INTERGENERATIONAL MOBILITY IN COMPLEX FAMILY STRUCTURES

Aline Bütikofer Katrine V. Løken Nikodem Szewczyk

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MOTIVATION

- **Family Structure Has Become more Complex**
  - Norway: 35% of children in Norway live with single parent and 17% with stepparent before age 17
- **Most economic models do not consider this growing complexity**
  - Family complexity might have implications for the adults forming relationships and for the children being brought up within them
- **Intergenerational persistence**
  - Biological (or adopted) parents only
  - Assume stable and not dynamic family structure
  - Mismeasurement of family background

$\Rightarrow$ **Standard estimates might be biased for stepfamilies**

RESEARCH QUESTION

- Are estimates of intergenerational mobility, based on biological/legal links, underestimating the true persistence in stepfamilies?
- Does transmission depend on commitment, proximity or exposure duration?
- Does family complexity reinforce inequality across generations?

THIS PAPER

- **Create child-centered annual family trees including stepparents**
  - Stepparents: married to biological parent or cohabiting with common child
- **Estimate intergenerational persistence in complex families**
  - Incorporating biological and stepparents
- **Heterogeneity by relationship quality**
  - Commitment, proximity, and exposure duration

RESULTS

1. **Persistence in complex families**
   - Accounting for stepparents creases persistence by **12–31%**
   - Stepfather–child correlations in income and education are large and economically meaningful

2. **Transmission depend on relationship quality**
   - Common child: stepfather persistence rises (70–80%)
   - Geographical distance: biological father persistence lower (13–19%)
   - Exposure duration matters for lower-earning stepfathers

RELATED LITERATURE

- **Measurement of intergenerational mobility**
  Becker & Tomes (1979, 1986); Solon (1992); Mazumder (2005); Chetty et al. (2014)
  → *We show that this framework is incomplete in complex family settings*
- **Dynastic and adopted families persistence**
  Adermon, Lindahl & Palme (2021); Clark (2014); Clark and Cummins (2015); Bütikofer et al. (2023); Björklund et al. (2006); Fagereng et al. (2021); Black et al. (2017)
  → *We extend the family measurement logic to family members without biological or legal ties*
- **Family structure and child outcomes**
  Ginther and Pollak (2004); Björklund et al. (2007); Kearney (2024)
  → *We focus on complex families and link family complexity to intergenerational persistence*

FRAMEWORK

Intergenerational persistence extended to complex families:

$$y_i = \alpha + \beta^{\text{bf}}\, y_{\text{bf}(i)} + \beta^{\text{bm}}\, y_{\text{bm}(i)} + \beta^{sf}\, y_{sf(i)} + \beta^{sm}\, y_{sm(i)} + \varepsilon_i$$

- y_i: child's rank outcome; $y_{\text{bf}(i)}$, $y_{\text{bm}(i)}$: biological father's and mother's rank outcomes; $y_{sf(i)}$, $y_{sm(i)}$: average rank of all stepfathers and stepmothers observed during childhood
- β coefficients are rank–rank slopes for income or education correlations
- Later, we expand this model to include other extended family members (e.g., grandparents and uncles/aunts) by adding more regressors

DATA

DATA

- Norwegian registry data
- Child cohorts: 1987–1993, with linked biological parents (1958–1968) and stepparents (1964–1970)
- Parents and stepparents identified via family and household registers
- Outcomes measured to minimize life-cycle bias
  - Permanent income (child: 30–36, parent: 40–55)
  - Years of education (ages 25–40)
- All family members ranked within gender and cohort: bio and step parents by child's birth year, grandparents and aunts/uncles by the linked parent's birth year

FAMILY TRANSITIONS

- **37%** of children experience at least one family transition between ages 0–16
- Transitions mostly go through **single parenthood**
- **17%** experience more than one transition (transition into complex families)

Takeaway

Family structure is dynamic for a non-negligible number of kids.

