

Equality of opportunity in higher education

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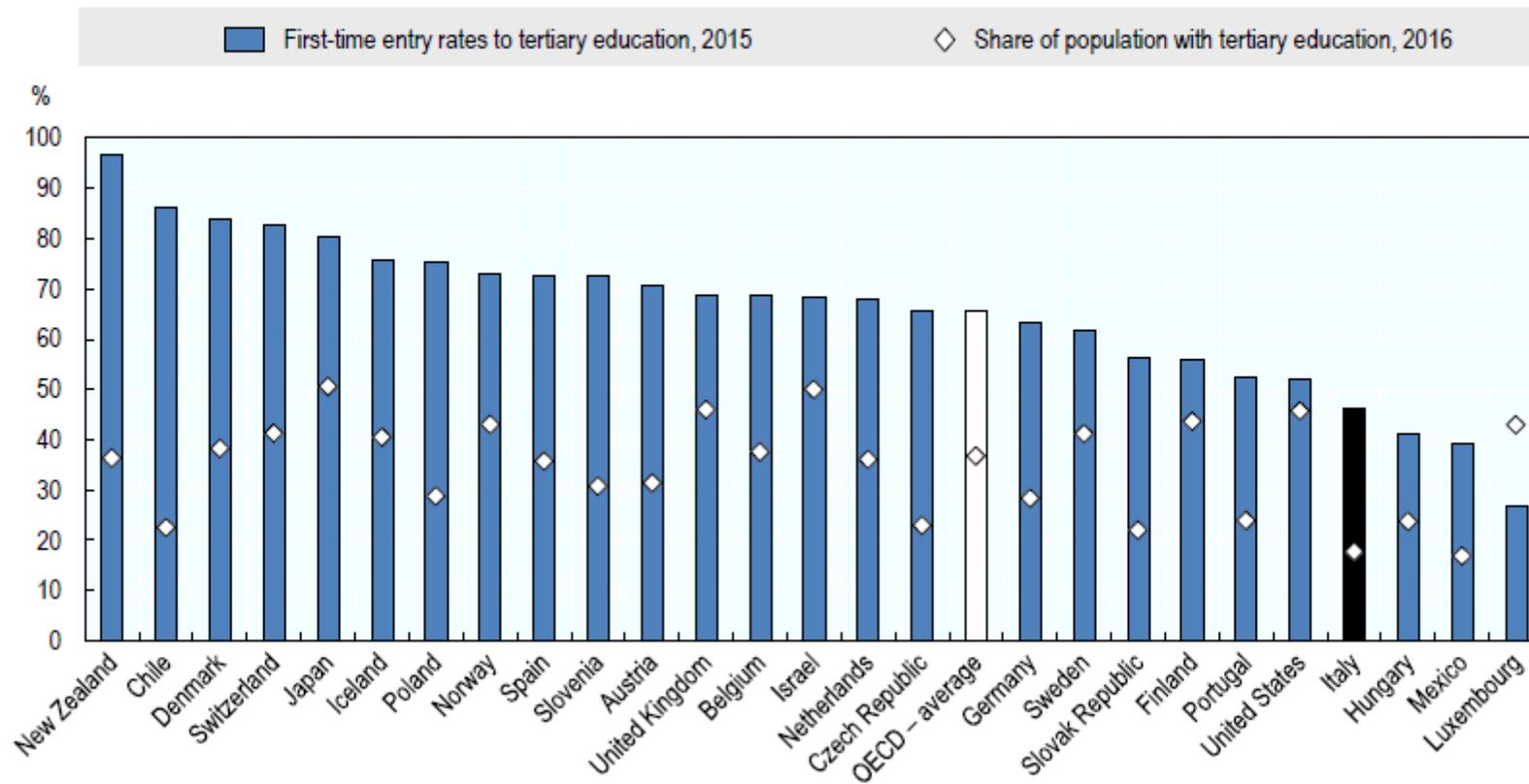
“Universities in Britain had their funding cut by 40 per cent per student under the Tories the science and research base - once the envy of the world - under threat. The Tories put a cap on student numbers. Only 30 per cent of youngsters in Britain admitted to university fewer not just than France or the USA, but fewer than South Korea. The hard choice: stay as we are and decline, or modernise and win. Under our proposals no parent will have to pay more. Low income families will be exempt from tuition fees. All students will repay only as they can afford to. We will lift the cap on student numbers and set a target for an extra 500,000 people into higher and further education by 2002. Our education system a beacon to the world.”

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Tony Blair's speech at the 1997 Labour Party Conference, quoted in *The end of free college in England: implications for quality, enrolments, and equity* Richard Murphy Judith Scott-Clayton Gillian Wyness NBER Working Paper 23888/2017

The explanandum: intergenerational persistence in higher education

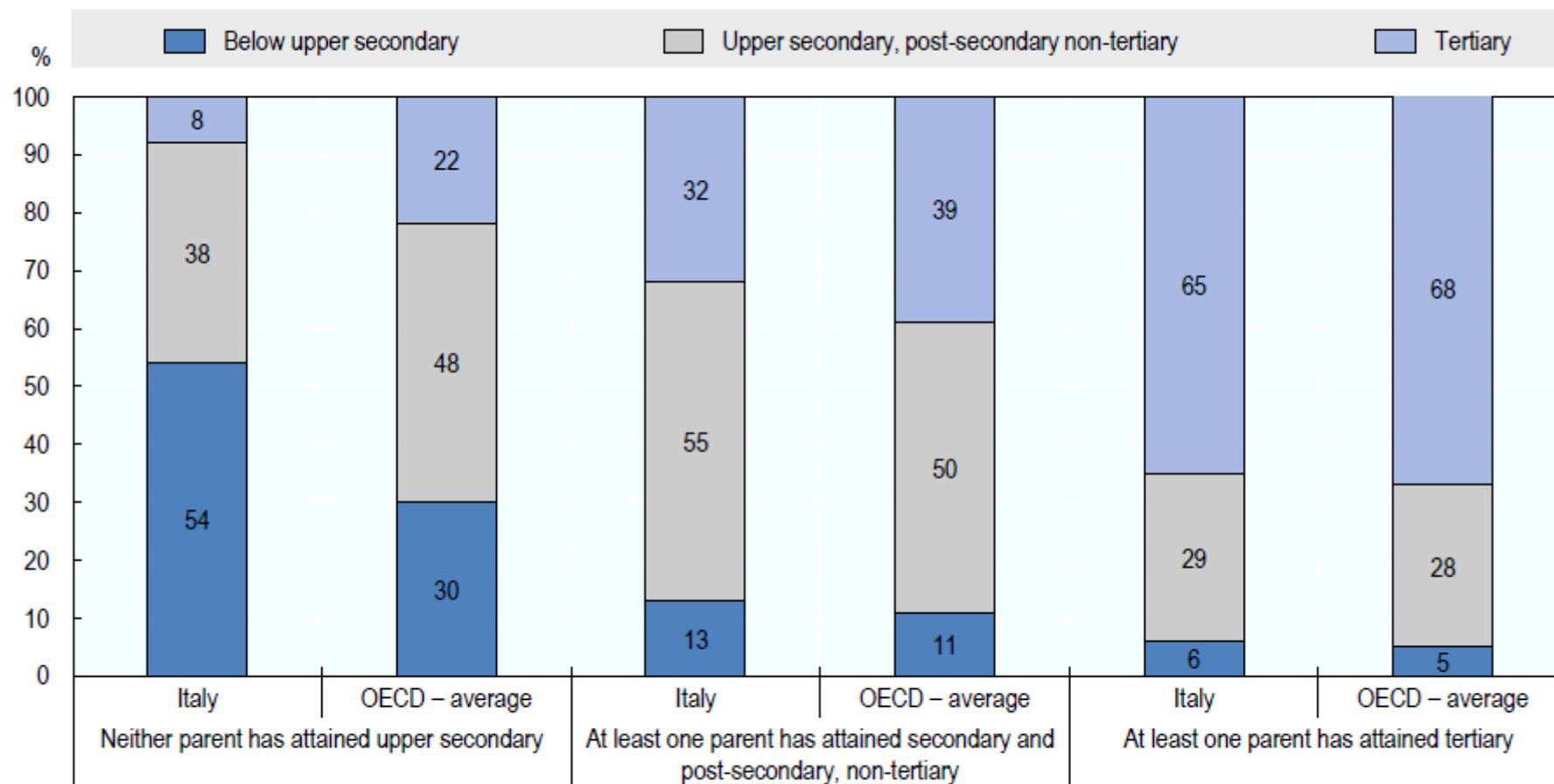
Entry rates to tertiary education for all age groups in 2014 and share of 25-65 year-olds with tertiary education in 2015



