Mobility and Opportunity

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Measurement
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Value
  Principles
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    An indirect good
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Results
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 $k$, $k = 1, 2, \ldots, K$
- 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 $x_k$
  ($x_k < x_{k+1}, k = 1, 2, \ldots, K - 1$)
- 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
  \[ \left( x_{k^0(1)}, x_{k^0(2)}, \ldots, x_{k^0(n)} \right) \text{ and } \left( x_{k^1(1)}, x_{k^1(2)}, \ldots, x_{k^1(n)} \right) \]
How to use the attribute movements to compute mobility?

- cardinal attribute: just aggregate the $x$s?
- don’t have to use natural cardinalisation to value the $x$s
- could use a simple transformation to “revalue” the $x$s

Alternative: use the distribution to revalue the income classes

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

Suppose sizes $(n_1^0, \ldots, n_K^0)$ at $t^0$ change to $(n_1^1, \ldots, n_K^1)$ at $t^1$

- Revaluing the income classes: $N^1 (S_k) := \sum_{h=1}^{k} n^1_h$, $k = 1, \ldots, K$
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). $z_i = (x_{k0}^0(i), x_{k1}^1(i))$

- static (2). $z_i = (\varphi(x_{k0}^0(i)), \varphi(x_{k1}^1(i)))$
  - $\varphi$ could be arbitrary (utility of $x$?)
  - perhaps take as log?

**Distribution-dependent**

- static. $z_i = (N^0(x_{k0}^0(i)), N^0(x_{k1}^1(i)))$
  - cumulative numbers in class “value” the class

- dynamic. $z_i = (N^0(x_{k0}^0(i)), N^1(x_{k1}^1(i)))$
Comparing mobility concepts

Consider the following example:

<table>
<thead>
<tr>
<th></th>
<th>$t^0$</th>
<th>$t^1$</th>
<th>$t^2$</th>
<th>$t^3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x_1$</td>
<td>A</td>
<td>A</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>$x_2$</td>
<td>B</td>
<td>_</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>$x_3$</td>
<td>C</td>
<td>B</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>$x_4$</td>
<td>_</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>$x_5$</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
</tbody>
</table>

- $0 \rightarrow 1$: growth and inequality increase
- $1 \rightarrow 2$: growth and inequality decrease
- $2 \rightarrow 3$: 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

- \( S_1, \ldots, S_K \subset S \) such that \( \bigcup_{k=1}^{K} S_k = S \) 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

Parents’ margins
- \( n_0^0 = n_{ll} + n_{lh} \)
- \( n_h^0 = n_{hl} + n_{hh} \)

Children’s margins
- \( n_{ll} = n_{ll} + n_{hl} \)
- \( n_{hh} = n_{lh} + n_{hh} \)

- 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

- $(\hat{f}_k^1, \hat{f}_k^2, \ldots, \hat{f}_k^K)$ gives the empirical frequency...
- ...conditional on individuals in set $S_k$ at time 0

- $(\hat{F}_k^1, \hat{F}_k^2, \ldots, \hat{F}_k^K)$: 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 $[y_{k-1}, y_k)$
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

