

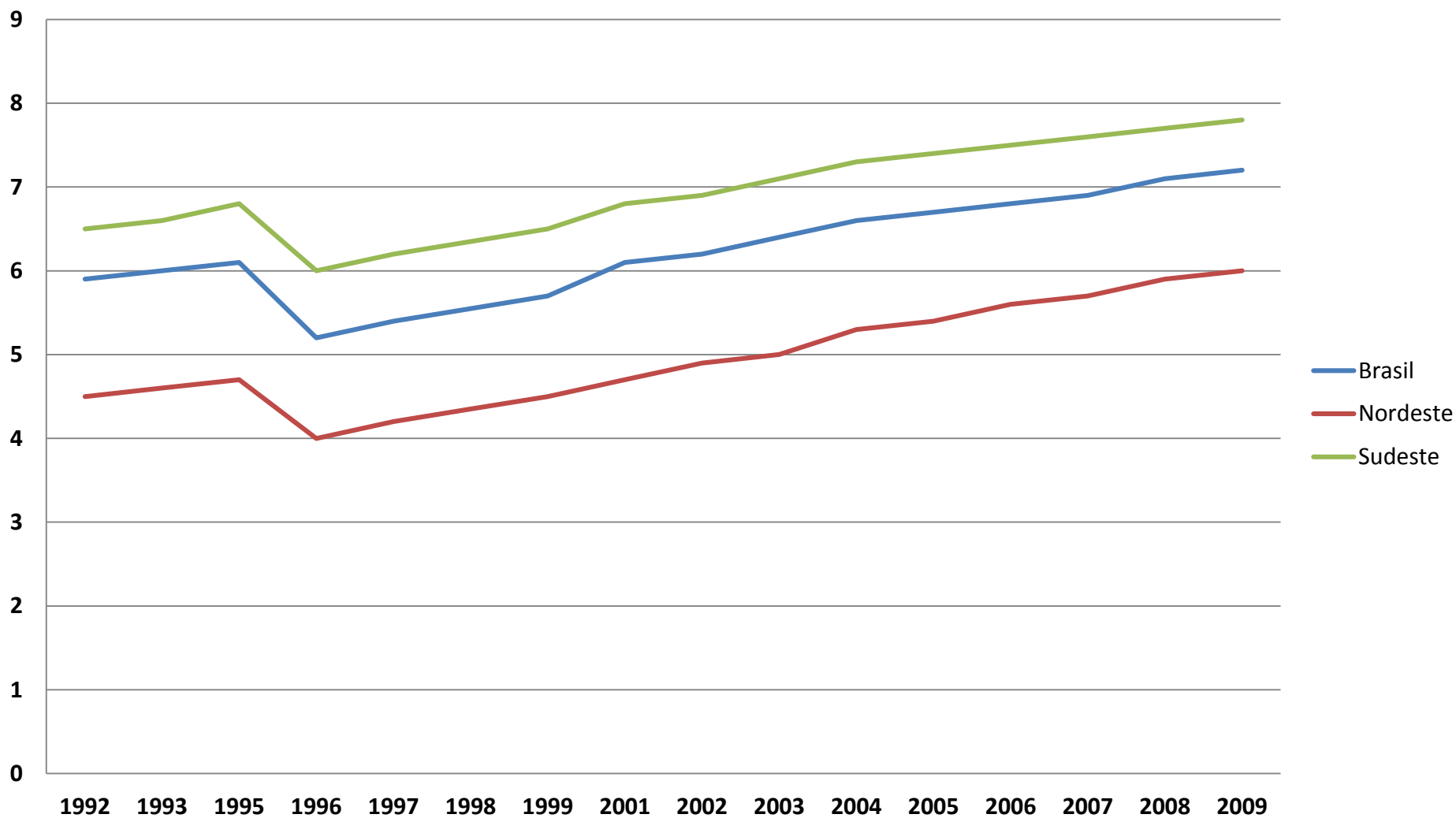
EARLY CHILDHOOD EDUCATION IN BRAZIL

Aloisio Pessoa de Araújo

(IMPA e EPGE/FGV-RJ)

