Educational Inequality in Italy in the Second Half of the 20th Century: Do Mothers Matter?

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Background & motivation: a male bias?

Motivation

- A number of studies confirm that maternal occupational status is as important as father's for offspring's educational outcomes, and it is so equally for daughters and sons (Kalmijn 1994; Korupp et al. 2002; Meraviglia and Ganzeboom 2008; Beller 2009; Tomescu-Dubrow & Domański 2010; Buis 2013).

Our aim:

- We focus on the trend of inequality of educational opportunities (IEO) over cohorts for the Italian case.
- We test different ways of measuring family background in order to check whether a more detailed and accurate measure that includes mothers (also in accordance with theoretical claims about the family being the proper unit of analysis in stratification studies), lead to different substantive empirical results.

Analytical strategy

- We measure social origins in terms of parental education for two reasons: a) parental education is a stronger predictor of education than parental social class; b) while IEO based on parental class appears to be declining over time according to most of the studies, this is not the case for IEO based on parental education (Ballarino and Schadee 2008).
- We use different definitions of social background (based on parental education) and compare:
  - ⇒ their fit;
  - ⇒ the model parameters pooling all surveys;
  - ⇒ the model parameters including a time (year of birth) effect, measuring IEO over time by the difference in predicted probabilities to make a transition btw the offspring of tertiary educated and the other educational origins.

Data and variables

- **Istat Multiscope Household Survey (1998, 2003, 2009).** Analytical sample: 84,376 cases
- **Dependent variables:**
  - Having achieved at least upper secondary education
  - Having achieved tertiary education or more
- **Independent variables:**
  - Father's and Mother's education (Tertiary / Upper secondary / Lower secondary / up to primary. Short upper secondary and tertiary programs are both coded upwards – and are relatively few).
- **Controls**
  - Birth cohort: 1940-49, 1950-59, 1960-69, 1970-80
  - Father's and Mother's social class: 1) BOR, 2) WhC, 3) UPB, 4) UWC, 5) AWC
  - Gender; Geographical area (5 categories)

Model specification

Measures of social background

- **Individual parent(s) only**
  - Model 1: only father (F1)
  - Model 2: only mother (M1)
  - Model 3: Dominance: highest level between F and M (D)
  - Model 4: Anti-dominance: lowest level between F and M (AD)
- **Joint parents**
  - Model 5: father (F2) and mother (M2) separately
  - Model 6: Full interaction: all combinations of F and M, distinguishing genders
  - Model 7: Reduced interaction, without gender distinction (F tertiary M secondary differs from M tertiary and F secondary)
- **Logit models (reporting APE)**

Unconditional models

$Y=\alpha + \beta 1SocOr + \beta 2Controls$

$Y=\alpha + \beta 1OrFather + \beta 2\ OrMother + \beta 3Controls$

Trend over time

$Y=\alpha + \beta 1SocOr \times birthy + \beta 2Controls$

Empirical results

Tab. 1 - Fit indexes

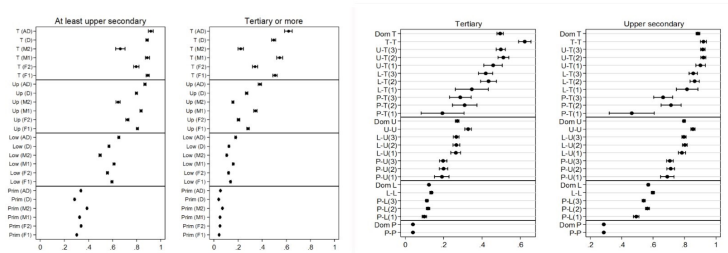
Outcome = At least Upper secondary						
One parent's measure	N	Null ll	Mod. ll	df	AIC	BIC
M1: father only	84,376	-57,534	-48,842	18	97,720	97,888
M2: mother only	84,376	-57,534	-50,114	18	100,264	100,433
M3: high dominance	84,376	-57,534	-48,410	18	**96,856**	**97,024**
M4: low dominance	84,376	-57,534	-50,208	18	100,452	100,620
Joint parents measure						
M5: f+m	84,376	-57,534	-48,358	21	96,759	96,955
M6: full interaction	84,376	-57,534	-48,219	30	**96,498**	96,778
M7: interaction 2	84,376	-57,534	-48,247	24	96,543	**96,767**
Outcome = Tertiary or more						
One parent's measure	N	Null ll	Mod. ll	df	AIC	BIC
M1: father only	84,376	-26,371	-22,468	18	44,973	45,141
M2: mother only	84,376	-26,371	-23,079	18	46,195	46,363
M3: high dominance	84,376	-26,371	-22,271	18	**44,578**	**44,746**
M4: low dominance	84,376	-26,371	-23,070	18	46,175	46,343
Joint parents measure						
M5: f+m	84,376	-26,371	-22,217	21	44,476	44,672
M6: full interaction	84,376	-26,371	-22,145	30	**44,351**	44,631
M7: interaction 2	84,376	-26,371	-22,153	24	44,354	**44,578**

