

MEASURING NETWORKS BEYOND THE ORIGIN FAMILY

June 2013

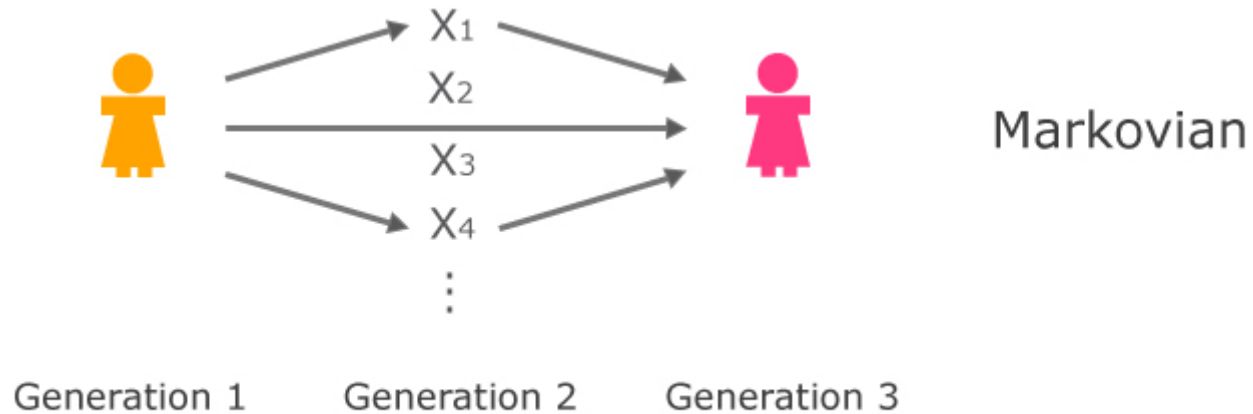
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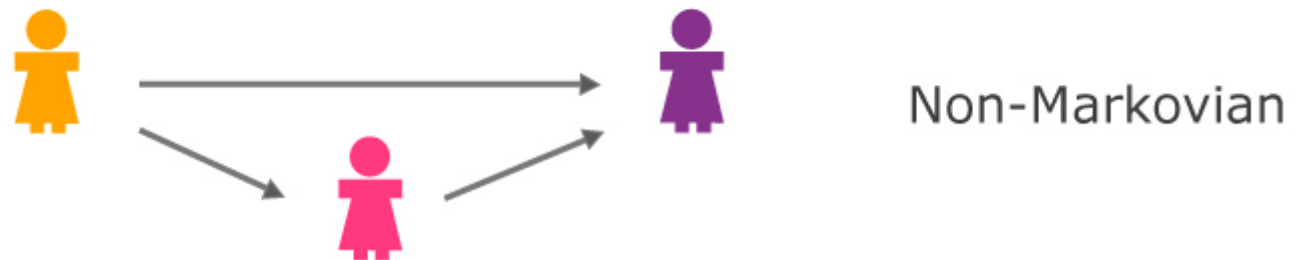
SIGNIFICANCE OF MULTIGENERATIONAL AND OTHER KIN EFFECTS

1. Need to go beyond “two-generation” paradigm
2. Changes in family and household arrangements; and possibly in relevant kin for mobility studies
3. Rising Inequality – How will extreme advantage be transmitted?
4. How much continuity and discontinuity of family position
5. Cumulative advantage, family trajectories
6. Heterogeneity of models – need big sample
7. Cross-cutting issue: demography and mobility

