

Education in a Changing World

References

Vittadini, Giorgio, ed. 2016. “Far crescere la persona. La scuola di fronte al mondo che cambia”. [*Fostering Personal Growth. Education in a Changing World*] Milano: Fondazione per la Sussidiarietà

Heckman, James J. and Tim Kautz. 2016. “Formazione e valutazione del capitale umano” [*Formation and Assessment of the Human Capital*], with an introduction by G. Vittadini. Bologna: Il Mulino

1. HUMAN CAPITAL, COGNITIVE AND NON-COGNITIVE SKILLS

1. Human Capital: definition

“Knowledge, skills, competences and other qualities of the individual which facilitate the creation of personal, social and economic wealth” (Oecd 2001).

1. Human Capital: what is about?

Assessed using methods that calculate the
relationship between:

- ✓ increase of **the cognitive skills** by means of investment in **education, training, work experiences**
and
- ✓ **increase of productivity measured** by the increase of earnings over one's life cycle

1. Human Capital and Cognitive Skills (NCS)

N.B.

Cognitive skills:

intellectual abilities as measured by IQ tests
and cognitive tests

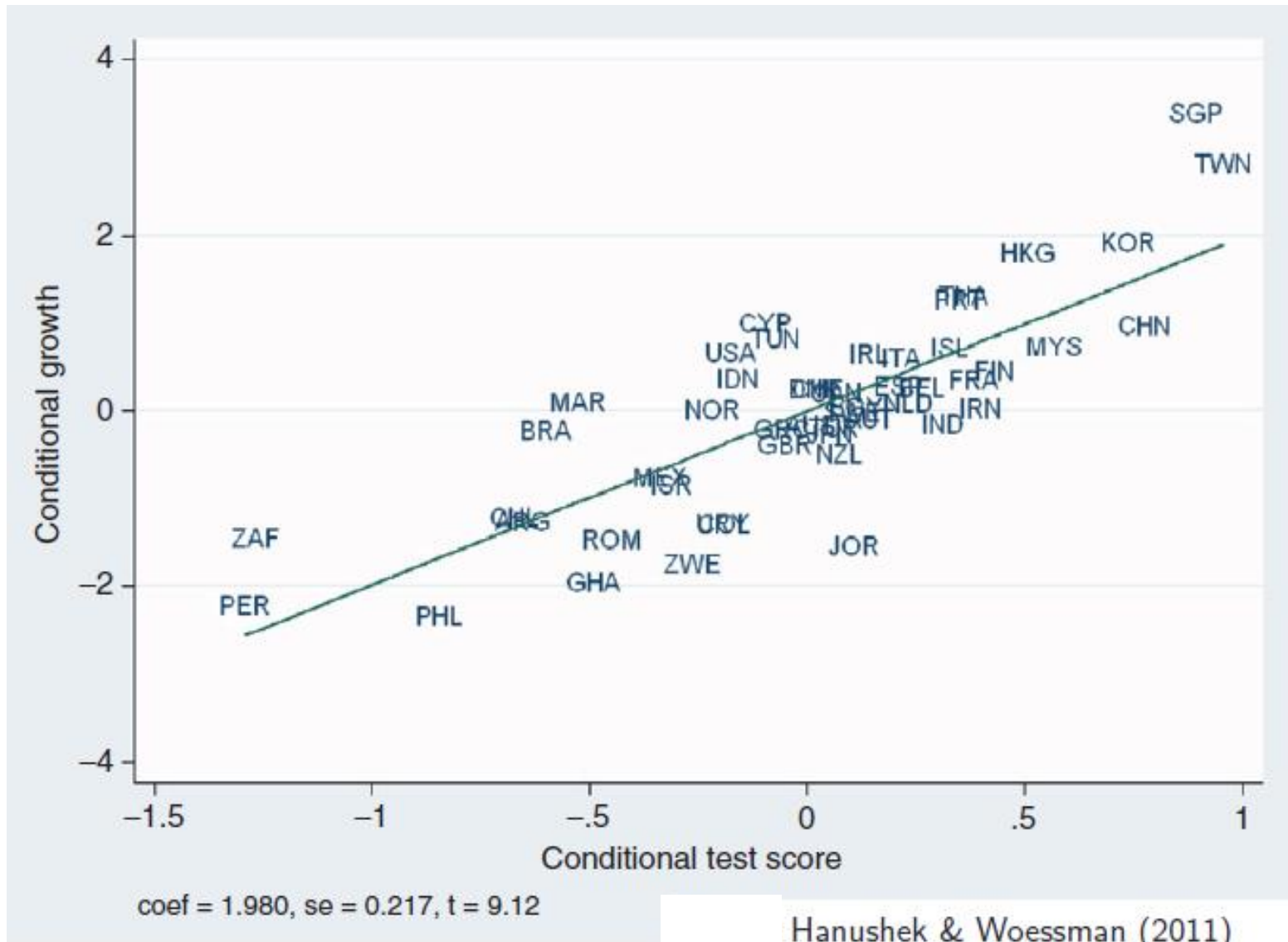
1. Human Capital: impact

The Chicago School in the early 1960s found a scientific justification for two beliefs:

- ✓ The education level of the **individual** increases his employment opportunities and his salary
- ✓ The overall level of human capital influences the growth and the **development of a country**

(Mincer, 1958,1961; Schultz, 1961; Becker, 1962,1964)

1. Human Capital and Growth



Hanushek & Woessman (2011)

2. American Education, CS, achievement test

**An individual's skills are reduced to the CS ones
measurable with selected-response achievement
(standardized) tests**

Reasons:

- ✓ 1960s: **more egalitarian society**, with vertical mobility in education measuring knowledge by means of **easily certified tools**
- ✓ Willing for assessing knowledge in a neutral way

2. American Education, CS, achievement test

...

- ✓ **no religious influence**
- ✓ Belief that a school should **maximize its efficiency**
(Tayloristic factory methods) to educate the masses
(John Dewey functionalism)
- ✓ **Cognitive psychology:** knowledge is a mechanism

2. American Education: James Heckman's critique

Heckman (2014) in: "The Myth of Achievement Tests, the GED and the Role of Character in American Life", University of Chicago Press.

