Increasing Educational Inequalities?

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Outline

1. A New Dataset of Educational Inequality
2. Increasing Educational Inequalities?
   - Expansion and inequality
   - Gender inequality
   - Intergenerational inequality
3. From Education to Income
4. Conclusions
References

Elena Meschi and Francesco Scervini,
*A New Dataset of Educational Inequality*
GINI Discussion Paper 3, AIAS, Amsterdam, December 2010

Gabriele Ballarino, Massimiliano Bratti, Antonio Filippin, Carlo Fiorio, Marco Leonardi and Francesco Scervini,
*Increasing Educational Inequalities?*
Chapter 5 in: Wiemer Salverda et al., Editors
*Changing Inequalities in Rich Countries: A Comparative Analysis,*
Oxford University Press, forthcoming
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Existing datasets

The benchmark:
- Barro-Lee dataset
- provides data on
  - Attainment rates for seven educational levels
  - Average years of schooling
- using
  - 146 countries
  - 12 five-year intervals (1950-2010)
  - Estimated years of schooling
  - Heterogeneous country-specific sources
Existing datasets

Other existing datasets:

- Cohen and Soto
- De Gregorio and Lee

- Very similar in spirit to Barro-Lee dataset
- Different surveys, years, countries
Meschi and Scervini dataset

Our dataset is innovative from several perspectives:

- Three different measures of education:
  - years of schooling
  - attainment rates (4 levels for cross-country consistency)
  - competences

- Data organised by cohorts of birth instead of years

- Several indicators of educational inequality

- Longer time interval: 1920-1984 (13 five-year cohorts)

- Survey data for years of schooling (not estimated)

- Data from different surveys (ESS, EU-SILC, IALS, ISSP)

- Positive consistency checks across surveys
Meschi and Scervini dataset

However:
- No data on the whole population, only for cohorts
- “Only” 31 countries
- No data on developing countries

In general:
- Barro-Lee: stock of education, as an input
- Meschi-Scervini: inflows of education, as an output
  (Braga, Checchi and Meschi, GINI DP 22, and Economic Policy, 2012)
- Meschi-Scervini: dispersion of education
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Expansion of schooling and inequality

Three dimensions of inequality:

- **Distribution of education**
  measured with Gini coefficient

- **Gender inequality in education**
  measured with attainment rates by gender

- **Intergenerational transmission of competences**
  very difficult to be measured!
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Expansion and inequality

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Expansion and inequality in education

Cohorts by year of birth

- Average educ. (left axis)
- Gini index (right axis)
Clear trends:

- Fast expansion in the *levels* of education
- Fast *reduction* of dispersion by cohort
- **Convergence** across countries

However...
Expansion and inequality

Years of education lower than 12

Years of education higher than 12

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Expansion and inequality

However:

- Clear negative correlation only up to a threshold
- Once controlling for country and cohort fixed effects:
  - evidence of a U-shaped relationship between expansion and inequality
- Increasing inequality driven by expansion of higher levels
Expansion and inequality

Cohorts 1920-24 to 1970-74

Cohorts 1975-79 and 1980-84
Expansion and inequality

Summing up:
- Long term convergence among EU countries both in terms of:
  - higher levels
  - lower inequality
- Concerns for younger cohorts:
  - further expansion through higher level may increase inequality
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Gender inequality in education

![Graph showing gender inequality in education](image)
Gender inequality in education

![Graph showing Attainment rates: tertiary level for Males and Females across different cohorts by year of birth.](image-url)
Gender inequality in education

Common trends for all geographic areas:

- Convergence between genders in secondary and upper secondary levels
- Divergence in tertiary education, in favour of women

⇒ Gender discrimination against women does not seem to arise from formal education
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Intergenerational transmission of competences

Focus on Italy:

- In general, difficult cross-country comparison
- Italy is the only EU country in ALL (Adult Literacy and Lifeskills Survey, run by OECD in 2002)
- “Upper-bound” of inequality of opportunities in Europe

Analysis of average competences

- by years of education
- by parental education
Intergenerational transmission of competences

Prose ability by years of education, according to parental education

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Intergenerational transmission of competences

- Parental education affects only individuals with low levels of education
- No differences in competences among individuals with higher education, irrespective of parental education
- Virtually no differences in competences among individuals with higher parental education, irrespective of educational level

⇒ School can compensate for disadvantages in parental background
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Link between inequality of education and inequality of income?

Debated topic, contrasting evidence:

- **Yes**  
  (Becker and Chiswick, 1966; De Gregorio and Lee, 2002)
- **No**  
  (Ram, 1984; 1989)
- **Depends** on the stage of development  
  (Knight and Sabot, 1983; Földvári and van Leeuwen, 2011)
Educational and income inequality

Income and educational inequality

Gini coefficient on gross income vs. Gini coefficient on years of education
Regressions based on EU-SILC 2009 suggest that

- Income inequality is significantly correlated to educational inequality
- Reduction of educational Gini of 1 point leads to a reduction of income Gini of about .55 points
- Stated differently, on average a 10% reduction of educational Gini leads to a 2% reduction of income Gini

⇒ Positive and significant correlation, but not very sizeable
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The picture is overall positive:

- Dispersion decreased in the last century
- but there are signals of an increase for the last cohorts
- Women caught up men, and exceeded them in tertiary education
- Some evidence of a positive effect of formal schooling on equality of opportunity
- Positive correlation between educational and gross income inequality
Building a dataset

- Download all waves of each survey
  ESS, EU-SILC, IALS, ISSP
- Check data consistency over waves for each variable
- (For consistent variables) Merge all the waves of each survey:
  ⇒ Increase sample size
  ⇒ Loose the cross section dimension
- Select individuals
  ⇒ Older than 25
  ⇒ With less than 30 years of education
- Partition the sample by 13 five-year cohorts
- Divide the sample by gender
(Keep on) Building a dataset

- Compute for each cohort, each variable, each survey:
  - Sample size
  - Mean
  - Standard Deviation
  - Gini coefficient
  - Generalised Entropy indices
  - Atkinson indices
  - Deciles and quartiles

- For each variable/cohort, check consistency over surveys
Countries covered in different surveys

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## Countries, datasets, cohorts

Number of countries covered by surveys and cohorts

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Countries, datasets, cohorts

Variables by survey

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