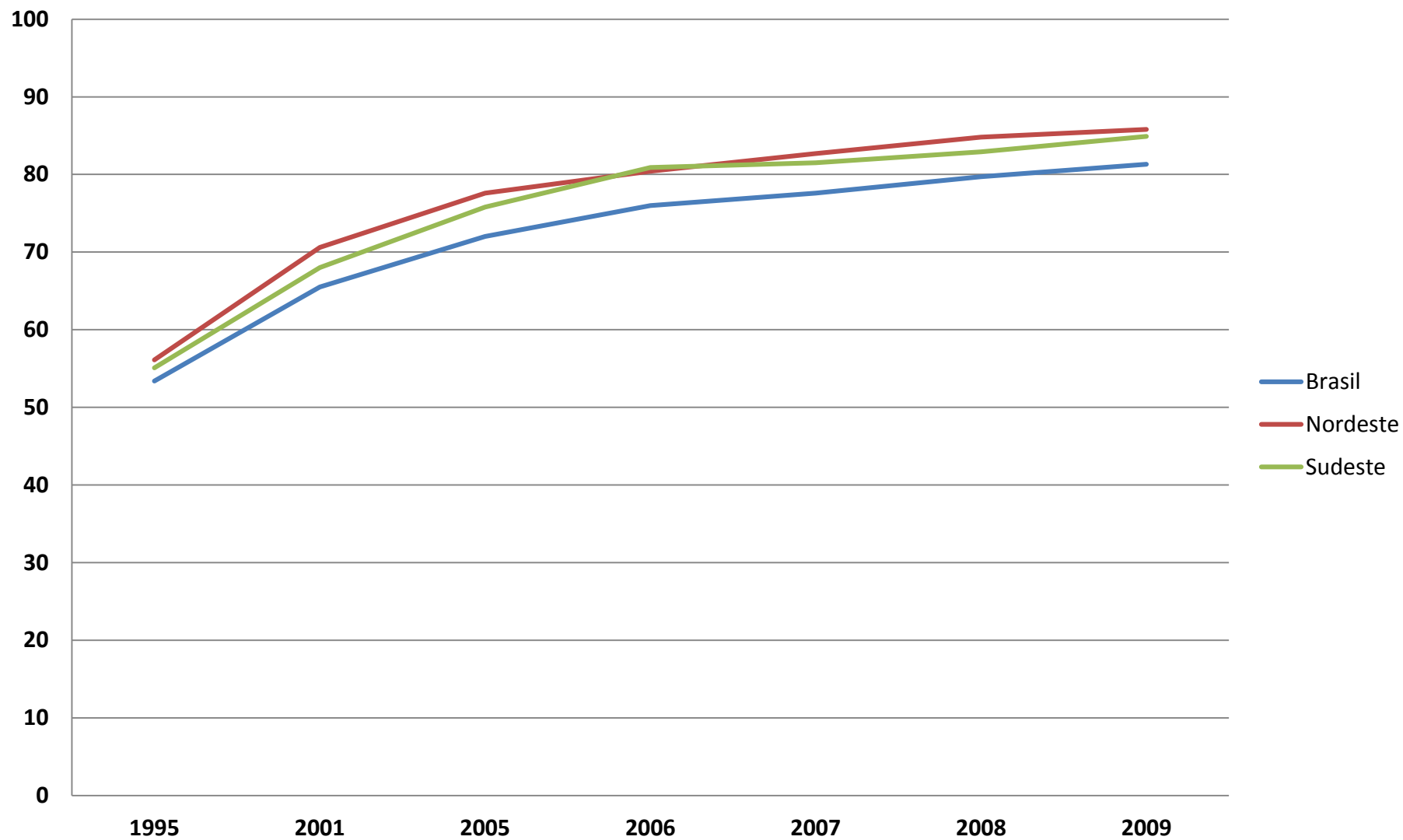
Setembro, 2016

Average years of study, by region



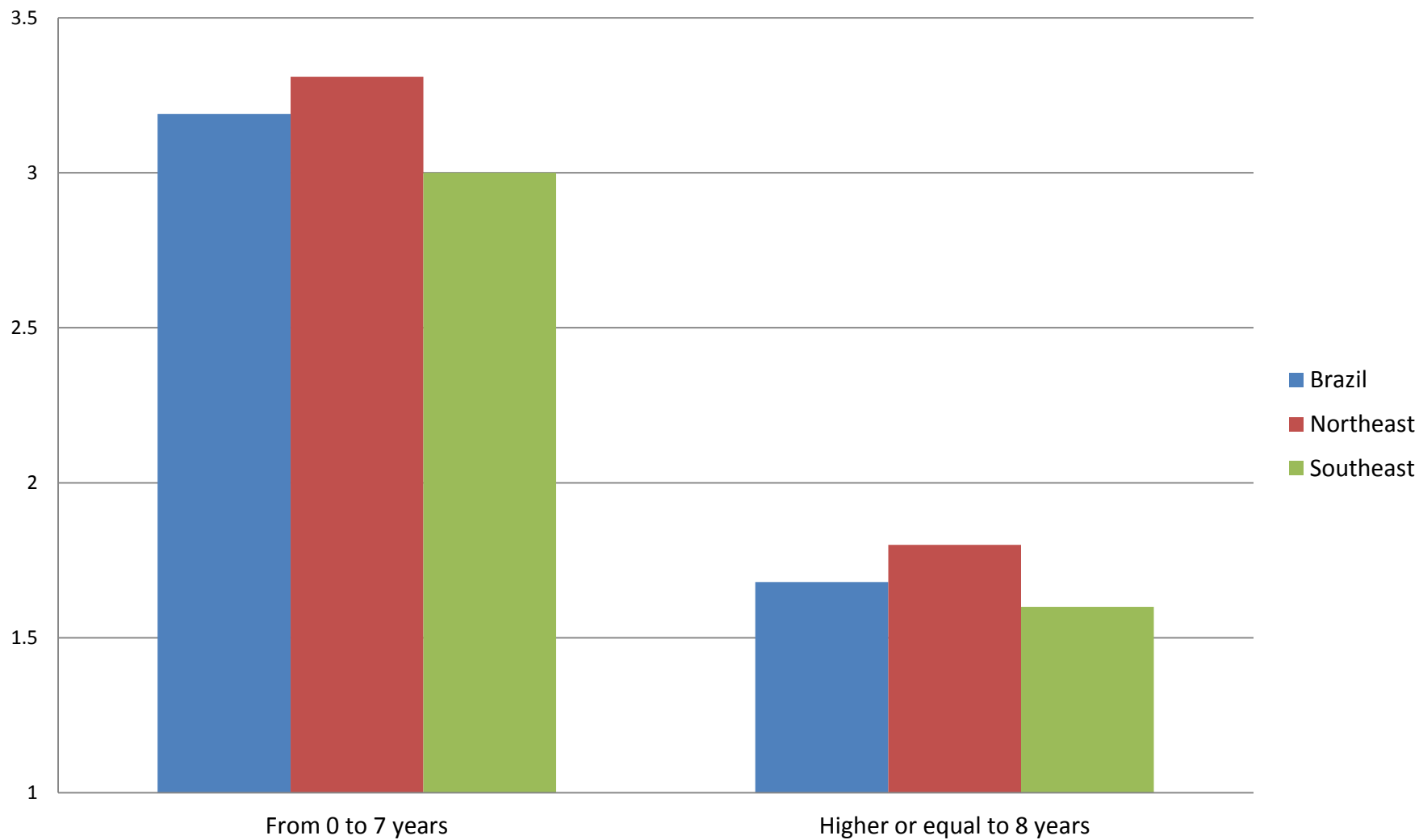
Source: PNAD

Percentage of children enrolled in Preschool (between 4 and 6 years)



Source: PNAD

Fertility rate in Brazil, according to years of study (2009)



Source: Síntese de Indicadores Sociais 2010 (IBGE)

% do nº de filhos por rendimento nominal familiar (em SM) - 2000

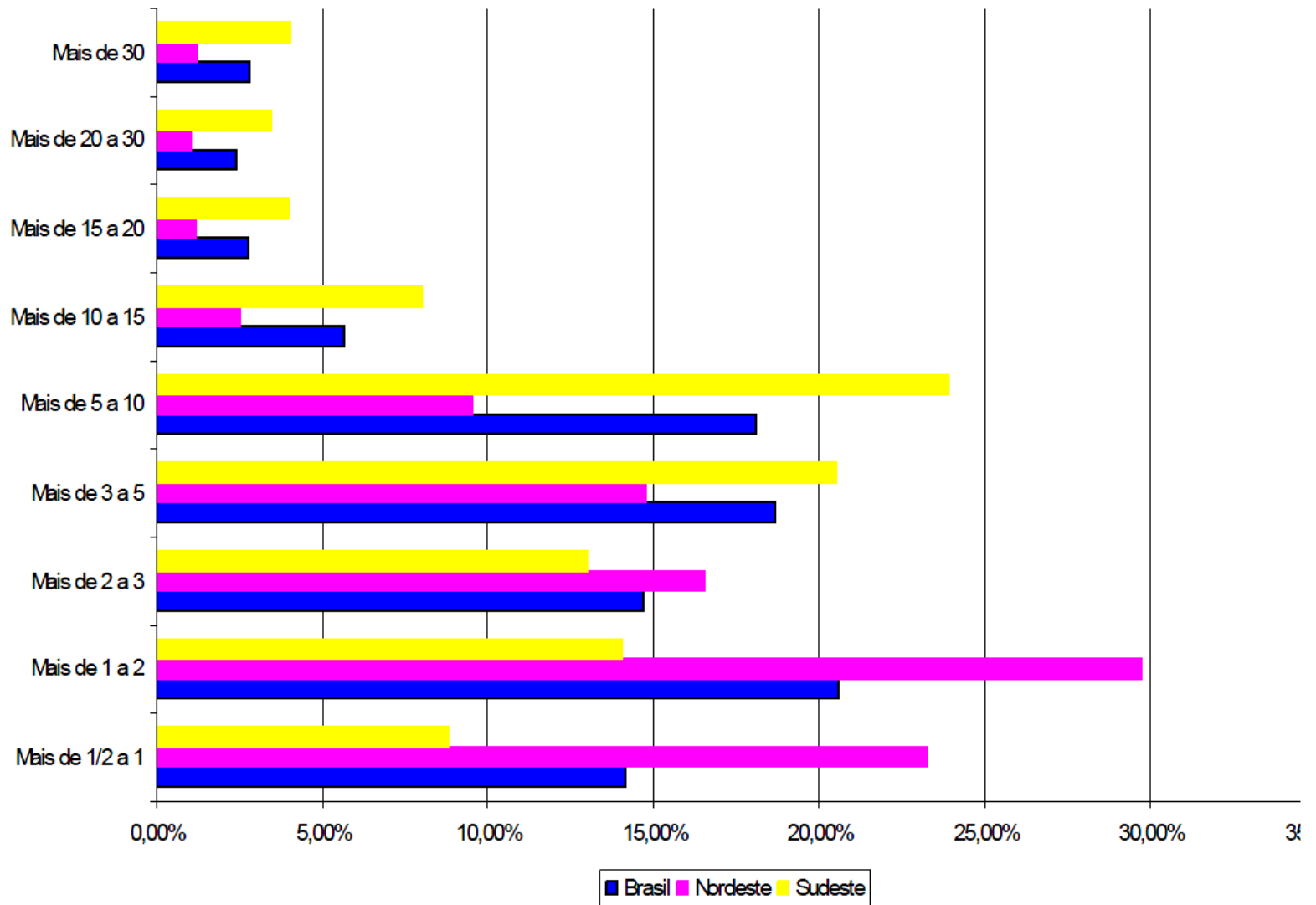


Figure 1a
Children of NLSY
(a) Average percentile rank on PIAT-Math score, by income quartile*