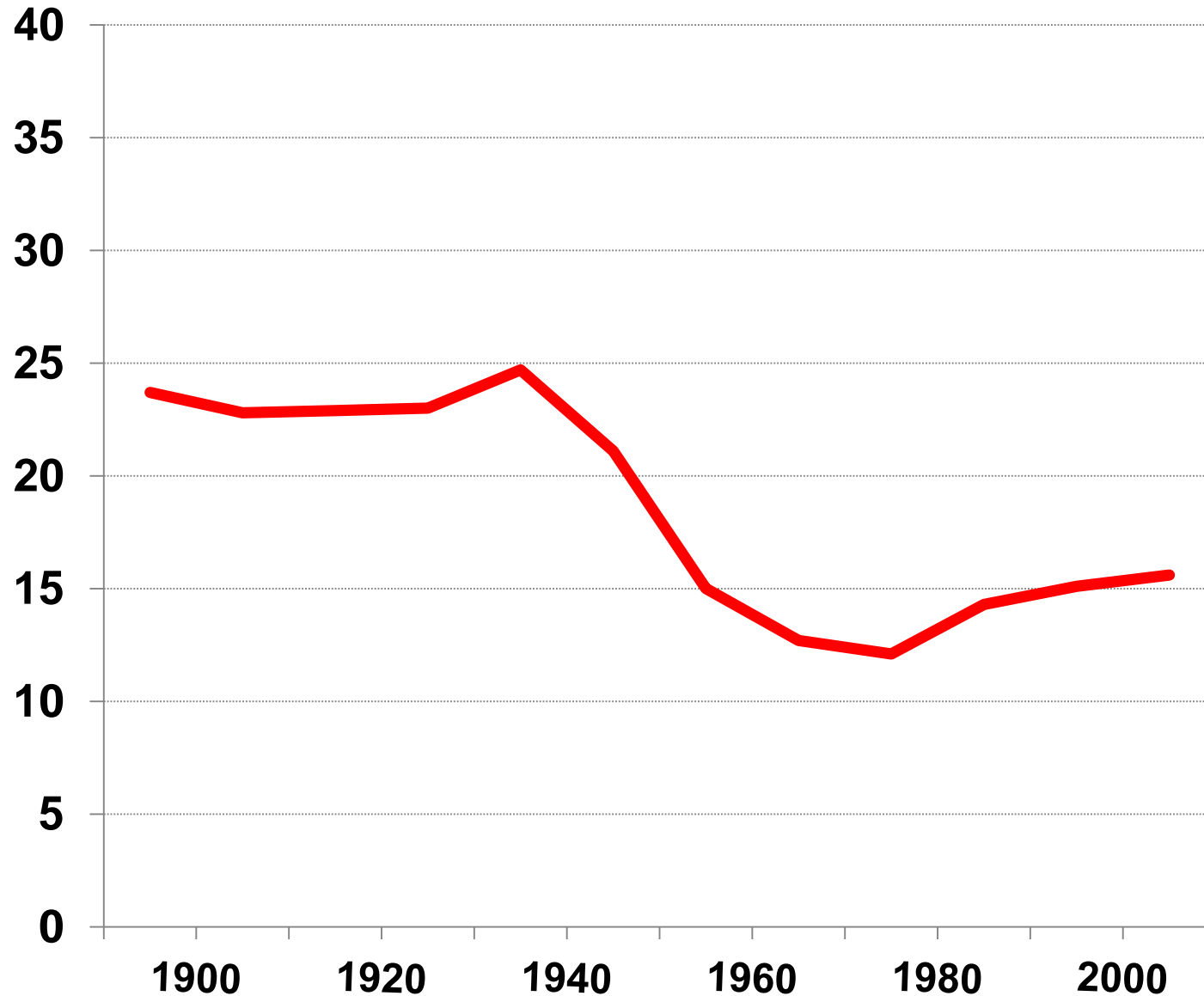
Intergenerational and Multigenerational Effects



