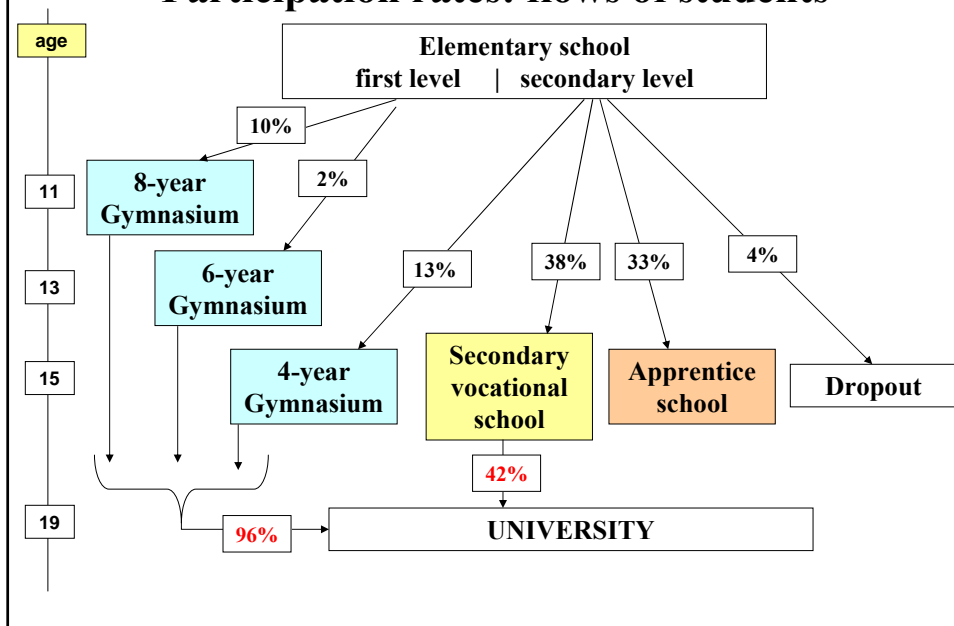
## SECONDARY EDUCATION



## TERTIARY EDUCATION



## Participation rates: flows of students



## Three main paradigms

### 1. 1950's: Aspirations as a dependent variable

**The aim:** the study of educational and occupational aspirations may contribute to understanding the **reproduction of class inequality**

Leonard Riessman (1953) "Levels of Aspiration and Social class"

Joseph Kahl (1953). "Educational and Occupational Aspirations of "Common Man" Boys."

Herbert Hyman (1953). "The Value Systems of Different Classes: A Social Psychological Contribution to the Analysis of Stratification."

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## Three main paradigms

### 2. 1960's - 1980's: Aspirations as a key intermediate variable in the status attainment process

**The aim:** to assess the role of socio-psychological factors in the process of socio-economic attainment **social-psychological model, aspirations: the strategic centre of the model (Haller and Portes),**

W.H. Sewell, A.O. Haller and A. Portes. 1969. "The Educational and Early Occupational Attainment Process."

A.O Haller and A. Portes. 1973. "Status Attainment Processes." (Sociology of Education)

W.H. Sewell, A.O. Haller and G.W. Ohlendorf. 1970. "The Educational and Early Occupational Status Attainment Process: Replication and Revision."

R.M Hauser, 1972. "Disaggregating a Social-Psychological Model of Educational Attainment."

Hauser, R.M., S.L. Tsai and W.H. Sewell. 1983. "A Model of Stratification with Response Error in Social and Psychological Variables."

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## Three main paradigms

### 3. 1970's ⇒ Aspirations as a dependent variable

**The aim:** To assess the role of structural context in the formation of aspirations: aspirations certainly affect future attainment, but - at the same time - they are shaped by **observed structural constraints**, so they reflect *more* than just ability and pure motivation

Kerckhoff, A.C. "The Status Attainment Process: Socialization or Allocation?" *Social Forces* 1976

Kerckhoff, A. C. *Institutional Arrangements and Stratification Processes in Industrial Societies*, ARS, 1995

Kerckhoff, A. C. *The Realism of Educational Ambitions in England and the United States*. ASR, 1997

Müller, W. and Y. Shavit. *The Institutional Embeddedness of the Stratification Process: A Comparative Study of Qualifications and Occupations in Thirteen Countries* (in Müller, W. and Y. Shavit „From School to Work“, 1998)

Buchmann, C. and H. Park, *The Institutional Embeddedness and Occupational Expectations: A Comparative Study of 12 Countries*. Paper presented at RC28, LA, 2005

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## Social-transformation perspective

**The aim:** To assess how the change in political, economic, social and structural **contexts**, as well as in **socio-psychological factors**, impacted the formation of educational aspirations during the post-communist transformation,

**namely the role of:**

- changes in the educational system
- changes in the labor market returns to education
- the *level* and *nature* of inequality
- beliefs about inequality, values and norms, perceived role of various factors determining life-success

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# I.