Source: OECD (2017), Education at a Glance 2017: OECD indicators, OECD Publishing, Paris,

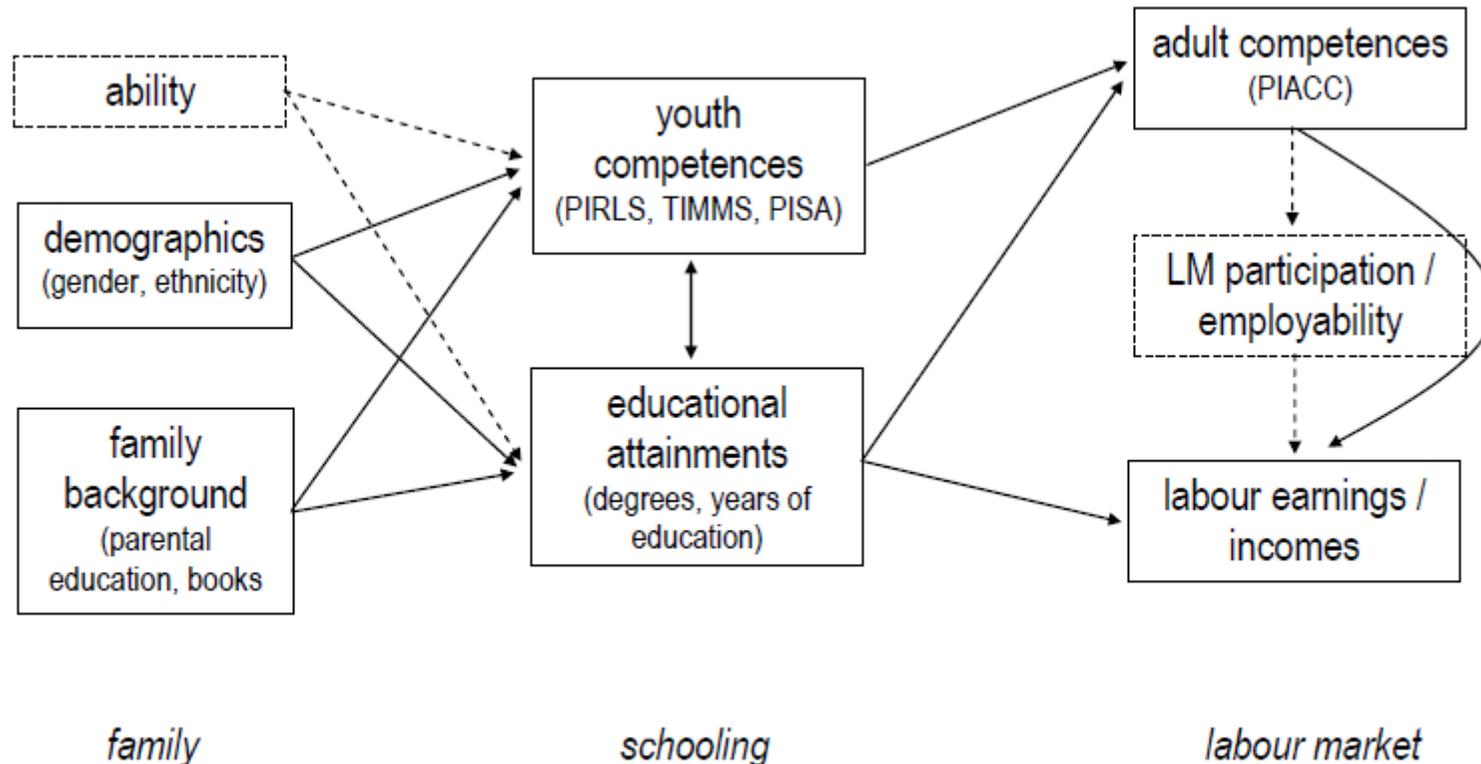
Social stratification works along the entire distribution of schooling

Education level of 25-54 year-olds by education level of parents, 2012, 2015



Source: OECD calculations based on OECD Survey of Adult Skills database (PIAAC) (2012, 2015), OECD, Paris, www.oecd.org/skills/piaac/.

While in theory we know how to define equality of opportunity, in practice we do not know how to achieve it.



Let me list various problems we face when confronted to reducing IOp.