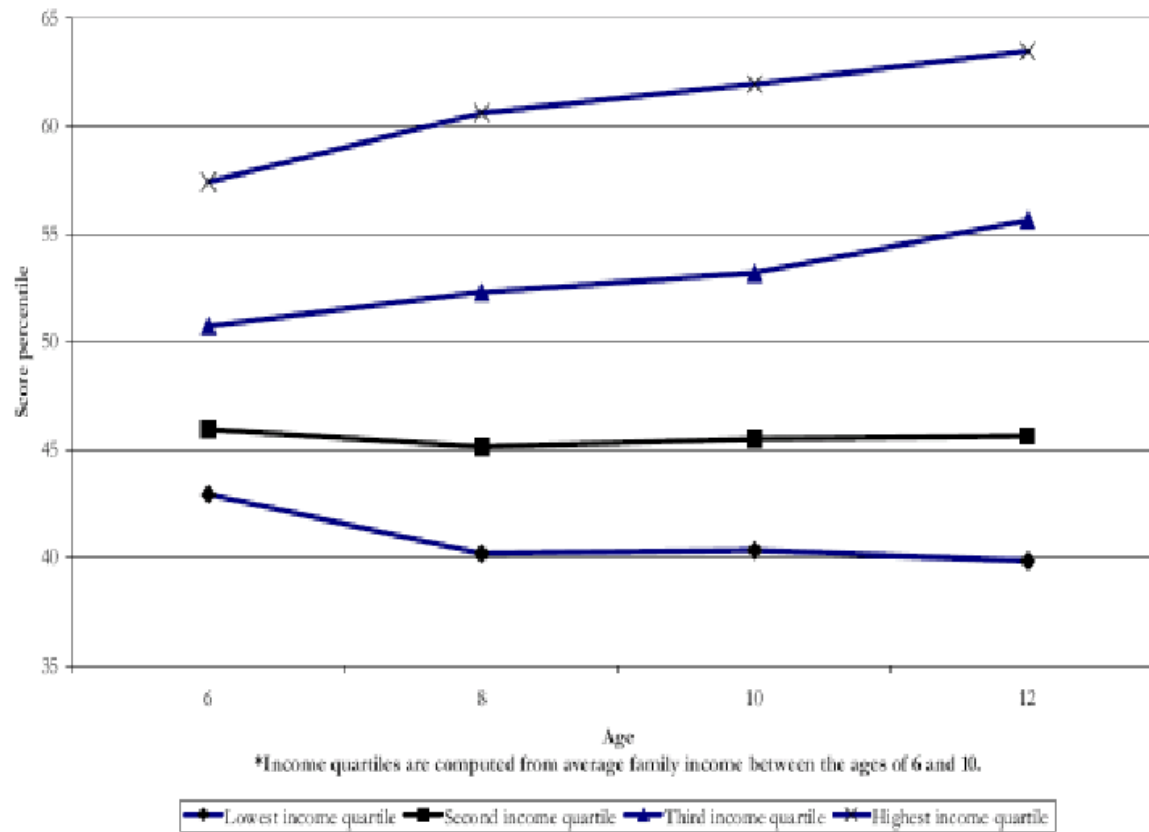
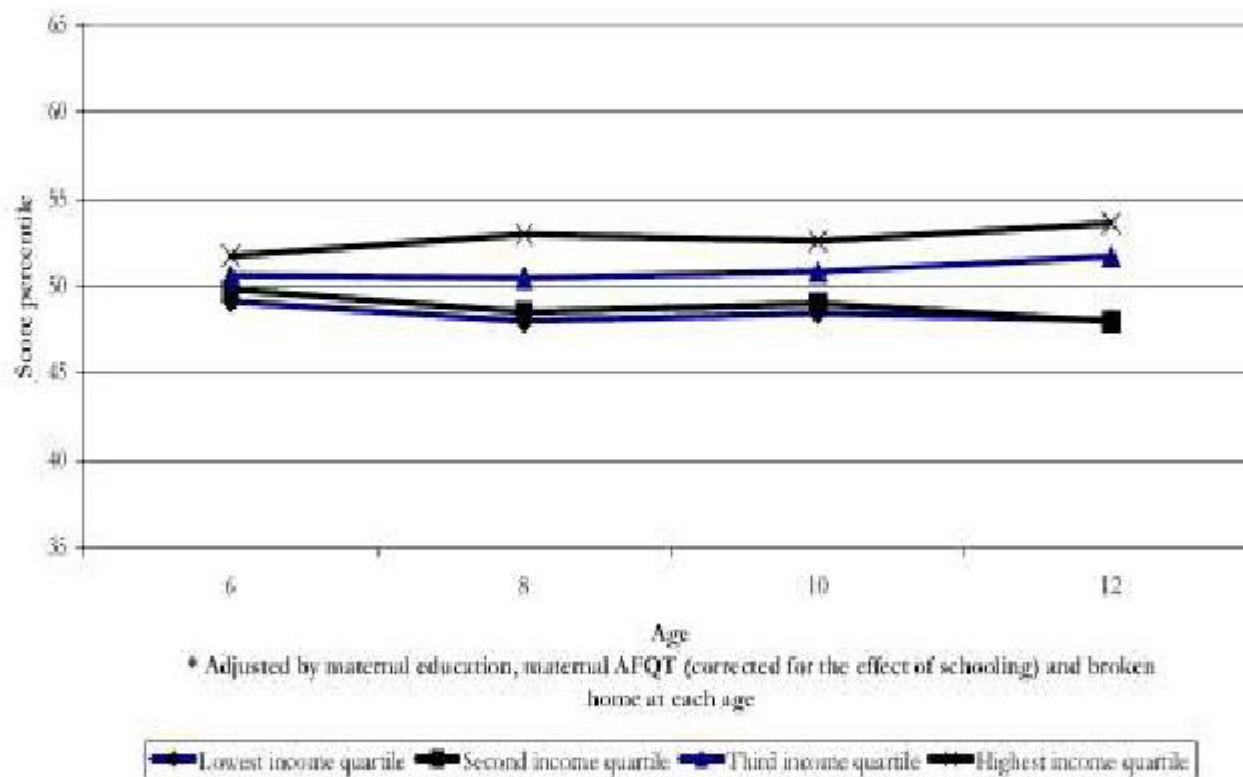
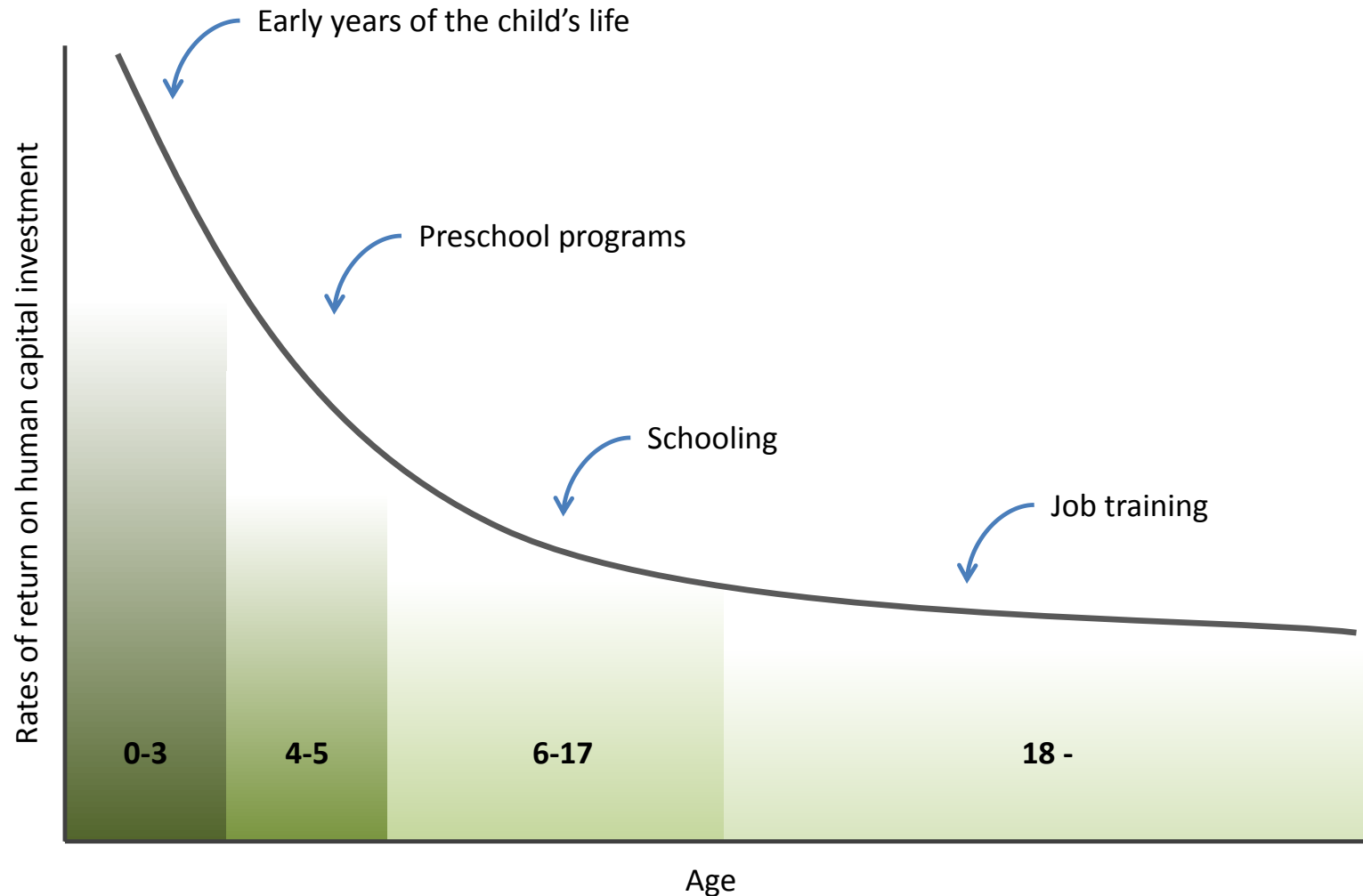


Figure 1b
Children of NLSY
(a) Adjusted average PIAT-Math score percentiles by income quartile*

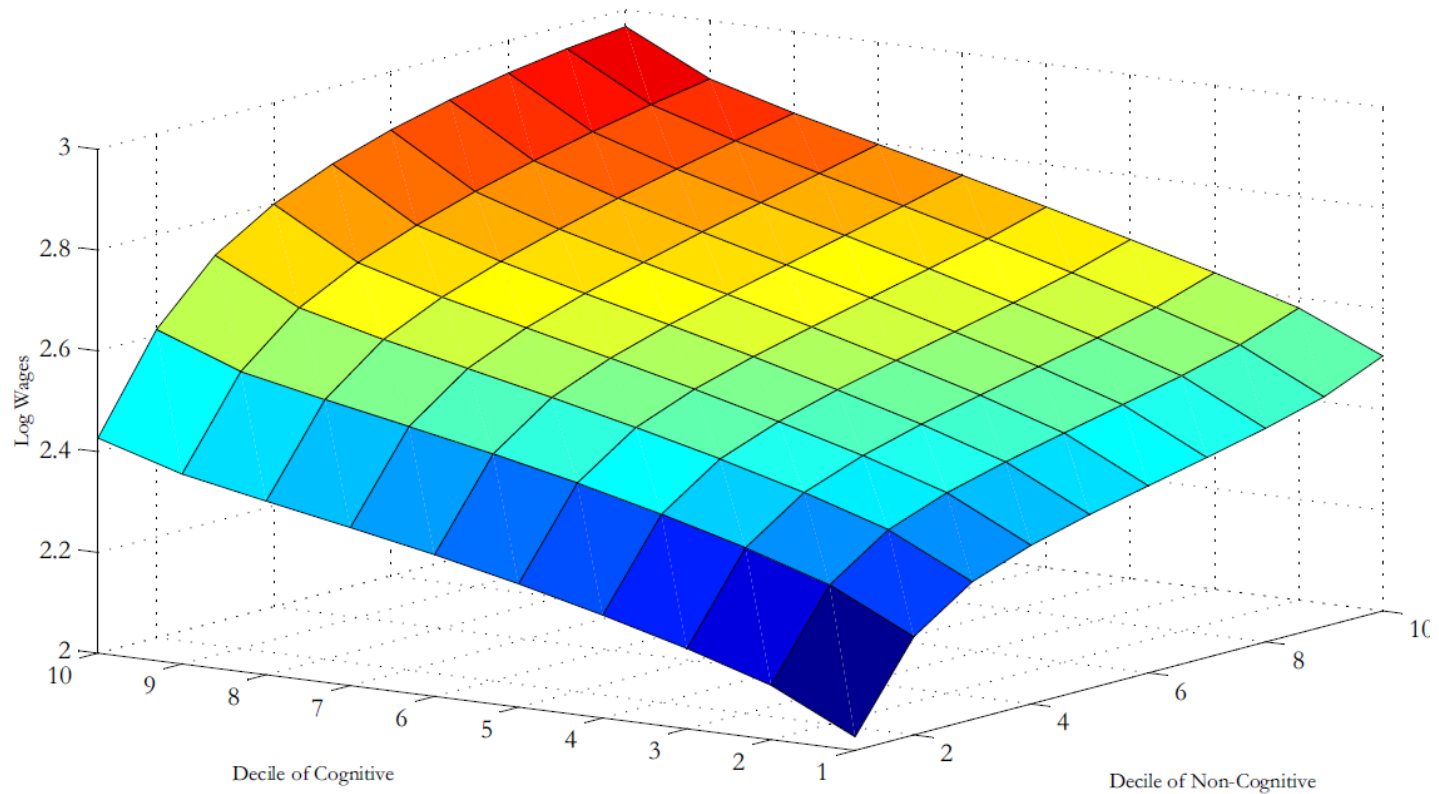


Rates of return on human capital investment



Heckman et al (2006)