## **Main results from our comparative research in educational aspirations**

Analysis of OECD data: determination of college expectations in comparative perspective

Matějů, P., P.Soukup, J.Basl, and M.Smith: "Educational Aspirations in Comparative Perspective: The Role of Individual, Contextual and Structural Factors in the Formation of Educational Aspirations in OECD Countries." Paper presented at the conference of the European Consortium for Sociological Research: European Comparative Studies: Quality and Inequality in Education, Prague, September 1-2, 2006

## Context

### **Socialism:**

1. Czechoslovak system of secondary education was
  - a) highly stratified
  - b) highly vocational specific.
2. Access to tertiary education was very limited and centrally controlled.

### **Current situation:**

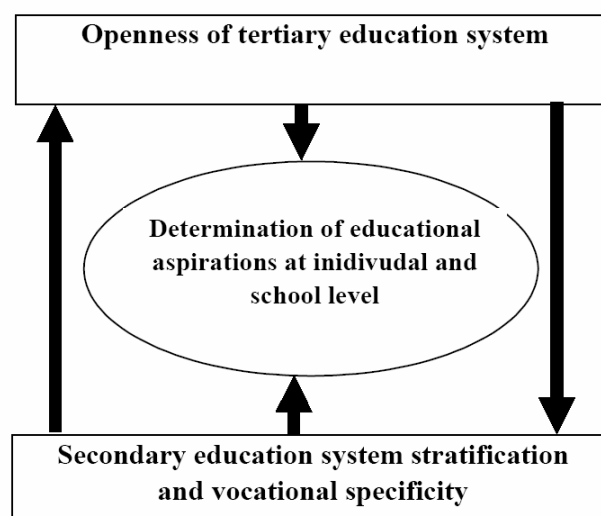
- a) very high degree of stratification and vocational specificity of secondary education has remained;
- b) accessibility of tertiary education ranks among the lowest among OECD countries
- c) selectivity of tertiary education among the highest, among OECD countries

## Principal hypothesis

**Czech educational system has generated significantly stronger determination of educational aspirations by social origin, ability and gender than is the case in other OECD countries.**

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Hypothesized relationships between characteristics of the educational system and educational aspirations



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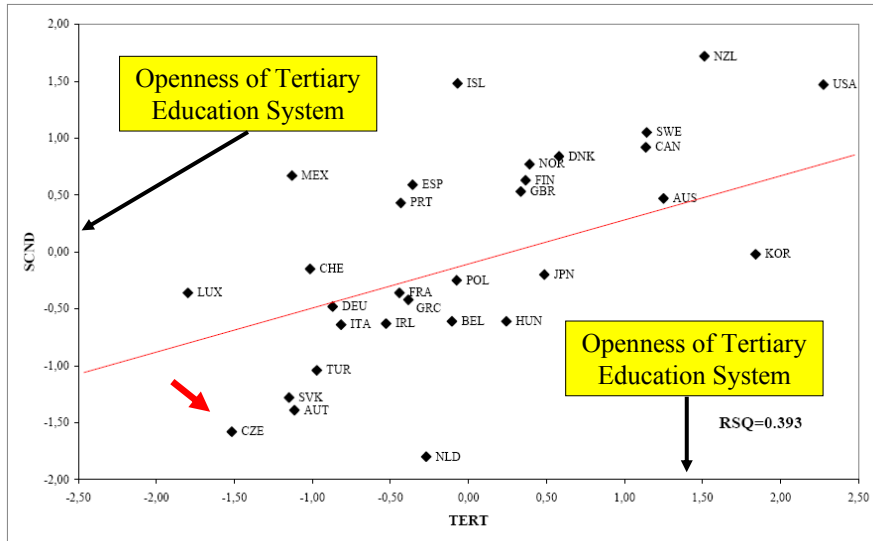
## OECD indicators

Acronym	Description	Source
GENSEC	Upper secondary education enrolment in general education programs (2003)	EaG, C2.1
NUMPRG	Number of school types or distinct educational programs available to 15-year-olds (2003)	EaG, D6.1
VOCAT	Proportion of 15-year-olds enrolled in programs that give access to vocational studies at the next program level or direct access to the labor market (2003)	EaG, D6.1
EXPSEC	Expenditure on educational institutions of primary, lower secondary and primary education as a percentage of GDP from public and private sources (2002)	EaG, B2.1
ENROL	Net entry rates into tertiary education (2003)	EaG, C2.2
PRVRSC	Relative proportion of private sources of funding on institutions of tertiary education (percentage of total expenditure, 2002)	EaG, B.3.2
FINAID	Financial aid to students: public subsidies for households and other private entities as a percentage of total public expenditure on tertiary education (percentage of total expenditure on tertiary education, 2002)	EaG, B.5.2
EXPTER	Expenditure on tertiary educational institutions as a percentage of GDP from public and private sources (2002)	EaG, B2.1