AGE AT TRANSITION

- **Age at transitions**
  - Median age at first transition (into single parenthood): **8**
  - Median difference between first and second transition: **4 years** (only **29%** within 2 years)
- **Repartnering is income-graded** By income quartile
  - Top-quartile single fathers repartner more

Takeaways

- Repartnering is not immediate
- For many children, single parenthood is a persistent state
- Children of higher-income fathers are more likely to get a stepparent

DESCRIPTIVES BY FAMILY STRUCTURE

	Nuclear	Single	Stepfamily	
Panel A. Permanent income (1,000 NOK)				
Sons	513	446	443	447
Daughters	416	375	360	361
Biological father	559	476	476	501
Biological mother	365	366	361	366
Stepfather			512	525
Stepmother				378
Observations	247,937	41,669	67,637	40,027
Panel B. Year of education				
Sons	14.9	14.2	13.9	13.8
Daughters	15.6	15.0	14.6	14.6
Biological father	13.6	13.0	12.7	12.8
Biological mother	13.6	13.4	13.1	13.2
Stepfather			13.0	13.0
Stepmother				13.4
Observations	239,355	41,860	69,352	39,949

SELECTION INTO STEPFAMILIES

- **Biological parents in stepfamilies**
  - $\Rightarrow$ stepfamily children originate from lower SES backgrounds
- **Repartnering**
  - Stepfathers are $\sim$8–10% higher income than biological fathers
  - Higher assortative mating: stronger correlations between stepparents and biological parents than between biological parents

$\Rightarrow$ **Estimated stepfather coefficients may partly reflect this selection, rather than only stepfather-specific transmission**

RESULTS

PERSISTENCE IN BLENDED FAMILIES: SONS

	All families	Nuclear families	Single mothers	Stepfamily	
Father's rank	0.189	0.171	0.155	0.173	0.155
	(0.002)	(0.003)	(0.007)	(0.005)	(0.005)
Stepfather's rank					0.091
					(0.006)
Observations	191,373	126,716	20,529	33,785	33,785

PERSISTENCE IN BLENDED FAMILIES: DAUGHTERS

	All families	Nuclear families	Single mothers	Stepfamily	
Father's education	0.235	0.224	0.198	0.216	0.186
	(0.002)	(0.002)	(0.005)	(0.004)	(0.005)
Stepfather's education					0.116
					(0.005)
Observations	185,465	120,144	21,828	49,043	34,531

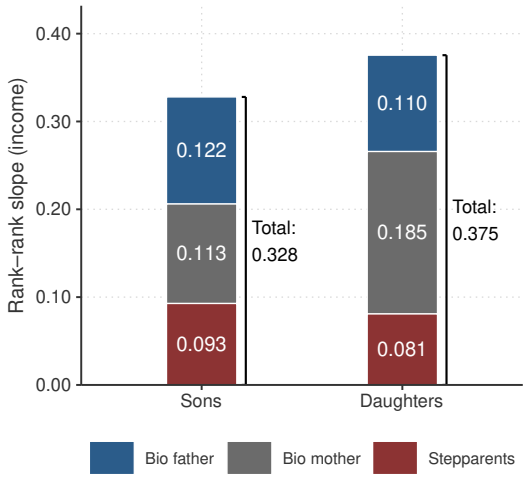
ALL FOUR PARENTS MATTER: SONS

	All families	Nuclear families	Single mothers	Stepfamily	
Father's rank	0.170	0.155	0.130	0.140	0.122
	(0.002)	(0.003)	(0.007)	(0.007)	(0.007)
Mother's rank	0.095	0.082	0.111	0.132	0.113
	(0.002)	(0.003)	(0.007)	(0.007)	(0.007)
Stepfather's rank					0.067
					(0.007)
Stepmother's rank					0.026
					(0.007)
Observations	190,297	126,676	20,509	20,079	20,079

