Mobility and Opportunity

Frank Cowell

`http://darp.lse.ac.uk/cowell.htm`

Università di Verona: Alba di Canazei
Winter School

January 2016

Outline

Approaches to mobility

Why are economists interested in mobility?

- A means of social and economic description
- A desirable social objective?
- A tool of social policy?

May depend on application (Fields and Ok 1999; Jäntti and Jenkins 2015)

- income or wealth mobility
- wage mobility
- educational, social status mobility

Measurement addressed from different standpoints

- temporal context:
    1. inter / intra-generational
    2. long term / volatility
- in relation to a specific dynamic model
- in relation to welfare issues
- as an abstract distributional concept

Fundamentals

First deal with mobility in the abstract

- covers income or wealth mobility
- also "rank" mobility where underlying data are categorical
- separates components of measurement problem

Ingredients for a theory of mobility measurement:

1. a time frame
2. measure of individual status within society
3. aggregation of changes in status over the time frame

Ingredient 1:

- Assume discrete time
- Focus on two periods: now (0) and the future (1)

Status: classes

First step in an approach to "status":

- define a finite set of K classes
- $n_k \geq 0$: # in class k, $k = 1, 2, ..., K$
- exclusive and exhaustive
- $\sum_{k=1}^{K} n_k = n$, the size of the population

Focus on special case: ordered set of K classes

- class k associated with attribute level x_k
  ($x_k < x_{k+1}$, $k = 1, 2, ..., K-1$)
- cardinality of x is convenient but not crucial

$k^0(i)$, $k^1(i)$: class occupied by person i at times t_0 and t_1

- mobility characterised by
  $\left(x_{k^0(1)}, x_{k^0(2)}, ..., x_{k^0(n)} \right)$ and $\left(x_{k^1(1)}, x_{k^1(2)}, ..., x_{k^1(n)} \right)$

Status: valuation

How to use the attribute movements to compute mobility?

- cardinal attribute: just aggregate the xs?
- don't have to use natural cardinalisation to value the xs
- could use a simple transformation to "revalue" the x s

Alternative: use the *distribution* to revalue the income classes

- for example use $N^0(x_k) := \sum_{h=1}^{k} n^0_h$, $k = 1, ..., K$
- number in or below class k using distribution at t^0

Suppose sizes $\left(n^0_1, ..., n^0_K\right)$ at t^0 change to $\left(n^1_1, ..., n^1_K\right)$ at t^1

- Revaluing the income classes: $N^1(S_k) := \sum_{h=1}^{k} n^1_h$, $k = 1, ..., K$

Status: information

Individual i's personal history: $z_i := (u_i, v_i)$

- u_i: status in the 0-distribution
- v_i: status in the 1-distribution

Distribution-independent

- *static (1).* $z_i = \left(x_{k^0(i)}, x_{k^1(i)} \right)$

- *static (2).* $z_i = \left(\varphi \left(x_{k^0(i)} \right), \varphi \left(x_{k^1(i)} \right) \right)$
  - φ could be arbitrary (utility of x?)
  - perhaps take as log?

Distribution-dependent

- *static.* $z_i = \left(N^0 \left(x_{k^0(i)} \right), N^0 \left(x_{k^1(i)} \right) \right)$
  - cumulative numbers in class "value" the class

- *dynamic.* $z_i = \left(N^0 \left(x_{k^0(i)} \right), N^1 \left(x_{k^1(i)} \right) \right)$

Comparing mobility concepts

Consider the following example:

	t^0	t^1	t^2	t^3
x_1	A	A	_	_
x_2	B	_	A	B
x_3	C	B	B	A
x_4	_	C	C	C
x_5	_	_	_	_

- $0 \to 1$: growth and inequality increase

- $1 \to 2$: growth and inequality decrease

- $2 \to 3$: pure reranking

Different status definitions produce different evaluations
Exchange and structural mobility: (Van Kerm 2004, Tsui 2009)

Intuitive approaches

Comparison with inequality

- collection into groups?

- income distribution as histogram?

Rank mobility

- Bivariate categorical distribution

- Mobility tables

- Transition matrices - rank (Formby et al. 2004, Trede 1998)

Income mobility

- Richer information than simple categories

- Transition matrices (Formby et al. 2004)

- Conditional quantiles (Trede 1999)

Mobility tables

Partition of status space

- $S_1, ..., S_K \subset S$ such that $\cup_{k=1}^{K} S_k = S$ and $S_k \cap S_{k'} = \emptyset$
- $n_{kk'}$ # households in S_k at t_0 and in $S_{k'}$ at t_1

- Use this to get basic construct – *mobility table*

Intergenerational mobility: 0 - Parents; 1 - Children

	x_ℓ^1	x_h^1	Parents' margins
x_ℓ^0	$n_{\ell\ell}$	$n_{\ell h}$	$n_\ell^0 = n_{\ell\ell} + n_{\ell h}$
x_h^0	$n_{h\ell}$	n_{hh}	$n_h^0 = n_{h\ell} + n_{hh}$
Children's margins	$n_\ell^1 = n_{\ell\ell} + n_{h\ell}$	$n_h^1 = n_{\ell h} + n_{hh}$	

- From the mobility table construct other useful tools

Transition matrices

Use the information in the mobility table

The transition matrix $\mathbf{P}$ is the $K \times K$ array with typical element

$$p_{kk'} := \frac{n_{kk'}}{\sum_{j=1}^{K} n_{kj}}$$

Temporal issue

- if $\mathbf{P}$ constant, over a period of length t we have the matrix $\mathbf{P}^t$