## Principal Component Analysis

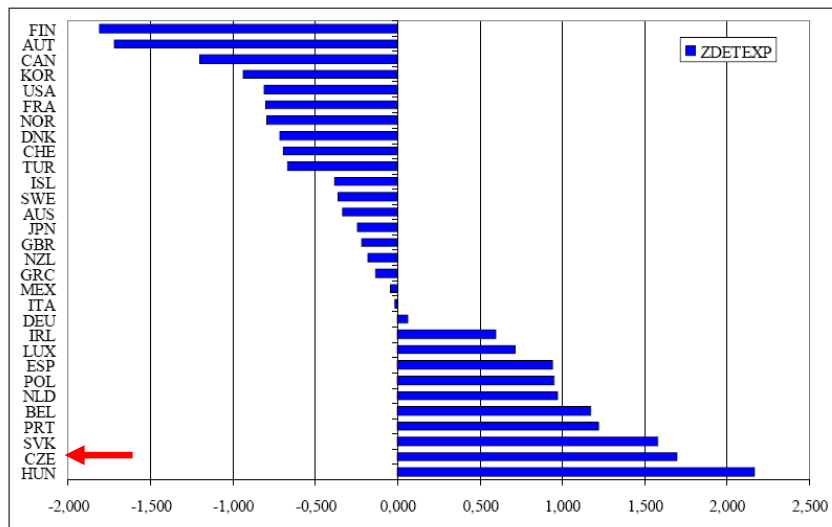
Variable	Before rotation		After rotation	
	DIM1	DIM2	SCND	TERT
GENSEC	0.638	0.455	0.650	-
NUMPRG	-0.922	0.177	-0.853	-
VOCAT	-0.520	0.486	-0.702	-
EXPSEC	0.668	-0.310	0.705	-
ENROL	0.721	-0.031	-	0.720
PRVRSC	0.339	0.882	-	0.615
FINAID	0.681	-0.238	-	0.618
EXPTER	0.741	0.294	-	0.793
% of VAR	45.3	18.6	53.5	47.7

OECD-PISA countries in a two-dimensional space defined by the openness of the secondary education system (SCND) and the openness of the tertiary education system (TERT)



### Overall determination of educational aspirations

Standardized coefficient of determination (Nagelkerke R<sup>2</sup>) from logistic regression of educational aspirations on ability (ABIL), gender and socio-economic background (HISEI)



## **II. Change in the determination of educational aspirations in the Czech Republic 1989 – 2003**

Analysis of data from two longitudinal projects:  
Family 1989 and PISA-L

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## Hypotheses

### **CONTEXT:**

The economic value of education has grown (economic returns to education almost doubled between 1989 and 2003) and the role of education in life-success significantly strengthened. Achieving higher education is becoming a more universal “strategy” for life-success

**H1 ⇒ Changes in the economic returns to education and in the role of education in life-success after 1989 led to a significant growth of educational aspirations between 1989 and 2003**

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# Hypotheses

## CONTEXT:

Educational aspirations have been growing;  
System of secondary education remains highly stratified and selective;  
System of tertiary education remains “closed” (supply driven) and highly selective;  
Competition at the entry to tertiary level is extremely strong;  
In order to increase a chance of admitting to college or university, parents strive to place their children to elite secondary schools.

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# Hypotheses

- H2 ⇒ Direct effect of social origin on aspirations has diminished**
- H3 ⇒ The effect of ability on aspirations has grown**
- H4 ⇒ The effect of parental SES on the perceived value of education among parents and children has weakened**
- H5 ⇒ The total effect of social origin on educational aspirations has not changed, i.e. has remained very strong**

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## **Data 1989**

### **Data from a longitudinal survey Family 1989**

- First survey carried out in January 1989 on a total sample of 3,719 students in their 8th year of education.
- The questionnaire contained questions on educational aspirations and plans, occupational aspirations, beliefs about life-success, cultural activities and leisure time, material life conditions etc.
- Students were asked to complete the Czech version of Cattell's "*High School Personality Questionnaire*."

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## **Data 1989**

### **Data from a longitudinal survey Family 1989 (cntd.)**

- The survey of students was followed by a survey of their parents (73% response rate). Parents were asked about their education, occupation, income, cultural participation, social contacts, beliefs about life-success, educational expectations form their children, etc.
- The merged student-parents data file contains 2,709 cases.

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## Data 2003

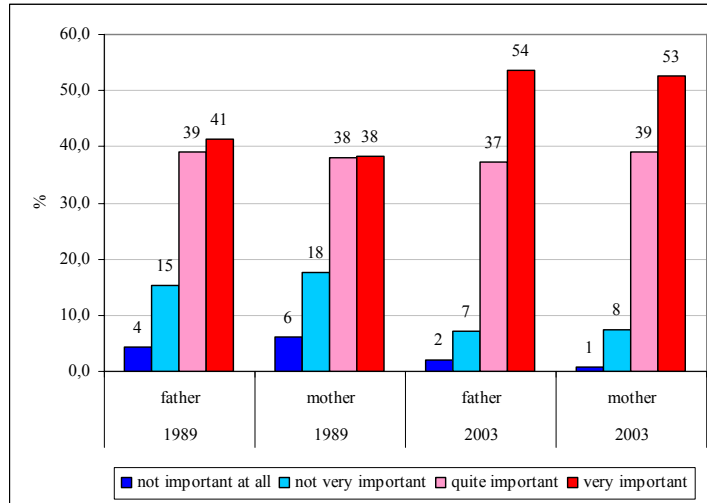
### Data from a longitudinal survey PISA-L

- Special PISA-L questionnaires for students and their parents.
- Similar to the 1989 survey, the questionnaire contained questions on educational aspirations and plans, occupational aspirations, beliefs about life-success, cultural activities and leisure time, material life conditions etc.
- Also, parents were asked questions allowing a comparison with the 1989 survey (education, occupation, income, cultural participation, social contacts, beliefs about life-success, educational expectations from their children, etc.)
- The merged student-parents data file contains 2,479 cases. 27

