Developments of Social Mobility in Europe

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Outline

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Why be concerned with social and economic mobility?

- ▶ relation to equality of opportunity
  Family background is not chosen, so great importance of it
  may violate equality of opportunity.
- ▶ other social effects
  E.g. strong intergenerational class persistence $\rightarrow$ strong
  political left (Erikson and Goldthorpe, 1992).
- ▶ *causal effects* of parental income or other parental factors
  on socio-economic position of offspring
  Can point to policy interventions.

Social and economic mobility

- ► social mobility
  based on social class or social prestige, in turn primarily
  based on occupation
- ► educational mobility
  based on educational achievement (level of qualifications,
  years of education)
- ► income mobility
  based on economic standard of living (individual earnings;
  household disposable income)

Why does intergenerational income mobility matter?

- ► interesting in its own right (a social statistic)
- ► tells us about social dynamics and the formation of economic status
- ► informs judgments on social justice
- ► if persistence is big issue, poverty alleviation may be needed to improve life chances of poor children, *given* consensus as to what alleviates persistence (not yet there...)
- ► concerns with social and economic mobility/equality of opportunity widely shared, but hard trade-offs need at times to be faced (and rarely are)

The duration of advantage or disadvantage across generations: different persistence values
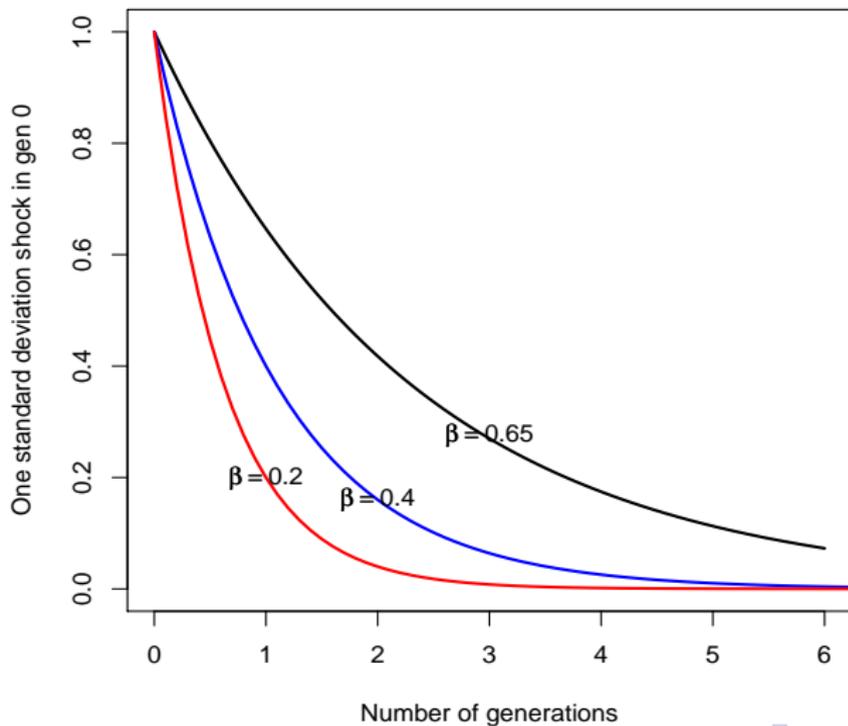
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Mobility measurement

- most of the intergenerational income mobility literature provides evidence on the intergenerational elasticity
- arguably, the correlation coefficient $\rho = \frac{\sigma_P}{\sigma_O}\beta$ of more interest
- Jäntti and Jenkins (2014) argue the *rank* correlation more closely corresponds to the concept of exchange mobility, but little evidence on this score
- other empirical approaches available, but rarely used in comparative settings

Mobility concepts

- concepts:
  - positional change
  - individual income growth
  - mobility as inequality reduction
  - income risk
- social desirability of mobility
  - may differ across within/between
  - may differ across concepts
  - relationship to equality of opportunity