① we do not have reliable information on individual **unobservable ability**

that includes:

- ⇒ cleverness
- ⇒ creativity
- ⇒ endurance
- ⇒ risk aversion
- ⇒ self-confidence
- ⇒ locus of control
- ⇒

But we know that

- ⇒ these traits affect educational choices
- ⇒ these traits are intergenerationally transmitted
- ⇒ genetics is affected by social context

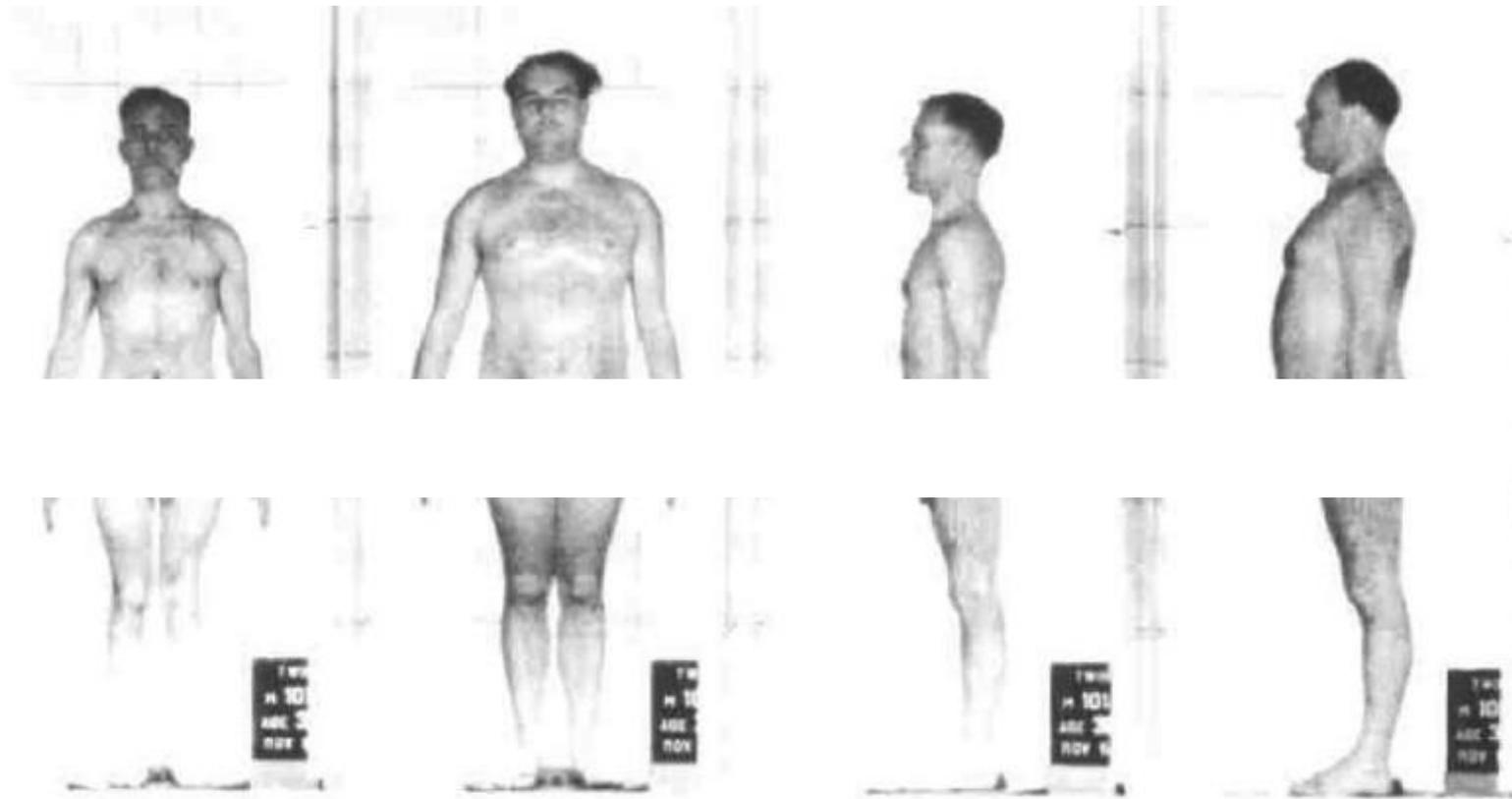
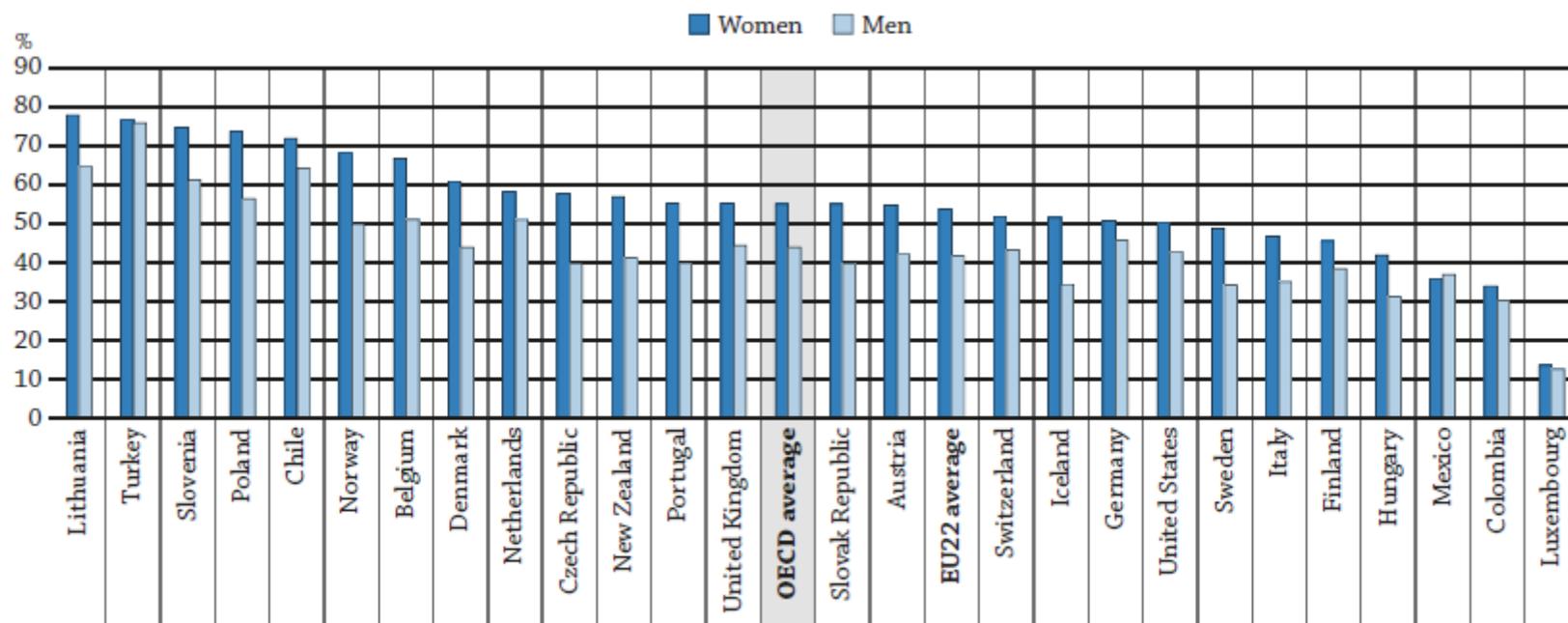


Figure 2.2 ALFRED AND HARRY, MONOZYGOTIC TWINS SEPARATED AT BIRTH. The figure shows the different height reached in adulthood by two monozygotic twins separated at birth. The one in the first photograph on the left grew up in difficult conditions and is 8.3 cm shorter than the second, who grew up in a normal family. Adult height is thus significantly affected by childhood deprivations.

