Intergenerational Class Mobility in Comparative Perspective

A replication and extension after 30 years

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GLT, 1989

- Ganzeboom, Harry BG, Ruud Luijkx, and Donald J Treiman. 1989. "Intergenerational Class Mobility in Comparative Perspective." *Research in Social Stratification and Mobility* 8: 3–84.
- 151 intergenerational (father – son) occupational class mobility tables (father – son) from 35 countries; 18 countries with repeated data.
- EGP6, constructed from ISCO-68 and self-employment (yes/no) and supervision (none / few (1-10) / many (11+)
- Goodman-Hauser loglinear model with equally scaled row and columns, and three different treatments of diagonal (immobility) cells. Model D is preferred and has two between-table parameters: IMM (general immobility, on-diagonal), U (scaled uniform association, off-diagonal).
- Meta-analysis of IMM and U by Country and Year:
  - Strong between-country variation (40%-50%)
  - Overall downward trend in U parameter, estimated at **-0.017** – which amounted to a 1% decline per year (additive): ***intergenerational association will disappear in 100 years***.
- Twofold rebuttal of the FJP hypothesis of Constant Social Fluidity (Featherman, Jones, Hauser, 1975).

The three generations of comparative social mobility research

- Generation 1: Tabular analyse (percentages, inflow, outflow). Lipset & Zetterberg, 1959; Miller, 1960.
- Generation 2: Five-variables status attainment model (Blau & Duncan, 1967).
- Generation 3: Back to mobility tables & loglinear analysis (Featherman & Hauser, 1978, Goldthorpe, 1980; Erikson & Goldthorpe, 1992).
- See: Ganzeboom, H. B., Treiman, D. J., & Ultee, W. C. (1991). Comparative Intergenerational Stratification Research: Three Generations And Beyond. *Annual Review of Sociology*, *17*(1), 277–302. https://doi.org/10.1146/annurev.soc.17.1.277

Reception of GLT-1989

- Often cited, but not often read.
- Three critical assessments: Jones, 1992; Erikson & Goldthorpe 1992; Wong, 1994 (see Vallet, 2004)
  - Different analyses, different results;
  - Criticism on combining data with various quality;
  - Criticism on using scaling models on discrete data.

Contributions GLT 1989

- It produced a (‘unprecedented’, ‘ambitious’) large database of social mobility tables.
- EGP-’algorithm’: a standardized way to generate (10) EGP classes from ISCO-68, self-employment and supervision status.
- Application of Goodman-Hauser scaled uniform association model.
- Meta-analysis as a tool of multi-level analysis of repeated data.
- Control of data deficiencies by using covariates.
- ***The substantive conclusion of a general downward trend in intergenerational association now has been confirmed by many national studies.***

The world since 1989

- In hindsight, 1989 was a well-chosen year to take stock of any social trend…
- 1989-1990: Demise of communism in Eastern Europe.
- 1992: Maastricht Treaty (EU-formation).
- Hypothesis: convergence.

Comparative social mobility research since 1989

- Erikson & Goldthorpe (1992): The Constant Flux.
- Breen (2004): Social Mobility in Europe.
- Eurofound (2017). Social Mobility in the EU.

Mobility data since 1989

- There has been no new (worldwide) round of social mobility surveys (unlike 1950s and 1970s).
- However, social mobility (i.e. parental occupations) have been included in a number of comparative surveys: e.g. ISSP, ESS, EVS.

Classifications since 1989

- ISCO has been replaced twice: ISCO-88 and ISCO-08.

Aims of the new study

- Extend the GLT1989 analysis with more and better data:
  - Add data after 1990
  - More countries
  - More replicated countries
  - Expand measurement of occupational classes: EGP6 → ISEC [International Socio-Economic Classes) (== EGP13)
  - Expand the analysis with women / mothers.

Results and Conclusions

- Database expanded:
  - 56 countries with replicated tables
  - 1.3 million cases (weighted, age 21-64)
  - Men and women, fathers and mothers
  - EGP6 → EGP13
- Overall trend in parameter:

  U = 0.567 – 0.497*Year(1950-2050)
- However, trend shows significant slow-down and even reversal in (post) communist societies.
- Results for men and women strongly similar

How did we do this?