Intergenerational persistence

- suppose y_O and y_P are the "permanent income" of a pair of offspring and parent
- the intergenerational income elasticity is the measure for which most evidence is available:

$$y_O = \alpha + \beta y_P + \epsilon \qquad (1)$$

- two interpretations for β:
  - the slope of the conditional expectation of offspring income, given parental income ("mechanical"):

  $$\beta := \frac{\partial \mathsf{E}[y_O | y_P]}{\partial y_P} \qquad (2)$$

  - the causal effect of a change in parental income on child income ("economic"):

  $$\beta := \frac{\partial y_O^*}{\partial y_P} \qquad (3)$$

  the y_O^* conveys that offspring income is at least in part the result of optimizing behavior on the part of parents

The mechanical interpretation

- the short version:
  - interest in properties of the bivariate distribution $F(y_P, y_O)$, in particular the association of y_P and y_O
  - many measures of association may be of interest, including β, but also $\varrho = \beta \times \sigma_P/\sigma_O$
- the "origin-education-destination" type approach (see Goldberger, 1989)

The causal interpretation

- the Becker and Tomes (1979, 1986) model gives many inspiration
- a simple version is due to Solon (2004);

$$y_{i,O} = \mu^* + [(1 - \gamma)\theta p]y_{i,P} + pe_{i,o}. \tag{4}$$

  - p is the return on human capital
  - e is offspring human capital endowment
  - γ measures the progressivity in human capital
  - θ measures how effectively human capital investments turn into capital
  - λ captures the IG transmission of the endowment

The causal interpretation

- in steady state, the IGE is

$$\beta = \frac{(1-\gamma)\theta p + \lambda}{1 + (1-\gamma)\theta p \lambda} \tag{5}$$

- the intergenerational persistence *increases* in
    - the heritability of human capital endowments λ
    - the productivity of human capital investments θ
    - the income or earnings return to human capital p
  and *decreases* with
    - progressivity of public education spending γ

- these same factors drive cross-sectional inequality, so the IGE is also positively correlated with cross-section inequality [the "Great Gatsby curve" (Corak, 2013; Krueger, 2012)]

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Data demands

- ▶ parents and offspring need to be observed at roughly the same "economic" age, preferably across multiple years
- ▶ surveys: follow same families for 20-30 years
- ▶ registers: population registers (e.g., based on censuses) combined with income registers (e.g., based on taxation) linked with personal identifiers
- ▶ two-sample techniques – rely on unrelated samples but with background information on parents

The measure of economic status

- in theory:
  - permanent income
  - wealth
- in practice:
  - long-run earnings / income (multi-year average)
  - annual earnings / income + instruments
  - status indices
  - rare in international comparisons:
    - wealth
    - consumption
    - household disposable income

Income in practice

- ▶ most studies use labor earnings (thought to provide good approximation to permanent income)
- ▶ total factor income or disposable income may provide good measures of living standards
- ▶ importance of long-run measures of income (see above)
- ▶ (re-)emphasis on age at which incomes are measured (Haider and Solon, 2006; Nybom and Stuhler, 2011)
- ▶ family income especially important for understanding female mobility (Raaum et al., 2007)
- ▶ rare: studies of mobility/persistence in disposable income for both men and women

Measuring long-run income

- the classical model: annual income equals true long-run status plus random transitory fluctuations:

$$y_{jit} = y_{ji} + v_{jit}, \; v_j \sim n(0, \sigma_{v_j}^2); \; v_j \perp y_k \forall j, k = \{P, O\} \quad (6)$$

- single-year RHS income results in an inconsistent estimate, but that is reduced by averaging *parent* income years:

$$\operatorname*{plim}_{N \to \infty} \hat{\beta} = \frac{\operatorname{Cov}(y_{P,i}, y_{O,i})}{\operatorname{Var}(y_{P,i}) + \operatorname{Var}(\bar{v}_{P,i})} = \frac{\sigma_{y_P}^2}{\sigma_{y_P}^2 + \sigma_v^2/T} \beta < \beta. \quad (7)$$

- effect on early estimates led to large upward revisions of estimates

- more complex measurement error models complicate picture (Böhlmark and Lindquist, 2006; Haider and Solon, 2006; Nybom and Stuhler, 2011)

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Evidence

- estimates of IGE *hugely* sensitive to a wide variety of details in estimation (within dataset; within country etc)
- life-cycle biases from generalized errors in variable models appear large and may change over time
- little on IG correlations (Pearson or Spearman) on comparable basis
- very little (cross-national) evidence of *causal* estimates
- several reviewers have compiled evidence on IGEs for tentative "stylized facts" (Björklund and Jäntti, 2009; Blanden, 2013; Corak, 2013; Grawe, 2006; Solon, 1999)