- ✓ Learning transformed in **superficial** and **only supposed neutral knowledge**
- ✓ **Illusion** of eliminating **discriminations**
- ✓ **Knowledge flattened** to only one of its elements
- ✓ This appears to be disastrous for **the American school**

3. HC: Cognitive and Non-Cognitive Skills (NCS)

Human capital results from the combination of two types of skills:

- ✓ Cognitive skills: intellectual abilities as measured by IQ tests and cognitive tests
- ✓ **Non-cognitive skills: soft skills or character skills**

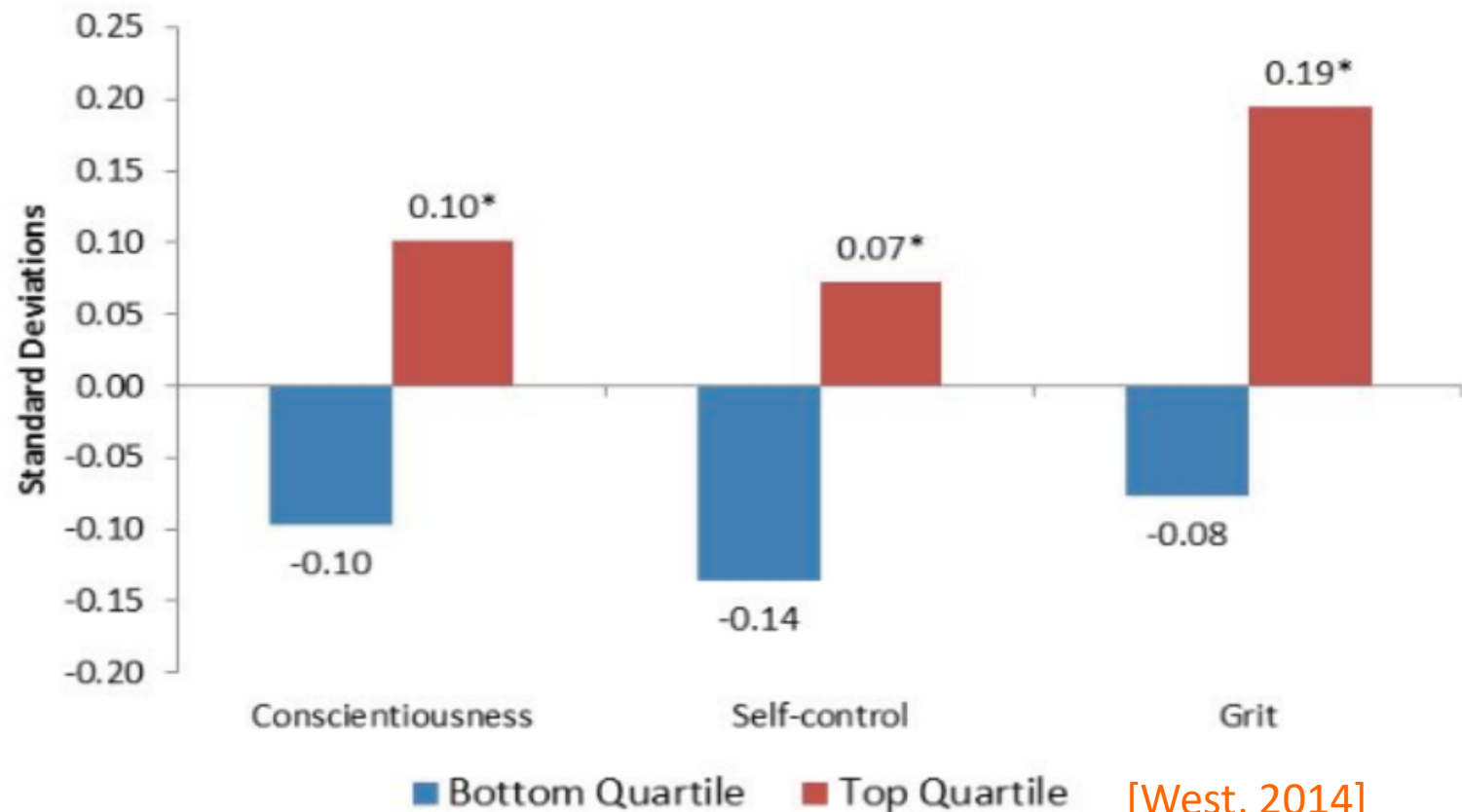
3. Non-Cognitive Skills (NCS)

Personality Factors	Facets	Description
EXTRAVERSION	Dynamism Dominance	Fluency, social vitality, enthusiasm Ability to impose oneself, to excel, to assert one's own influence
AGREEABLENESS	Cooperation/Empathy Warmth/Friendliness	Ability to understand and meet the needs of others, ability of cooperating with others Reliability, trust, openness towards others
CONSCIENTIOUSNESS	Scrupulosity Perseverance	Care, dutifulness, order, attention to details Pertinacity, tenacity, reliability (honoring commitments)
NEUROTICISM	Emotional stability Consistency in emotional reactions	Control of the anxiety connected to emotional experiences Control over behavior (even in situations of uneasiness, conflict and danger)
OPENNESS TO EXPERIENCE	...to culture ...to experience	Interest in staying informed, reading, acquiring knowledge Positive attitude towards novelty, ability to consider multiple perspectives, positive openness to different styles, ways of life and cultures

4. CS, NCS and Scholastic Knowledge

One group of students with equal CS but with different NCS
(top quartile red; Bottom quartile blue)