- Scaled association model (but as part of a multinomial logistic model)
- ISMF: International Stratification and Mobility File.
- New class scheme: International Socio-Economic Classes [ISEC = EGP14], connected to ISCO-08 (and ISCO-88 and ISCO-68).
- Meta-analysis

Scaled Uniform Association Models

Scaled uniform association model

- Odds ratio (i,j) ≡ U * (Ui-Ui') * (Uj-Uj')
  - U : Scaled uniform association parameter
  - Ui = Uj : Mobility scalings
- U is very much like a pearson correlation, but:
  - Adjusted for immobility effects
  - With scalings produced from the data.
- Diagonal densities (Immobility) are separately modelled. GLT model D separated these into class-specific IMMk and table-specific densities IMM.

Advantages of the Scaled Uniform Association model

- The U parameter is a single quantity to summarize the association: easy to remember and to compare, maximum statistical power.
- The mobility scalings Ui = Uj have substantive interpretation, and can be used to examine inequality of mobility chances of classes.
- Compare: Common Social Fluidity and Logmultiplicative Layer model (unidif model)
- Compare: (Superimposed) levels model.
- Compare: look at the odds-ratio's.

Ambition

- Social mobility research is about a bivariate relationship.
- The SAT tradition has shown that changes and differences in bivariate social mobility patterns cannot be understood without taking education into account → OED model.
- Integrating association model with regression analysis with conditional multinomial logistic regression models (Hendrickx & Ganzeboom, 1998; Jansen et al., 2003).

Data: ISMF

ISMF: International Stratification and Mobility File

- ISMF brings together unit level data on intergenerational mobility from secondary sources.
- Basic inclusion criterion: a measure of father's and respondent's occupation (and education); general adult population sample.
- Other variables included: mother, spouses and first occupation, parental and spouses education, personal and household income.
- Occupation are harmonized using ISCO-68 and ISCO-88 (ISCO-08 to come)

Mobility data since 1989

- The most significant change in mobility data sources has come from large scale international projects:
  - ESS (European Social Survey) collects intergenerational mobility since 2002 (some 25-30 EUR countries, every two years.
  - EU-SILC has assembled mob-data in 2005 and 2011 for 35 EU countries.
  - ISSP has collected mob-data in 1992, 1999, 2009 (will again in 2019).
  - EVS has collected mob-data in 2008 for 40 EU countries (will again in 2017-18).
- Other major expansions of ISMF: many more studies from NL, IT.

ISMF, current (2018) situation

- 234 separate data sources (many of these contain multiple studies for one country, multiple countries, or a combination).
- 71 countries, 56 with repeat studies (different years).
- 747 studies, i.e. an independent sample on a single country, usually from a single year. This is our basic unit of analysis.
- Total N (age 21-64, weighted): 1.9 million. After selection on valid occupations: 1.39 million, 56% men, 44% women.

N of Cases in ISMF-2018

ITA	361628
NET	175166
HUN	163178
POL	152190
USA	133364
GER	107353
SPA	73684
AUT	73604
CAN	65974
TAI	57668
…	…
AZE	1505
BRS	1500
GEO	1498
MLT	1497
MAC	1493
ARM	1477
VEN	999
Total	2278775

New class scheme: ISEC / EGP14

The story of EGP

- The EGP occupational class typology was developed as a 10-category schema by Erikson, Goldthorpe & Portocarero (1979), building upon a British (H-G) class schema.
- EGP were slow to document the classification fully and when the documentation appeared (1992), it did not provide a standard algorithm to recreate the classes in new data.
- However, such a standard algorithm was created by GLT1989, building upon earlier work for the Netherlands (Ganzeboom et al. 1987). It built EGP classes from ISCO-categories, self-employment (no/yes) and supervising status (no, few, many subordinates).
- The algorithm was refreshed for the ISCO-88 classification by Ganzeboom & Treiman (1996). See also Ganzeboom & Treiman (2003) for a most systematic overview.

EGP algorithm

- Step 1: assign occupations classified by ISCO to initial classes.
- Step 2: create small self-employed categories (IV-a, IV-b, IV-c) and manual supervisors (V) by taking into account self-employment and supervising status (as expressed in separate variables).
- Step 3: all workers with many subordinates become Higher Controllers.