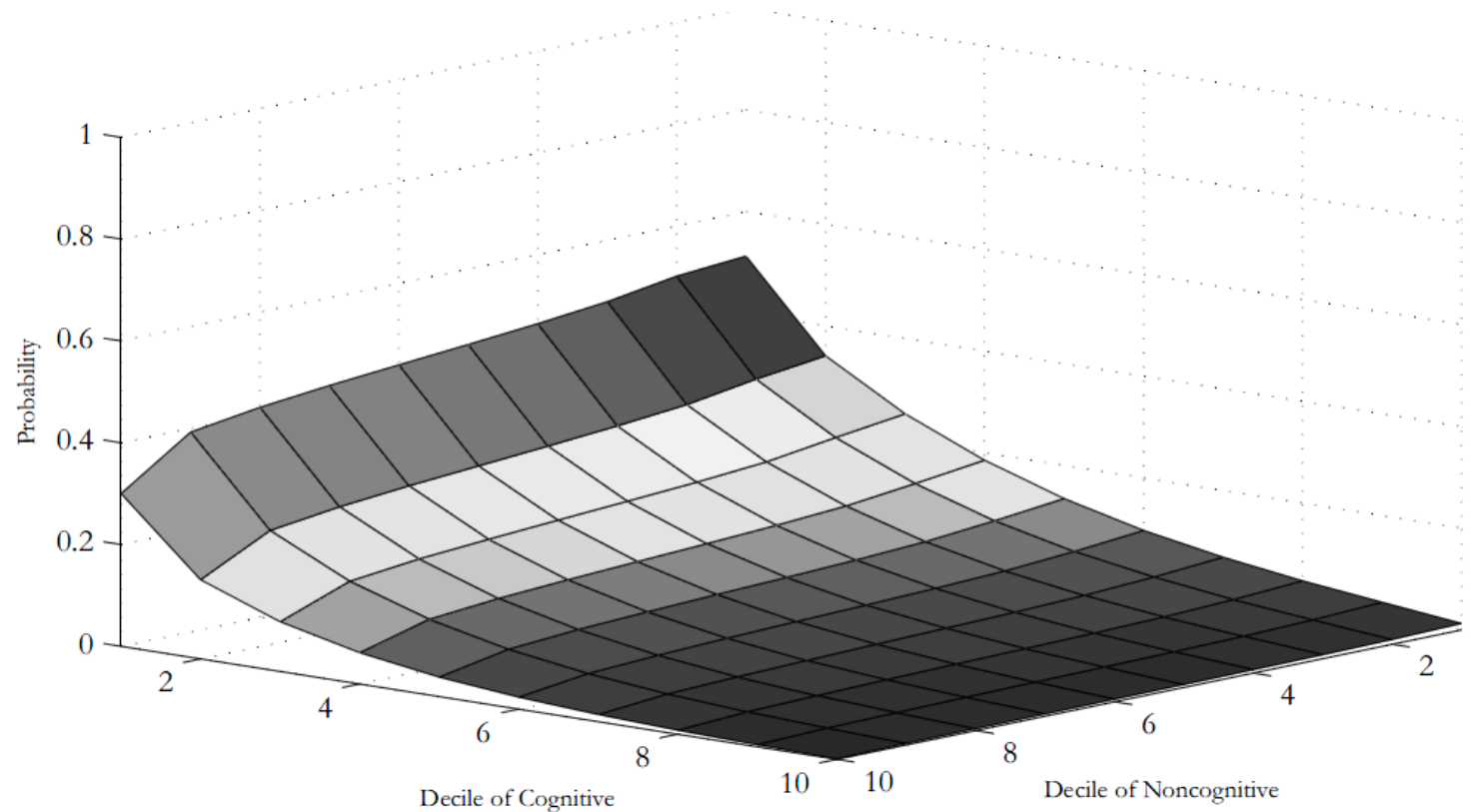
Average salary of thirty year old males in the United States



Source: Heckman, Stixrud and Urzua (2006)

Heckman et al (2006)

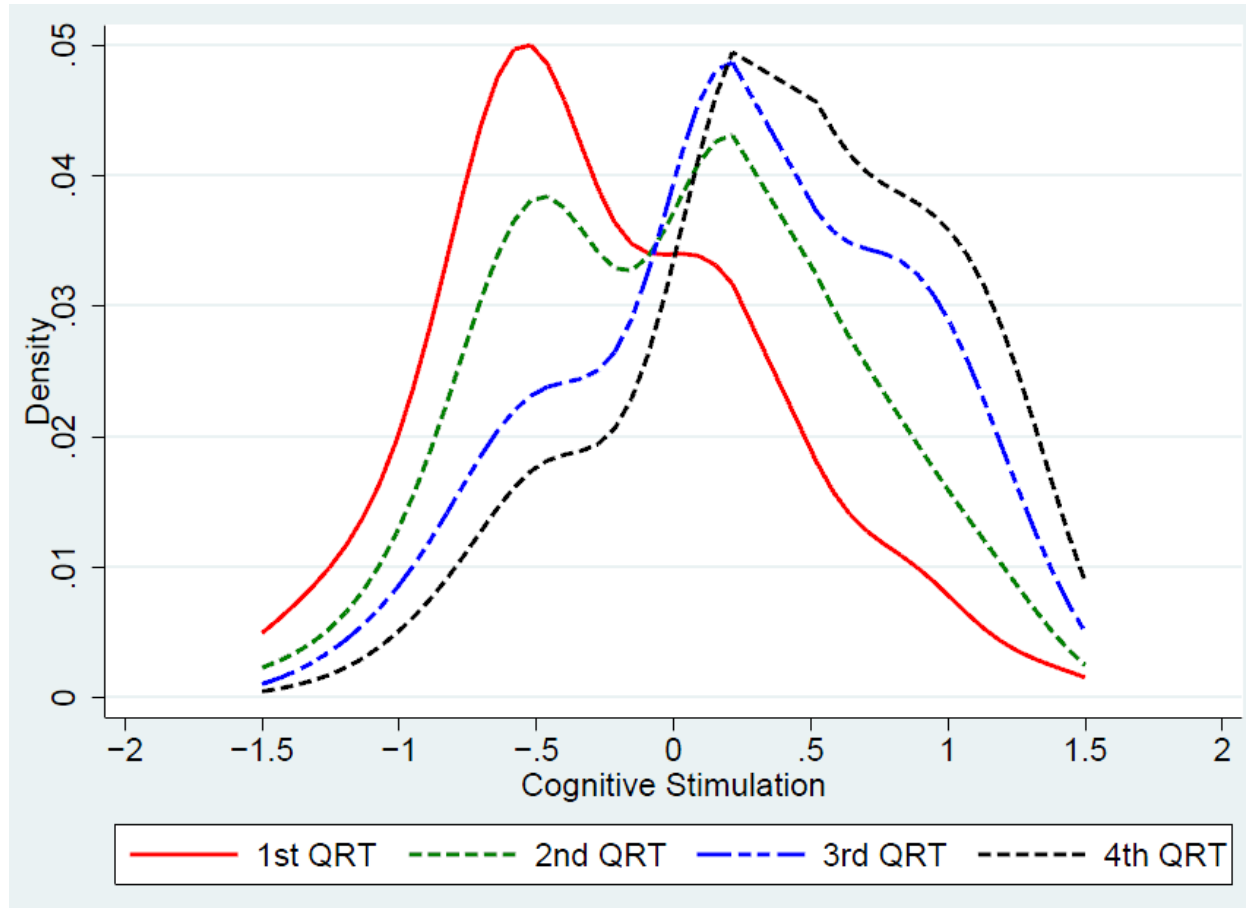
Probability of having a college degree at the age of 30 (Men, United States)



Source: Heckman, Stixrud and Urzua (2006)

Heckman and Cunha (2009)

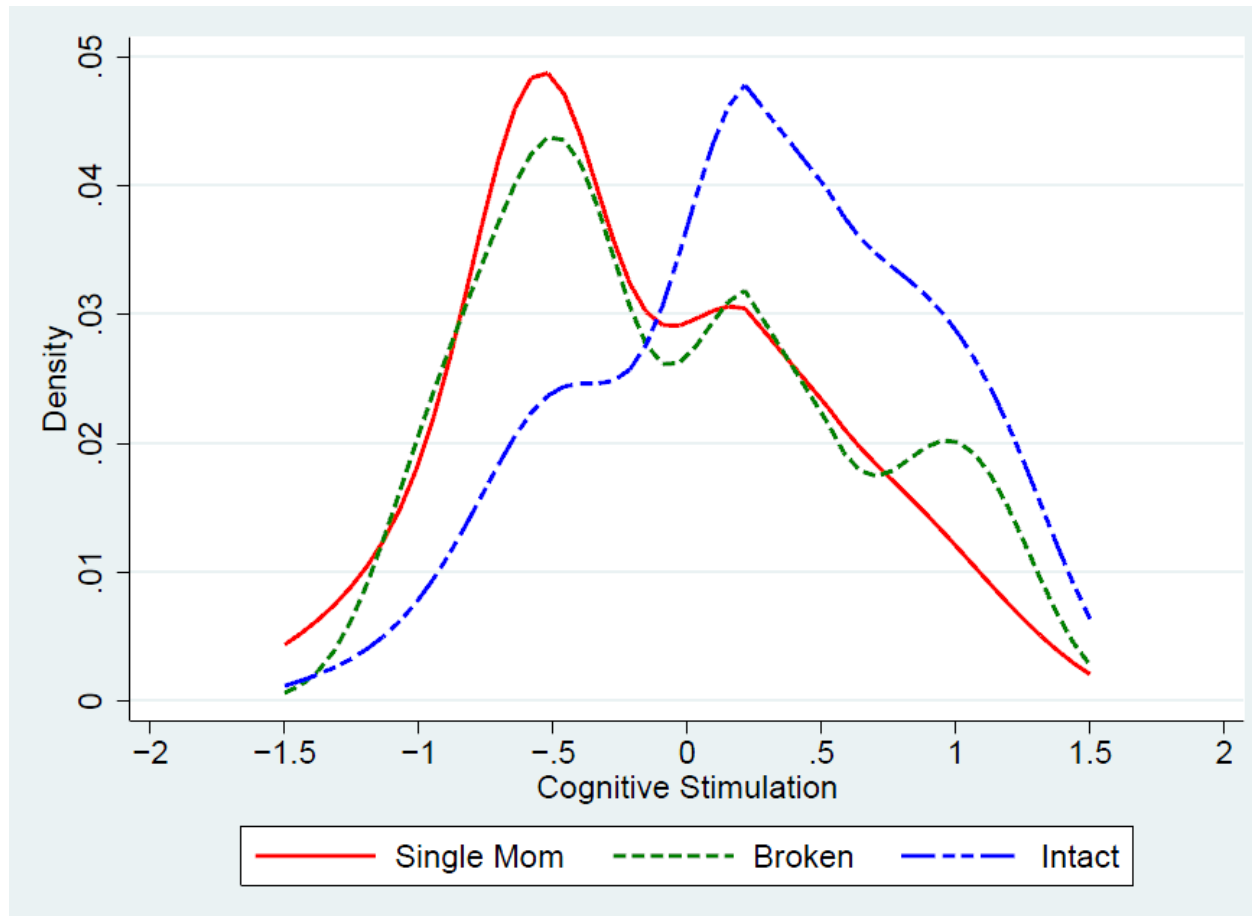
Caucasian children: **males, between 0 and 2 years of age**