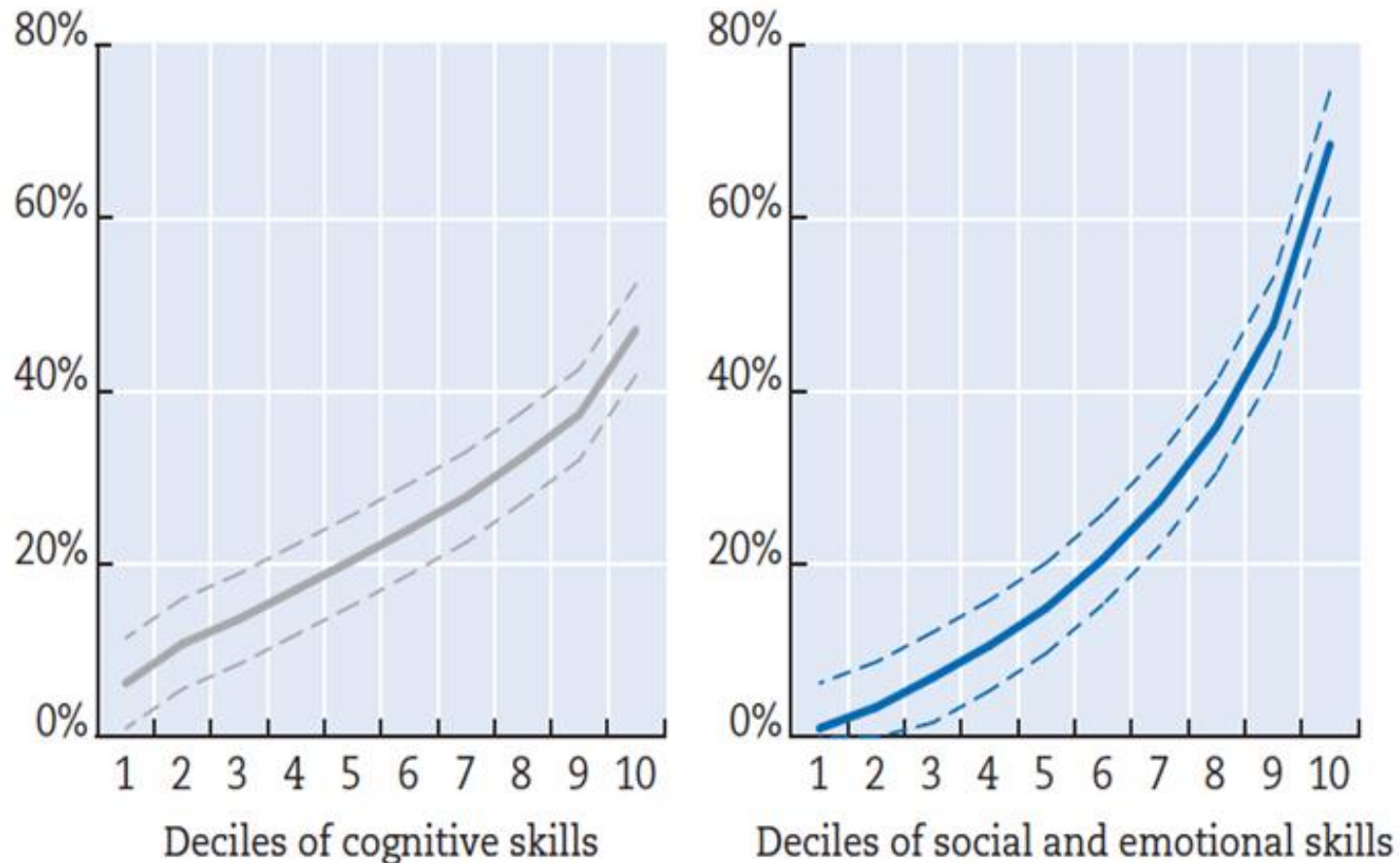
Figure 1c. Math test-score gains between 4th and 8th grade, by non-cognitive skill quartile