Gender and foreign born are currently push factors

Figure C3.4. First-time tertiary entry rates below the age of 25 (excluding international students), by gender (2015)



Countries are ranked in descending order of the first-time entry rates of female students younger than 25 years old (excluding international students).

Source: OECD/UIS/Eurostat (2017), Education at a Glance Database, <http://stats.oecd.org/>. See Source section for more information and Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

StatLink  <http://dx.doi.org/10.1787/888933558363>

- ② educational choices are complicated by **self-selection** driven by
- ⇒ heterogeneity in preferences and/or family incomes
 - ⇒ peer effects
 - ⇒ public and private sector in education provision

To frame the problem: Dennis Epple, David Figlio, Richard Romano.
Competition between private and public schools: testing stratification and pricing predictions. *Journal of Public Economics* 88 (2004) 1215–1245)

1) household income y and student's ability b are exogenously given at each generation. They are assumed to be log-normally distributed, following a bivariate normal with given means and variance-covariance.

2) household preferences are defined over consumption and educational attainment of the child

$$U = U(c, a)$$

3) educational attainment depends on ability and school quality

$$a = a(b, q), a'_b > 0, a'_q > 0,$$

4) quality in turns depends on per student expenditure I and peer ability θ

$$q = q(I, \theta), q'_I > 0, q''_I < 0, \theta = \int_i b dF(b, y)$$

5) budget constraint includes taxation and possible tuition p charged by the school

$$c = y(1-t) - p$$

Using Cobb-Douglas notation, the utility associated to sending a child in school i is given by

$$U = (y(1-t) - p)b^\beta q_i^\zeta = (y(1-t) - p)b^\beta I_i^\omega \theta_i^\gamma$$

The MRS $\frac{U_q}{U_y}$ is invariant on individual ability b and increasing in y

(demand for school quality is a normal good). This single-cross property ensures perfect sorting of students according to family incomes.

6) schools have a production technology, to which the following cost function is associated

$$C(k, I) = F + V(k) + kI, V' > 0, V'' > 0$$

where k is the school size and I is quality expenditure.

7) public schools are all identical in terms of k, I and peer (no sorting among them). The value of I is decided after majority voting on the desired tax rate t , under balanced public budget.

8) private schools are profit maximisers – free entry in the education sector.

Main result:

(a) Student choice of school is characterized by stratification by income meaning, for given ability, attendance at a higher-quality school implies higher household income.

(b) Student choice of schools satisfies stratification by ability, analogously defined

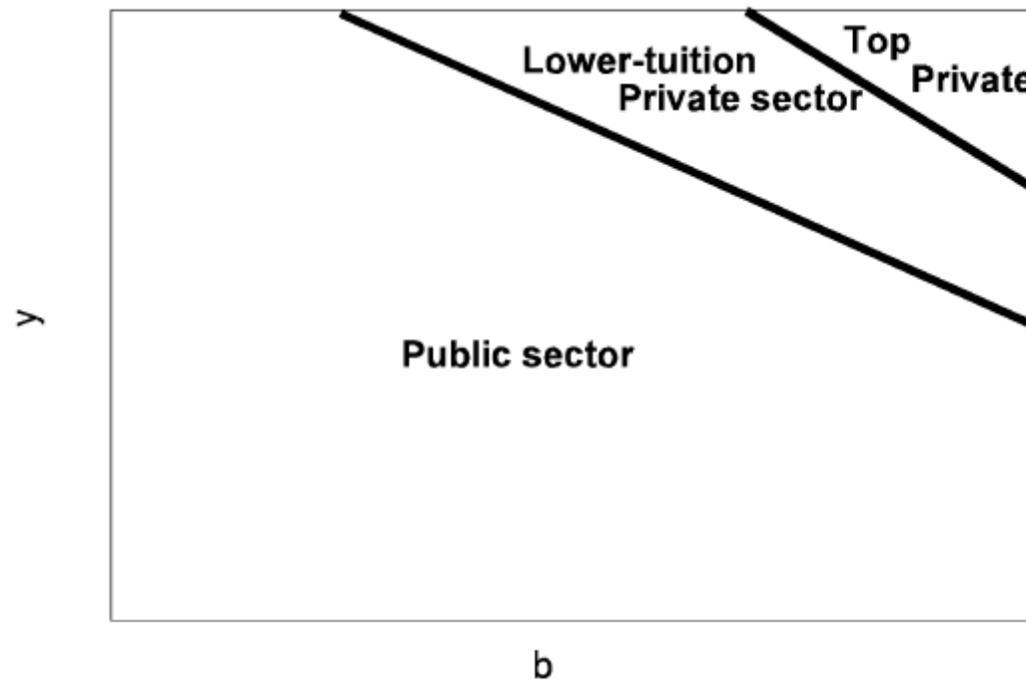


Fig. 2. Implied boundary loci from conditional logit models, Table 1.

③ We do not have good indicators for quality of education. When we proxy it with **competences** (literacy, numeracy, problem solving) we observe that parental education and schooling exhibit varying degrees of complementarity