- but be careful with short/long mobility

- problem more acute if $\mathbf{P}$ not constant

Convenient statistic to capture mobility implied by $\mathbf{P}$:

$$m(\mathbf{P}) := \frac{K - \sum_{k=1}^{k} p_{kk}}{K - 1}$$

Conditional quantiles
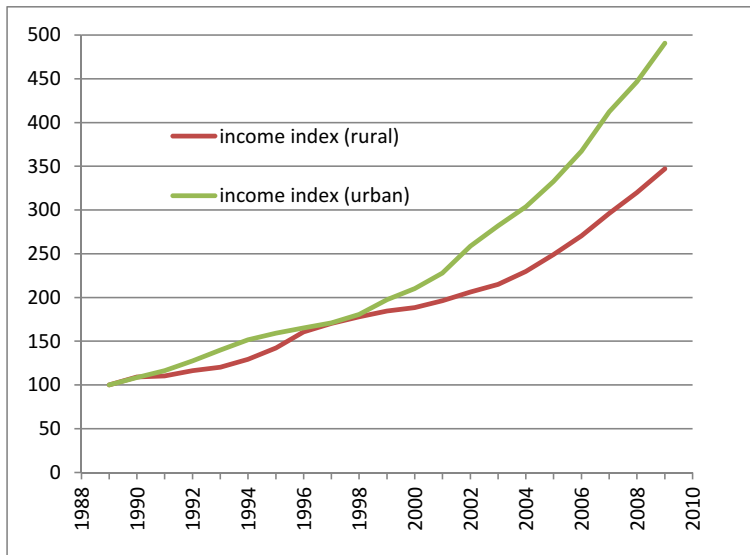
Take row *k* of the transition matrix as a vector

- $(\hat{f}_{k1}, \hat{f}_{k2}, ..., \hat{f}_{kK})$ gives the empirical frequency...
- ...*conditional* on individuals in set S_k at time 0

- $(\hat{F}_{k1}, \hat{F}_{k2}, ..., \hat{F}_{kK})$: estimates of distribution function for time 1, conditional on being in set S_k at time 0

If we know F_0 and F_1 the (unconditional) distribution function

- go from proportions of the population to quantiles
- $x_p = F_0^{-1}(p), p \in [0,1]$

- same thing at time 1: $y_q = F_1^{-1}(q), q \in [0,1]$
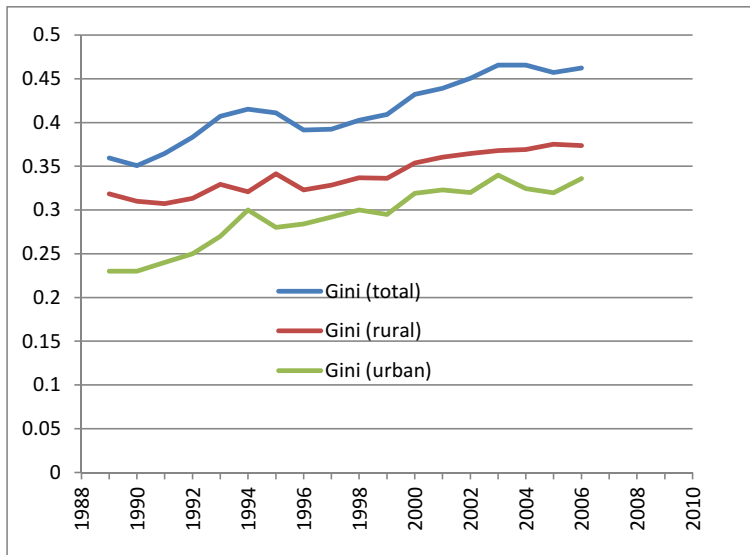- we can convert from $S_k = [q_{k-1}, q_k)$ to income intervals $[y_{k-1}, y_k)$

Background   Intuition   Measurement   Value   References
oo   ooo   oo   oooooooo
ooo   •ooooooooo   ooooooooo
                                         ooooooooooooooooo

Example: China (income growth)

Example: China (inequality)

Example: China (income mobility)

No long-run national representative panel
- no equivalent of PSID, GSOEP, BHPS (Chen and Cowell 2015)

China Health and Nutrition Survey CHNS
- tracks effects of the health, nutrition, and family planning policies
- also collects information on households' economic circumstances

Coverage
- nine provinces throughout China
- occasional years 1989-2011

Extracted income series
- unit of analysis is the household
- equivalised total household income
- valued in 2011 Yuan

Example: CHNS summary

	1989	*1991*	*1993*	*1997*	*2000*	*2004*	*2006*	*2009*	2011
N	3,791	3,607	3,428	3,838	4,307	4,339	4,374	4,433	5,770
mean	6,046	5,846	6,642	7,974	10,172	12,595	14,783	20,957	25,429
median	5,294	5,130	5,292	6,513	8,021	9,179	10,284	15,057	19,964
Gini(T)	0.39	0.37	0.41	0.41	0.44	0.47	0.50	0.49	0.46
Gini(R)	0.42	0.39	0.43	0.42	0.52	0.47	0.51	0.50	0.48
Gini(U)	0.30	0.29	0.37	0.37	0.41	0.45	0.47	0.46	0.42
90/10(T)	7.87	6.72	8.39	8.54	10.81	13.43	13.77	12.71	13.60
90/10(R)	9.43	7.47	9.46	9.31	11.47	12.61	13.74	13.27	14.18
90/10(U)	3.89	4.47	6.40	6.63	7.87	12.19	11.10	10.53	9.36
cv(T)	0.83	0.72	0.86	0.84	1.02	1.01	1.31	1.27	1.07
cv(R)	0.85	0.80	0.86	0.87	1.05	1.02	1.33	1.27	1.13
cv(U)	0.76	0.56	0.83	0.78	0.94	0.95	1.24	1.23	0.96

CHNS: Rank mobility

		2000				
		1	2	3	4	5
1989	1	**0.290**	0.229	0.211	0.153	0.116
	2	0.253	**0.251**	0.206	0.170	0.120
	3	0.185	0.231	**0.206**	0.229	0.150
	4	0.137	0.153	0.214	**0.223**	0.272
	5	0.134	0.137	0.162	0.225	**0.343**

