Intergenerational Social Mobility in European OECD countries

OECD Economics Department

Brussels November 30
Intergenerational Social Mobility

• Paper part of a project aiming at analyzing patterns of intergenerational social mobility across OECD countries.

• More broadly the project aimed at analysing the role of public policies in enhancing mobility with a particular focus on education.

• Today focus on cross-country patterns in mobility.
Intergenerational Social Mobility

- Challenge to measuring social mobility ➔ many different measures ➔ hampered by the lack of comparable data, especially from a cross-country comparative perspective.
- Economists usually focus on earnings/income while sociologists on occupation/social class.
- Study focused on wage and educational mobility.
- Review of existing findings: Empirical studies tend to find that persistence – usually measured by the intergenerational income elasticity -- is relatively high in the USA, UK and lower in the Nordics and Canada (e.g. Corak, 2006; d’Addio, 2007).
Persistence in income in selected OECD countries

Intergenerational Income Elasticity, selected studies

Source: D’Addio 2007

Caveat: different studies, methods, time periods…
Intergenerational Social Mobility

- This project used 2 sources of data: PISA and EU-Silc to assess social mobility. Today focus on the findings from EU-Silc.
- Provide comparable estimates of intergenerational wage and education persistence across 14 European OECD countries based on harmonized micro data.
- Assess the role of education in intergenerational wage mobility.
Data and estimation approach

**Data:** EU-SILC and its special 2005 poverty module → contains retrospective information on family background when the respondent was a teenager.

**Retrospective information:** parental education level, occupation, labour market status but not earnings → father’s level of education is used as a proxy for parental background

Advantage → difficult to measure permanent income of parents → education is a more permanent feature and correlated with earnings.

Disadvantage → education may not fully reflect earnings in some countries (e.g. those with flat wage schedules)

**Coverage:** European OECD countries, 3 cohorts of men and women (25-34, 35-44, 45-54). Focus on the middle cohort to limit life-cycle measurement problems.
Estimation approach

1. In a first step estimate “persistence” in wages by:

\[ \ln W_i = a + b \cdot E_i + c \cdot X_i + \varepsilon_{i1} \]

where \( \ln W_i \) is log gross hourly wage, \( E_i \) is the highest level of education attainment of the child’s father (3 categories), \( X_i \) is a set of individual characteristics affecting wages (urban/rural area, migrant, married/cohabitant, family-structure, number of siblings).

2. In the second step the child’s own educational attainment \( E_{Ci} \) is introduced to capture the influence of education on the wage persistence.

\[ \ln W_i = \alpha + d \cdot E_i + e \cdot E_{Ci} + f \cdot X_i + \varepsilon_{i2} \]

- Estimate separate equations for men and women by cohort and by country
- Heckman’s sample selection bias correction procedure is used for women, while OLS is used for men.
- Endogeneity problem with respect to own education: there is no easy solution to this identification issue because of the difficulty of finding appropriate instruments (e.g. Card, 2001).
Estimation approach: interpretation

• Interpretation of $b$: change in hourly wages associated with moving across categories of fathers’ education where upper-secondary (medium) education is the reference
  – Tertiary (high) relative to upper-secondary (medium) = wage premium
  – Below upper-secondary (low) relative to upper-secondary (medium) = wage penalty

• The impact of parental background on individual outcomes combines the joint impact of “nature” and “nurture”
  – But there is no reason to believe that genetic inheritability varies systematically across countries: this paper adopts a comparative approach by analyzing to what extent estimates of equations differ across countries.
3. In the third step the child’s educational attainment $EC_i$ is related to that of her/his father’s $E_i$:

$$EC_i = g + h \cdot E_i + j \cdot X_i + \varepsilon_{i3}$$

- Estimate an ordered probit of educational attainment of the child (3 categories of education), by cohort and country.
- Explanatory variables: parental educational, individual characteristics $X_i$, i.e. those in the wage regressions plus factors influencing educational choice at the time when the individual was a teenager (e.g. number of siblings and dual or single parent family status).
- Interpretation: the change in the probability to achieve a certain level of education depending on father’s education attainment.
1. Parental education influences individuals’ wages

The wage premium and penalty of having a father with high or low education relative to having a father with medium education. Men 35-44

* Significant at least at 10%
Summary measure of wage persistence

Mobility measured by the gap between the wage premium and penalty:
Men 35-44 years old.
2. The role of education for wage persistence

- Next step is to control for own education in the earnings equation (equation 2).

- Parental background (education) is in most cases not significant anymore \( \Rightarrow \) education is a strong driver of wages/wage persistence. The finding is even stronger for women.

- But, in some countries, the direct impact of parental education, controlling for own education, remains significant: Portugal, UK, Spain, Italy.. \( \Rightarrow \) social networks or norms.

- Systematic pattern: Insignificans stem from a reduced coefficient on parental background rather than an increase in standard errors.
2. Controlling for own education: Parental education and wages

The wage premium and penalty of having a father with high or low education relative to having a father with medium education. Men 35-44 years old.

* Significant at least at 10%
3. Intergenerational education persistence

- Third step: Education appears to be one important determinant of wages/wage persistence.
- Estimate the probability to achieve a certain level of education depending on father’s educational attainment
- Estimates show that there is persistence in education across generations ➔ tertiary and below-secondary education
Parental education influences individuals’ tertiary educational achievement

Change in the probability of achieving tertiary education of having a high or low educated father relative to a medium educated father; 35-44 years old
Summary measure of persistence in tertiary education

Difference between the probability premium and penalty, percentage points

- ** indicates significant difference
- *** indicates highly significant difference

Countries included: Lux, Irl, ita, Esp, Grc, Bel, Swe, Gbr, Prt, Nld, Fin, Fra, Dnk, Aut

Men, 35-44 years old
Women, 35-44 years old
Parental education also influences below-upper secondary educational achievement

Change in the probability of achieving below-upper secondary education of having a high or low educated father relative to a medium educated father; 35-44 years old.
Summary measure of persistence in below secondary education
Summary of findings

• There appears to be persistence in wages and in education across generations, although to varying extent, across European OECD countries.

• One pattern: one group of countries that appear to be relatively immobile on most indicators (southern Europeans and Luxembourg) and another group which tend to be more mobile (e.g. Nordics).

• But not necessarily same picture: UK seems to be less mobile in terms of wage persistence than in terms of education persistence, while the reverse is the case in Ireland.
Summary of findings

• Also appears to be a relatively large premium in achieving tertiary education associated with having a highly educated parent while the penalty of having a low educated parent is fairly low (e.g. Denmark and Finland), and the reverse is true in some other countries (e.g. Sweden and Greece).

• Nature of intergenerational social mobility is complex ➔ challenge to measure ➔ Several different measures of mobility as no single indicator gives the full picture, and they may not necessarily give the same picture.
Report available:

Going for Growth 2010:
http://www.oecd.org/document/24/0,3343,en_2649_34117_41665624_1_1_1_1,00.html

Working papers:
http://www.oecd.org/document/39/0,3343,en_2649_33733_38306343_1_1_1_1,00.html