ALL FOUR PARENTS MATTER: DAUGHTERS

	All families	Nuclear families	Single mothers	Stepfamily	
Father's rank	0.160	0.150	0.131	0.125	0.110
	(0.002)	(0.003)	(0.007)	(0.007)	(0.007)
Mother's rank	0.178	0.173	0.180	0.202	0.185
	(0.002)	(0.003)	(0.007)	(0.007)	(0.007)
Stepfather's rank					0.057
					(0.007)
Stepmother's rank					0.024
					(0.007)
Observations	180,140	119,017	20,875	19,354	19,354

DECOMPOSITION: INCOME



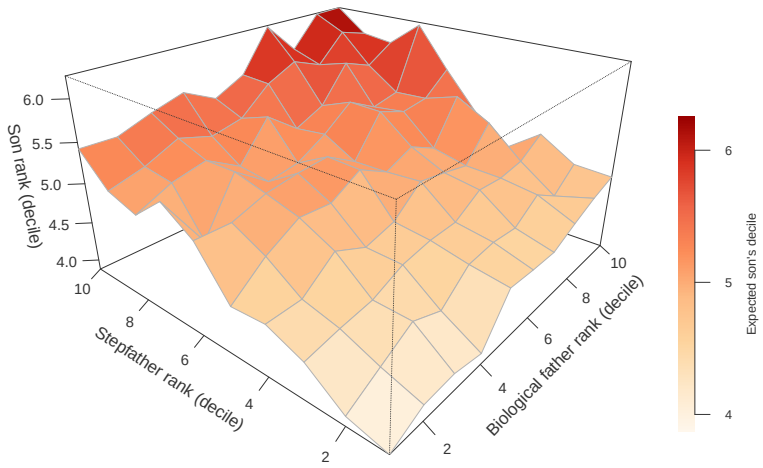
INTERGENERATIONAL TRANSMISSION

- Biological-only models understate measured persistence in stepfamilies
  - Fathers: ignoring stepfathers misses **28–31%**
  - All parents: adding stepparents increases total persistence by **13–17%**
- Stepfather–child correlations are economically large
  - Income slope about **60%** of the residual biological father slope
  - Patterns hold for education, slightly larger coefficients Education
- Stepfather partly crowds out the biological father
  - Comparable to estimates in single-mother households

Takeaway

For children in complex families, standard IGE estimates rely on a mismeasured notion of family background

NONLINEARITIES: SONS, (STEP)FATHERS



▸ Other combinations

INTERPRETING PERSISTENCE

- **Interpretation of main results**
  - Large stepfather coefficients despite no genetic link
- **Better measure of latent family background or direct effect?**
  - Stepparents could contribute to environmental transmission
  - Stepparents may proxy latent family human capital
- **Implications**
  - Environmental transmission:
    - stronger relationships $\Rightarrow$ stronger transmission
  - Latent family background:
    - controlling for extended family should weaken influence of stepparents substantially

STRONGER RELATIONSHIPS

- **Stronger commitment: Common child with biological parent**
  - 34% of stepfamilies
  - Strongly predicts longer co-residence: 26% share among short unions (1–7y) vs. 48% among long unions (8+y)
- **Biological fathers' geographic proximity**
  - 64% of children live in a different municipality than biological father for ≥ 1 year; 38% for ≥ 8 years
  - two definitions: every other municipality, above median years in different municipality
- **Exposure duration**
  - 48% of children have full biological sibling in the sample
  - Sibling fixed effects model with exposure duration interactions

COMMITMENT AND GEOGRAPHIC DISTANCE: SON

	Years of Education		
	Common child	Ever away	Above median
Biological father × indicator	-0.068***	-0.049***	-0.033***
	(0.010)	(0.010)	(0.012)
Stepfather × indicator	0.043***	0.009	-0.006
	(0.010)	(0.009)	(0.011)
Observations	35,580	34,694	22,463

COMMITMENT AND GEOGRAPHIC DISTANCE: DAUGHTERS

	Years of Education		
	Common child	Ever away	Above median
Biological father × indicator	-0.032***	-0.032***	-0.033***
	(0.010)	(0.010)	(0.013)
Stepfather × indicator	0.052***	0.028***	0.037***
	(0.010)	(0.009)	(0.012)
Observations	34,223	33,363	21,576