		2011				
		1	2	3	4	5
2000	1	**0.344**	0.256	0.185	0.135	0.081
	2	0.238	**0.250**	0.227	0.158	0.127
	3	0.179	0.229	**0.218**	0.198	0.173
	4	0.131	0.137	0.217	**0.271**	0.244
	5	0.108	0.129	0.152	0.238	**0.373**

CHNS: mobility test

$$m(\mathbf{P}) := \frac{K - \sum_{k=1}^{k} p_{kk}}{K - 1}$$

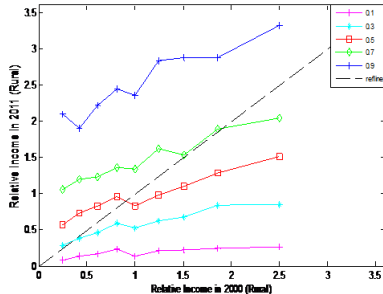|	*1989-2000*	*2000-2011*
Total	0.9225	0.8875
	[0.9107, 0.9343]	[0.8748, 0.9002]
Rural	0.9450	0.9175
	[0.9317, 0.9583]	[0.9033, 0.9317]
Urban	0.9075	0.8400
	[0.8837, 0.9313]	[0.8133, 0.8667]

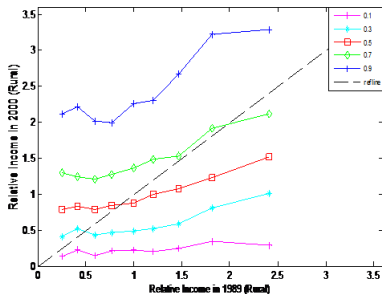rank mobility m-value at 99% CI

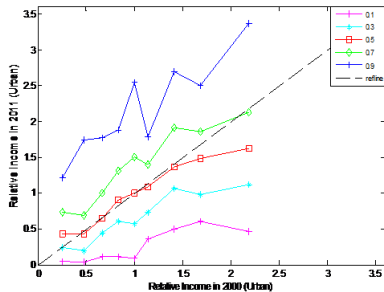# CHNS: Conditional quantiles (T)
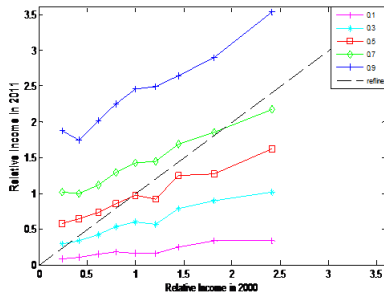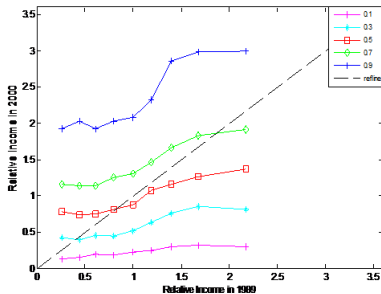
CHNS: Conditional quantiles (R)

CHNS: Conditional quantiles (U)
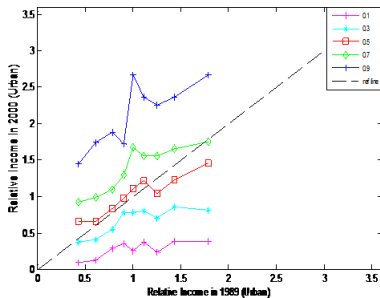
Axiomatic approach

- Similar to characterisation of other indices
  - inequality
  - social welfare
  - poverty

- Use a priori axiomatisation
  - describe meaning of mobility comparisons
  - characterise an ordering over all possible profiles $(z_1, z_2, ... z_n)$
  - gives a class of indices (Cowell and Flachaire 2011)

- Key axioms:
  - monotonicity in individual (u, v)-gaps
  - independence
  - scale irrelevance

A class of mobility indices

Theorem

$$M_\alpha := \frac{1}{\alpha[\alpha-1]n} \sum_{i=1}^n \left[\left[\frac{u_i}{\mu_u} \right]^\alpha \left[\frac{v_i}{\mu_v} \right]^{1-\alpha} - 1 \right]$$

- $\alpha = 0$: $M_0 = -\frac{1}{n} \sum_{i=1}^n \frac{v_i}{\mu_v} \log \left(\frac{u_i}{\mu_u} \middle/ \frac{v_i}{\mu_v} \right)$

- $\alpha = 1$: $M_1 = \frac{1}{n} \sum_{i=1}^n \frac{u_i}{\mu_u} \log \left(\frac{u_i}{\mu_u} \middle/ \frac{v_i}{\mu_v} \right)$

- We have a *class* of aggregate mobility measures

  - high $\alpha > 0$: M sensitive to downward movements
  - $\alpha < 0$: M sensitive to upward movements

- Concerned with *ranks* not *income levels*? Make status ordinal:

  - use estimated distribution function

Rank Mobility
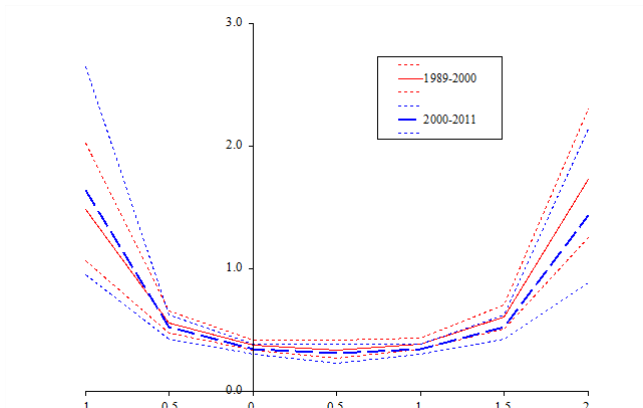
Income mobility
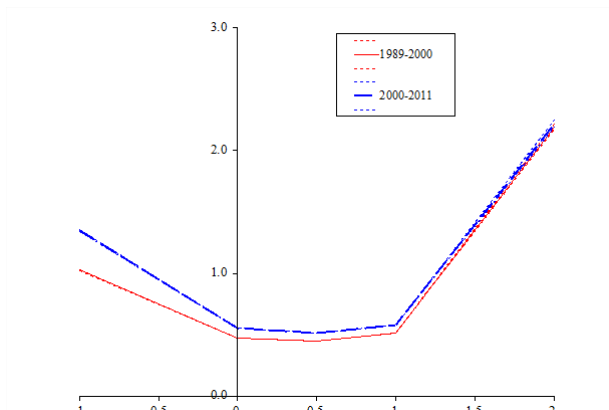
Interpreting the Mobility index

- Can we introduce a *social* values to M_α?