## Variables

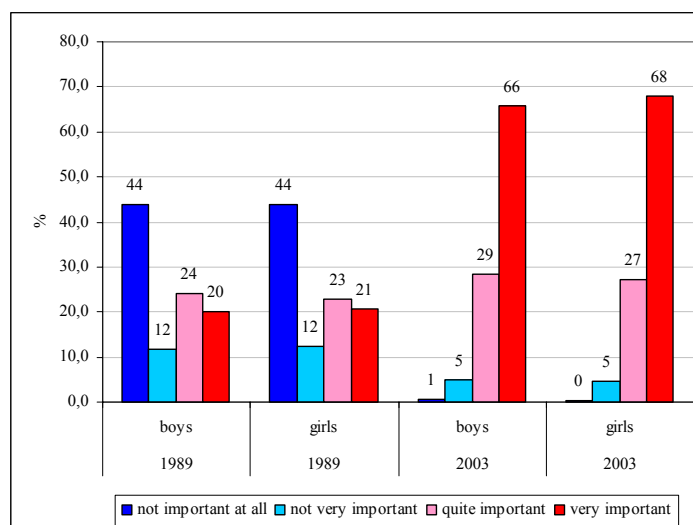
- **EDUASP**: educational expectations (standardized scale created from variables: college aspirations, expectation to attain the education aspired for)
- **D-EDU**: student's perceived role of education in life-success (how important for success in life is to achieve higher education - ordinal variable)
- **R-EDU**: parents' perceived role of education in life-success (how important for child's success in life is to achieve higher education - ordinal variable)
- **EDU-H**: The highest attained education by either parent
- **ISEI-H**: The highest socio-economic status of either parent
- **FAMINC**: Total family income
- **ABIL**: in 1989 IQ (Cattel HSPQ), in 2003 average from plausible values of READ, MATH, SCIE, PROB)

### Change in perceived role of education in life-success between 1989 – 2003: parents



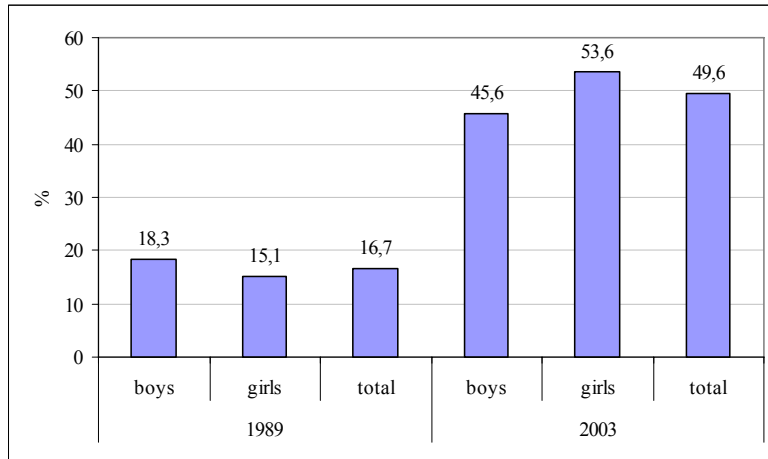
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### Change in the perceived role of education in life-success between 1989 – 2003: children

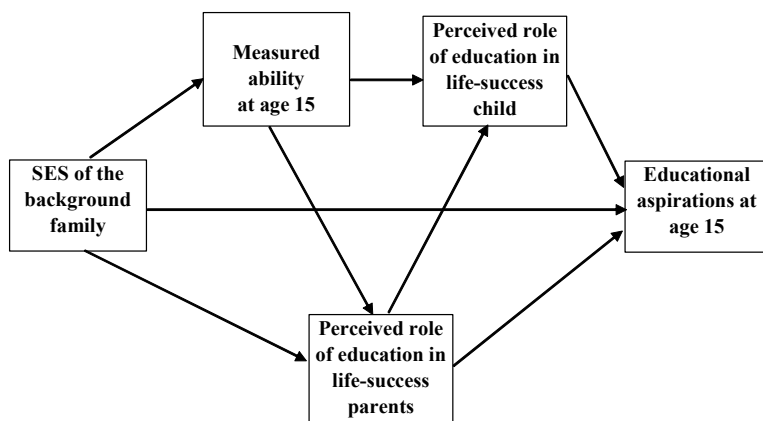


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### Change in college aspirations among pupils 1989 - 2003