4. CS, NCS and Scholastic Knowledge

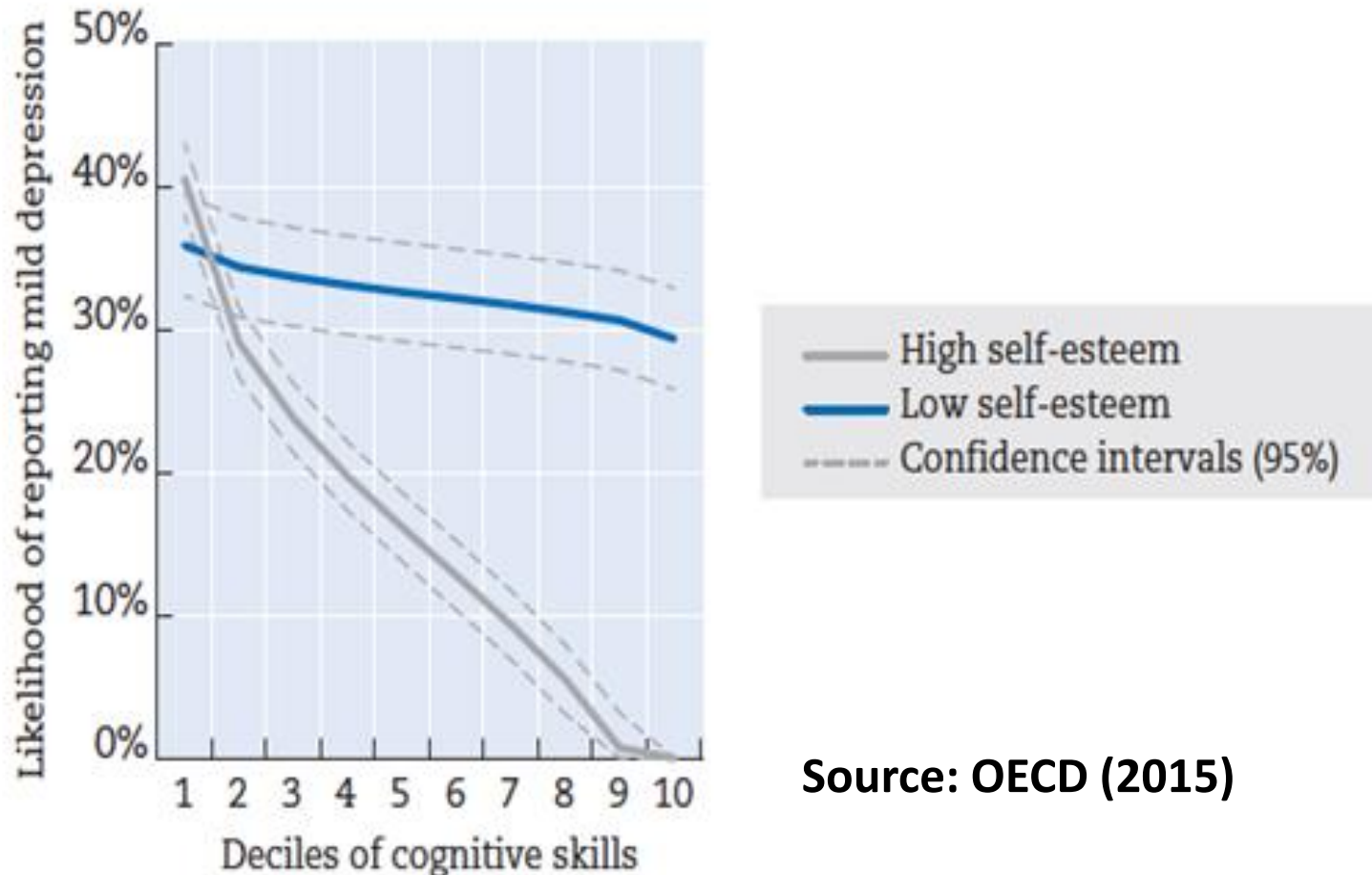
Panel D. **United States**

Probability of self-reported college completion by skill deciles



Source: OECD Skill Studies. Skills for Social Progress.
The Power of Social and Emotional Skills (2015)

4. CS, NCS and Attitude Towards Life: Depression



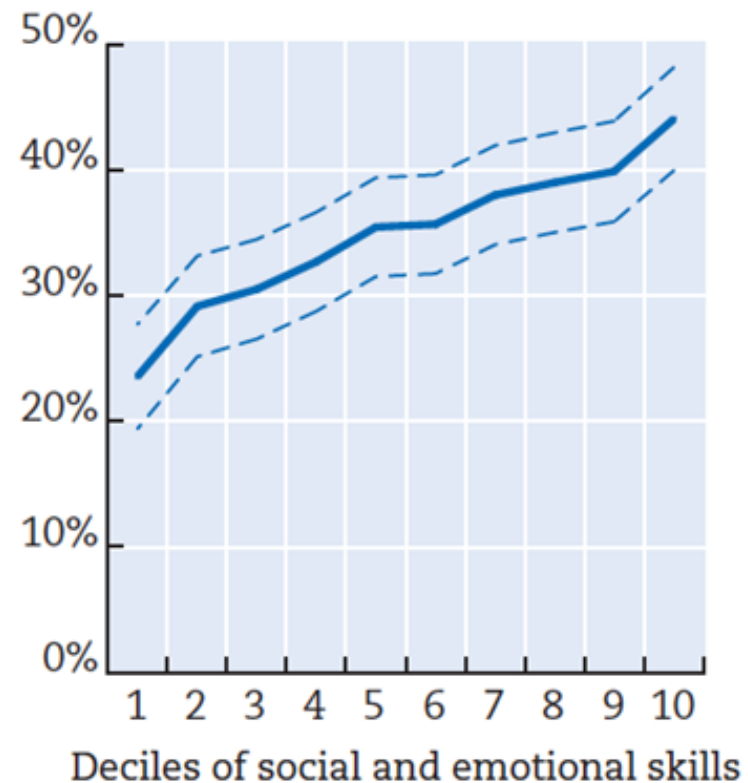
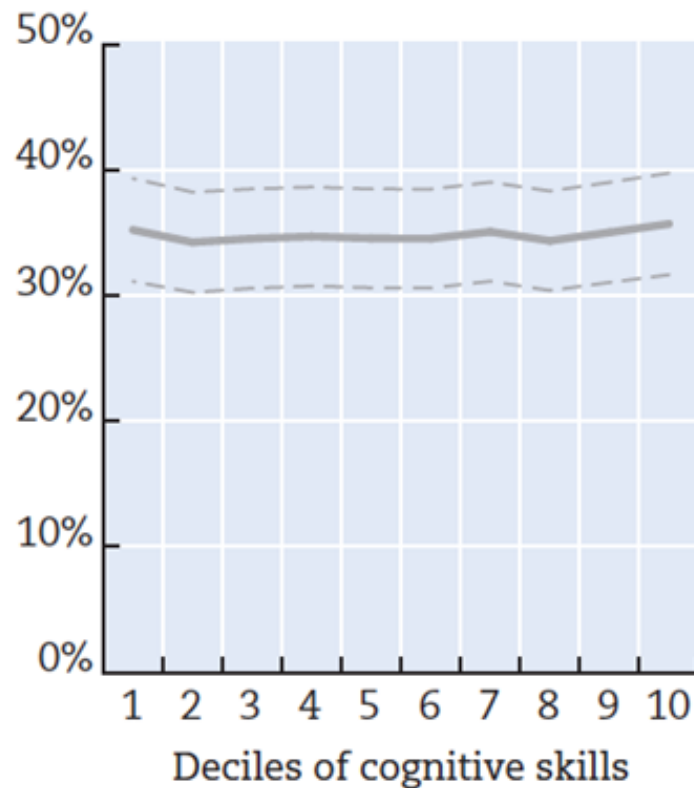
Source: OECD (2015)

15 **The higher one's self-esteem, the higher the impact of cognitive skills on decreasing the probability of depression**

4. CS, NCS and Attitude Towards Life: Positivity

Panel B. **New Zealand**

Probability of being very happy at age 20, based on self-reports, by skill deciles



Source: OECD (2015)

4. CS and NCS: Summary

NCS are also predictors of:

- ✓ Scholastic performance
 - ✓ Work performance
- ✓ Not taking part in illegal activities
 - ✓ Longevity

5. Why NCS in modern world

Until 1950s-1960s: industrialization, Fordist model,
mechanized assembly lines

Technological obsolescence: 40 years

Technical and undifferentiated education

5. Why NCS in modern world

Today

Mechanized and interconnected industrial production

Obsolescence within 5 years

Continuous change

Industry 4.0

5. Why NCS in modern world

Room for activities requiring:

Flexibility, creativity, problem-solving skills

(Autor et al. 2003)

Judgment and common sense (Autor 2015)

Interaction skills (Deming 2015)

**Cognitive skills and “standardized” education are
not enough**

Character skills are important as well

2. WHAT HECKMAN SUGGESTS FOR EDUCATION

1. NCS in Education (Heckman)

- 1) The achievement tests are not able to capture all skills
- 2) CS are not enough to explain educational and work outcomes
- 3) Teaching standardization loses sight of the growth of the person and does not prepare for work and for adult life
- 4) We should overcome the current functionalism of education

The school should not limit itself to the acquisition of knowledge, but it should represent a significant connected with the meaning of life

2. Heckman's *Character*: Improvement

Character is a mix of dispositions, such as intelligence, will, behaviors (conscientiousness, emotional stability, openness, etc.)