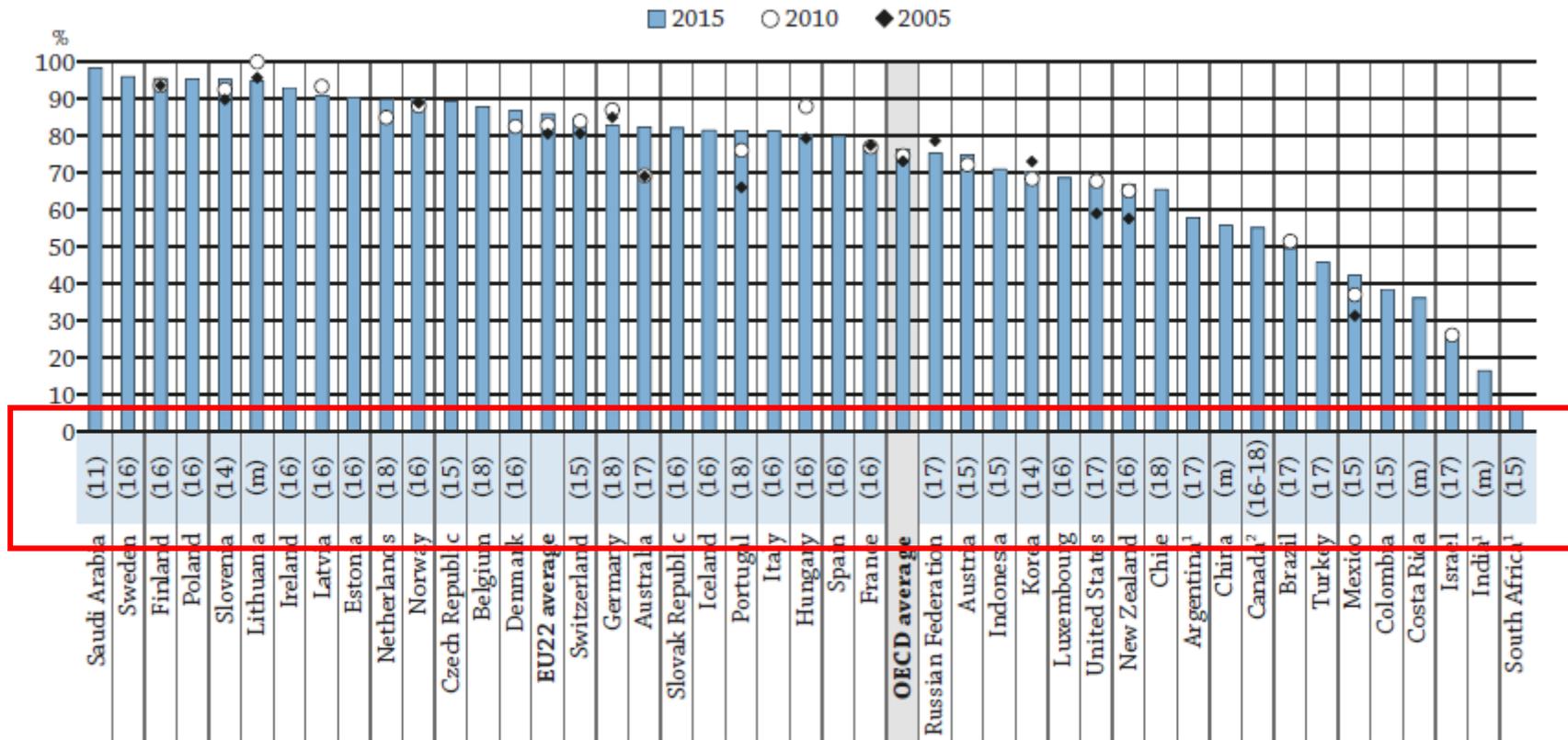


Available policy instruments for reducing IOp include:

- ⇒ compulsory education legislation
- ⇒ institutional design (tracking/detracking, short/long cycles, academic/vocational)
- ⇒ tuition fees
- ⇒ financial support

Compulsory education represents a push factor, which is typically effective in the bottom tail of the (unobservable) ability distribution. But it cannot extend to tertiary education.

Figure C1.2. Enrolment rate at age 18 (2005, 2010 and 2015)
Secondary, post-secondary non-tertiary and tertiary programmes



Note: The number in parentheses corresponds to the ending age of compulsory education.

1. Year of reference 2014.

2. Excludes post-secondary non-tertiary education.

Countries are ranked in descending order of the enrolment rate at age 18 in 2015.

Source: OECD (2017), Education at a Glance Database, <http://stats.oecd.org/>. See Source section for more information and Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

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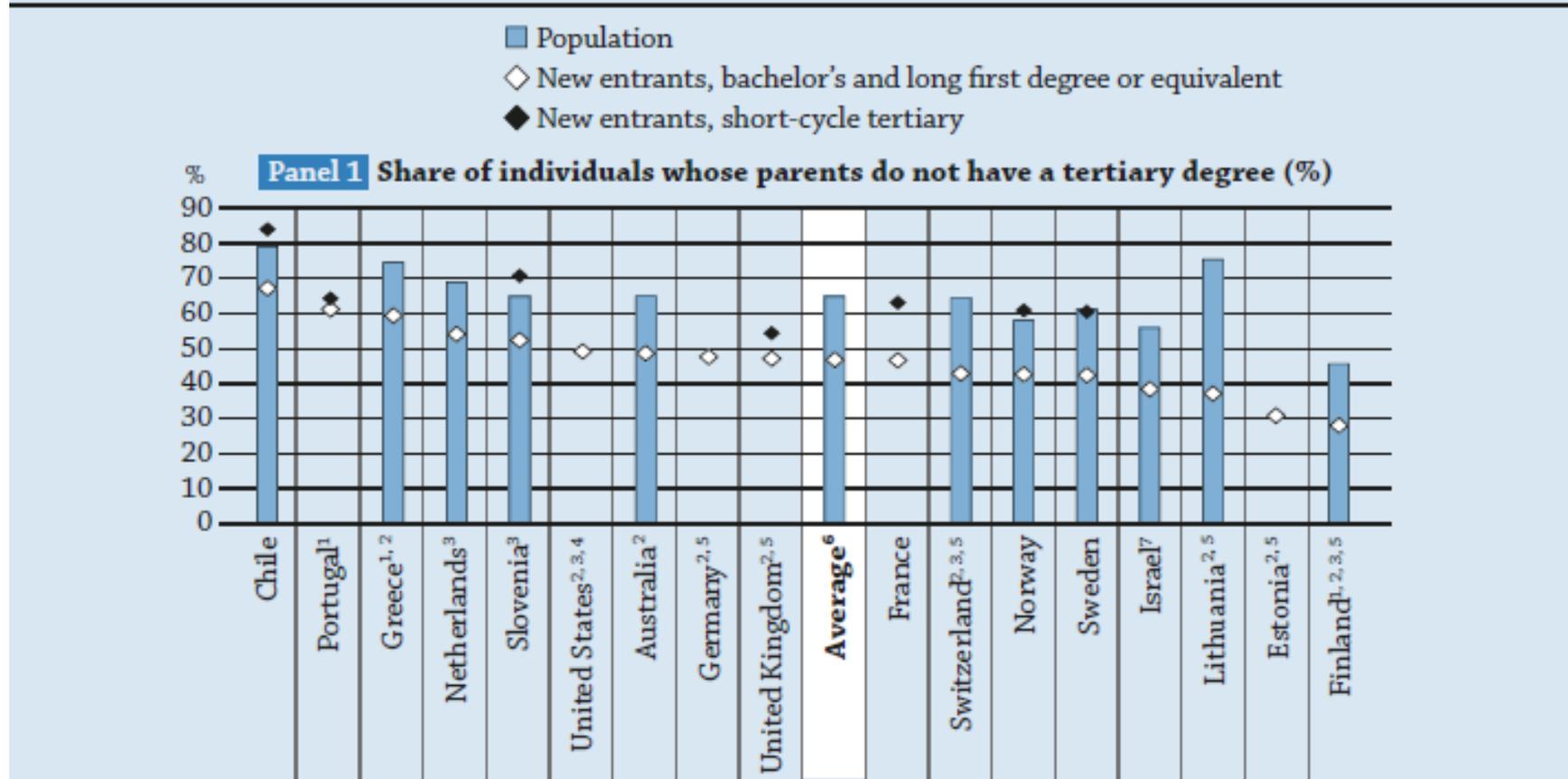
Institutional design

→ tracked secondary school systems (Germany is prototype) exhibit higher attendance rates, but de facto prevent a fraction of students from proceeding further in academic-oriented tertiary education

→ when tracked secondary is accompanied by vocational tertiary education, one observe high participation rates, but the system remains socially selective (elite occupations are precluded to low social status students)

→ when tertiary education offers tertiary short cycle degrees, students from low social status are encouraged to enter tertiary education (lower risk and/or higher discounted value)

Figure C3.c. Inequality in access to tertiary education among 18-24 year-olds (2015)



How to read this figure

Panel 1: In Chile, 79% of all 18-24 year-olds have no tertiary-educated parent, compared to 67% of 18-24 year-old new entrants in bachelor's and long first degree or equivalent programs, and 84% of 18-24 year-old new entrants in short-cycle tertiary programs.