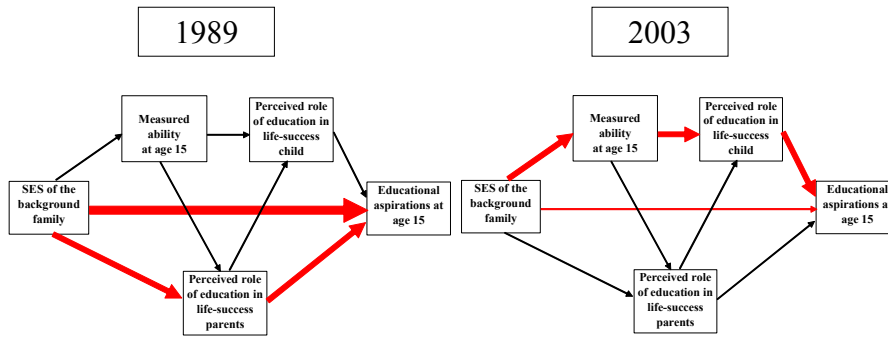


### Theoretical causal model



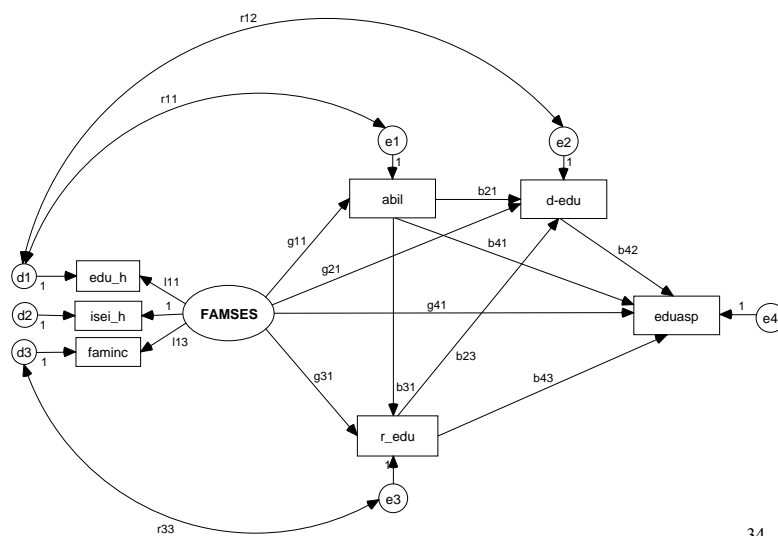


## Hypothesis about the change in the determination of educational aspirations between 1989 and 2003



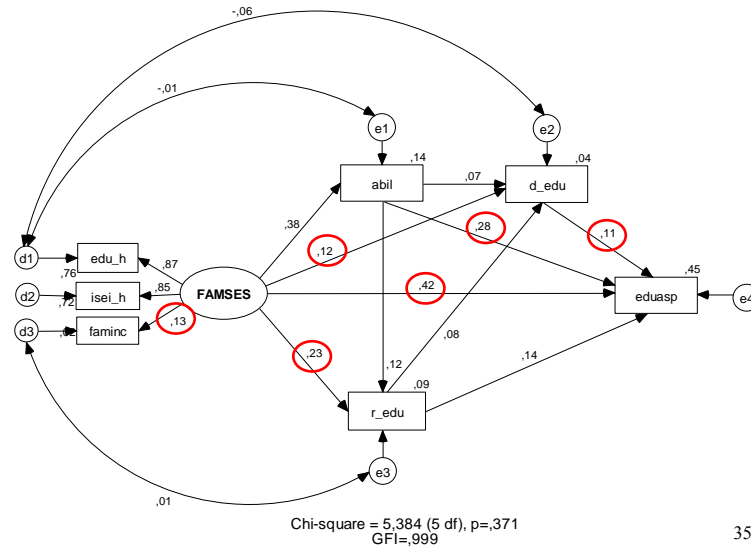
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## Structural model parameters



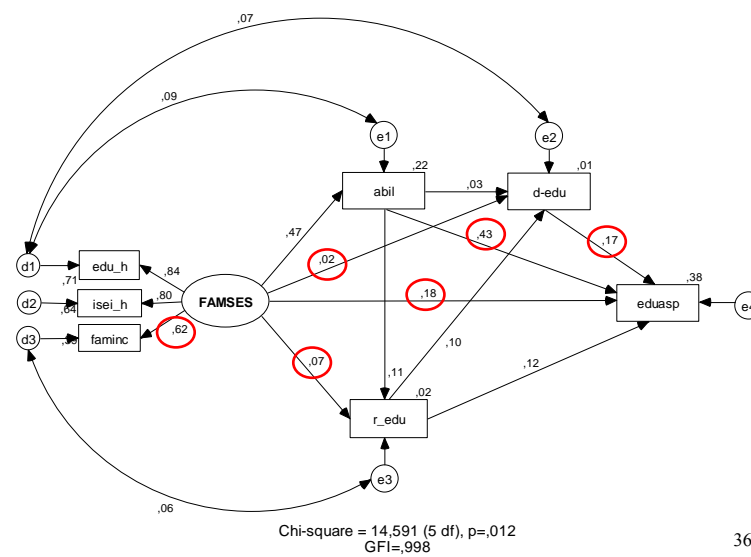
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## Structural model standardized coefficients 1989



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## Structural model standardized coefficients 2003