Character improvement is possible when young people:

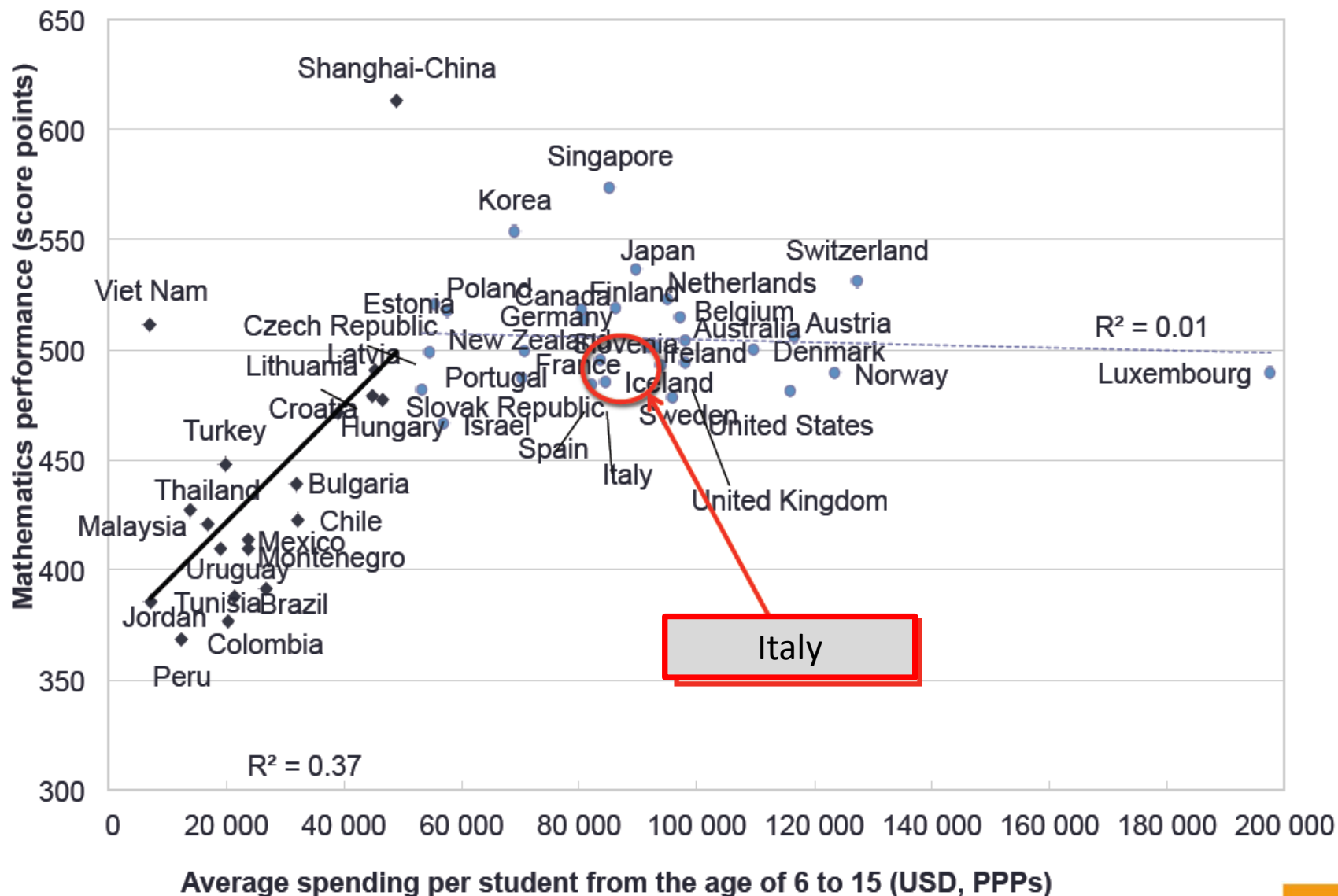
1. Are in contact with adults who accompany them not by saying “do as I tell you”, but “do with me”
2. Are helped to form a critical sensibility, not just a repetitive sensibility

3. Heckman's *Character*: Improvement

- 3) are immersed in authentic work environments where they can test themselves
- 4) are opened both to knowledge and to social and cultural experiences
- 5) are fostered to some non-cognitive attitudes that influence the quality of life at an early age.

3. A SCHOOL FOR CHARACTER

1. Determining Factors for a Good School: Spending?



Source: Hanushek Woessmann (2011)