- Could introduce normative elements in the M_α framework
  - definition of status
  - value range of α

- But this is ad hoc

- What's the good of mobility?
  - compare this with (in)equality

Mobility as a social good

- Mobility as a *private* good?

  language problem 1: income growth as an example of mobility?

    - relabelling of the simple desire for more income

  language problem 2: a good or a bad?

    - "mobility" versus "volatility"

1. Mobility as an *intrinsic* social good?
   - methodological problem
   - contrast inequality or poverty

2. Mobility as an *indirect* social good?
   - a proxy for other objectives

3. Mobility as an *instrument*?
   - a tool for achieving other objectives

1: Mobility and social welfare

- Construct explicit welfare approach to mobility?
  - like Atkinson inequality? (Gottschalk and Spolaore 2002)

- But must go beyond simple welfare models
  - cannot base it on individual utility
  - individuals are risk averse?

- Perhaps an "extended" version of the utilitarian model
  - $W = \frac{1}{n}\Sigma_i\Sigma_j U(x_i^0, x_j^1)n_{ij}$

- Welfare principles?
  - Full mixing: welfare maximum?
    (Shorrocks 1978, Dardanoni 1993, Gottschalk and Spolaore 2002)

  - Move weight off-diagonal increase welfare? $\frac{\partial^2 U}{\partial x_i^0 \partial x_j^1} < 0$

    (Atkinson 1981, Atkinson and Bourguignon 1982)

Mobility and opportunity (Van de gaer et al. 2001)

- Connection between mobility and opportunity? (Stokey 1998)
    - how to interpret this in terms of a transition matrix?

1 Movement. If $\mathbf{P}^*$ formed from $\mathbf{P}$ by pushing probability mass away from the diagonal, then $\mathbf{P}^*$ more desirable than $\mathbf{P}$ (Atkinson 1981)

2 Equal Op. Suppose (a) $\mathbf{P}^*$ formed by increasing the probability of a low income for children of k-parents while decreasing the probability of a higher income and vice versa for children of k'-parents; (b) the lottery facing children of k-parents dominates that facing children of k'-parents. Then $\mathbf{P}^*$ more desirable than $\mathbf{P}$

3 Life Chances. If $\mathbf{P}^*$ formed from a permutation of the columns, then $\mathbf{P}^*$ just as good as $\mathbf{P}$

Redistribution, risk and mobility (Alesina and Giuliano 2010)

- Mobility affect attitude to inequality? (Friedman 1962,Krueger 2012)

- Redistribution and personal interest
    - Tunnel effect (Hirschman 1973)
    - "Land of opportunity" reduces demand for redistribution?
      (Alesina and La Ferrara 2005, Ravallion and Lokshin 2000)
    - Prospect Of Upward Mobility (Benabou and Ok 2001)

- Something more?
    - POUM dominated by demand for social insurance
    - Attitudes maydepend on culture
      (Corneo and Grüner 2002, Isaksson and Lindskog 2009)
    - Concern with distributive justice,
      (Fong 2001, Ohtake and Tomioka 2004)

- Difference of views on
    - role of effort and predetermined factors (Piketty 1995)
    - trade-off between equality and mobility

Inequality and mobility 1

	Society X		
	Children		
	$600	**$1000**	
Parents **$200**	10	0	*10*
$600	0	10	*10*
	10	*10*	

	Society Y		
	Children		
	$400	**$1200**	
Parents **$200**	10	0	*10*
$600	0	10	*10*
	10	*10*	

- Perfect immobility
- Parents have same inequality in X and Y
- Child distribution in X Lorenz dominates Y: Children's welfare higher in X?

Inequality and mobility 2

	Society W		
	Children		
	$600	**$1000**	
$200	5	5	*10*
$600	5	5	*10*
	10	*10*	

Parents

	Society Z		
	Children		
	$400	**$1200**	
$200	5	5	*10*
$600	5	5	*10*
	10	*10*	

Parents

- Perfect mobility
- Parents have same inequality in W and Z
- Child distribution in W Lorenz dominates Z

Inequality and redistribution: three views

Substitution view. Main objective is origin independence

- concern for inequality only if rigidities can't be removed.
- X socially preferred to Y? (greater child inequality in Y is inherited)
- Z preferred to W? (greater inequality in Z means a "land of opportunities")

Priority for the worst off. Equality of outcome explicit

- inequality at the minimum compatible with the maximum for the least well-off
- X is better than Y *and* W is better than Z

Intermediate position. Promotion of talents: equality of opportunity

- role of incentives for economic efficiency
- also fairness: rewards related to individual desert
- inequality accepted only to the extent it serves this purpose