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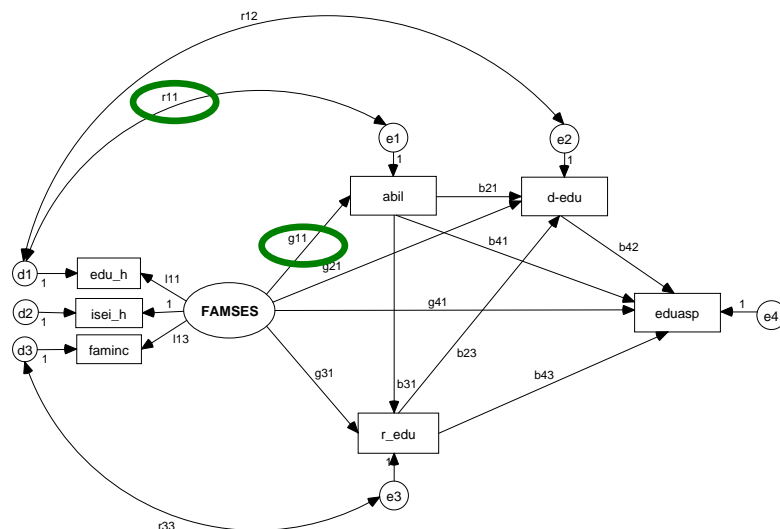
# Structural model

## decomposition of total effects

Part of the model and composition of the respective effect	Standardized coefficient		Proportion from the total effect of FAMSEs on EDUASP	
	1989	2003	1989	2003
<b>M1</b> ( $g_{41}$ ) direct effect of FAMSEs	0.421	0.185	72.3%	44.9%
<b>M2</b> ( $g_{31} * b_{43}$ ) + ( $g_{31} * b_{23} * b_{42}$ ) effect of FAMSEs through the perceived importance of education among parents	0.034	0.009	5.8 %	2.3%
<b>M3</b> ( $g_{11} * b_{41}$ ) + ( $g_{11} * b_{21} * b_{42}$ ) + ( $g_{11} * b_{31} * b_{43}$ ) + ( $g_{11} * b_{31} * b_{23} * b_{43}$ ) effect of FAMSEs through ABILITY and the perceived importance of education among children	0.115	0.213	19.7%	51.8%
<b>Total effect</b>	<b>0.582</b>	<b>0.413</b>	<b>100.0 %</b>	<b>100.0%</b>

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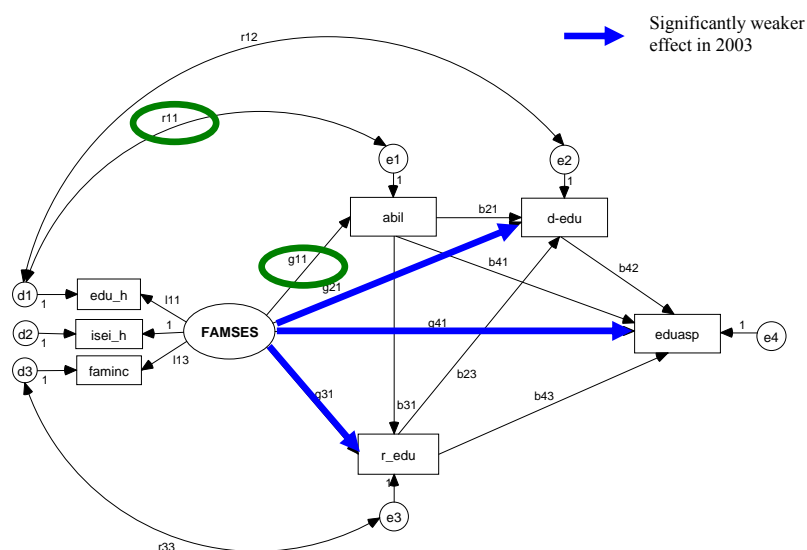
## Testing differences between 1989 and 2003 (multisample-analysis)



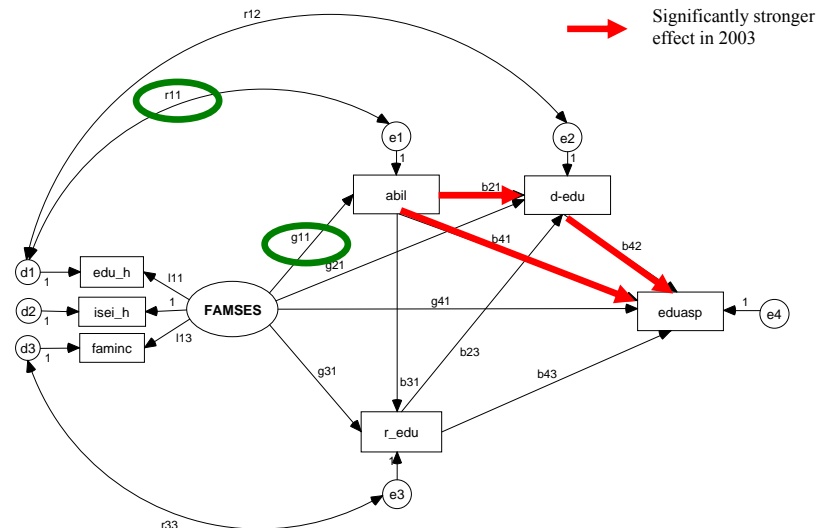
## Testing differences between 1989 and 2003 (multisample-analysis)