Source: Seong Hyeok Moon (2008)

Heckman and Cunha (2009)

Caucasian children: **males, between 0 and 2 years of age**



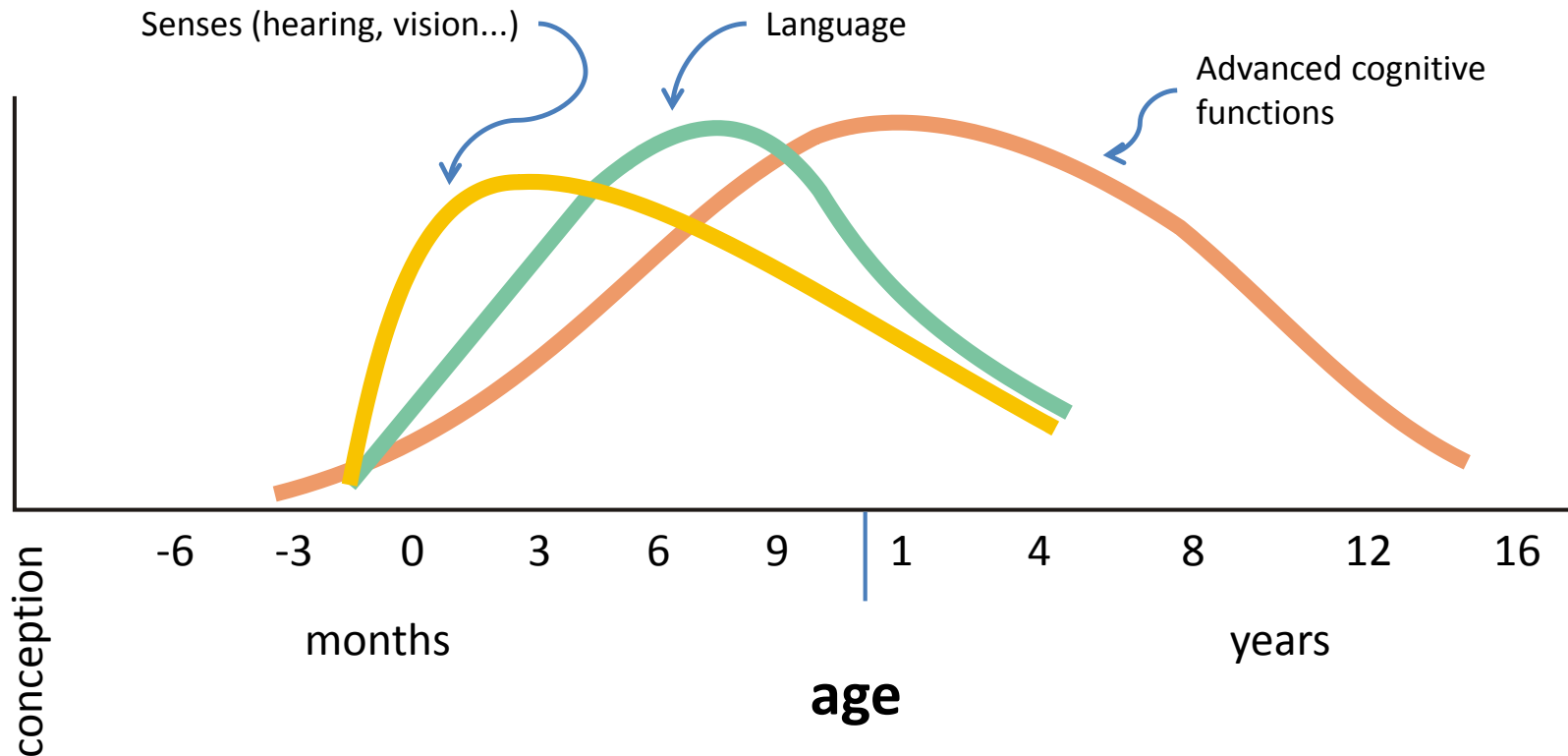
Source: Seong Hyeok Moon (2008)

- **Heckman and Cunha (2008)** developed simple models that summarize what we know about skill development for children. They worked with specific technologies for the production function of skills, which can be characterized by:
 1. Self-productivity: early investments produce early skills and also late skills.
 2. Complementarity: early investments complement late investments.
- CASE 1 (Perfect substitutes): investments in young and old age yield the same results. However, even if remediation is possible, it might be too expensive.
- CASE 2 (Perfect complements): investments in younger ages are necessary, and must be followed by investments in older ages. Otherwise, they will not compensate.

Evidences from technology estimates

1. Early investments must be higher for children with from unfavourable environments.
2. If early remediation does not occur in the first stages of childhood, it is not optimal to remediate in the late stages.
3. However, if remediation does occur in late stages, it must focus on enhancing non-cognitive skills, rather than cognitive skills..
4. Early remediation for disadvantageous children is a necessary **but not sufficient** condition.
5. In fact, Heckman and Cunha (2008) show that if early remediation is successful, then it must be followed by high late investments as well.

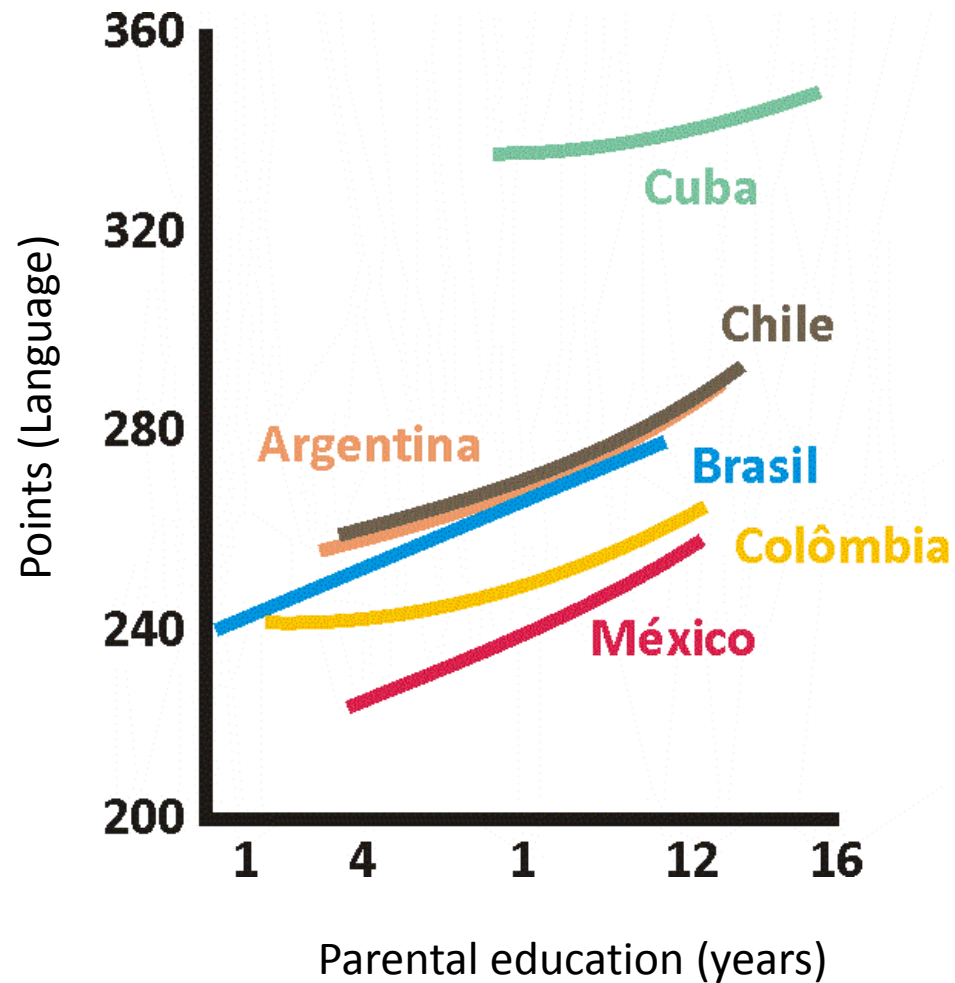
Fraser Mustard (2009)



Fraser Mustard (2009)

- **Perry Preschool (USA):** Comparison between treatment and control groups at 45 years of age.;
- Twice as much chance of getting a job;
- Percentage of students that finished high school: 1/3 higher;
- Crime incidence: 40% lower;
- 40% less unwanted pregnancies;
- Use of drugs significantly lower.