EXPOSURE DURATION

Sibling fixed effects model evaluated at different stepfather income ranks

	Marginal effect
Rank: 0.25	0.010**
	(0.005)
Rank: 0.50	0.006
	(0.005)
Rank: 0.75	0.002
	(0.005)
Observations	177,266

INTERPRETATION

- **Transmission varies with proximity, commitment, and exposure duration**
  - Biological father ↓ Stepfather ↑ with distance
  - Biological father ↓ Stepfather ↑ with commitment
  - Stepfather ↑ with exposure
- **Consistent with environmental transmission being a central factor**
- **Does the stepfather coefficient reflect shared family background?**
  - Outcomes determined before repartnering
  - Extended family controls

OUTCOMES DETERMINED BEFORE REPARTNERING: HEIGHT

	All families	Nuclear families	Single mothers	Stepfamily	
Father's hight	0.461	0.466	0.444	0.441	0.436
	(0.002)	(0.003)	(0.007)	(0.006)	(0.006)
Stepfather's rank					0.075
					(0.006)
Observations	136,855	91,174	13,849	21,276	21,276

Takeaway

Assortative mating on different genetic traits (e.g., height), but stepfathers relative importance smaller than for earnings.

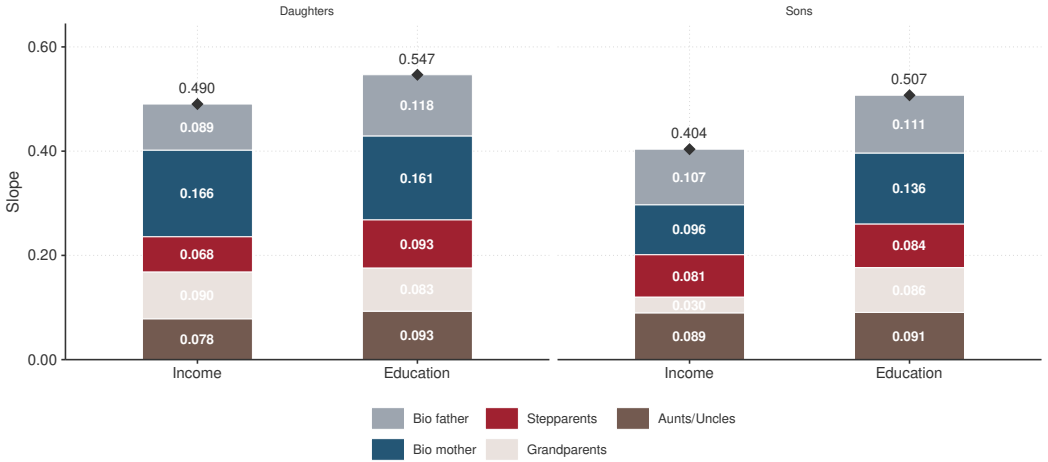
OUTCOMES DETERMINED BEFORE REPARTNERING: TEST SCORE

	5th Grade Test Score	
	Post 5th grade SP	Pre 5th grade SP
Biological father's education	0.064	0.050
	(0.004)	(0.003)
Stepfather's education	0.015	0.024
	(0.004)	(0.003)
Observations	7,381	17,467

Takeaway

Stepfathers relative importance smaller when moving in after test.

EXTENDED FAMILY



INTERPRETATION

- **Stepfather–child correlations are smaller for outcomes determined before repartnering**
  - Income rank: 60% of the residual biological father slope
  - Years of education: 55% of the residual biological father slope
  - Hight: 17% of the residual biological father slope
  - Test score (before): 23% of the residual biological father slope
  - Test score (after): 48% of the residual biological father slope
- **Extended family controls**
  - Relative importance of stepparents is still high
- **Still consistent with environmental transmission being an important factor**

ROBUSTNESS

ROBUSTNESS: LOCATION CONTROLS

- Families may sort into lower or higher opportunity municipalities
- Include municipality FE: mother's during childhood (modal) and child at age 30

Identification concern

Does the stepfather coefficient reflect residential sorting, rather than the stepfather relationship itself?