-  Class #1
-  Class #2
-  Class #3

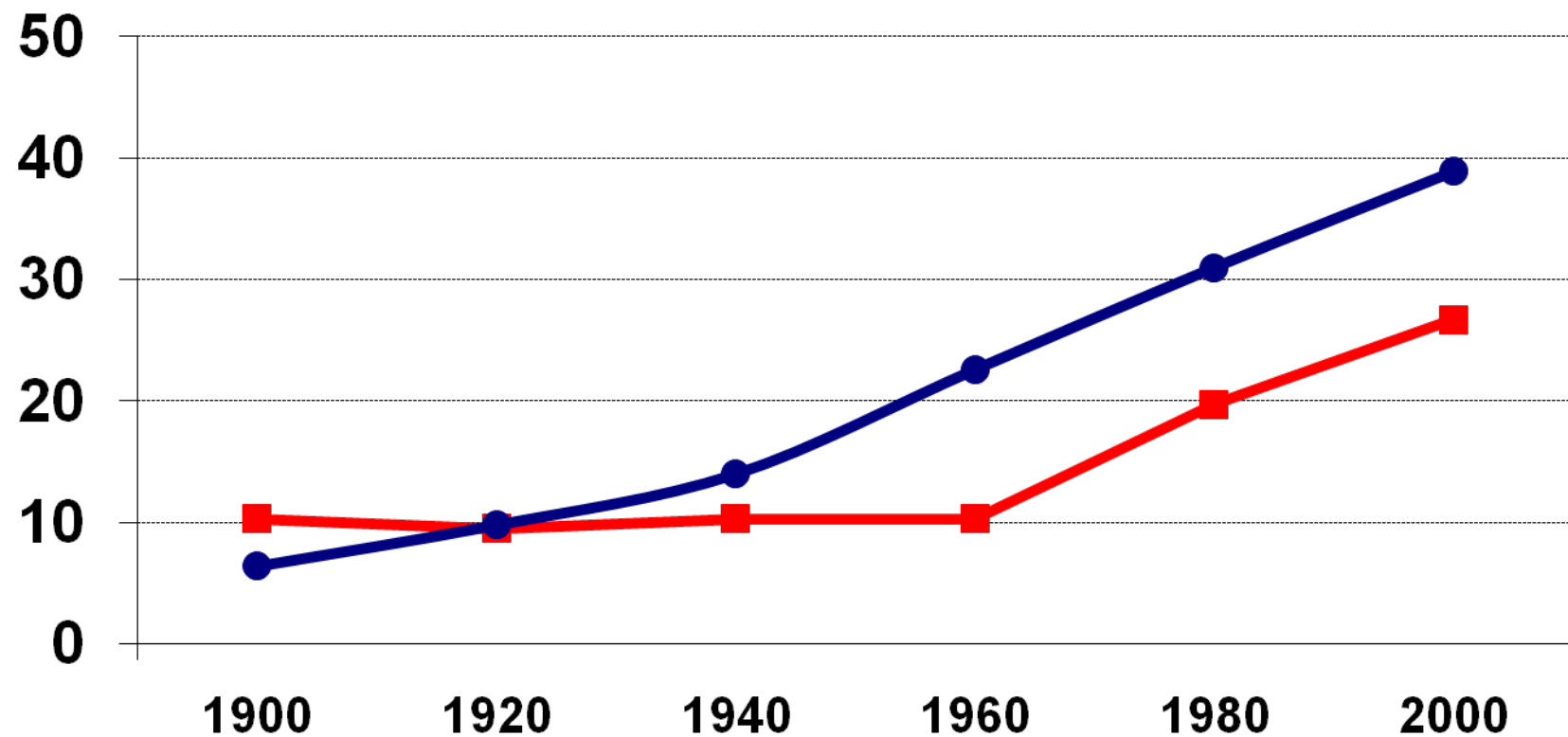


U.S. Population in Multigenerational Household (%)



Pew Research
Center, 2010,
Table 2

Children in Single Parent Households and Children with All Grandparents Alive (%), United States, 1900-2000



■ Living with One Parent ● All Grandparents Alive, Child Age 10

Sources: Peter Uhlenberg, "Mortality Decline in the Twentieth Century and Supply of Kin Over the Life Course." *The Gerontologist* 36, 5, 681-685, 1996. Selected IPUMS, CPS, 2000 Census

TYPES OF MULTIGENERATIONAL EFFECTS

“SHORT-TERM”

1. Grandparents
2. Great-Grandparents (and further back)
3. Demographic Effects
 - Differential Fertility, Marriage, Mobility
 - Grandparent Effects on Fertility, Marriage

“LONG-TERM”

Implications of Long Run Effects on Distributions of Descendants based on Short-Term Patterns.

RELATED ISSUES

- Co-Residential vs. Non-Co-Residential Kin
 - e.g., Absent Fathers
- Kin Availability
 - Who can help?
 - Grandparents (4), Aunts & Uncles, (Older) Sibs
 - Complements and substitutes
- Kin & Household Rosters
 - Who's there? Who's not?
 - Key life stages
 - Look at NSFH rosters
- Non-Kin Networks (Teachers, Neighbors, Clergy, Co-Workers)
- Endogeneity of Networks (Geographic + Social Mobility)

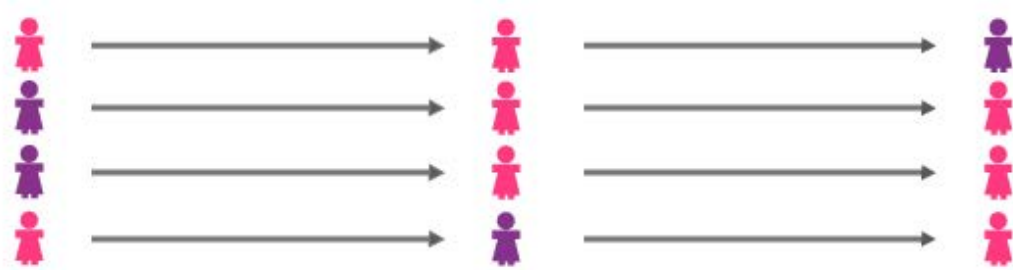
COUNTING AND MEASURING GRANDPARENTS



1. Retrospective reporting
2. Cousins
3. G2 Design (Retrospective + Prospective)
4. Names, Locations, Dates, Record Linkage

RECOMMENDATION:

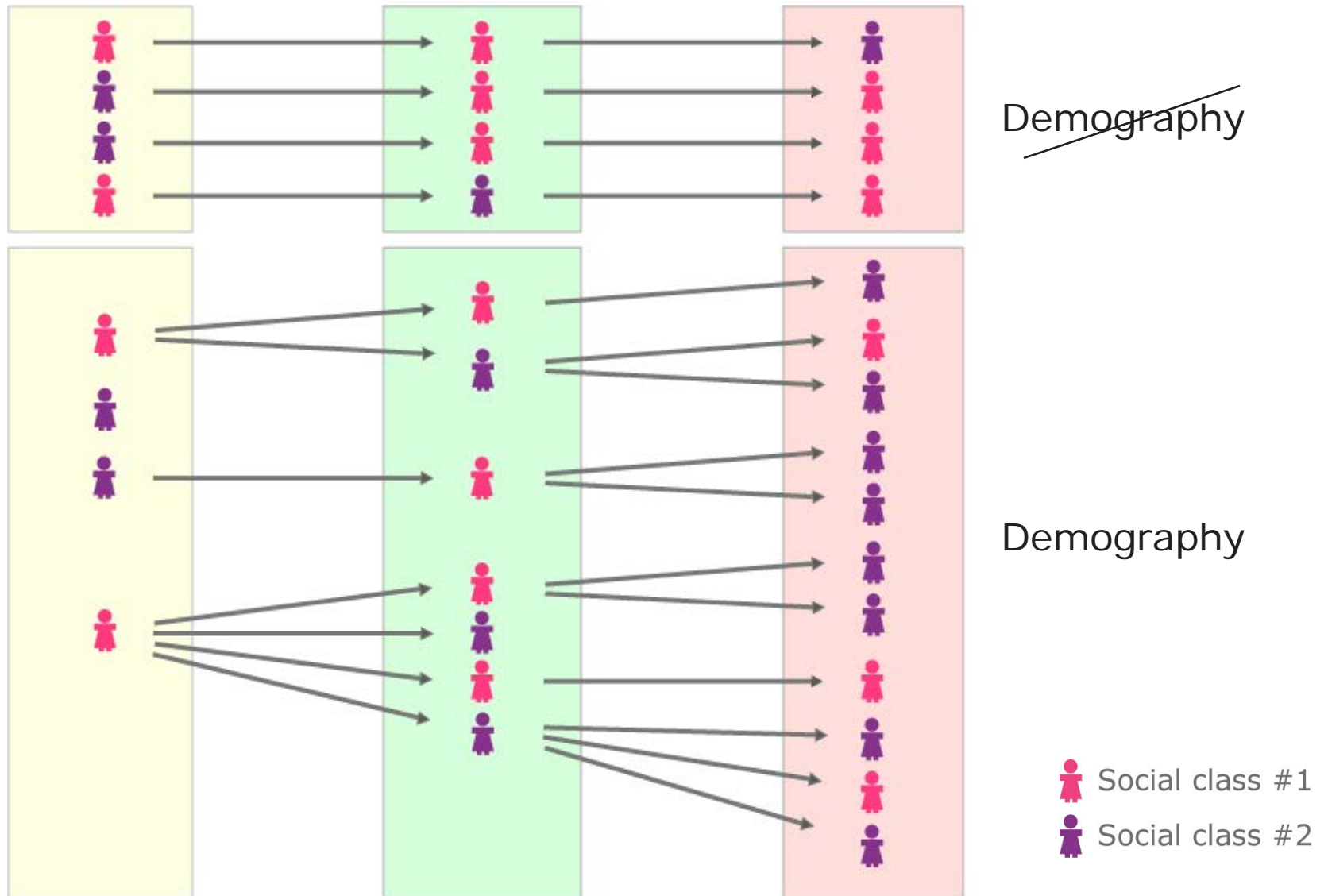
- Pilot a combination of #3 and #4

Intergenerational Effects With and Without Demography



 Social class #1
 Social class #2

Intergenerational Effects With and Without Demography



R. MARE & X. SONG MULTIGENERATIONAL RESEARCH

- Historical China, China Multigenerational Panel Data from Liaoning and Qing Dynasty
 - J. Lee and C. Campbell
 - Register and Lineage Data, Up to 12 Generations
 - Occupational Attainment
 - One-Sex (Patriarchal) Models
- U.S.A., PSID
 - Up to Four Generations
 - College Graduation
 - Two-Sex Models