The "Great Gatsby" Curve

The association of intergenerational earnings persistence and cross-sectional income inequality [Source: Corak (2013, Figure 1)]
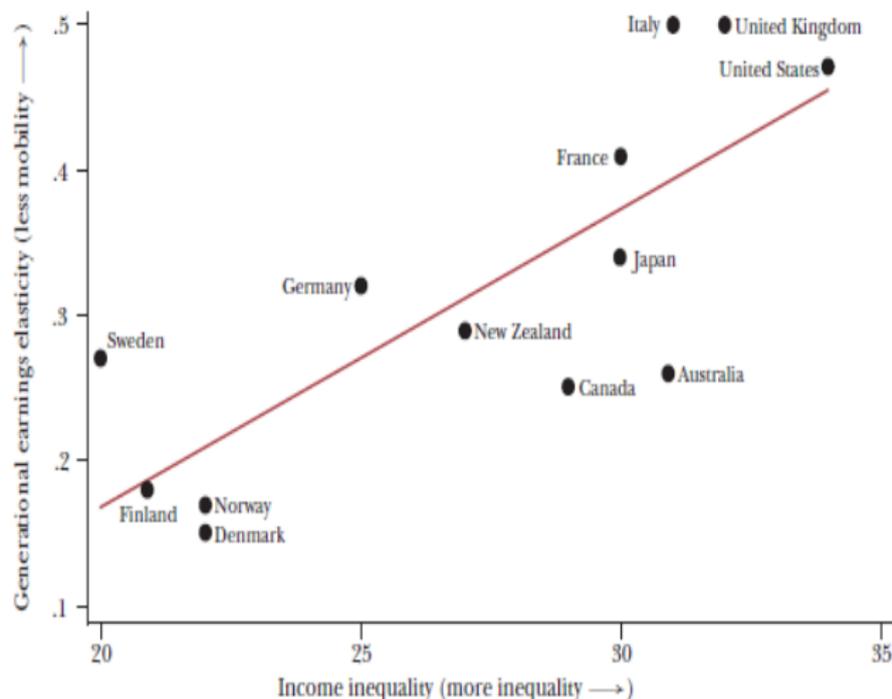
Trends in US intergenerational income persistence – men
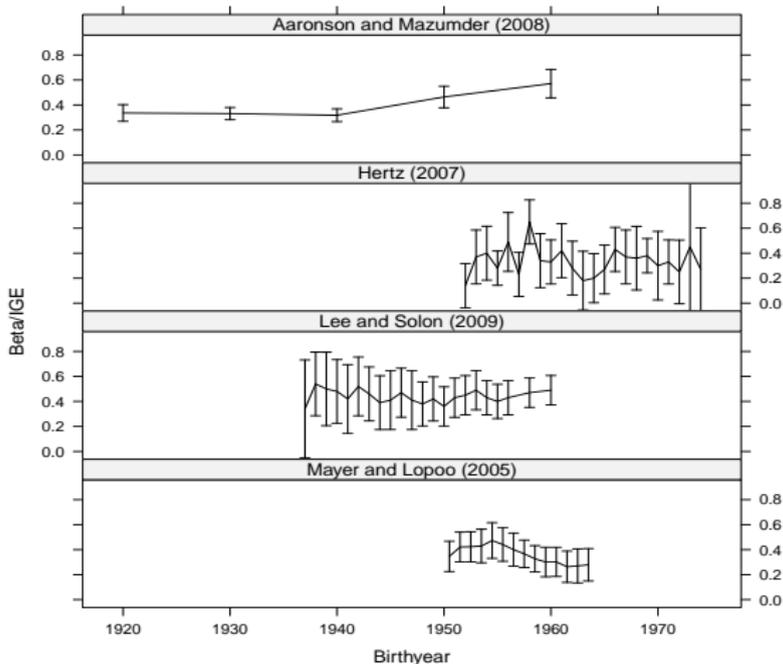
Source: (Aaronson and Mazumder, 2008, Figure 1, column 6)
Hertz (2007, Figure 4), Mayer and Lopoo (2005, Figure A1) and
Lee and Solon (2009, Figure 1)