ROBUSTNESS: MUNICIPALITY FIXED EFFECTS

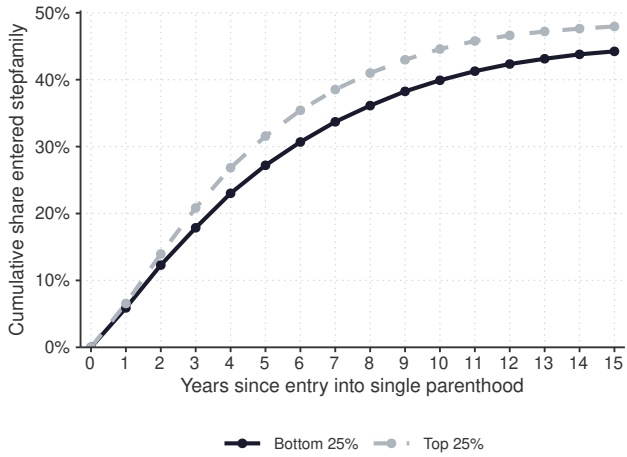
	Income rank		Educational attainment	
	Mother's muni	Child's muni	Mother's muni	Child's muni
Sons				
Biological father	0.177	0.170	0.211	0.177
	(0.006)	(0.006)	(0.005)	(0.005)
Stepfather	0.093	0.089	0.101	0.084
	(0.006)	(0.006)	(0.004)	(0.005)
Observations	33,782	28,431	35,904	29,721
Daughters				
Biological father	0.139	0.128	0.202	0.173
	(0.005)	(0.005)	(0.005)	(0.005)
Stepfather	0.080	0.073	0.110	0.094
	(0.005)	(0.005)	(0.005)	(0.005)
Observations	32,443	27,202	34,526	28,490

CONCLUSION

- **Biological-only models understate persistence in stepfamilies**
  - Missing stepfathers ignores **28–31%** of persistence (father-only)
  - Full models raise persistence by **13–17%**
- **Stepparents matter quantitatively**
  - $\sim$60% of residual biological father income link
- **Evidence for direct effect**
  - Common child: stepfather $\uparrow$**70–80%**
  - Absence of biological father: biological father$\downarrow$ **13–19%**
  - Exposure duration important
  - Smaller correlations for outcomes determined before stepparent moved in