ONE-SEX MODEL (Mare & Song 2012)

$$S_{k|j} = F_j \cdot m_j \cdot (r_j/m_j) \cdot p_{k|j}$$

S and F denote number of men in successive generations

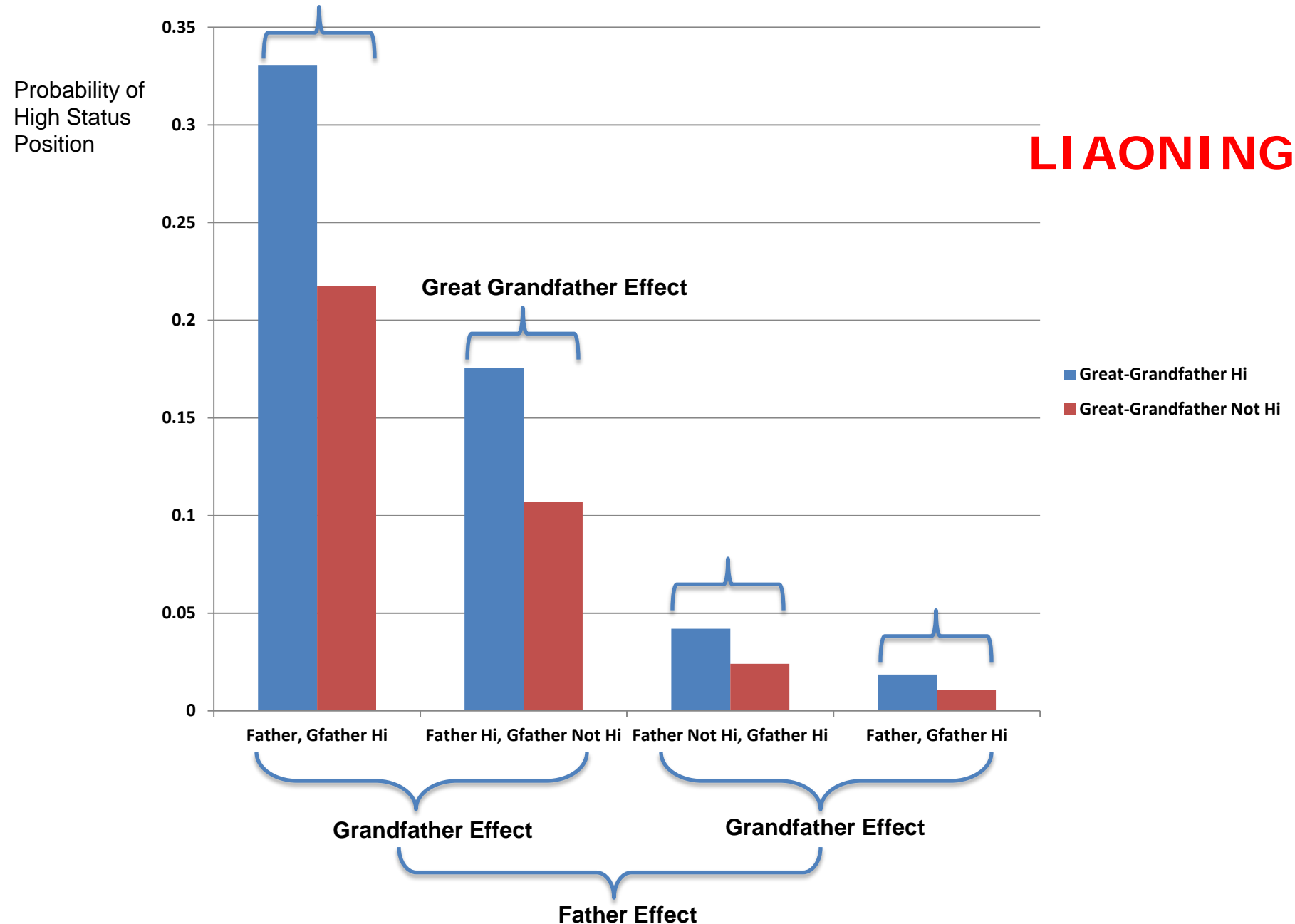
Marriages: $m_{ij} = L(\text{position, father's position, etc.; \# of high status ancestors; generation})$

Sons (per wife): $r_{ij} = H(\text{position, father's position, etc.; \# of high status ancestors; generation})$

Social Mobility: $p_{ijk} = G(\text{father's position, grandfather's position, etc.; \# of high status ancestors; generation})$

Effect of whether man is in j^{th} position on # of sons in k^{th} position =
(effect of j^{th} position on # of marriages) •
(effect of j^{th} position on # of sons per marriage) •
(effect of father in j^{th} position on prob. son in k^{th} position)