Model fit (table 1)

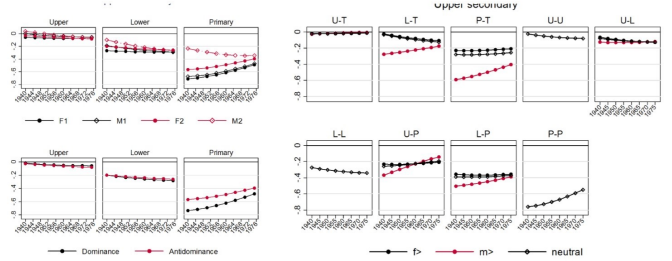
In general, differences are lower than expected. For both transitions, the better fit (lower BIC and AIC) is found for the interaction models. Gender does not make a big difference: according to AIC, we should prefer the full interaction model, but according to BIC we should prefer the more parsimonious reduced model, not distinguishing genders.

However, the difference btw single parents and joint parents models does not change over transitions. Among the models using one single parent, the standard one (high dominance) shows the best fit, but the differences are small.

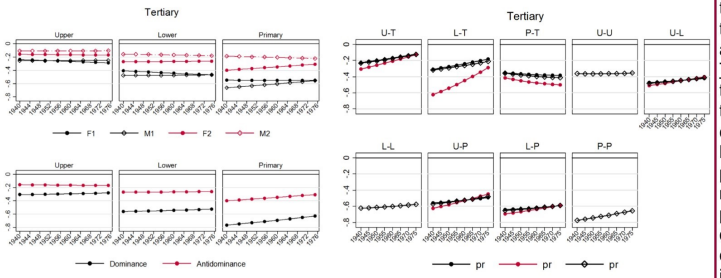
Figures 1 and 2 - Effects of different measures of social backgroud (individual parents only, left; joint parents, right)



Figures 3 and 4 - Probability of having achieved at least upper secondary education by years of birth (individual parents only, left; joint parents, right)



Figures 5 and 6 - Probability of having achieved tertiary education by years of birth (individual parents only, left; joint parents, right)



The model parameters (figures 1-2)

In models including both parents (M5), the «effect» of the father appears to be stronger than the one of the mother for families with higher educational background (tertiary and upp. sec.). In families with low educational background, however, it is the other way round. This is found for both transitions.

The full interaction model for the transition to tertiary shows a significant advantage for those having both tertiary educated parents (wrt those who have just one) and for those having both upper sec. educated parents (wrt those who have just one). The analogous model for the transition to upper secondary shows a similar effect only for those with upper secondary educated parents.

Trend over cohorts (figures 3,4,5,6)

Upper secondary (fig 3-4): Both single-parent and both-parents models (M1-M4) show IEO btw those with tertiary educated parents and those with secondary-educated parents to be increasing. However, the opposite happens with those with primary or less-educated parents. The AD model (M4) underestimates the latter trend. M5 (both parents included) shows the disadvantage associated to a primary-educated mother to have diminished wrt the one of a primary-educated father. The mother used to make more difference (this might be related to changing female empl. rates). Interaction models shows a decreasing disadvantage associated with having a mother more educated than the father, while the one for those with tertiary-educated father and lower secondary-educated mother increases, albeit to a lesser extent.

Tertiary (fig 5-6) The general pattern is stability over time with some evidence of decline in IEO. Among those with primary-educated parents some reduction can be seen (as seen for achieving upper secondary). M1 (father only) does not show this trend, M5 (both parents) attributes it to the father. AD model underestimates IEO but the trend is the same (as seen for the previous transition). Interaction models show a clearer decline in IEO, in particular when the mother is tertiary-educated and the father is lower secondary. A (lesser) increase of IEO is to be seen when mother is tertiary and father primary.

Conclusion and developments

- A more detailed measure of social origin improves the fit of models of IEO. However, the improvement is not substantial and is more or less the same in both transitions we study.
- A more detailed measure of social origins allows to see some signs of a diminishing trend of IEO over time, due in particular to those families where the mother has an educational title higher than the one of the father.
- Thus, the mother matters, and it is probably a good idea to include her in models of IEO over time, when possible.

Next steps

- Do the observed patterns change according to gender? Does the mother matter more for girls, and the father for boys (gender role theory), or it is the other way round?
- Given the similar pattern over transitions, we might go for an ordered logit model, giving more parsimonious and more clearly interpretable results (as in Breen et al. 2009 or Ballarino et al. 2009)
- Focus on social class and its trend over time.