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>mean</strong></td>
<td>6,046</td>
<td>5,846</td>
<td>6,642</td>
<td>7,974</td>
<td>10,172</td>
<td>12,595</td>
<td>14,783</td>
<td>20,957</td>
<td>25,429</td>
</tr>
<tr>
<td><strong>median</strong></td>
<td>5,294</td>
<td>5,130</td>
<td>5,292</td>
<td>6,513</td>
<td>8,021</td>
<td>9,179</td>
<td>10,284</td>
<td>15,057</td>
<td>19,964</td>
</tr>
<tr>
<td><strong>Gini(T)</strong></td>
<td>0.39</td>
<td>0.37</td>
<td>0.41</td>
<td>0.41</td>
<td>0.44</td>
<td>0.47</td>
<td>0.50</td>
<td>0.49</td>
<td>0.46</td>
</tr>
<tr>
<td><strong>Gini(R)</strong></td>
<td>0.42</td>
<td>0.39</td>
<td>0.43</td>
<td>0.42</td>
<td>0.52</td>
<td>0.47</td>
<td>0.51</td>
<td>0.50</td>
<td>0.48</td>
</tr>
<tr>
<td><strong>Gini(U)</strong></td>
<td>0.30</td>
<td>0.29</td>
<td>0.37</td>
<td>0.37</td>
<td>0.41</td>
<td>0.45</td>
<td>0.47</td>
<td>0.46</td>
<td>0.42</td>
</tr>
<tr>
<td><strong>90/10(T)</strong></td>
<td>7.87</td>
<td>6.72</td>
<td>8.39</td>
<td>8.54</td>
<td>10.81</td>
<td>13.43</td>
<td>13.77</td>
<td>12.71</td>
<td>13.60</td>
</tr>
<tr>
<td><strong>90/10(R)</strong></td>
<td>9.43</td>
<td>7.47</td>
<td>9.46</td>
<td>9.31</td>
<td>11.47</td>
<td>12.61</td>
<td>13.74</td>
<td>13.27</td>
<td>14.18</td>
</tr>
<tr>
<td><strong>cv(T)</strong></td>
<td>0.83</td>
<td>0.72</td>
<td>0.86</td>
<td>0.84</td>
<td>1.02</td>
<td>1.01</td>
<td>1.31</td>
<td>1.27</td>
<td>1.07</td>
</tr>
<tr>
<td><strong>cv(R)</strong></td>
<td>0.85</td>
<td>0.80</td>
<td>0.86</td>
<td>0.87</td>
<td>1.05</td>
<td>1.02</td>
<td>1.33</td>
<td>1.27</td>
<td>1.13</td>
</tr>
<tr>
<td><strong>cv(U)</strong></td>
<td>0.76</td>
<td>0.56</td>
<td>0.83</td>
<td>0.78</td>
<td>0.94</td>
<td>0.95</td>
<td>1.24</td>
<td>1.23</td>
<td>0.96</td>
</tr>
</tbody>
</table>
## CHNS: Rank mobility

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
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<tbody>
<tr>
<td>1989</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0.290</td>
<td>0.229</td>
<td>0.211</td>
<td>0.153</td>
<td>0.116</td>
</tr>
<tr>
<td>2</td>
<td>0.253</td>
<td>0.251</td>
<td>0.206</td>
<td>0.170</td>
<td>0.120</td>
</tr>
<tr>
<td>3</td>
<td>0.185</td>
<td>0.231</td>
<td>0.206</td>
<td>0.229</td>
<td>0.150</td>
</tr>
<tr>
<td>4</td>
<td>0.137</td>
<td>0.153</td>
<td>0.214</td>
<td>0.223</td>
<td>0.272</td>
</tr>
<tr>
<td>5</td>
<td>0.134</td>
<td>0.137</td>
<td>0.162</td>
<td>0.225</td>
<td>0.343</td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0.344</td>
<td>0.256</td>
<td>0.185</td>
<td>0.135</td>
<td>0.081</td>
</tr>
<tr>
<td>2</td>
<td>0.238</td>
<td>0.250</td>
<td>0.227</td>
<td>0.158</td>
<td>0.127</td>
</tr>
<tr>
<td>3</td>
<td>0.179</td>
<td>0.229</td>
<td>0.218</td>
<td>0.198</td>
<td>0.173</td>
</tr>
<tr>
<td>4</td>
<td>0.131</td>
<td>0.137</td>
<td>0.217</td>
<td>0.271</td>
<td>0.244</td>
</tr>
<tr>
<td>5</td>
<td>0.108</td>
<td>0.129</td>
<td>0.152</td>
<td>0.238</td>
<td>0.373</td>
</tr>
</tbody>
</table>
## CHNS: mobility test

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<tr>
<td>Total</td>
<td>0.9225</td>
<td>0.8875</td>
</tr>
<tr>
<td></td>
<td>[0.9107, 0.9343]</td>
<td>[0.8748, 0.9002]</td>
</tr>
<tr>
<td>Rural</td>
<td>0.9450</td>
<td>0.9175</td>
</tr>
<tr>
<td></td>
<td>[0.9317, 0.9583]</td>
<td>[0.9033, 0.9317]</td>
</tr>
<tr>
<td>Urban</td>
<td>0.9075</td>
<td>0.8400</td>
</tr>
<tr>
<td></td>
<td>[0.8837, 0.9313]</td>
<td>[0.8133, 0.8667]</td>
</tr>
</tbody>
</table>

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 \((z_1, z_2, \ldots z_n)\)
  - 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

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

- \( \alpha = 0 \): \( M_0 = -\frac{1}{n} \sum_{i=1}^{n} \frac{v_i}{\mu_v} \log \left( \frac{u_i}{\mu_u} / \frac{v_i}{\mu_v} \right) \)
- \( \alpha = 1 \): \( M_1 = \frac{1}{n} \sum_{i=1}^{n} \frac{u_i}{\mu_u} \log \left( \frac{u_i}{\mu_u} / \frac{v_i}{\mu_v} \right) \)

- 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 $M_\alpha$?