Trends in US intergenerational income persistence – women

Source: (Aaronson and Mazumder, 2008, Figure 1, column 6)
Hertz (2007, Figure 4), Mayer and Lopoo (2005, Figure A1) and
Lee and Solon (2009, Figure 1)
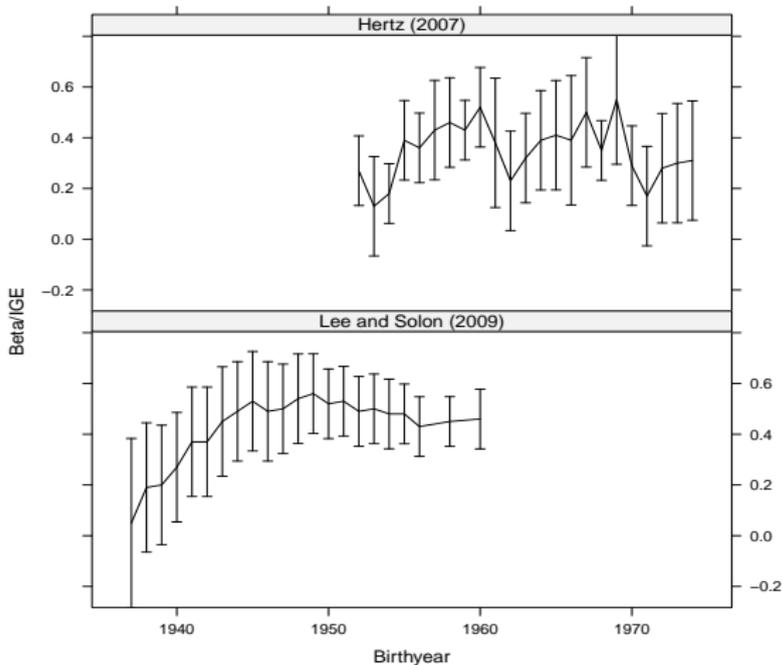
Trends in French intergenerational income persistence – men
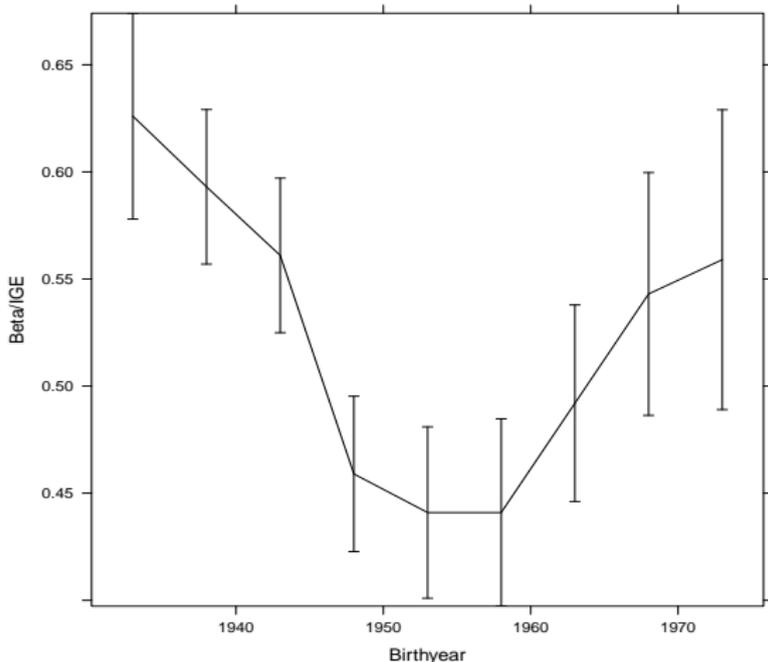
Source: (Lefranc, 2011, Table 1, column 1).