Tuition fees

Low tuitions encourage attendance, but the most relevant cost is the (expected) opportunity cost, which depends on

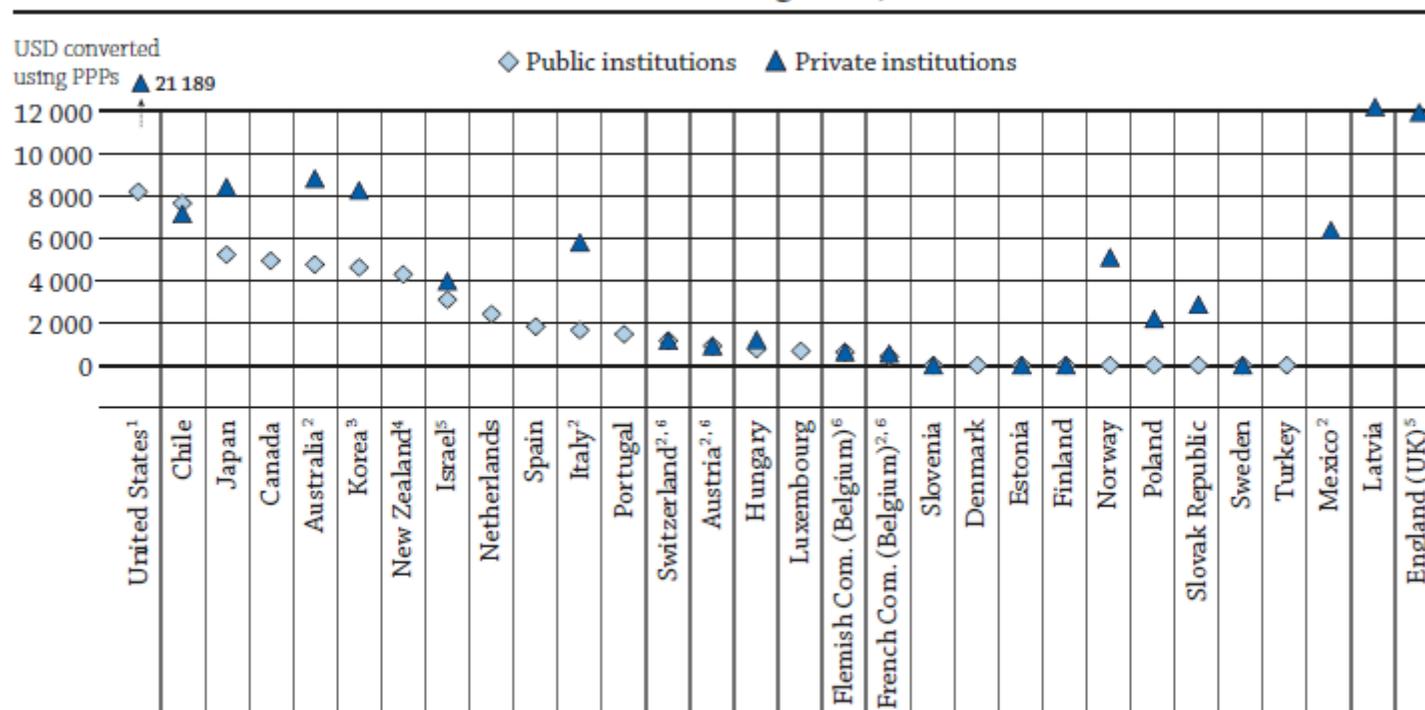
⇒ youth unemployment (girls have a lower opportunity cost than boys)

⇒ return to skill (Mediterranean countries are characterized by low return associated to lower technology)

The existence of private universities may alter the scenario of opportunities.

Figure B5.1. Tuition fees charged by public and private institutions at bachelor's or equivalent level (2015/16)

Average annual tuition fees charged to full-time national students, converted in USD using PPPs for GDP



Note: For countries and economies for which only a range was available, this figure plots the average between the minimum and maximum tuition fee levels: Flemish Com. (Belgium), Latvia, Luxembourg and Portugal.

1. Year of reference 2011/12.

2. Year of reference 2014/15.

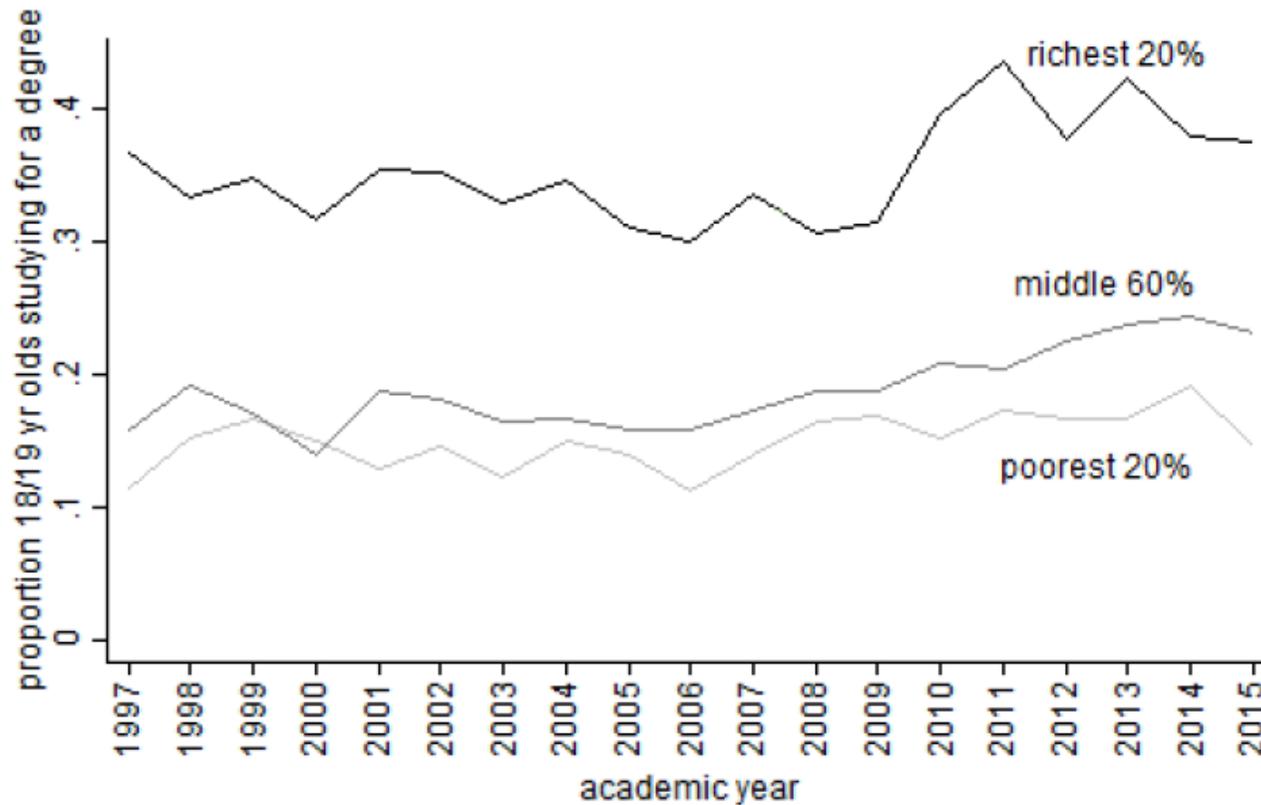
3. Year of reference 2016.