Fraser Mustard (2009)



Fraser Mustard (2009)

Number of fights in fourth grade

Cuba: 0,07

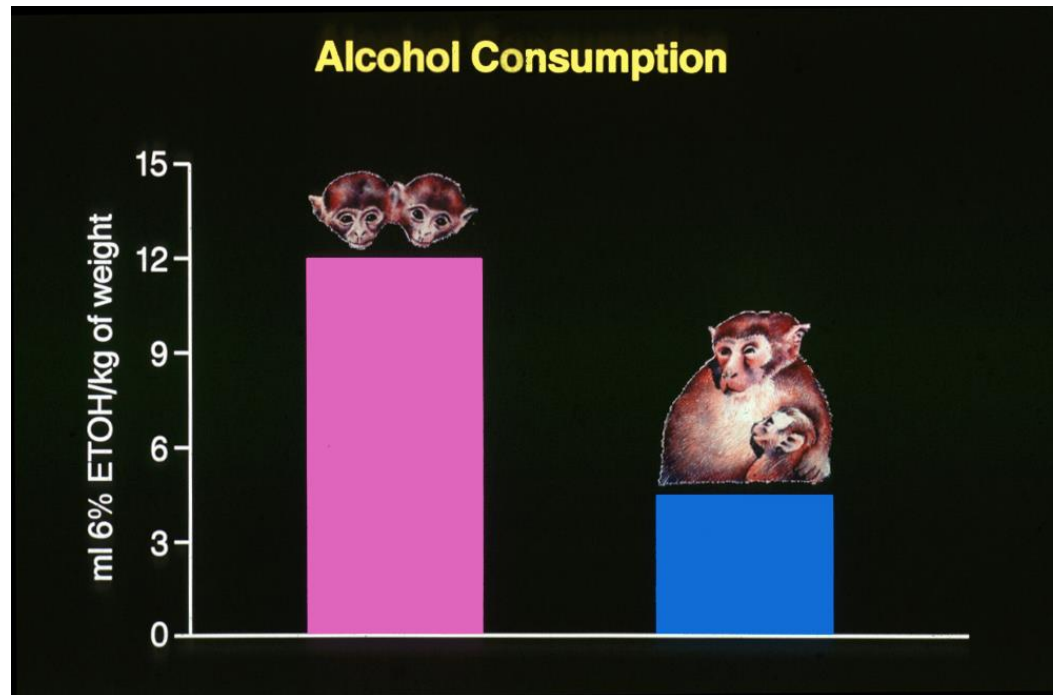
Chile: 0,25

Mexico: 0,28

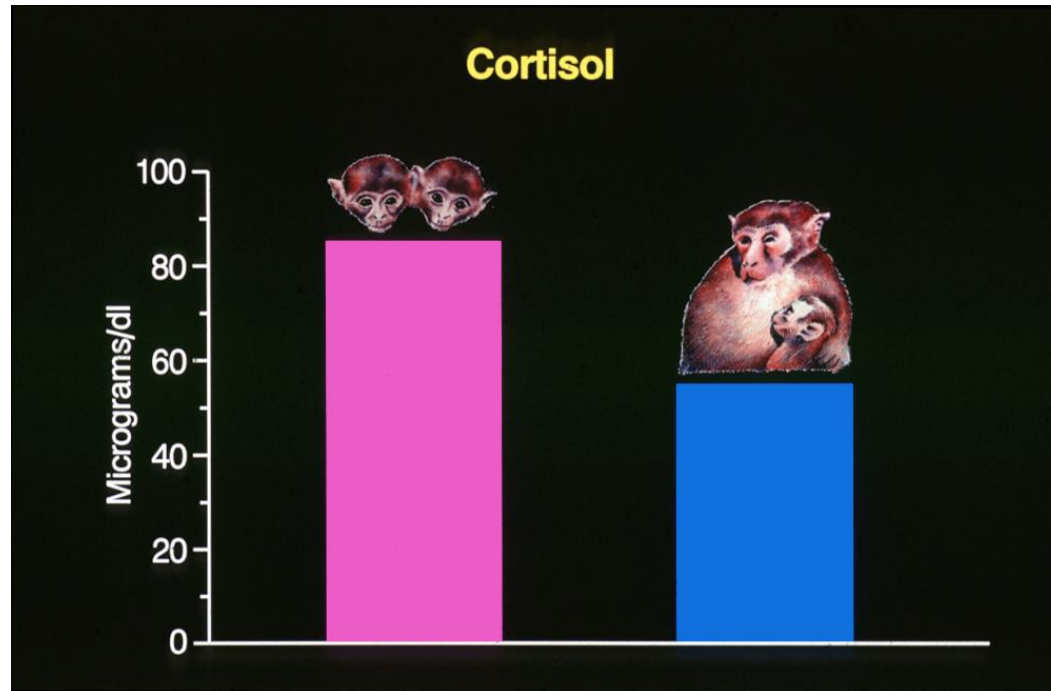
Argentina: 0,30

Source: Carnoy and Marshall (2004)

Stephen Suomi: Alcohol Consumption

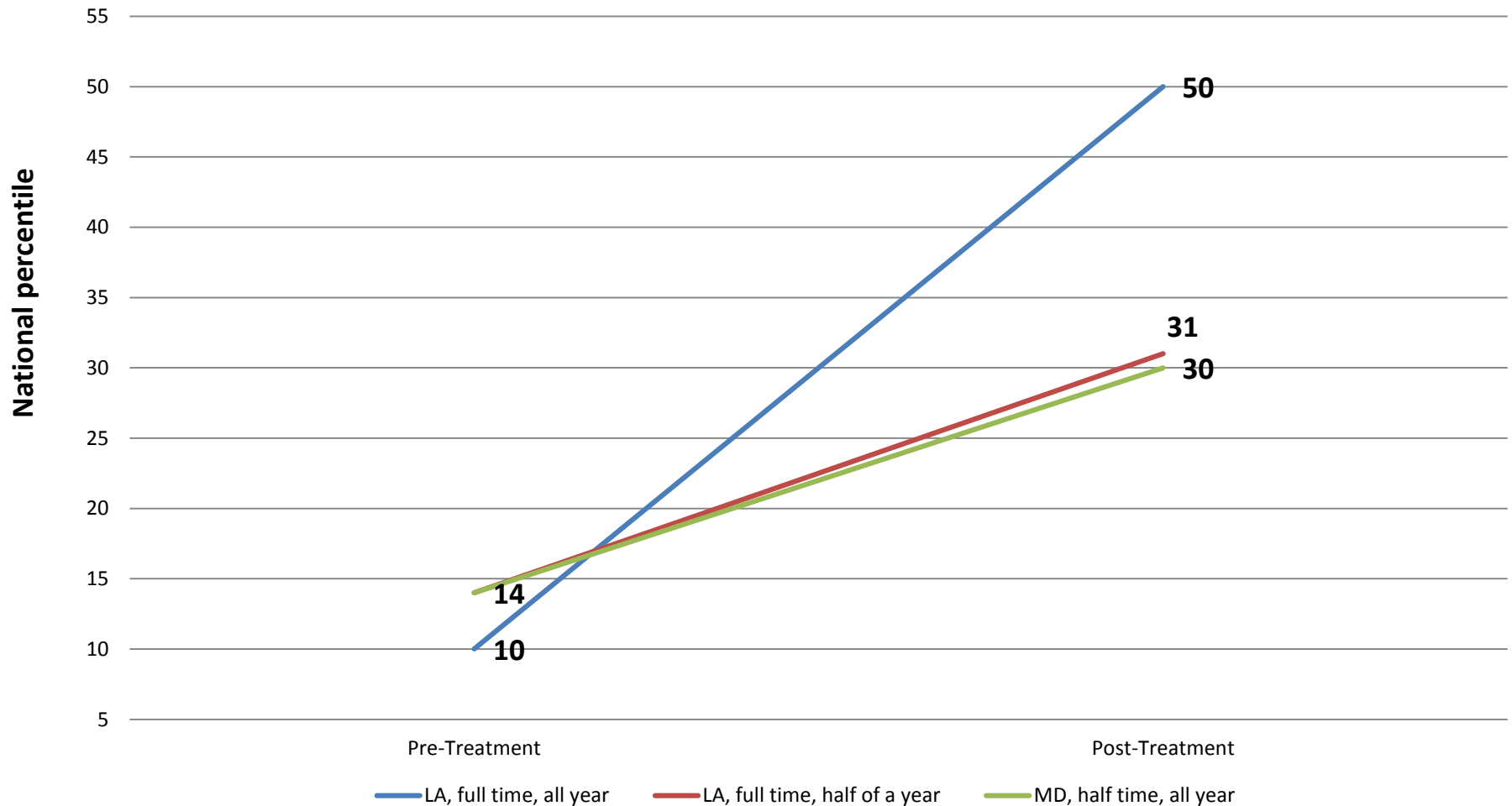


Stephen Suomi: Cortisol



Sharon Ramey (2009)

Academic progress of children in Pre-K programs, according to program dosage

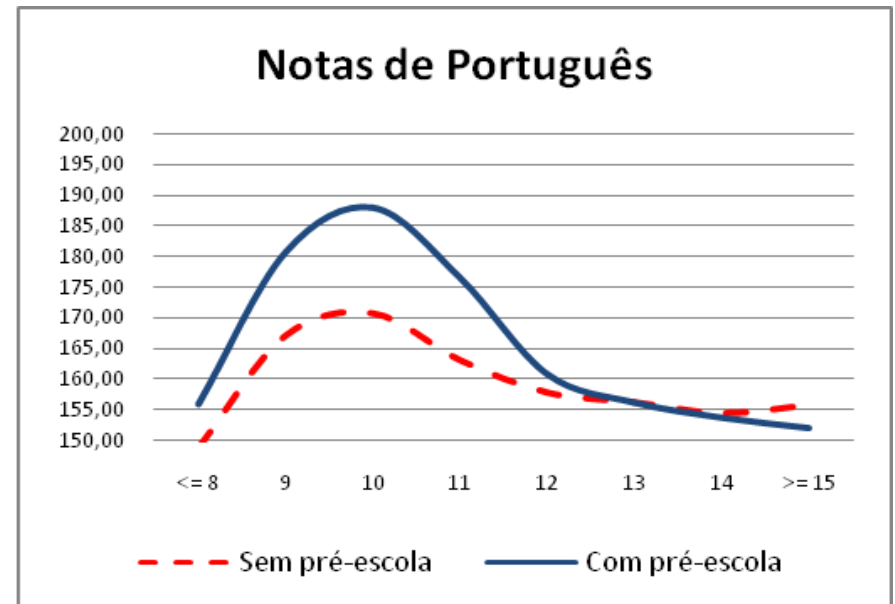
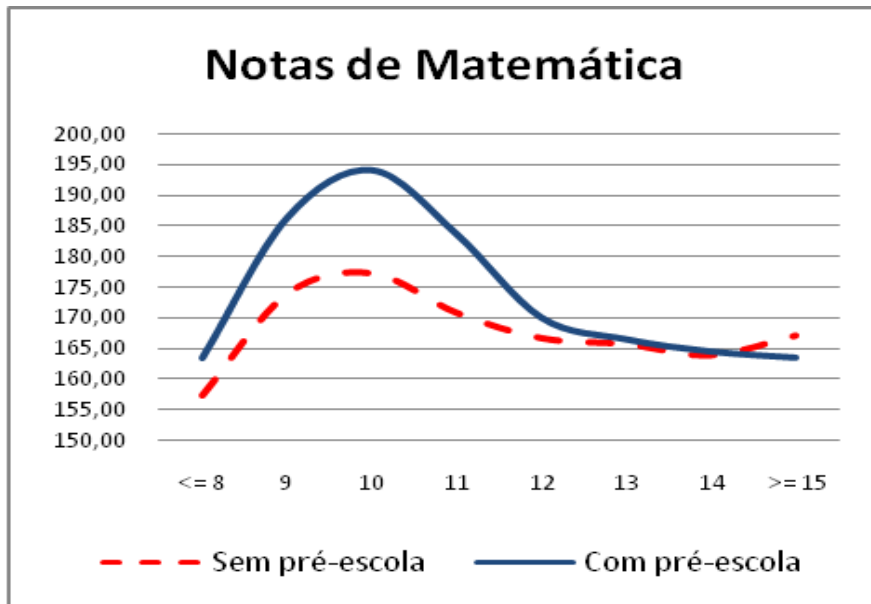