Intergenerational earnings mobility in Canada, Sweden and the USA: Beta, *r*, and the rank correlation

Country	Beta		*r*		Rank correlation	
	Estimate	Rank	Estimate	Rank	Estimate	Rank
Canada	0.26	(2)	0.23	(2)	0.24	(1)
Sweden	0.25	(1)	0.21	(1)	0.30	(2)
USA	0.40	(3)	0.26	(3)	0.30	(2)

Intergenerational persistence of disposable income: elasticities versus correlations

Source: Eberharter (2013, Tables 1, 2).
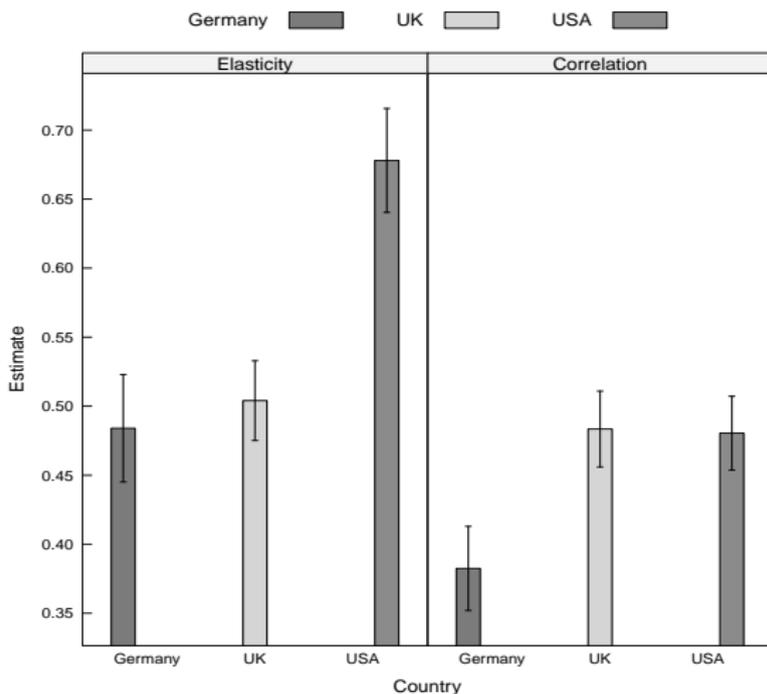
Policy interventions

- public expenditures in US affects IGE (Mayer and Lopoo, 2008)
- comprehensive school reform in Sweden, Finland had sizeable impact on IGE

Comprehensive school reform in Finland

- Comprehensive school thus:
  - moved tracking from age 11 to age 16
  - increased length of compulsory schooling by one year
  - led to integration of students in same schools between ages 11-16
  - made all follow same curriculum between ages 11-16 (although some variation initially)
- The reform was implemented in 5 stages between 1972 and 1977, affecting cohorts born 1961-1965, starting in the north and ending in the capital area.
- We use the stage-wise implementation to estimate the effect of the reform by comparing the correlation among pairs of brothers who either were or were not affected by comprehensive school

The geographic pattern of implementation of reform

Legend:
- 1972
- 1973
- 1974
- 1975
- 1976
- 1977
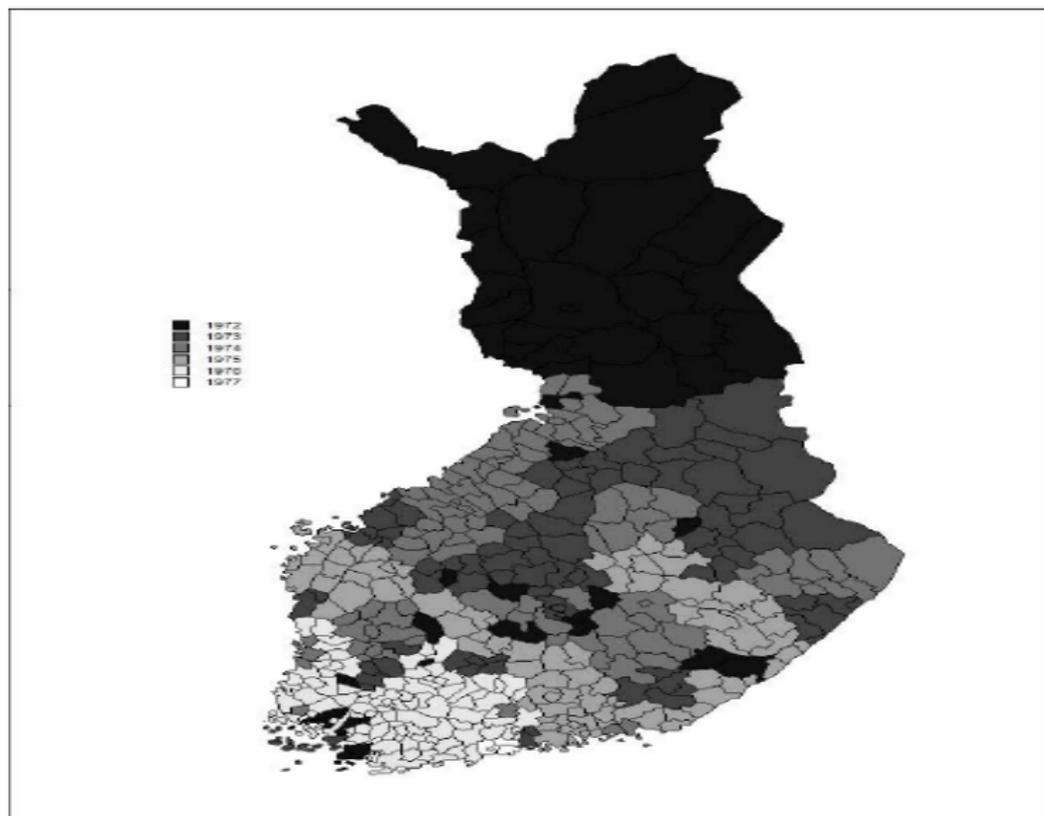
Source: Pekkarinen, Uusitalo, and Kerr (2009)