4. Estimates include short-cycle tertiary and bachelor's or equivalent programmes in universities only and exclude second programmes at ISCED 6, such as postgraduate certificates and diplomas. Data include goods and services tax (15%).

5. Year of reference 2013/14.

Empirical evidence on recent UK reform indicates that tuition rise has no immediate impact, but new generation born higher burden of debt.

Figure 9: Percentage of 18/19 Year Olds Enrolled in College, by Parental Income



Source: Authors calculations using Secure Lab: SN6727 Quarterly Labour Force Survey, 1992-2016: Secure Access data. Figure cannot be extended prior to 1997 due to small sample sizes.

Financial support

It can take either the form of scholarship/grants (conditional or unconditional on merit) or the form of a loan (covering or not covering maintenance costs).

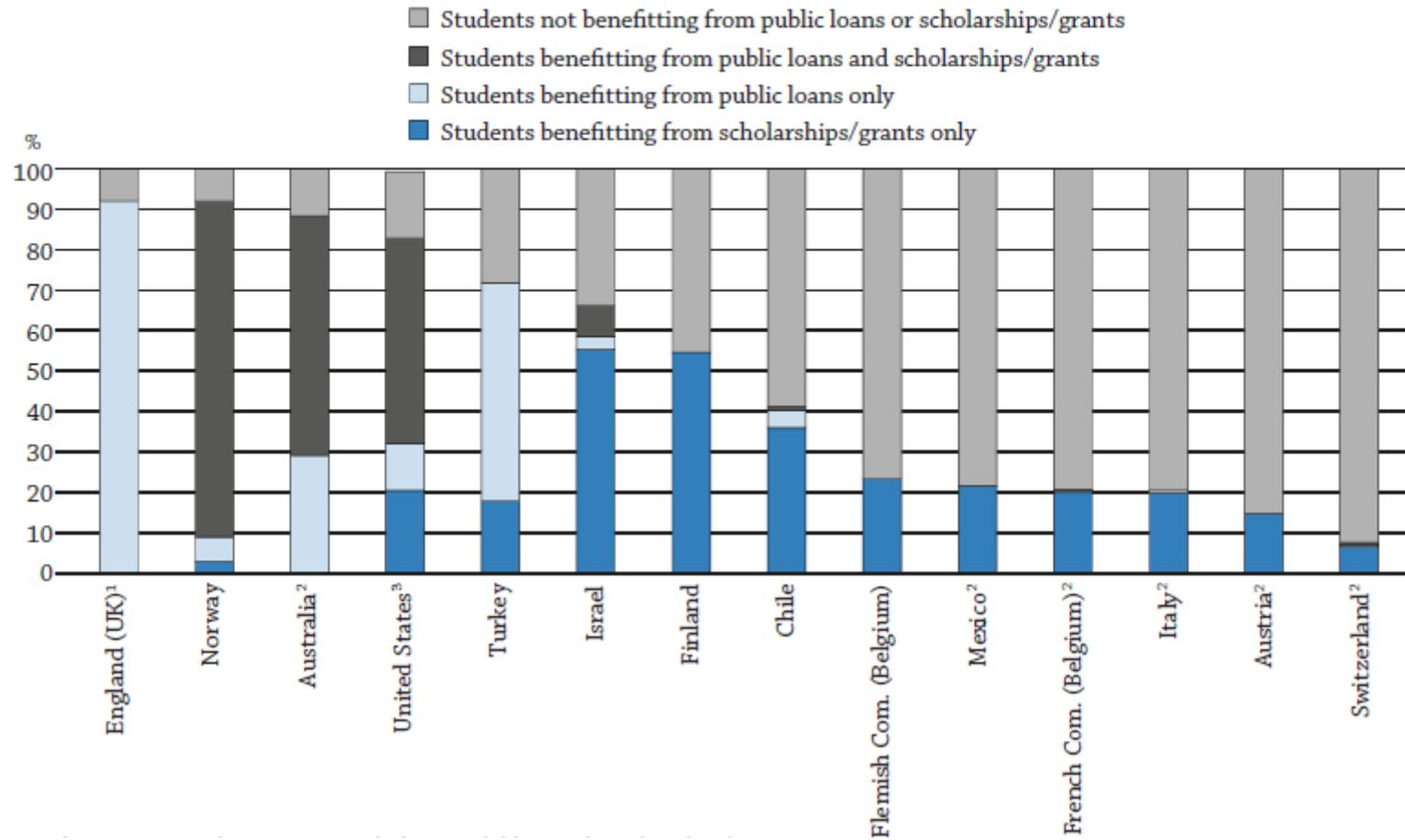
The two alternatives are rather different in terms of

⇒ redistribution (more talented deserve monetary incentives ?)

⇒ life-time prospect (what about if low income families have higher risk aversion ?)

Figure B5.3. Distribution of financial support to students at bachelor's or equivalent level (2015/16)