Questionnaire Approach

Preference elicitation problem

- Not just personal preference
- Common to empirical social choice

Investigate in ABCD study

- Amiel et al. (2015)
- Based on Amiel and Cowell (1999) "bus queue" design

Implementation

- Student respondents
- Three countries: Israel, Italy, UK

1 Full Mixing v Rigidity
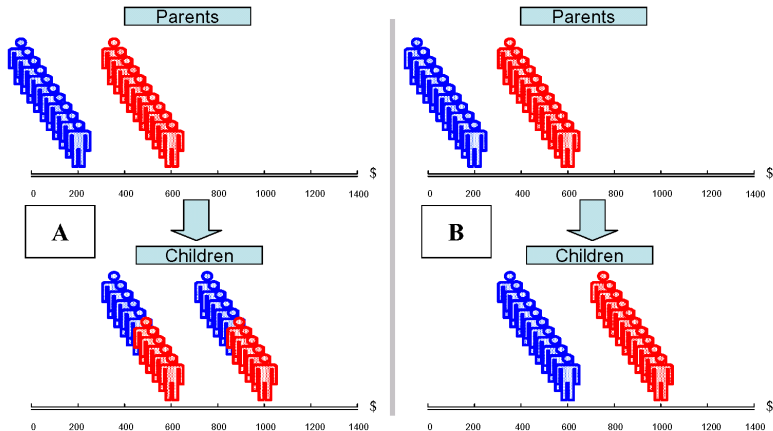
Please check (✓) one :   A is preferable
                            B is preferable
                            A and B are equally preferable

2 Full Mixing and Widening

Please check (✓) one:

A is preferable
B is preferable
A and B are equally preferable

3 Rigidity v Full Mixing+Widening

Please check (✓) one:

A is preferable
B is preferable
A and B are equally preferable

4 Partial mixing v Rigidity

Please check (✓) one:

A is preferable
B is preferable
A and B are equally preferable

5 Partial Mixing and Widening
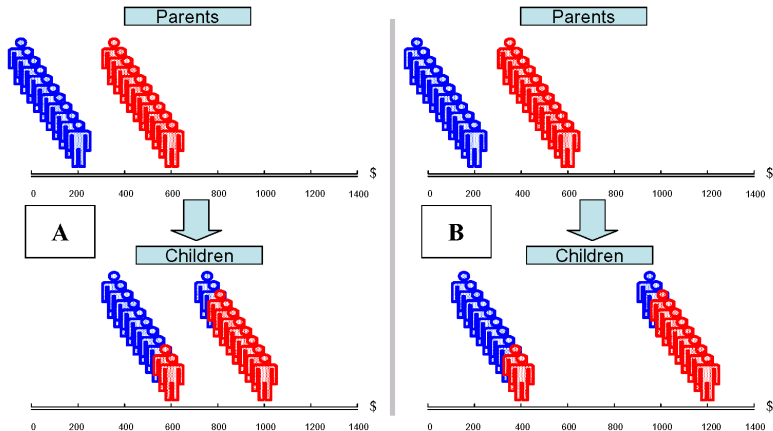
Please check (✓) one:

A is preferable
B is preferable
A and B are equally preferable

6 Rigidity v Partial Mixing+Widening
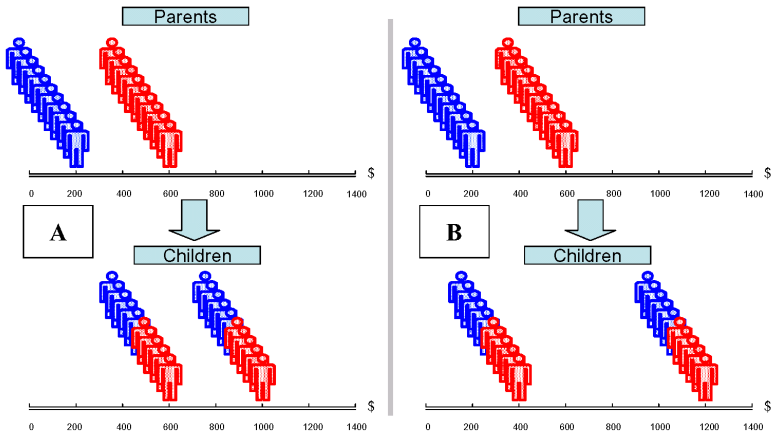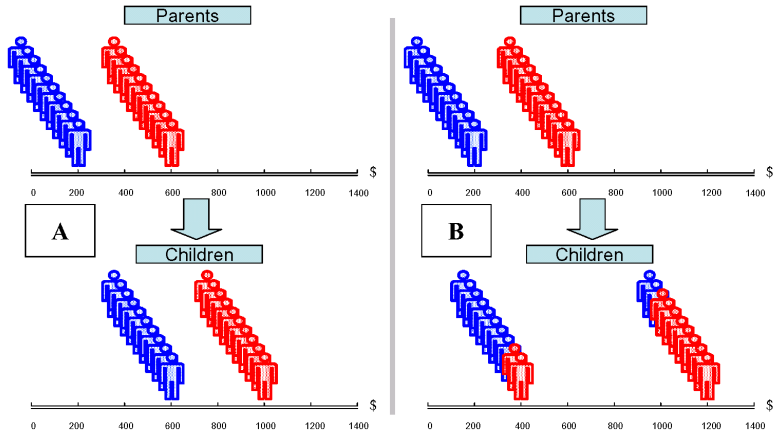

Please check (✓) one: A is preferable
B is preferable
A and B are equally preferable