2. Determining Factors for a Good School: Spending?

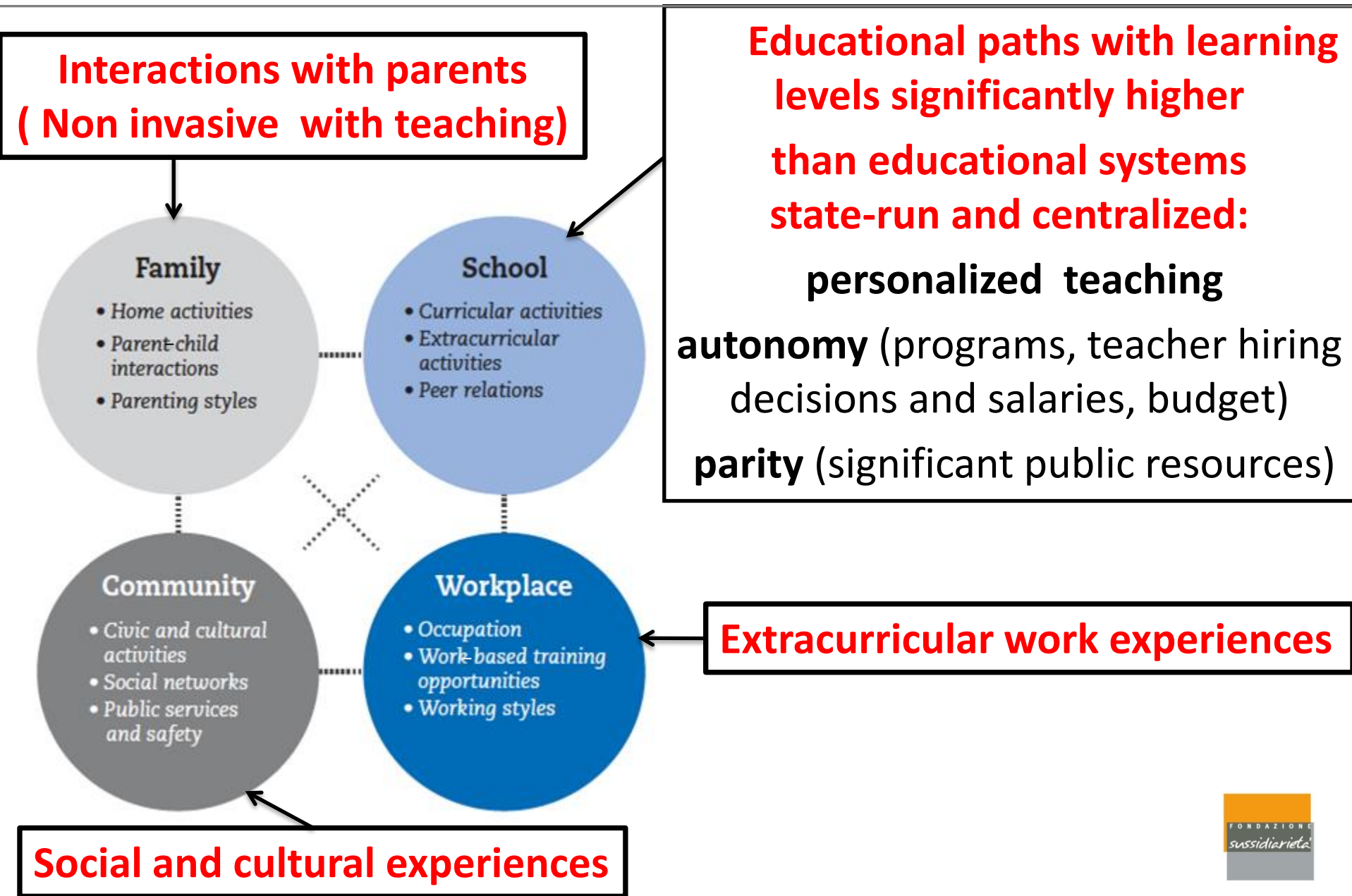
Resources invested in education have a (positive) impact up to
\$40.000 per student

Beyond this threshold, no significant results are observed

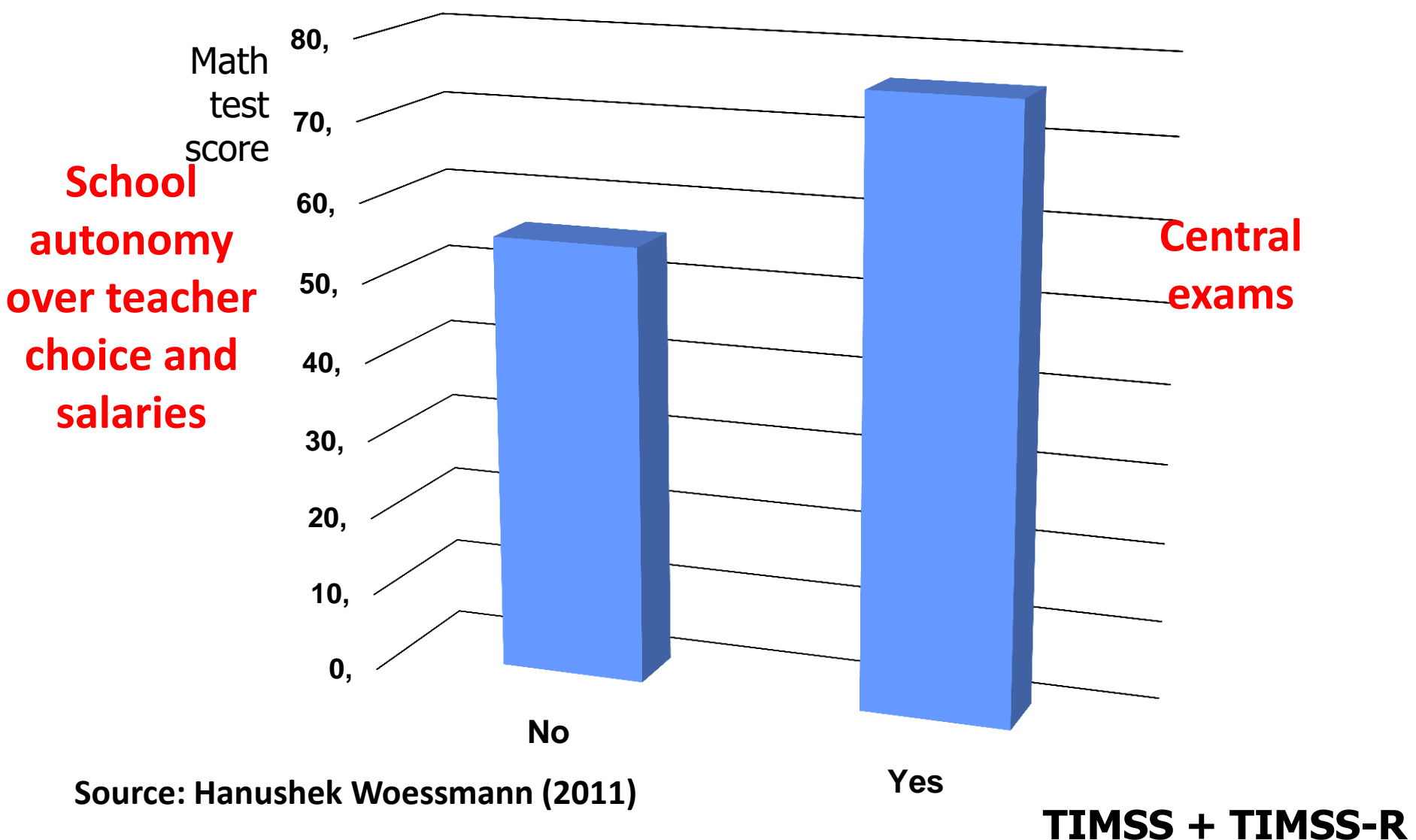
Hence:

Spending \$50,000 (New Zealand), almost \$100,000 (Italy) or
\$200,000 (Luxembourg) does not seem to entail any difference
from the point of view of student learning

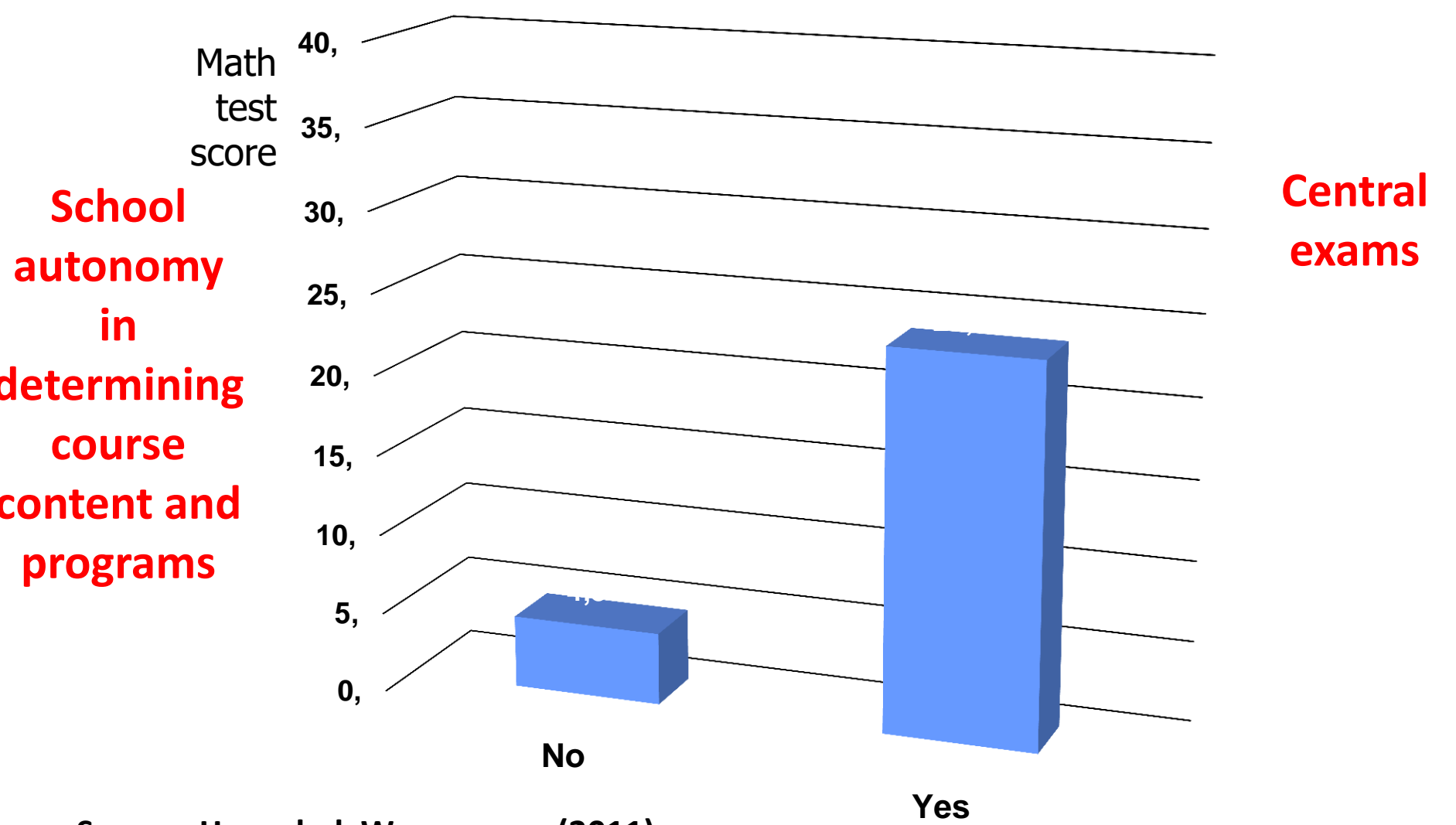
3. Policy for an Education Fostering CS-NCS