ESEC

- In 2003 Eurostat commissioned David Rose and colleagues to create an European Socio-Economic Class scheme.
- The result (ESEC) look suspiciously much like the EGP-typology and the EGP-algorithm created by GLT. This is so, because the ESEC group started working from the ISCOCO (EU) classification.
- The ESEC algorithm differs from the GLT algorithm, because it gives precedence to the self-employment and supervising status variables, and regard the occupational titles as secondary.

Refining EGP10 into EGP14

- → EGP11: by separating
  - III-a Routine Clerical Workers
  - III-b Routine Sales & Personal Care Workers
- → EGP13: by separating
  - I-a and II-a: Higher and Lower Professionals
  - I-b and II-b: Higher and Lower Managers
- → EGP14: by separating:
  - VII-a1: Semi-skilled Manual Workers
  - VII-a2: Unskilled Manual and Service Workers

The trouble with the EGP algorithm

- Initially generated from ISCO-68, later from ISCO-88 (now ISCO-08). These classifications are different in many ways, but in particular with respect to acknowledging self-employment and supervising status as part of the occupation code.
- Notice that while ever more data come with ISCO codes, there are still data that use national classifications (such as the US), and ISCO has been created by conversion (cross-walk). This is the standard mode of operation in ISMF, but may also have happened in the source data.
- Combining measures on occupations, self-employment and supervising status, each of which may have different sources and a variety of incompleteness, may be too demanding.

Table 1: Relationships between categories of three class schemes				
	ISEC	EGP	ESEC	ESEC (label)
Higher Professionals	1.1	I	1	'Large employers, higher mgrs/professionals'
Higher Managers	1.2			
Lower Professionals	2.1	II	2	'Lower mgrs/professionals, higher supervisory/technicians'
Lower Managers	2.2			
Routine Clerical	3.1	III-a	3	'Intermediate occupations'
Small Employers	4.1	IV-a	4	'Small employers and self-employed (non-agriculture)
Own Account Workers	4.2	IV-b	3	'Intermediate occupations'
Manual Supervisors	5.1	V	6	'Lower supervisors and technicians'
Routine Service and Sales	3.1	III-b	7	'Lower sales and service
Skilled Manual Workers	5.2	VI	8	'Lower technical'
Semi-Skilled Manual Workers	5.3	VII-a	9	'Routine'.
Unskilled Manual Workers	5.4			
Farm Workers	6.2	VII-b		
Self-employed Farmers	6.1	IV-c	5	'Small employers and self-employed (agriculture)'

Validation

- At this point, there are no large scale international data-sets that have ISCO-08 occupations available, either primary coded, or double coded.
- We offer three alternative:
  - The European Value Study [EVS] 2008 data, that apply ISCO-88 codes, but can be converted to ISCO-08 by combining a cross-walk with uses of employment status variables [this mimics the approach taken with ISSP to construct ISEI-08).
  - Double coded data from ESS-NL R4: this includes parental occupations.
  - Double converted data from the US General Social Survey. GSS used a very detailed Census code, which has been matched with both ISCO-88 and ISCO-08.

Validation on social mobility in EVS-2008

- EVS allows comparison on EGP, ESEC and ISEC for father, resp. and spouse.
- I restrict it to father – resp (social mobility).
- Compare:
  - EGP 10*10 table
  - ESEC 9*9 table
  - ISEC 14*14 table

  These classifications are not nested.
- Which one brings out social reproduction strongest?

Results 1 – overall association

- Scaled uniform uniform coefficient:
  - ESEC 0.300
  - EGP 0.344
  - ISEC 0.357

Results 2: Scalings

ISEC		EGP		ESEC	
I-a	-1.6969	I	-1.4158	I	-1.4935
I-b	-1.3137				
II-a	-1.0955	II	-1.0134	II	-1.0881
II-b	-.8582				
III-a	-.5783	III-a	-.5713	III-a	-.6403
III-b	.1615	III-b	.1708	III-b	.2770
IV-a	-.6340	IV-a	-.6251	IV-a	-.0452
IV-b	.4411	IV-b	.4422		
V	.1608	V	.1600	V-x	-.1100
VI	.8606	VI	.8784	VI	1.0744
VII-a1	.9646	VII-a	1.1284		
IV-c	1.1465	IV-c	1.1951	IV-c	1.1049
VII-a2	1.3019			VII-ab	1.2205
VII-b	1.8618	VII-b	1.9493		