The impact of comprehensive school reform in Finland

Father's earnings	0.277	0.297	0.298
	(0.014)	(0.011)	(0.010)
Father's earnings×Reform		-0.055	-0.069
		(0.009)	(0.022)
Reform		-0.065	-0.019
		(0.012)	(0.021)

Source: Pekkarinen, Uusitalo, and Kerr (2009)

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Inequality is on the increase

Average annual growth across the income distribution ca 1985-2008 (before the Great Recession) [Source: OECD (2011)]

	Overall	%-change Bottom 10%	Top 10 %
Australia	3.6	3.0	4.5
Austria	1.3	0.6	1.1
Canada	1.1	0.9	1.6
Denmark	1.0	0.7	1.5
Finland	1.7	1.2	2.5
France	1.2	1.6	1.3
Germany	0.9	0.1	1.6
Italy	0.8	0.2	1.1
Mexico	1.4	0.8	1.7
Netherlands	1.4	0.5	1.6
Norway	2.3	1.4	2.7
Portugal	2.0	3.6	1.1
Spain	3.1	3.9	2.5
Sweden	1.8	0.4	2.4
United Kingdom	2.1	0.9	2.5
United States	1.3	0.5	1.9
OECD27	1.7	1.3	1.9

What if the Great Gatsby curve persists while inequality increases?

- the "Great Gatsby" curve plots the intergenerational persistence of income against income inequality in (roughly) the parental generation
- income inequality has increased
- what can be expected of persistence?
- **caveat:** this is highly speculative and is intended as food for thought