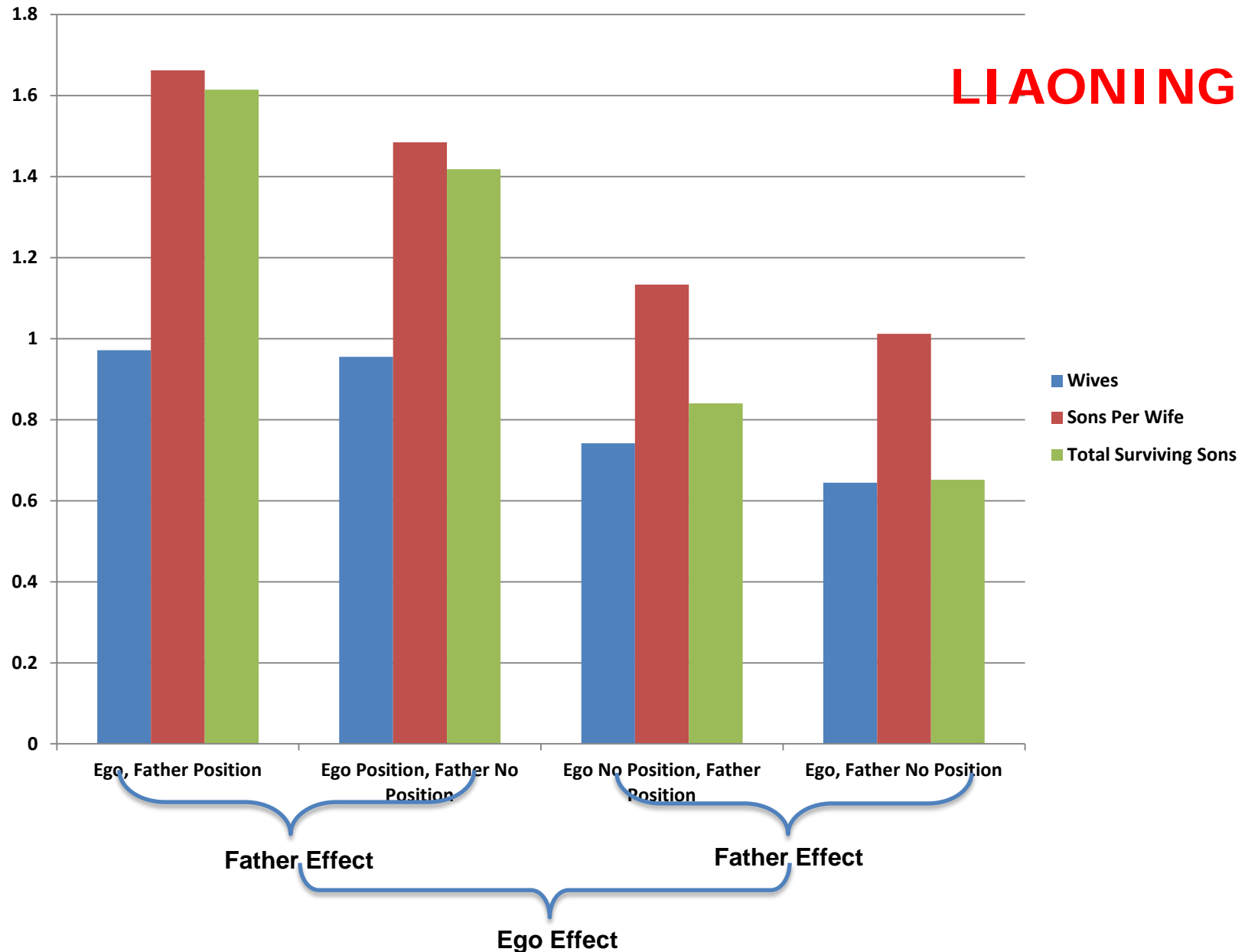
LIAONING



Probability of High Status Position by Father's, Grandfather's, and Great Grandfather's Positions, 3rd Order Mobility, 2nd Order Marriage-Fertility Model

Number of Wives and Sons

LIAONING



Number of Wives and Sons by Ego's and Father's Positional Status, Liaoning, 3rd Order Mobility, 2nd Order Marriage-Fertility Model