- Could introduce normative elements in the $M_\alpha$ framework
  - definition of status
  - value range of $\alpha$

- 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
  - \[ W = \frac{1}{n} \sum_i \sum_j U(x_i^0, x_j^1) n_{ij} \]

- Welfare principles?
  - Full mixing: welfare maximum?
    (Shorrock 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 $P^*$ formed from $P$ by pushing probability mass away from the diagonal, then $P^*$ more desirable than $P$ (Atkinson 1981)

2 Equal Op. Suppose (a) $P^*$ 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 $P^*$ more desirable than $P$

3 Life Chances. If $P^*$ formed from a permutation of the columns, then $P^*$ just as good as $P$
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)
  - Prospect Of Upward Mobility (Benabou and Ok 2001)
- Something more?
  - POUM dominated by demand for social insurance
  - Attitudes may depend 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

<table>
<thead>
<tr>
<th></th>
<th>Society X</th>
<th>Society Y</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$600</td>
<td>$600</td>
<td>$400</td>
</tr>
<tr>
<td>$1000</td>
<td>$1000</td>
<td>$1200</td>
</tr>
<tr>
<td><strong>Parents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$200</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>$600</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- 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

<table>
<thead>
<tr>
<th>Parents</th>
<th>Society W</th>
<th>Parents</th>
<th>Society Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>$200</td>
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<td>$200</td>
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</tr>
<tr>
<td>$1000</td>
<td>5 5 10</td>
<td>$1200</td>
<td>5 5 10</td>
</tr>
</tbody>
</table>

- 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
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)

<table>
<thead>
<tr>
<th>Mobility</th>
<th>Equality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 Q4 Q7</td>
<td>Q2 Q5 Q8</td>
</tr>
<tr>
<td>A 68.8</td>
<td>71.4</td>
</tr>
<tr>
<td>B 17.7</td>
<td>16.0</td>
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<tr>
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<table>
<thead>
<tr>
<th>Mobility</th>
<th>Equality</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 67.7</td>
<td>72.5</td>
</tr>
<tr>
<td>B 21.1</td>
<td>14.6</td>
</tr>
<tr>
<td>incliff</td>
<td>12.9</td>
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</table>

<table>
<thead>
<tr>
<th>Mobility</th>
<th>Equality</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 69.1</td>
<td>76.7</td>
</tr>
<tr>
<td>B 18.0</td>
<td>11.2</td>
</tr>
<tr>
<td>incliff</td>
<td>11.8</td>
</tr>
</tbody>
</table>
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)

<table>
<thead>
<tr>
<th>Q5</th>
<th>A</th>
<th>B</th>
<th>Indiff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td>62.1</td>
<td>5.3</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>5.9</td>
<td>7.0</td>
<td>3.1</td>
</tr>
<tr>
<td></td>
<td>4.5</td>
<td>2.3</td>
<td>5.9</td>
</tr>
<tr>
<td>Q8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2</td>
<td>63.4</td>
<td>3.7</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>8.5</td>
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<td>2.0</td>
</tr>
<tr>
<td></td>
<td>5.1</td>
<td>2.0</td>
<td>5.6</td>
</tr>
<tr>
<td>Q5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>65.6</td>
<td>2.3</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>5.9</td>
<td>6.8</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>5.4</td>
<td>2.3</td>
<td>5.4</td>
</tr>
</tbody>
</table>

- 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)

<table>
<thead>
<tr>
<th></th>
<th>Q6</th>
<th></th>
<th>Q8</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>37.2</td>
<td>B</td>
<td>7.7</td>
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<tr>
<td></td>
<td>15.6</td>
<td>Indiff.</td>
<td>3.4</td>
</tr>
<tr>
<td>B</td>
<td>3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indiff.</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indiff.</td>
<td>5.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>39.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>31.9</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Indiff.</td>
<td>1.4</td>
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<tr>
<td></td>
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<td>Indiff.</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Q6</td>
<td>A</td>
<td>48.6</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>22.2</td>
<td></td>
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<td></td>
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<td>6.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indiff.</td>
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</tr>
<tr>
<td></td>
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<td></td>
<td>1.1</td>
</tr>
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</table>

- 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)