R. Paes de Barros and R. Mendonça

| Outcome | Daycare | | Pre-school | |
|--|-------------|------------|-------------|------------|
| | Coefficient | P-value(%) | Coefficient | P-value(%) |
| <i>The impact on educational performance</i> | | | | |
| Finally achieved educational level | -0.07 | 33 | 0.63 | 8 |
| Probability of completing 8th grade | -0.14 | 63 | 0.27 | 0 |
| Probability of completing secondary education | -0.05 | 85 | 0.18 | 1 |
| Probability of going to college | -0.06 | 91 | 0.35 | 0 |
| Probability of having completed 4 th grade before age 14 | -9.47 | 34 | 0.65 | 2 |
| Probability of having completed 8 th grade before age 18 | 7.65 | 97 | 0.41 | 23 |
| Probability of having completing secondary educational before age 25 | 0.65 | 6 | 0.05 | 9 |
| Probability of entering college before age 25 | 0.67 | 18 | 0.50 | 2 |
| Repetition rate (ratio between the number of years spent on school and the number of grades completed) | -0.01 | 80 | -0.05 | 0 |
| <i>The impact on labor market outcomes</i> | | | | |
| Labor force participation rate (women 25 to 64 years old) | 0.67 | 54 | -0.10 | 16 |
| Occupation rate (women 25 to 64 years old) | 0.78 | 53 | -0.07 | 27 |
| Labor income (men 25 to 64 years old) | -0.06 | 61 | 0.06 | 7 |

André Portella

- Fourth graders that went through Preschool achieve higher scores in math and portuguese tests. They also repeat school years more unfrequently than those students that did not go through Preschool.



Public policies suggestions for Brazil

- a) Creation of centers of excellence, associated with the Brazilian Ministry of Education and the State Governments, to advance research in early childhood education, with the participation of economists, neuroscientists and educators.

Objective: ensuring that Brazil will have research centers capable of keeping up with the scientific research on the subject, and producing new research that is related to the Brazilian reality.

Public policies suggestions for Brazil

- b) Implementation of high quality daycare centers that serve as a benchmark and example for existing and future daycare centers.

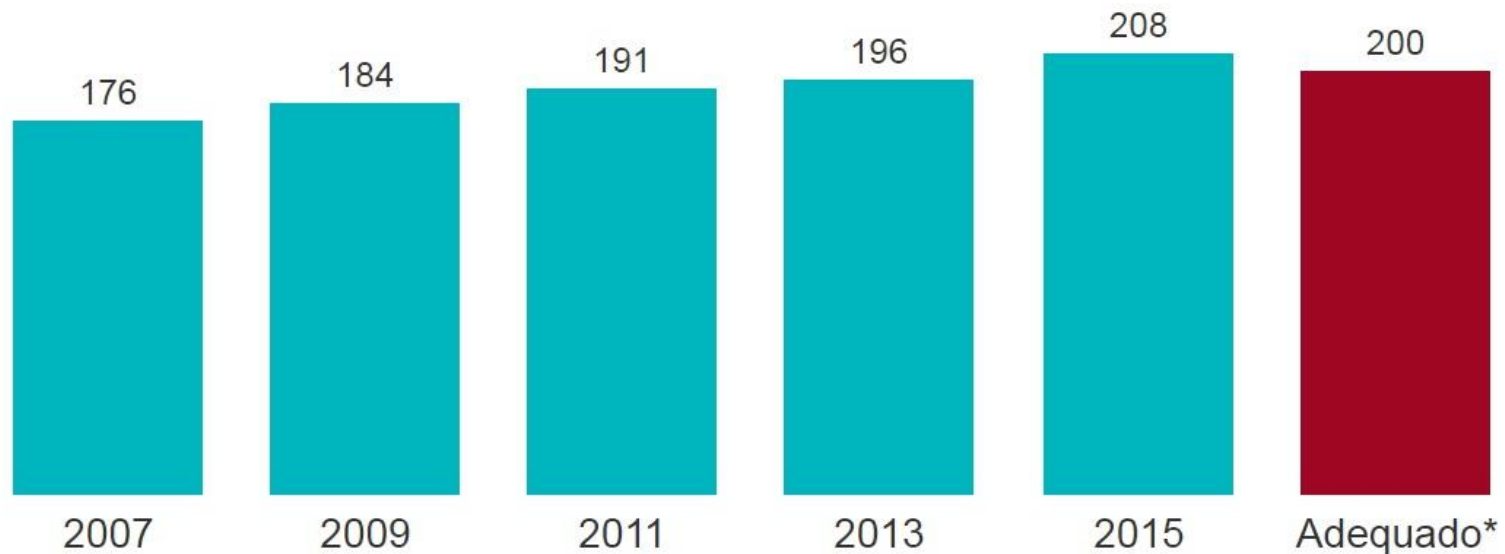
Characteristics: associated with federal, state and private universities, and other high quality institutions (religious and business entities, etc.).

Pela primeira vez nota média dos alunos ultrapassam nível considerado adequado para o 5º ano

Sistema de Avaliação da Educação Básica (2015)

LÍNGUA PORTUGUESA

Ensino fundamental 1 (5º ano)

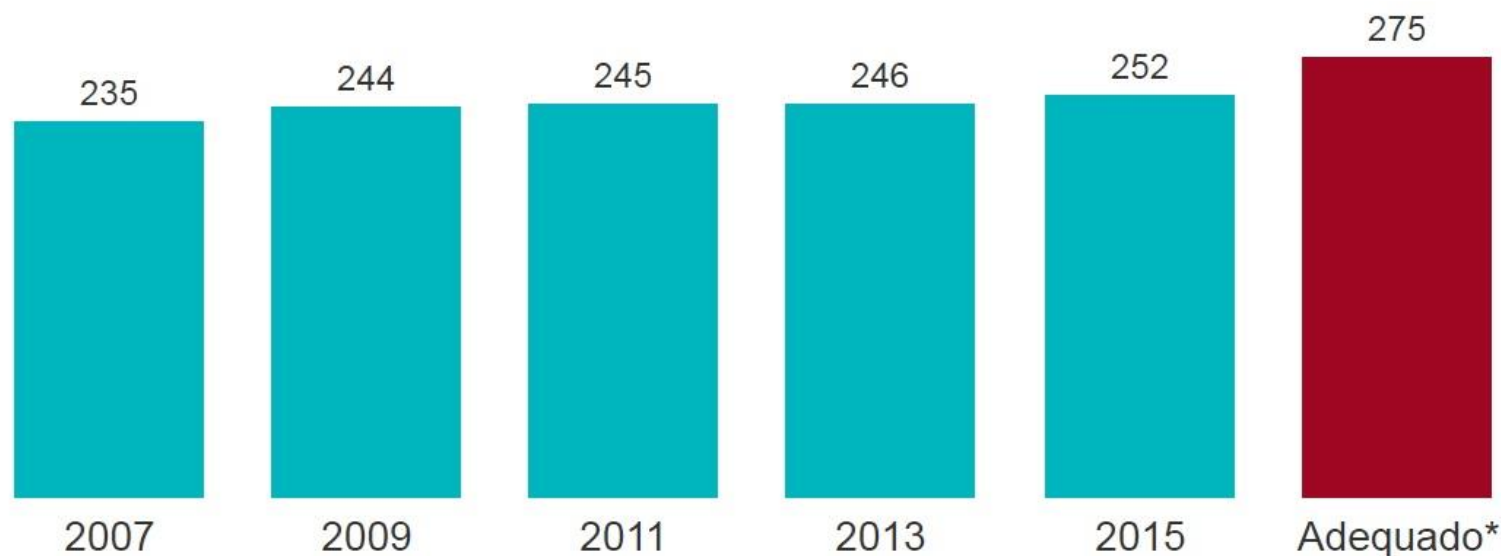


*Critério estipulado pelo movimento Todos Pela Educação, com base na escala do Saeb (Sistema de Avaliação da Educação Básica)

Sistema de Avaliação da Educação Básica (2015)

LÍNGUA PORTUGUESA

Ensino fundamental 2 (9º ano)