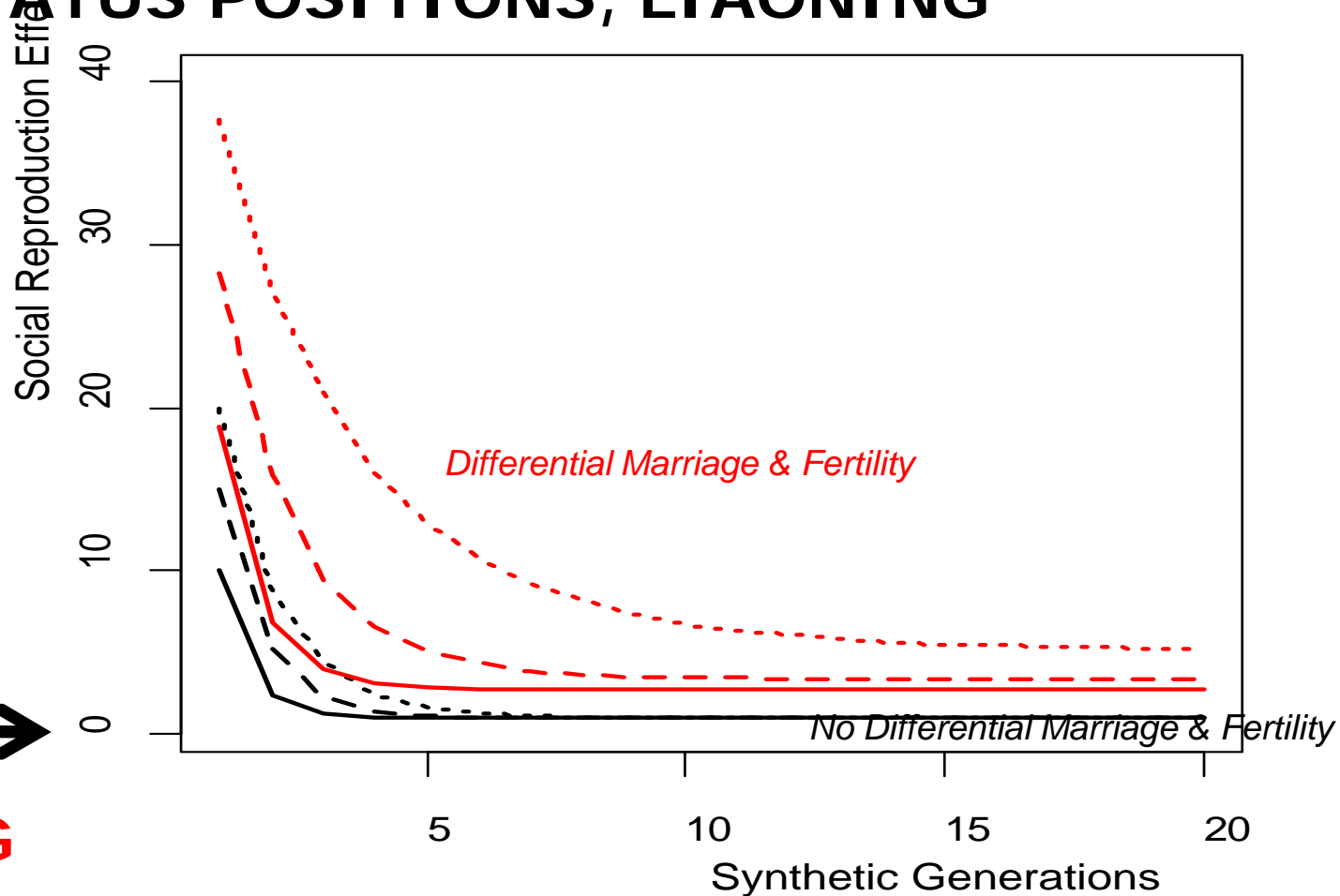
MULTIGENERATIONAL REPRODUCTION OF MEN IN HIGH STATUS POSITIONS, LIAONING

Long-term effect =
High-status progeny
per high-status man /
high-status progeny
per low-status man

No effect
ratio = 1



LIAONING



—	1st-order P + eq M, R	—	1st-order P + diff M, R
- - -	2nd-order P + eq M, R	- - -	2nd-order P + diff M, R
.....	3rd-order P + eq M, R	3rd-order P + diff M, R

		Mobility			
Generations		Father	Grandfather	Great Grandfather+	Unspecified Remote
Net Fertility	None (Assumed)	Standard 2-Generation Mobility Studies	Chan-Boliver, Zeng-Xie, Warren-Hauser, etc.		
	Ego	Mare-Maralani, Preston, Matras, Lam, etc.			
	Father			(Qing)	(Qing)
	Grandfather+			(Liaoning)	(Liaoning)
	Unspecified Remote			(Qing & Liaoning)	(Qing)

Taxonomy of Multigenerational Effects

TWO-SEX MODEL (Song & Mare 2013)

$$S_{k|ij} = \mu^{ij} \cdot r^{ij} \cdot p_{k|ij}$$

- **Marriage Rule** determines the number of marriages between males in group i and females in group j .

$$\mu^{ij} = L(\text{male's, female's, and all their parents' edu})$$

- **Reproduction Rule** determines the number of surviving children born to a pair of man in group i and woman in group j .