Results 3: Immobility (diagonals)

ISEC		EGP		ESEC	
I-a	.620	I	0.602	I	0.471
I-b	.740				
II-a	.795	II	0.074	II	0.044
II-b	.223				
III-a	.232	III-a	0.245	III-a	0.451
III-b	.333	III-b	0.338	III-b	0.280
IV-a	2.440	IV-a	2.452	IV-a	1.038
IV-b	1.886	IV-b	1.891		
V	.886	V	0.890	V-x	0.674
VI	.356	VI	0.360	VI	0.251
VII-a1	.448	VII-a	0.330		
IV-c	2.245	IV-c	2.234	IV-c	2.857
VII-a2	.548			VII-ab	0.276
VII-b	1.301	VII-b	1.237		

META-ANALYSIS

Meta-analysis: what is good about it?

- Can be applied to any micro-model (loglinear, correlation regression)
- Avoids the burden of multi-level analysis.
- Easy diagnostics at the macro-level.
- Can avoid distributional (normality) assumptions – important in small macro-N studies – bootstrapped SE.
- Ambition: Can also do panel regressions (XTGLS)

GLT - 2018

Design of the current study

- Data are from ISMF (2018).
- Parental Occ: father's class, supplemented by mother's class (if available and father's class missing).
- Only replicated countries (N=56, 722 studies).
- Occupations categorized by (new) EGP13.
- Micro-analysis: run models study by study.
- Macro-analysis: meta-analyses of estimated parameters, weighted by inverse variance (1/SE**2).

Micro-analysis

- Goodman-Hauser Loglinear model
- Ui = Uj are scaling parameters. Rescaled to Z-values
- Ui = Uj are estimated (in LEM) on pooled data and reintroduced as fixed values in subsequent LOGLIN analysis.
- U = scaled uniform association, similar to an overall correlation, corrected for diagonal densities.
- IMM and IMMk: parameters to control excess density on the diagonal.

Results – ANOVA – men + women

	Sum of Squares	Adj R2
Total	18590	
Country	9835	48.9%
Country + Year	7906+4949	77.8%
+ Country*Year	2190+5806	81.2%

Results – Average trend (100 years)

U = 0.567 – 0.497*Year(1950-2050)

T-value Trend: 29.4

SD intercept: 0.087

SD Trend: 0.091

No country has significant positive trend

28 countries have significant negative trend.

Results – Average trend (100 years)

AUT	-.847	-8.8	**DEN**	-.435	-3.5	**HUN**	-.306	-3.8
IRE	-.766	-5.3	**SPA**	-.434	-2.7	**ENG**	-.298	-3.4
SAF	-.742	-1.9	**FIN**	-.431	-2.6	**NOR**	-.295	-2.5
NIR	-.720	-3.7	**SLN**	-.431	-3.5	**USA**	-.263	-4.0
PHI	-.713	-3.3	**FRA**	-.419	-4.3	**TAI**	-.236	-1.7
SCO	-.679	-3.0	**AUS**	-.413	-3.1	**BEF**	-.234	-1.3
BRA	-.646	-2.3	**SWE**	-.360	-3.9	**GER**	-.217	-2.8
POL	-.642	-8.9	**BEW**	-.358	-2.3	**NZE**	-.154	-1.0
ITA	-.585	-7.2	**NET**	-.327	-4.6			
JAP	-.535	-4.3	**CAN**	-.309	-2.6			

Figure 1a (men): Development op Association parameter U in never-communist and (post-)communist societies