4. Determining Factors for a Good School: Autonomy

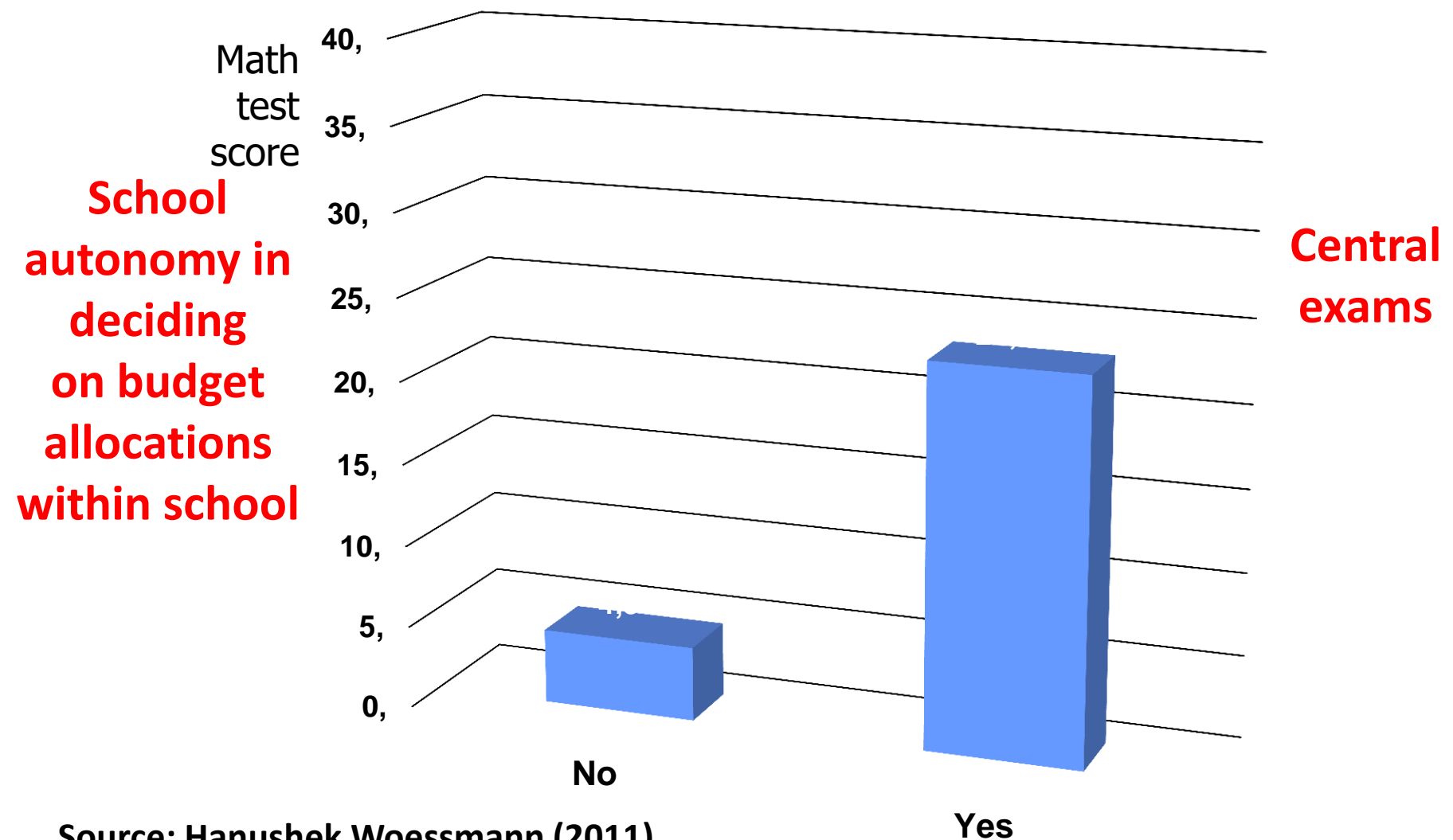


5. Determining Factors for a Good School: Autonomy



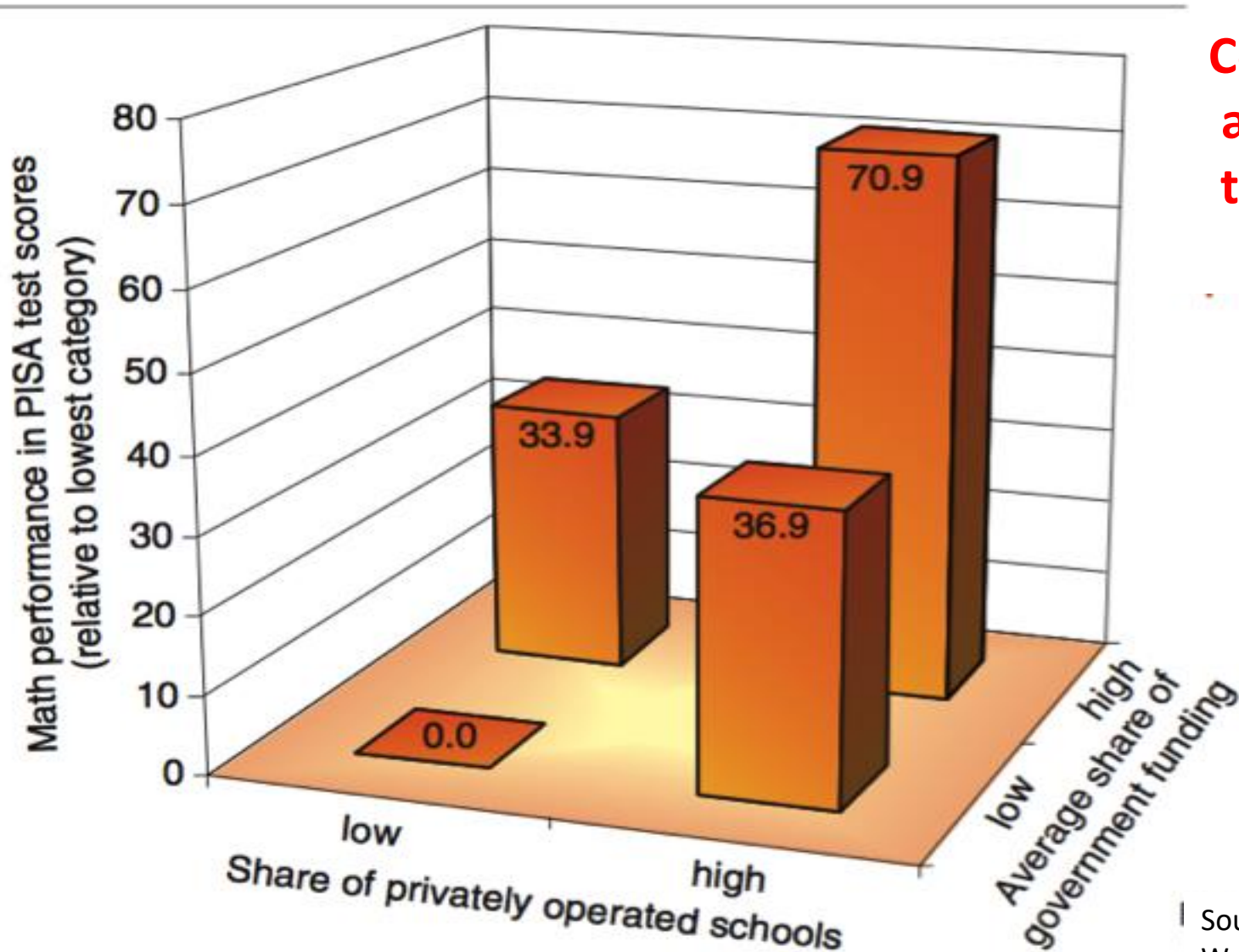
Source: Hanushek Woessmann (2011)

6. Determining Factors for a Good School: Autonomy



Source: Hanushek Woessmann (2011)

7. Determining Factors for a Good School: Parity



**Competition
and role of
the private
sector**

Source: Hanushek & Woessman (2011)

8. Conclusions

- ✓ Improving NCS isn't a new technique
- ✓ CS, NCS, character grow through an educational experience
- ✓ Education as an introduction to reality to discover its meaning and to growth in self-awareness
- ✓ The educational experience is the unpredictable human encounter between teacher and students