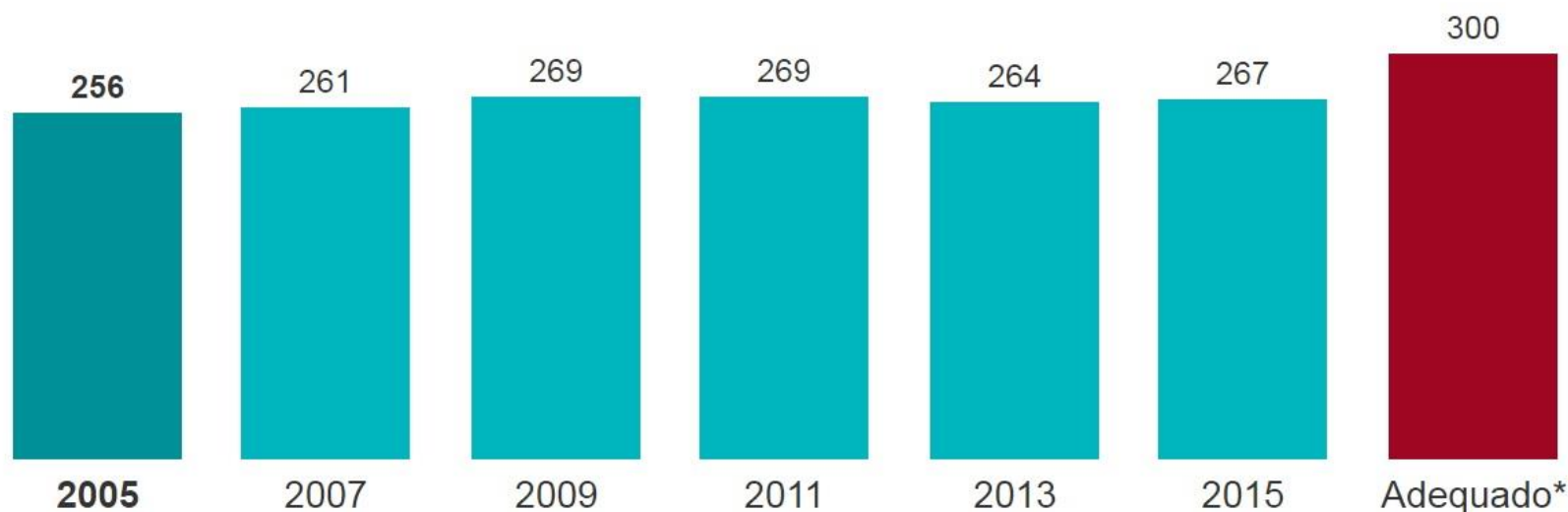


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Sistema de Avaliação da Educação Básica (2015)

LÍNGUA PORTUGUESA

Ensino médio

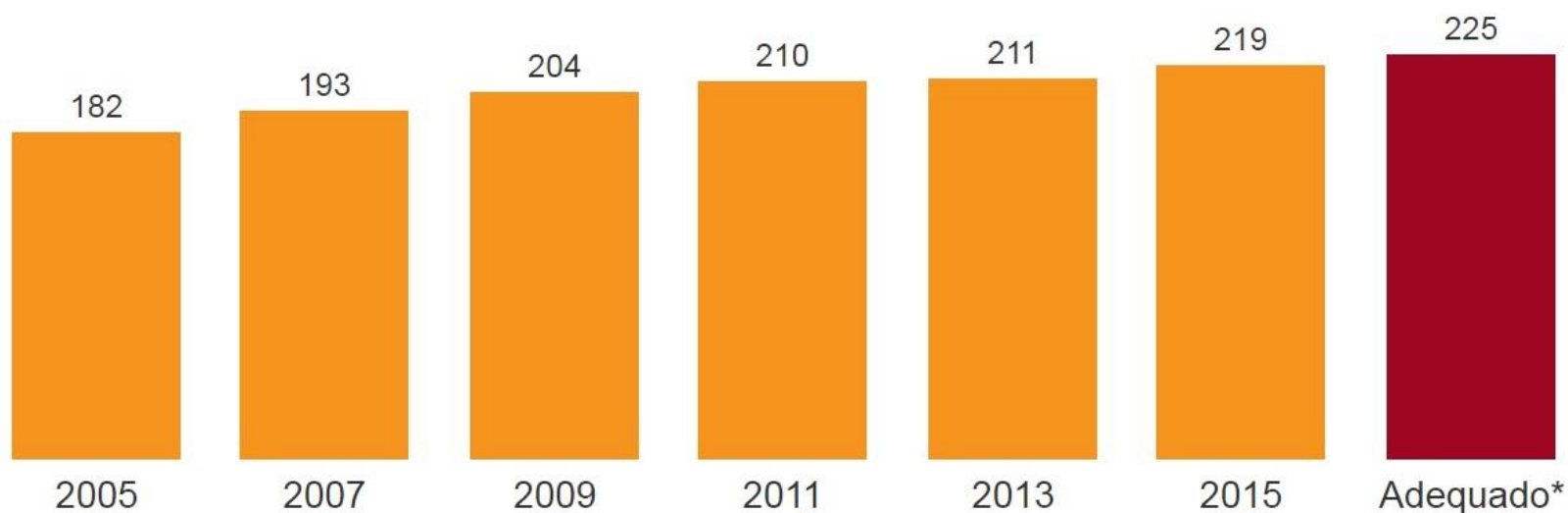


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MATEMÁTICA

Ensino fundamental 1 (5º ano)

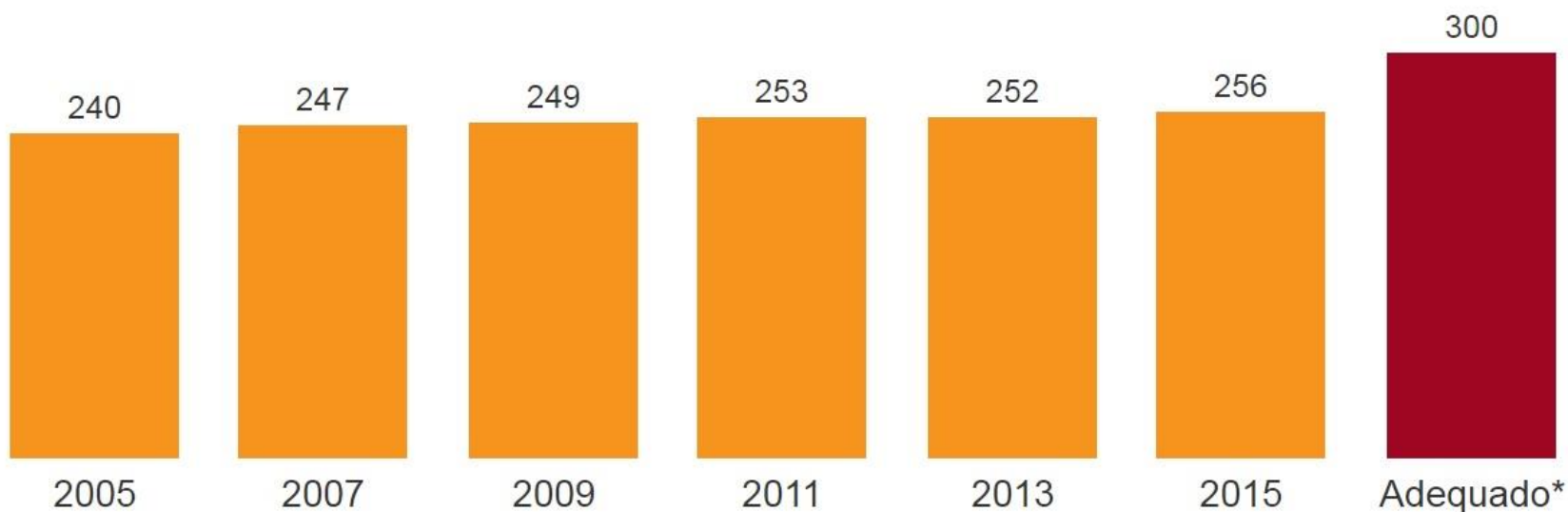


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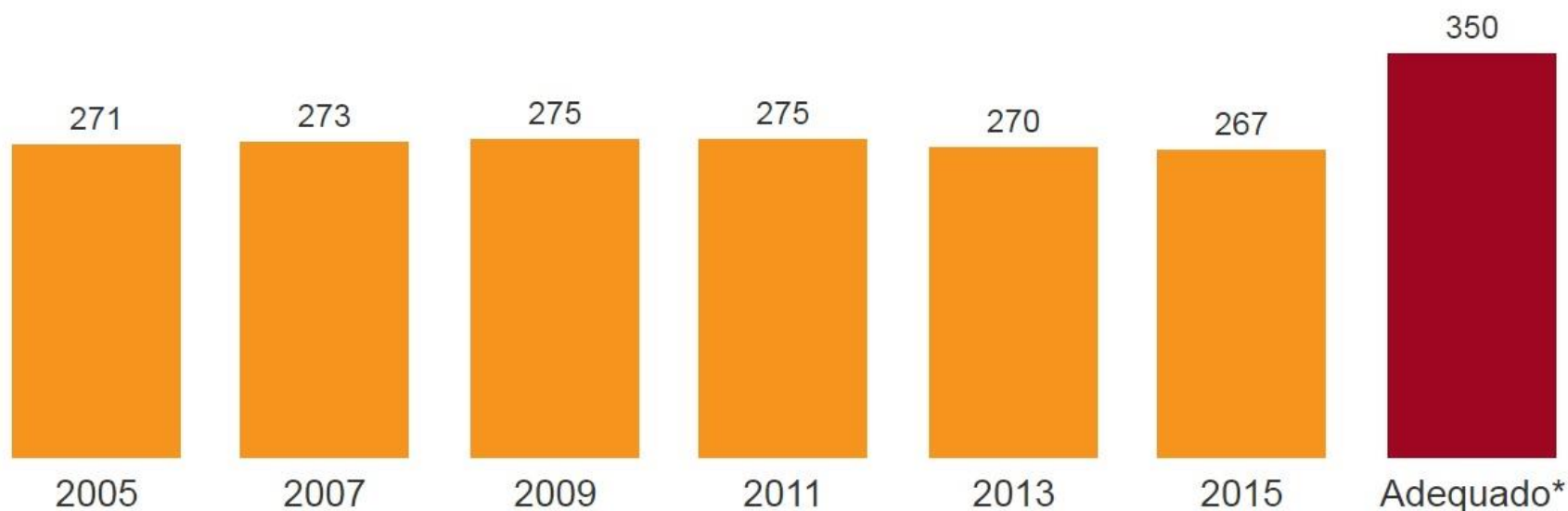


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