APPENDIX

REPARTNERING BY PATERNAL INCOME QUARTILE



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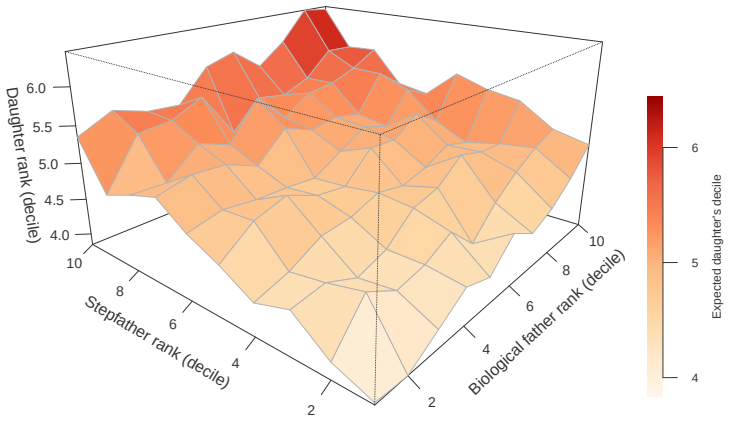
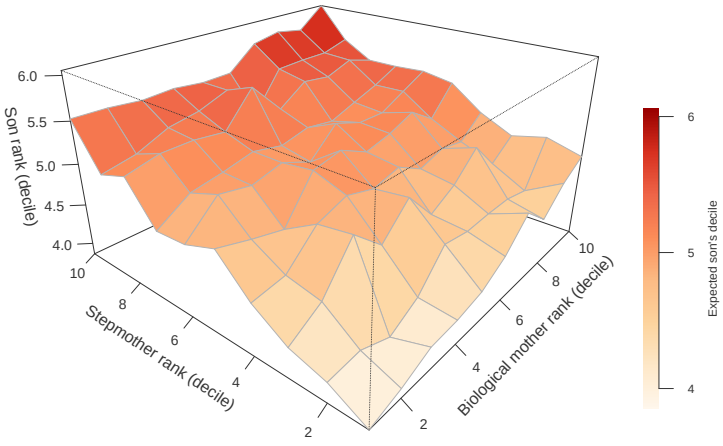
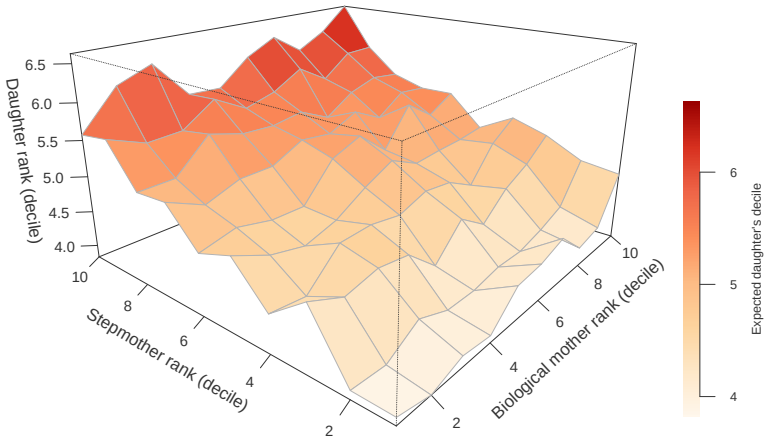
WITHIN-HOUSEHOLD GRADIENTS: DAUGHTERS, (STEP)FATHERS



WITHIN-HOUSEHOLD GRADIENTS, SONS, (STEP)MOTHER



WITHIN-HOUSEHOLD GRADIENTS: DAUGHTERS, (STEP)MOTHER



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INTERGENERATIONAL MOBILITY: EDUCATION, SONS

	All families	Nuclear families	Single mothers	Stepfamily	
Father's education	0.270	0.273	0.206	0.229	0.198
	(0.002)	(0.002)	(0.005)	(0.004)	(0.005)
Stepfather's education					0.109
					(0.004)
Observations	195,420	127,439	21,556	51,308	35,907

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INTERGENERATIONAL MOBILITY: EDUCATION, DAUGTHERS

	All families	Nuclear families	Single mothers	Stepfamily	
Father's education	0.235	0.224	0.198	0.216	0.186
	(0.002)	(0.002)	(0.005)	(0.004)	(0.005)
Stepfather's education					0.116
					(0.005)
Observations	185,465	120,144	21,828	49,043	34,531

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INTERGENERATIONAL MOBILITY: EDUCATION, SONS

	All families	Nuclear families	Single mothers	Stepfamily	
Father's education	0.204	0.203	0.155	0.169	0.151
	(0.002)	(0.003)	(0.006)	(0.006)	(0.006)
Mother's education	0.165	0.158	0.163	0.190	0.165
	(0.002)	(0.003)	(0.006)	(0.006)	(0.006)
Stepfather's education					0.067
					(0.006)
Stepmother's education					0.027
					(0.005)
Observations	192,696	125,498	21,292	20,942	20,942

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INTERGENERATIONAL MOBILITY: EDUCATION, DAUGTHERS

	All families	Nuclear families	Single mothers	Stepfamily	
Father's education	0.165	0.150	0.141	0.159	0.140
	(0.002)	(0.002)	(0.005)	(0.006)	(0.007)
Mother's education	0.176	0.165	0.177	0.210	0.185
	(0.002)	(0.003)	(0.006)	(0.006)	(0.007)
Stepfather's education					0.067
					(0.006)
Stepmother's education					0.031
					(0.006)
Observations	182,986	118,382	21,593	20,092	20,092

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