National students, based on full-time students



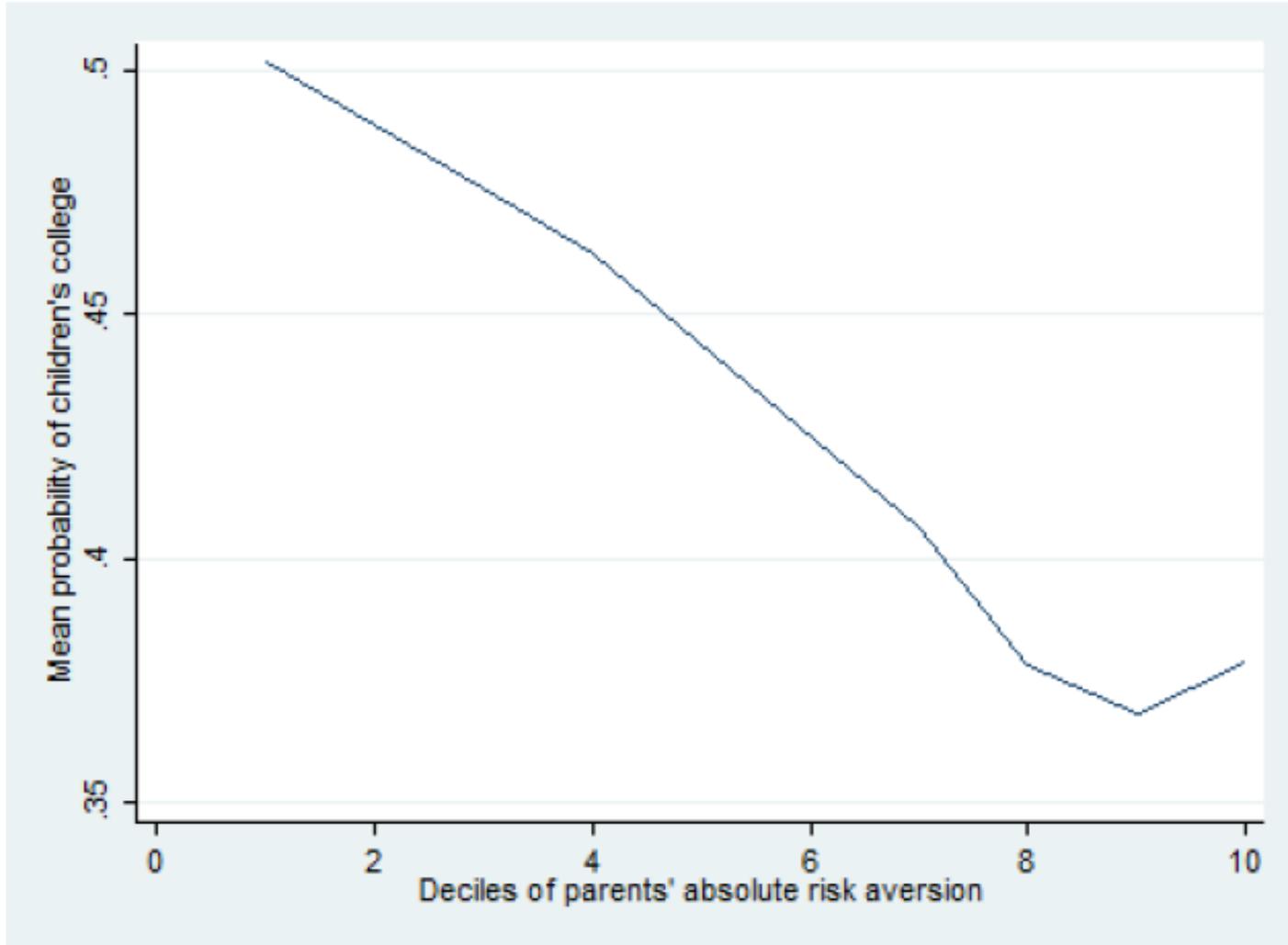
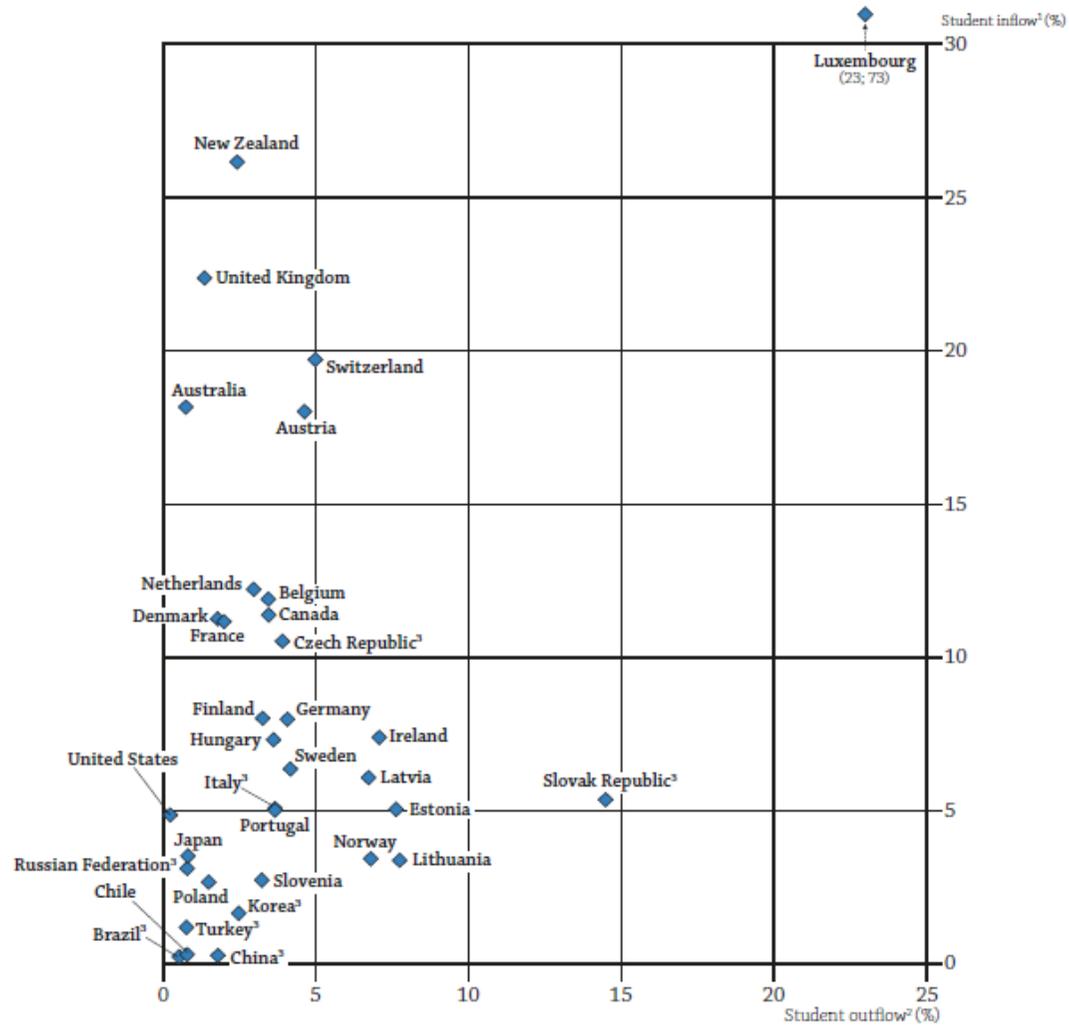


FIGURE 1. Parents' risk aversion deciles and children's average probability of college enrollment.

A final point concerns international mobility of students. Despite lack of cross-country comparable data on migration flows by social origin, anecdotal suggest that the elites of middle-low income countries send their children abroad as a strategy to preserve privileged access to better jobs.

Figure C4.3. International student circulation in total tertiary education (2015)
*International or foreign students studying in the country and national students studying abroad
as a percentage of total national students studying home and abroad*



1. Student inflow represents the number of international students on a country's soil for every 100 national students studying home or abroad in the OECD area (y-axis).
2. Student outflow represents the percentage of national students studying abroad (x-axis).