7 Full v Partial Mixing

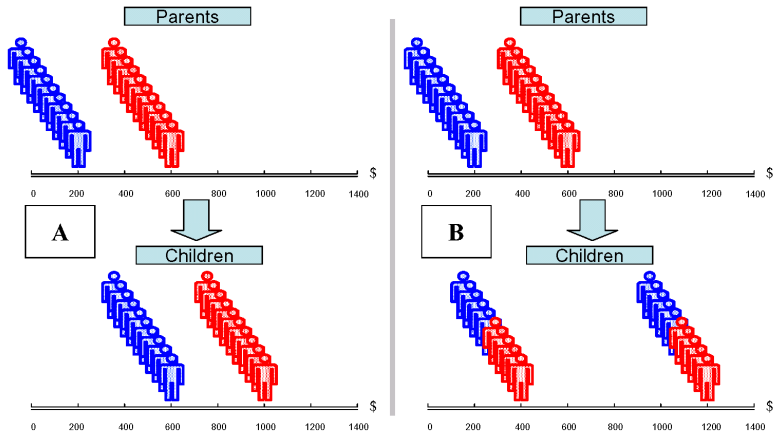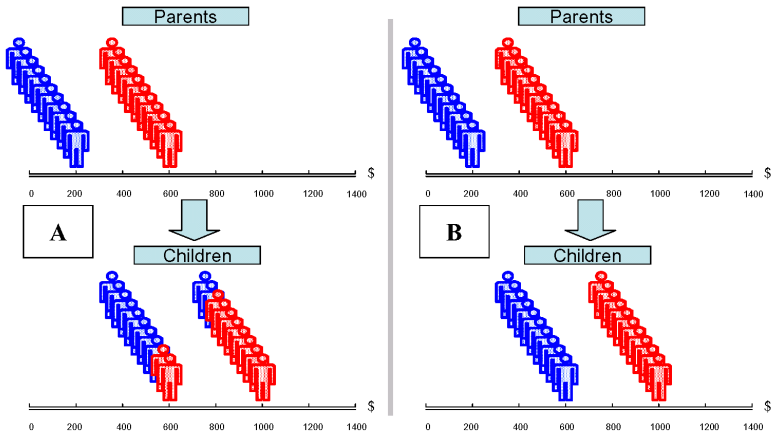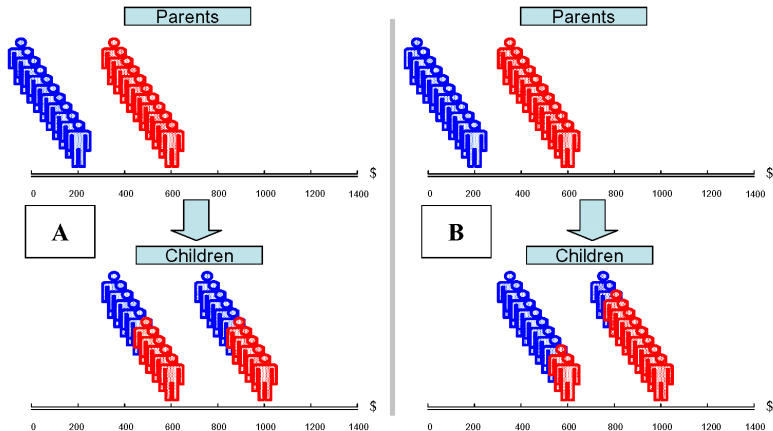*Please check (✓) one*:

A is preferable
B is preferable
A and B are equally preferable

8 Rigidity v Simple Widening
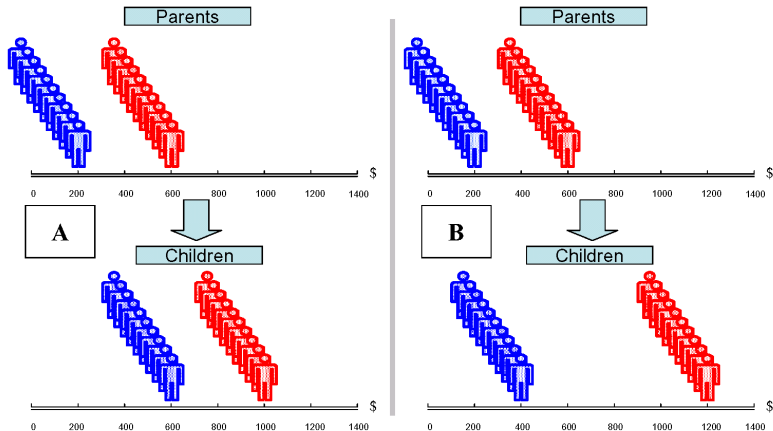
Please check (✓) one: A is preferable
                              B is preferable
                              A and B are equally preferable

Do people value mobility? equality?

- Mobility: Yes if A chosen more often than B in
    - Q1 (Full mixing v rigidity)
    - Q4 (Partial mixing v rigidity)
    - Q7 (Full v partial mixing)

- Equality: Yes if A chosen more often than B in
    - Q2 (Full mixing and widening)
    - Q5 (Partial mixing and widening)
    - Q8 (Rigidity v Simple widening)

	Mobility			**Equality**		
	Q1	**Q4**	**Q7**	**Q2**	**Q5**	**Q8**
A	68.8	67.7	69.1	71.4	72.5	76.7
B	17.7	21.1	18.0	16.0	14.6	11.2
indiff	13.5	11.0	12.6	12.6	12.9	11.8

Does mobility induce lower support for equality?

- Check if #B in Q2 (Full mixing+widening) > #B in Q5 (Partial mixing+widening) > #B in Q8 (Rigidity v widening)

	Q5	A	B	Indiff.		Q8	A	B	Indiff.
Q2	A	62.1	5.3	3.4	Q2	A	63.4	3.7	4.2
	B	5.9	7.0	3.1		B	8.5	5.6	2.0
	Indiff.	4.5	2.3	5.9		Indiff.	5.1	2.0	5.6
					Q5	A	65.6	2.3	4.5
						B	5.9	6.8	2.0
						Indiff.	5.4	2.3	5.4

- Although support for B increases, vastly outweighed by A
- Mobility not a substitute for equality
- Applies to all three subsamples

Willing to sacrifice equality for mobility?