Model	Effect set to be equal	DF	Chisq	p
(g11+r11)+g41	famses → eduasp	1	<b>44.493</b>	<b>0.000</b>
(g11+r11)+b42	d_educ → eduasp	1	<b>72.101</b>	<b>0.000</b>
(g11+r11)+b43	r_educ → eduasp	1	0.464	0.496
(g11+r11)+b23	r_educ → d_educ	1	2.640	0.104
(g11+r11)+g31	famses → r_educ	1	<b>24.105</b>	<b>0.000</b>
(g11+r11)+g21	famses → d_educ	1	<b>12.340</b>	<b>0.000</b>
(g11+r11)+b41	abil → eduasp	1	<b>31.600</b>	<b>0.000</b>
(g11+r11)+b31	abil → r_educ	1	1.299	0.254
(g11+r11)+b21	abil → d_educ	1	<b>4.846</b>	<b>0.028</b>

## Testing differences between 1989 and 2003 (multisample-analysis)



## Testing differences between 1989 and 2003 (multisample-analysis)



## Conclusions

### Social context

- **Večerník and others:** the economic value of education has grown (economic returns to education almost doubled between 1989 and 2003)
- **Family 1989 and PISA-L 2003:** The value of education has ‘universalized’: the role of higher education as a strategy of life-success has significantly strengthened.

➔ **Educational aspirations have grown** (proportion of nine-graders aspiring for college/university education more than doubled between 1989 and 2003)

## Conclusions

### Structural context

Matějů, Smith, Soukup and Basl:

- The Czech system of secondary education ranks among the most stratified, vocational specific and selective systems among OECD countries.
- Highly stratified secondary schools and selective tertiary education cause extremely tough competition at the entry to preferred secondary schools (namely those that prepare pupils for entry to tertiary education) as well as at to university admissions.
- Educational aspirations are formed in an extremely competitive environment, therefore they are very strongly (more than in other countries) determined by social origin, ability and gender.

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## Conclusions

### Principal consequences for the determination of educational aspirations

- The **direct** effect of SES of the background family on college educational aspirations has diminished (a comparison of the two models indicates that the direct effect has diminished by more than half)

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# Conclusions

## Principal consequences for the determination of educational aspirations

- Why a decline in direct effect?
  - Under communism, higher education was largely a **means of the reproduction of the cultural elite** (due to its low economic returns at the time), rather than a strategy of life-success
  - In the 1990s, as education becomes an important **strategy of life-success**, its value becomes ‘universalized,’ meaning that the impact of SES becomes mediated by how pupils and parents value education

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# Conclusions

## Principal consequences for the determination of educational aspirations

The **indirect** effect of SES on aspirations through ability and the perceived role of education by children has increased

- **SES → ABILITY** has increased somewhat (problem of measurement), while:  
**ABILITY → ASPIRATIONS** has increased quite sharply
- The impact of children’s perceived importance of education on aspirations has increased

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# Conclusions

## Principal consequences for the determination of educational aspirations

### Why an increase in indirect effects?

- With rapid economic and labor market changes during the transition period, **pupils begin to value education as a necessary condition for life-success**
- This means that **pupils with higher ability (largely from families with higher SES) aspire to, and often achieve, higher education, which becomes a new avenue for the social reproduction of the elite.**

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# Conclusions

## Principal consequences for the determination of educational aspirations

- The **total** effect of SES on aspirations has diminished, though only slightly
  - This is to be expected given the very large expansion of aspirations in the 1990s (roughly tripled in size among all pupils), leading to a diffusion of aspirations by pupils from the new middle class
  - Nonetheless, the determination of aspirations by HISEI, gender and ability remains one of the highest in the OECD (second only to Hungary).

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**Thank you**

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If time permits - the role of gender

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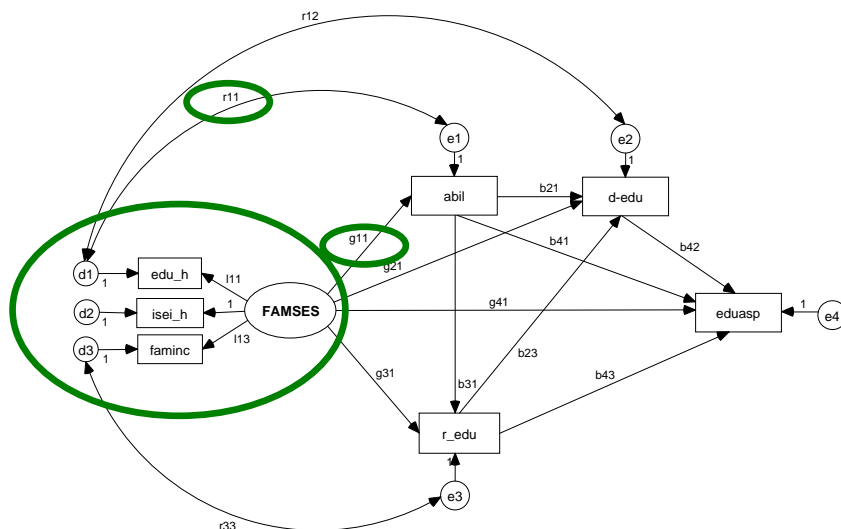
**The role of gender**