The expected evolution of income persistence

GC curve for subset of countries in Corak (2013) also in Luxembourg Income Study
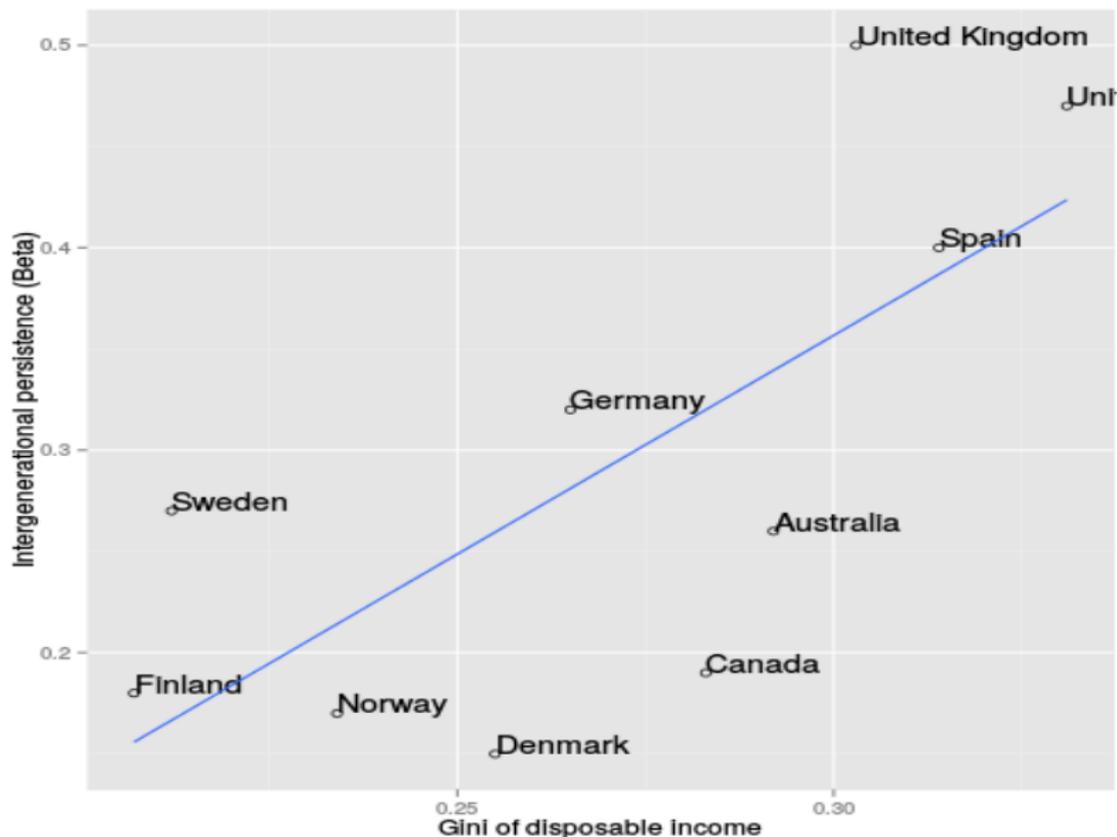
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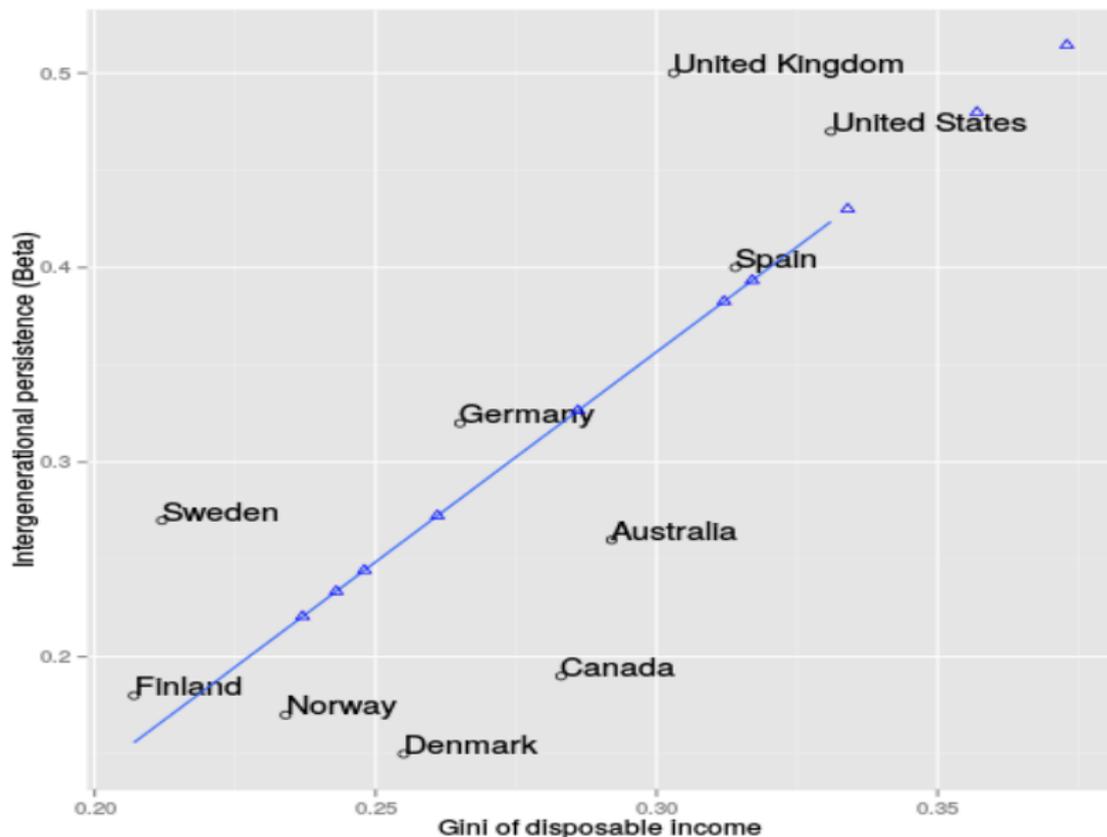
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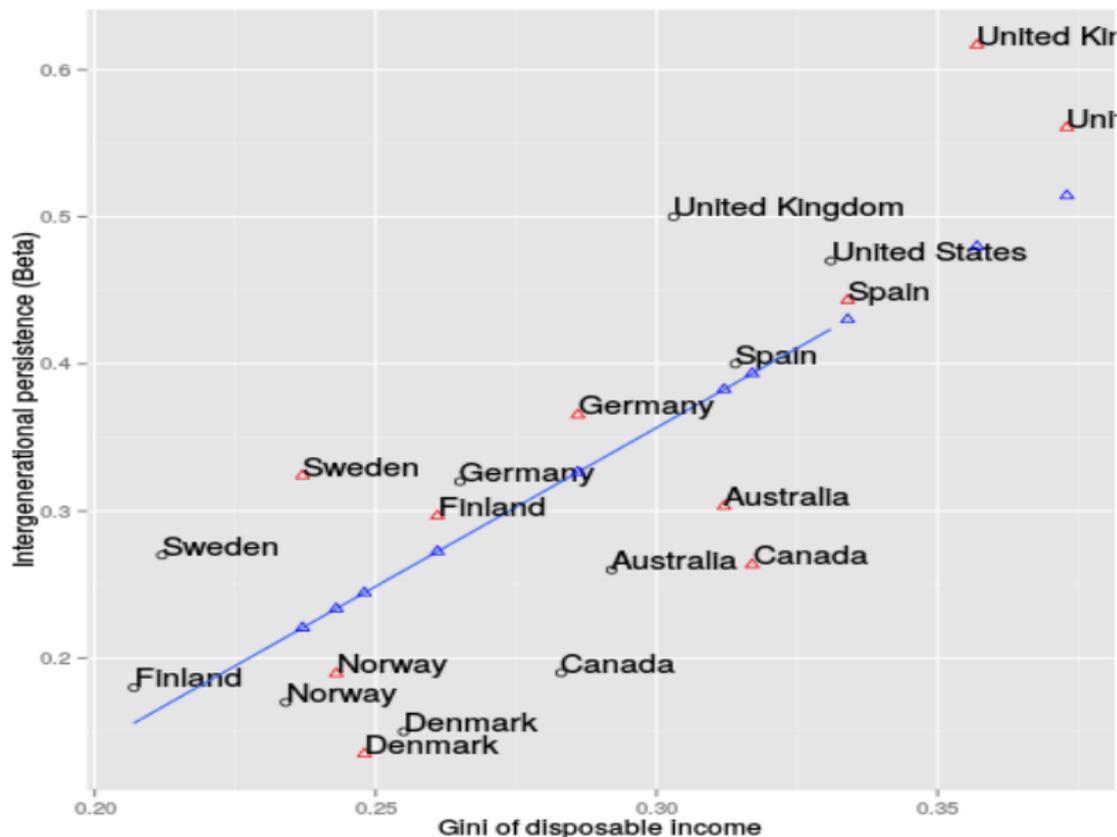
The expected evolution of income persistence

GC curve for subset of countries in Corak (2013) also in Luxembourg Income Study

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Concluding comments

- intergenerational income mobility is of social and social-scientific interest
- evidence on its extent across countries and changes within countries limited (data limitations one reason for this scarcity)
- mobility and inequality may be inversely linked – an additional reasons to worry about increasing inequality
- time lags involved are considerable, so short- to medium-term concerns may crowd out concern for mobility

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