- Yes if #B in Q3 (Rigidity v Mixing+Widening) > #B in Q6 (Rigidity v Partial Mixing+Widening) > #B in Q8 (Rigidity v Simple widening)

		Q6					Q8		
		A	B	Indiff.			A	B	Indiff.
Q3	A	37.2	7.7	2.6	Q3	A	39.6	3.1	4.5
	B	15.6	25.6	3.4		B	31.9	6.5	6.5
	Indiff.	3.1	2.3	5.4		Indiff.	5.7	1.4	0.9
					Q6	A	48.6	3.7	3.7
						B	22.2	6.8	6.8
						Indiff.	6.5	0.6	1.1

- From simple percentages, clearly yes
- Applies to all three subsamples

Does more mobility elicit stronger preference?

- Yes if #A in Q1 (Full Mixing v Rigidity) > #A in Q4 (Partial mixing v rigidity)
- Yes if #A in Q1 (Full Mixing v Rigidity) > #A in Q7 (Full v Partial Mixing)

	Q1	**Q4**	**Q7**
Italy	60.8	56.7	68.3
UK	77.5	84.3	68.5
Israel	70.1	66.7	70.1

Mobility preferences: categorical variable

- Check for each person the answers to Q1,Q4,Q7
- Categorise 0A, 1A, 2A, 3A
- Calculate percentages in each category

	0A	**1A**	**2A**	**3A**
Italy	10.8	24.2	33.3	31.7
UK	9.0	11.2	20.2	59.6
Israel	10.9	16.3	27.9	44.9
TOTAL	10.4	17.7	27.8	44.1

- The higher the category, the greater the percentage (almost)
- Applies to all three subsamples

Equality preferences: categorical variable

- Check for each person the answers to Q2,Q5,Q8
- Categorise 0A, 1A, 2A, 3A
- Calculate percentages in each category

	0A	1A	2A	3A
Italy	16.7	10.0	23.3	50.0
UK	13.5	6.7	11.2	68.5
Israel	9.5	14.3	19.7	56.5
TOTAL	12.9	11.0	18.8	57.3

- Except for 0A,1A, the higher the category, the greater the percentage
- Similar across subsamples

Cross-section: summary results

- Majority of subjects prefer society where mobility is higher

- In most cases more mobility induces stronger preferences

- Majority of subjects prefer the society where inequality is lower

- Preferences for income equality do not become weaker with more income mobility

- Trade-off between preferences for mobility and for equality;
  - subjects willing to sacrifice some equality
  - if this is necessary to obtain more mobility

Regression model

- Seek to explain
    - attitudes to mobility
    - attitudes to equality

- Dependent variable is categorical
    - mobility preferences 0A, 1A, 2A, 3A
    - equality preferences 0A, 1A, 2A, 3A

- Independent variables: personal characteristics
- Use ordered probit

Personal characteristics 1

1) How old are you? _____.(years)

2) Are you   □ male?   □ female?

3) Do you consider yourself:

    □ *British?*   □ *other European?*   □ *Chinese?*   □ *other Asian?*

    □ *North American?*   □ *Latin-American/Caribbean?*   □ *other? (___)*

4) How would your rank the income of your family?

    □ *very low*   □ *low*   □ *adequate*   □ *high*   □ *very high*

5) How would you rank the living standards of your family with respect to the average standard in your country?

    □ *much lower*   □ *lower*   □ *the same*   □ *higher*   □ *much higher*

Personal characteristics 2

6) How would you imagine your income will be in 10 years with respect to your parents' income at the same age?

    □ *much lower*   □ *lower*   □ *the same*   □ *higher*   □ *much higher*

7) How would you imagine your social position will be in 10 years with respect to your parents' social position at the same age?

    □ *much lower*   □ *lower*   □ *the same*   □ *higher*   □ *much higher*

8) Please indicate how much you agree or disagree with the following statements:

    A) "The more independent are children's and parents' economic positions in a society, the more socially preferable is the society"

        □ *Strongly agree*
        □ *Agree*
        □ *Neither agree nor disagree*
        □ *disagree*
        □ *Strongly disagree*

    B) "The more independent are children's and parents' economic positions in a society, the more equality of opportunity there is in the society"

        □ *Strongly agree*
        □ *Agree*
        □ *Neither agree nor disagree*
        □ *disagree*
        □ *Strongly disagree*

Personal characteristics 3

9) "How would you place your view on the following scale?"

	1	2	3	4	5	6	7	8	9	10
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

"The government should take the responsibility to ensure equal opportunity to everyone, but then everyone should be left on his or her own"

"No matter whether people have equal opportunity or not, it is the responsibility of government to reduce income differences between people as much as possible"

Mobility and Equality – Baseline

	Mobility	Equality
A1. Age	+0.0062	+0.0440
A2. Gender	–0.1638	–0.1005
F1. Family income	+0.0271	+0.2514**
F2. Living standard	–0.0311	–0.0879
P1. Prospect on income	+0.0212	+0.0368
P2. Prospect. on soc. pos	–0.0349	–0.2068*
V1. Indep. desirable	–0.3152***	–0.0130
V2. Indep. as equ. of opport.	–0.1148	+0.0114
V3. Eq. opp v. eq. income	+0.0102	–0.0655**

Mobility and Equality – Country Dummies

	Mobility	Equality
A1. Age	+0.0223	+0.0762**
A2. Gender	–0.1460	–0.0709
F1. Family income	–0.0408	+0.2419*
F2. Living standard	–0.0822	–0.0978
P1. Prospect on income	–0.0697	+0.0311
P2. Prospect. on soc. pos	–0.0117	–0.2044*
V1. Indep. desirable	–0.3128***	–0.0068
V2. Indep. as equ. of opport.	–0.0984	+0.0049
V3. Eq. opp v. eq. income	+0.0255	–0.0583**
Italy	–0.1356	+0.1678
UK	+0.5029**	+0.3298

Mobility and Equality – Country & Nationality

	Mobility	Equality
A1. Age	+0.0209	+0.0808**
A2. Gender	–0.1466	–0.0700
A3. Nationality	–0.0547	+0.1793
F1. Family income	–0.0394	+0.2342*
F2. Living standard	–0.0850	–0.0883
P1. Prospect on income	–0.0700	+0.0318
P2. Prospect. on soc. pos	–0.0126	–0.2016*
V1. Indep. desirable	–0.3132***	–0.0063
V2. Indep. as equ. of opport.	–0.0983	+0.0047
V3. Eq. opp v. eq. income	+0.0251	–0.0571**
Italy	–0.1439	+0.1949
UK	+0.4580	+0.4772

Summary

- Mobility measurement lay a foundation for
    - study of equality of opportunity (Van de gaer et al. 2001)
    - a theory of redistributive preferences (Benabou and Ok 2001)

- Introduction of welfare valuation presents a problem
    - individualistic values?
    - mobility a substitute for redistribution?
    - a trade-off between mobility and equality?