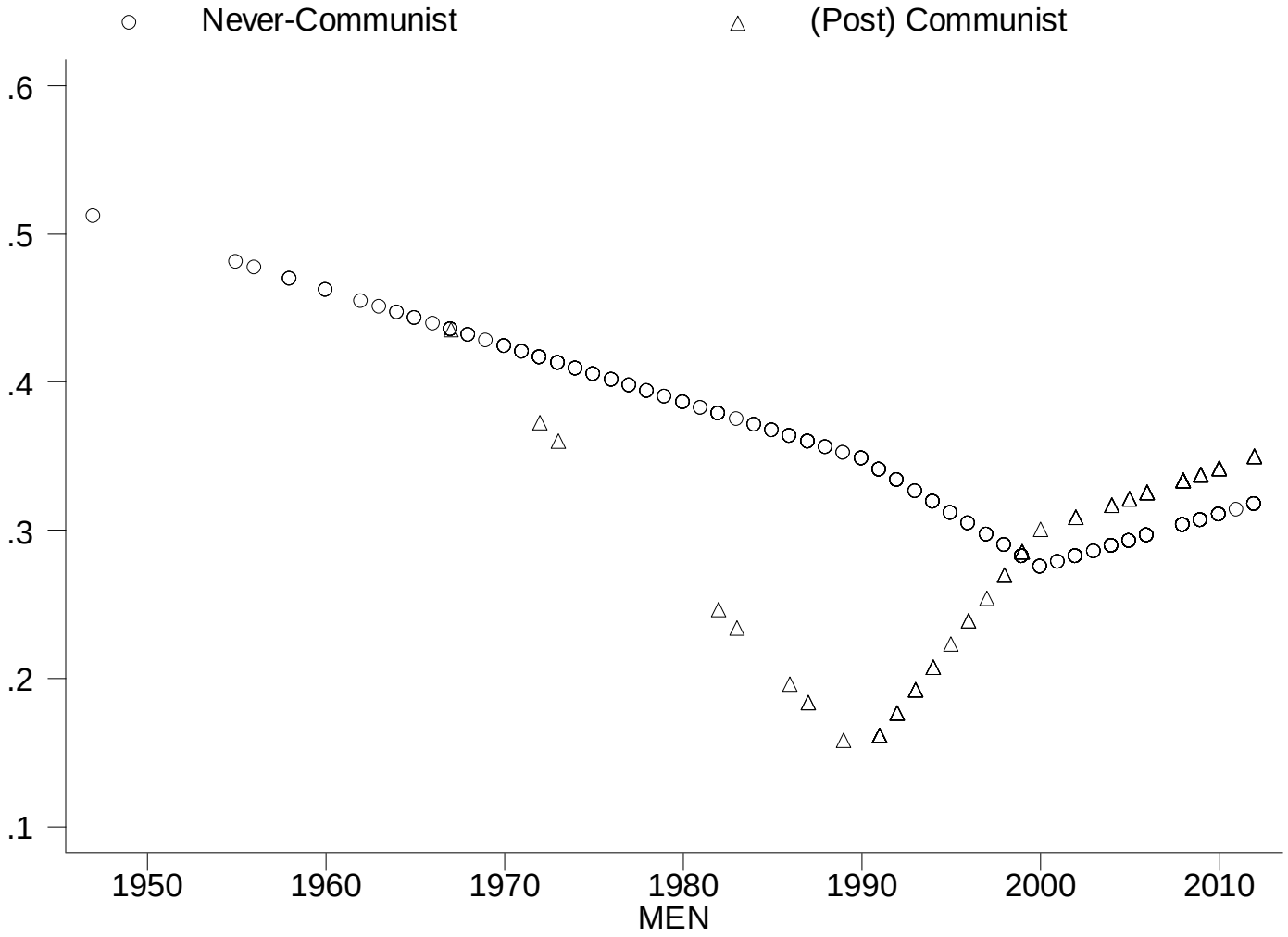
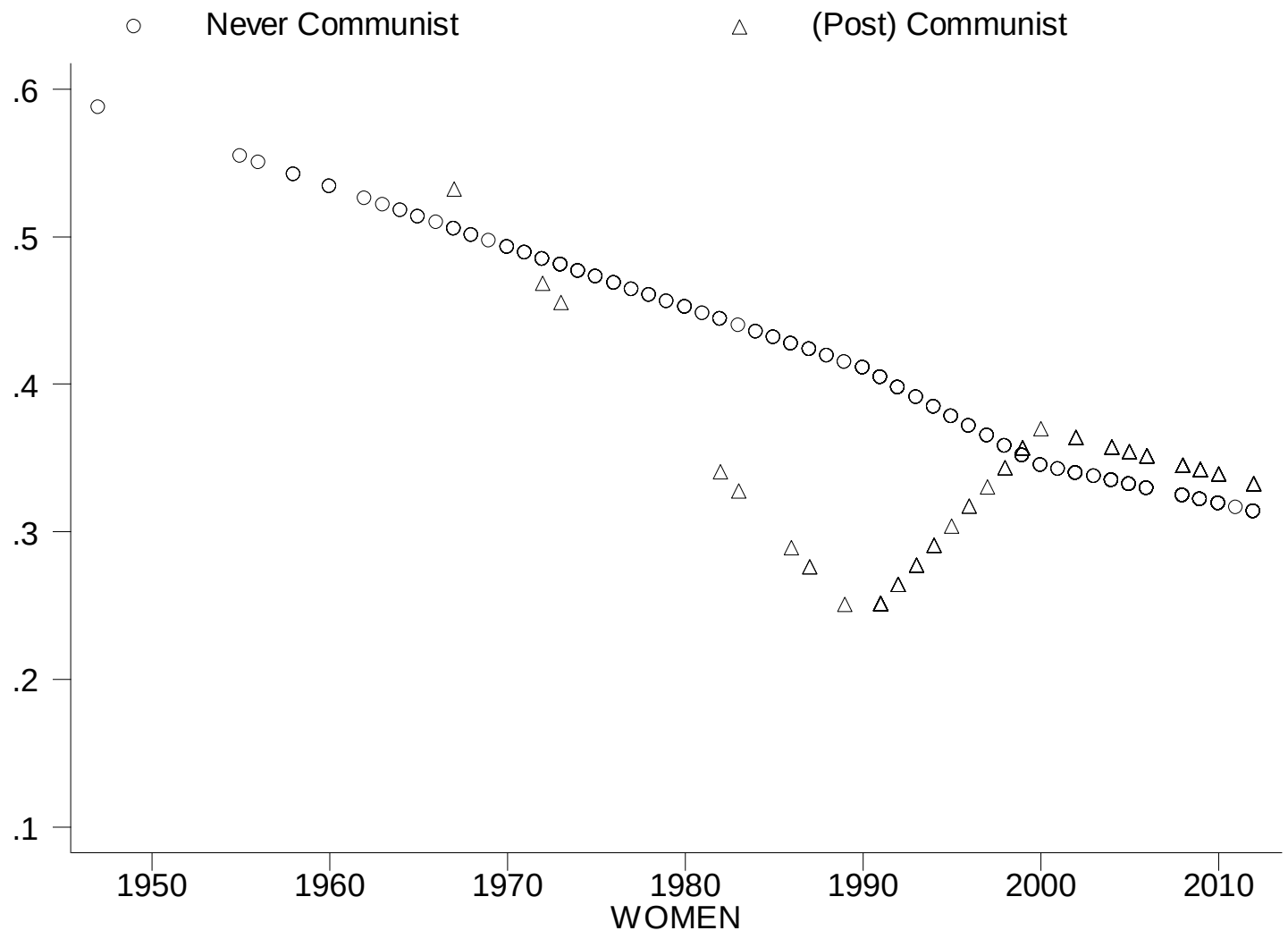


Figure 1b (women): Development op Association parameter U in never-communist and (post-)communist societies



CONCLUSIONS

Conclusions (1)

- There is a significant world-wide trend towards more relative mobility. The trend is most pronounced for off-diagonal association U and is hardly noticeable on the diagonal IMM of the intergenerational mobility tables.
- The trend was more pronounced before 1990 than after 1990. In (post) communist societies we see a sharp reversal of the trend toward more fluidity after 1990.

Conclusions (2)

- Refining the class schema used (from 6 to 13 classes) indicates that more refinement shifts association from on-diagonal to off-diagonal, but hardly affects the twofold rebuttal of the Constant Social Fluidity thesis.
- Quality controls (=study effects) hardly affect the results.

Quality / study design controls

- GLT sought to overcome the problems of different data quality by using control variables:
  - Controlling the effect of data quality in the meta-analysis (main finding: more detailed occupation codes lower the association U).
  - Robustness checks by deleting suspect tables.
- In fact, it did not make much difference to the conclusions…