Differences between boys and girls,  
and their change between 1989 and 2003

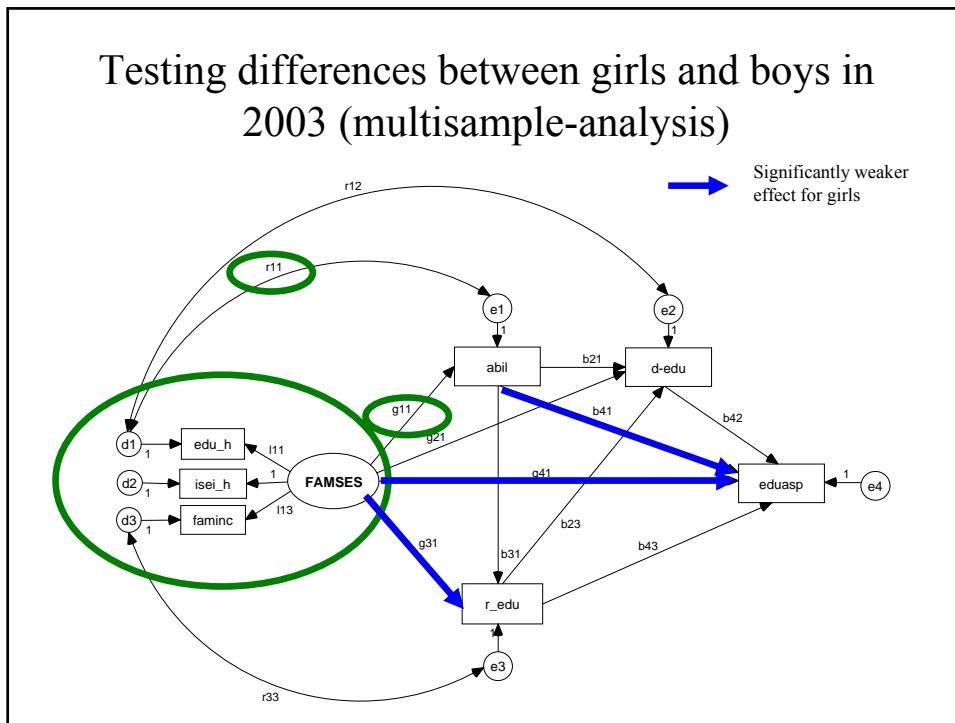
# Questions

- Are the processes underlying the formation of aspirations among boys and girls similar or significantly different?
- Is there a difference between 1989 and 2003 in the role of gender on the formation of educational aspirations?

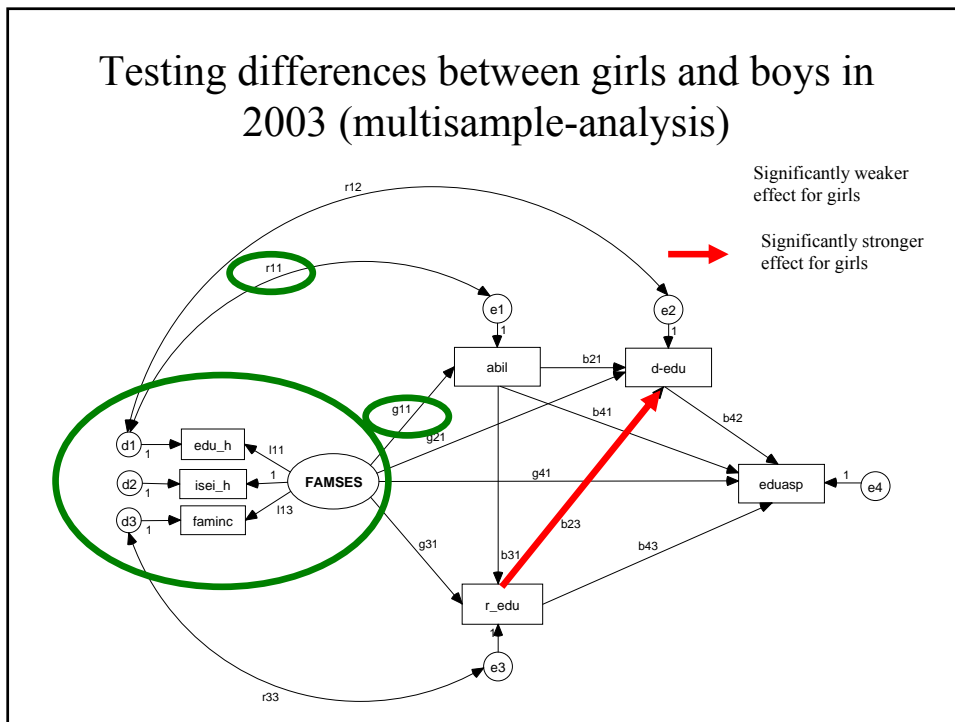
## Testing differences between girls and boys in 1989 (multisample-analysis)



## Testing differences between girls and boys in 2003 (multisample-analysis)



## Testing differences between girls and boys in 2003 (multisample-analysis)



## Conclusions

- In general, the differences between boys and girls in the determination of educational aspirations are much smaller than some gender-oriented authors suggest
- **In 1989** we haven't found in our model any coefficient that would have significantly different value for boys than girls
- **In 2003** four coefficients show statistically different values:
  - a) stronger effect of family SES on perceived value of education among parents in families with boys;
  - b) stronger determination of aspirations by measured ability among boys;
  - c) stronger determination of aspirations by socio-economic background among boys;
  - d) stronger intergeneration transmission of the perceived value of education among girls.