- We can reconcile tastes for equality and tastes for mobility
    - common analytical framework (Amiel et al. 2015)
    - use tools from empirical social choice

- Who really value mobility?
    - nothing to do with factors on valuing equality
    - importance of attitudes
    - importance of actions

Bibliography I

Alesina, A. and P. Giuliano (2010). Preferences for redistribution. In J. Benhabib, A. Bisin, and M. O. Jackson (Eds.), *Handbook of Social Economics*, Volume 1A, pp. 93–131. The Netherlands: North-Holland http://www.nber.org/papers/w14825.

Alesina, A. and E. La Ferrara (2005). Preferences for redistribution in the land of opportunities. *Journal of Public Economics 89*, 897–931.

Amiel, Y., M. Bernasconi, F. A. Cowell, and V. Dardanoni (2015). Do we value mobility? *Social Choice and Welfare 44*, 231–255.

Amiel, Y. and F. A. Cowell (1999). *Thinking about Inequality*. Cambridge: Cambridge University Press.

Atkinson, A. B. (1981). The measurement of economic mobility. In P. J. Eigjelshoven and L. J. van Gemerden (Eds.), *Inkomensverdeling en openbare financien: Essays in honour of Jan Pen*, pp. , 9–24. Utrecht: Het Spectrum.

Atkinson, A. B. and F. Bourguignon (1982). The comparison of multi-dimensional distributions of economic status. *Review of Economic Studies 49*, 183–201.

Benabou, R. and E. Ok (2001). Social mobility and the demand for redistribution: The POUM hypothesis. *Quarterly Journal of Economics 116*, 447–487.

Chen, Y. and F. A. Cowell (2015). Mobility in China. *Review of Income and Wealth (forthcoming)*.

Corneo, G. and H.-P. Grüner (2002). Individual preferences for political redistribution. *Journal of Public Economics 83*, 83–107.

Cowell, F. A. and E. Flachaire (2011). Measuring mobility. Public Economics Discussion Paper 8, STICERD, London School of Economics, London WC2A 2AE.

Bibliography II

Dardanoni, V. (1993). Measuring social mobility. *Journal of Economic Theory 61*, 372–394.

Fields, G. S. and E. A. Ok (1999). The measurement of income mobility: an introduction to the literature. In J. Silber (Ed.), *Handbook on Income Inequality Measurement*. Dewenter: Kluwer.

Fong, C. (2001). Social preferences, self-interest and the demand for redistribution. *Journal of Public Economics 82*, 225–246.

Formby, J. P., W. J. Smith, and B. Zheng (2004). Mobility measurement, transition matrices and statistical inference. *Journal of Econometrics 120*, 181–205.

Friedman, M. (1962). *Capitalism and Freedom*. Chicago: University of Chicago Press.

Gottschalk, P. and E. Spolaore (2002). On the evaluation of economic mobility. *Review of Economic Studies 69*, 191–208.

Hirschman, A. O. (1973). The changing tolerance for income inequality in the course of economic development (with a mathematical appendix by Michael Rothschild). *Quarterly Journal of Economics 87*, 544–566.

Isaksson, A, S. and A. Lindskog (2009). Preferences for redistribution - a cross-country study in fairness. *Journal of Economic Behavior and Organization 72*, 884–902.

Jäntti, M. and S. P. Jenkins (2015). Income mobility. In A. B. Atkinson and F. Bourguignon (Eds.), *Handbook of Income Distribution*, Volume 2, pp. 807–935. Elsevier.

Krueger, A. B. (2012). The rise and consequences of inequality in the United States. Technical report, The White House.

Ohtake, F. and J. Tomioka (2004). Who supports redistribution? *The Japanese Economic Review 55*, 333–354.

Bibliography III

Piketty, T. (1995). Social mobility and redistributive politics. *Quarterly Journal of Economics 110*, 551–583.

Ravallion, M. and M. Lokshin (2000). Who wants to redistribute? the tunnel effect in 1990s Russia. *Journal of Public Economics 76*, 87–104.

Shorrocks, A. F. (1978). The measurement of mobility. *Econometrica 46*, 1013–1024.

Stokey, N. (1998). Shirtsleeves to shirtsleeves: The economic of social mobility. *Frontiers of Research in Economic Theory: The Nancy L. Schwartz Memorial Lectures 1983–1997. Cambridge: Econometric Society Monographs In N. L. Schwartz, D. Jacobs and E. Kalai (eds.)*, 210–241.

Trede, M. (1998). Making mobility visible: a graphical device. *Economics Letters 59*(1), 77–82.

Trede, M. (1999). Statistical inference for measures of income mobility. *Jahrbücher für Nationalöknomie und Statistik 218*, 473–490.

Tsui, K. (2009). Measurement of income mobility: A re-examination. *Social Choice and Welfare 33*, 629–645.

Van de gaer, D., E. Schokkaert, and M. Martinez (2001). Three meanings of intergenerational mobility. *Economica 68*, 519–537.

Van Kerm, P. (2004). What lies behind income mobility? Reranking and distributional change in Belgium, Western Germany and the USA. *Economica 71*, 223–239.