<table>
<thead>
<tr>
<th>Country</th>
<th>Q1</th>
<th>Q4</th>
<th>Q7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>60.8</td>
<td>56.7</td>
<td>68.3</td>
</tr>
<tr>
<td>UK</td>
<td>77.5</td>
<td>84.3</td>
<td>68.5</td>
</tr>
<tr>
<td>Israel</td>
<td>70.1</td>
<td>66.7</td>
<td>70.1</td>
</tr>
</tbody>
</table>
Mobility preferences: categorical variable

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

<table>
<thead>
<tr>
<th>Country</th>
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<th>1A</th>
<th>2A</th>
<th>3A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>10.8</td>
<td>24.2</td>
<td>33.3</td>
<td>31.7</td>
</tr>
<tr>
<td>UK</td>
<td>9.0</td>
<td>11.2</td>
<td>20.2</td>
<td>59.6</td>
</tr>
<tr>
<td>Israel</td>
<td>10.9</td>
<td>16.3</td>
<td>27.9</td>
<td>44.9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10.4</td>
<td>17.7</td>
<td>27.8</td>
<td>44.1</td>
</tr>
</tbody>
</table>

- 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

<table>
<thead>
<tr>
<th></th>
<th>0A</th>
<th>1A</th>
<th>2A</th>
<th>3A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>16.7</td>
<td>10.0</td>
<td>23.3</td>
<td>50.0</td>
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<tr>
<td>UK</td>
<td>13.5</td>
<td>6.7</td>
<td>11.2</td>
<td>68.5</td>
</tr>
<tr>
<td>Israel</td>
<td>9.5</td>
<td>14.3</td>
<td>19.7</td>
<td>56.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12.9</td>
<td>11.0</td>
<td>18.8</td>
<td>57.3</td>
</tr>
</tbody>
</table>

- 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 you 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
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
9) “How would you place your view on the following scale?”

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

“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

<table>
<thead>
<tr>
<th></th>
<th>Mobility</th>
<th>Equality</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. Age</td>
<td>+0.0062</td>
<td>+0.0440</td>
</tr>
<tr>
<td>A2. Gender</td>
<td>−0.1638</td>
<td>−0.1005</td>
</tr>
<tr>
<td>F1. Family income</td>
<td>+0.0271</td>
<td>+0.2514**</td>
</tr>
<tr>
<td>F2. Living standard</td>
<td>−0.0311</td>
<td>−0.0879</td>
</tr>
<tr>
<td>P1. Prospect on income</td>
<td>+0.0212</td>
<td>+0.0368</td>
</tr>
<tr>
<td>P2. Prospect. on soc. pos</td>
<td>−0.0349</td>
<td>−0.2068*</td>
</tr>
<tr>
<td>V1. Indep. desirable</td>
<td>−0.3152***</td>
<td>−0.0130</td>
</tr>
<tr>
<td>V2. Indep. as equ. of oppor.</td>
<td>−0.1148</td>
<td>+0.0114</td>
</tr>
<tr>
<td>V3. Eq. opp v. eq. income</td>
<td>+0.0102</td>
<td>−0.0655**</td>
</tr>
<tr>
<td></td>
<td>Mobility</td>
<td>Equality</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>A1. Age</td>
<td>+0.0223</td>
<td></td>
</tr>
<tr>
<td>A2. Gender</td>
<td>−0.1460</td>
<td>−0.0709</td>
</tr>
<tr>
<td>F1. Family income</td>
<td>−0.0408</td>
<td>+0.2419*</td>
</tr>
<tr>
<td>F2. Living standard</td>
<td>−0.0822</td>
<td>−0.0978</td>
</tr>
<tr>
<td>P1. Prospect on income</td>
<td>−0.0697</td>
<td>+0.0311</td>
</tr>
<tr>
<td>P2. Prospect. on soc. pos</td>
<td>−0.0117</td>
<td>−0.2044*</td>
</tr>
<tr>
<td>V1. Indep. desirable</td>
<td>−0.3128***</td>
<td>−0.0068</td>
</tr>
<tr>
<td>V2. Indep. as equ. of oppor.</td>
<td>−0.0984</td>
<td>+0.0049</td>
</tr>
<tr>
<td>V3. Eq. opp v. eq. income</td>
<td>+0.0255</td>
<td>−0.0583**</td>
</tr>
<tr>
<td>Italy</td>
<td>−0.1356</td>
<td>+0.1678</td>
</tr>
<tr>
<td>UK</td>
<td>+0.5029**</td>
<td>+0.3298</td>
</tr>
</tbody>
</table>
# Mobility and Equality – Country & Nationality

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


Bibliography III