$$r^{ij} = H(\text{male's, female's, and all their parents' edu, etc.})$$

- **Mobility Rule** determines the educational attainment of the offspring from father in group i and mother in group j .

$$p_{k|ij} = G(\text{father's, mother's, and all four grandparents' edu, etc.})$$

Overall, the three rules transform one generation to the next.

$$(F^{t+1} \ M^{t+1}) = \phi(F^t \ M^t)$$

SHORT-TERM RESULTS FROM – PSID ANALYSIS OF COLLEGE COMPLETION

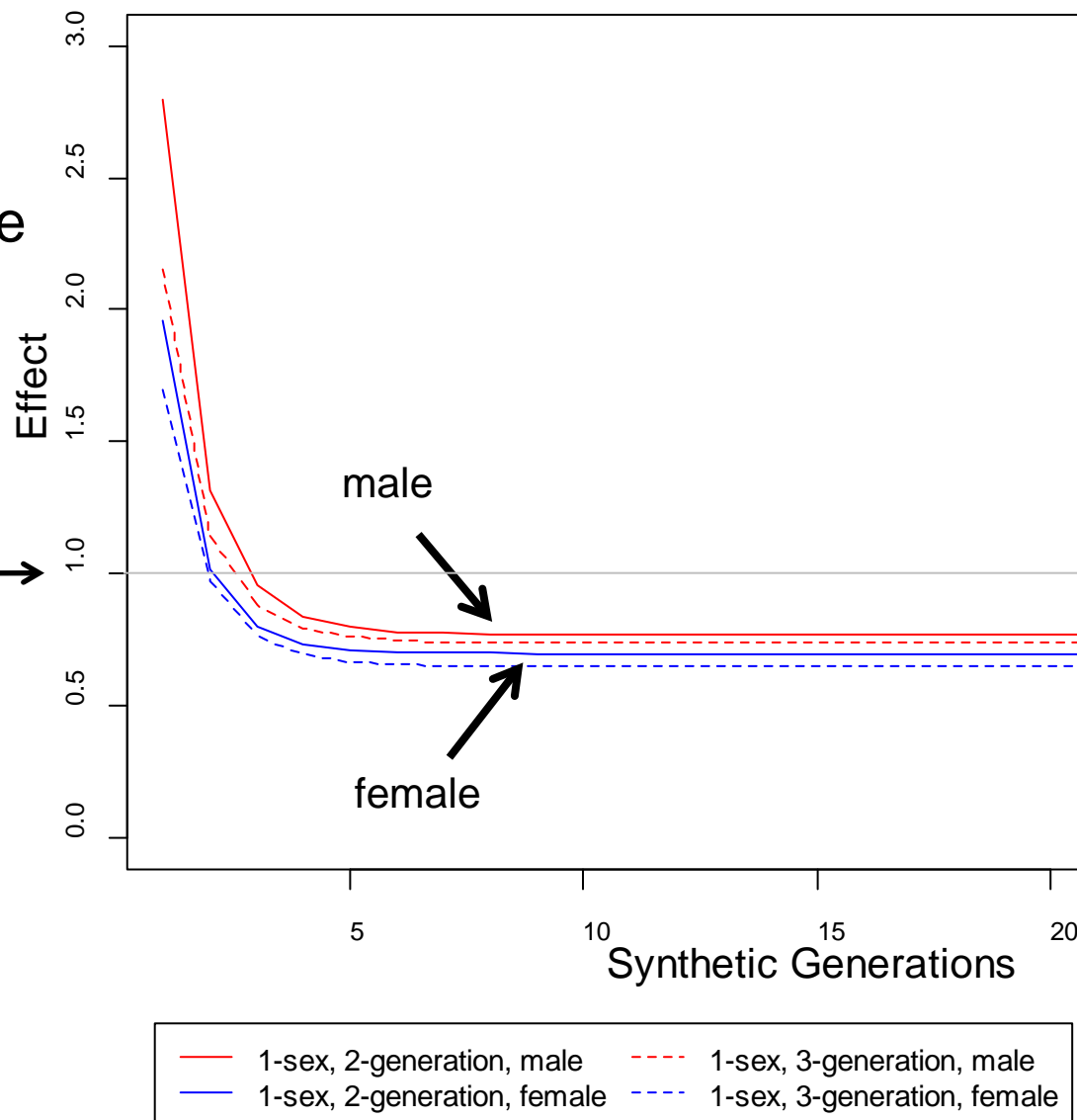
	Marriage		Fertility		Mobility	
	1-sex	2-sex	1-sex	2-sex	1-sex	2-sex
Two-generation						<i>F, M</i>
Three-generation		<i>F, M, All four GP</i>		<i>F, M, Paternal GM</i>		

MULTIGENERATIONAL REPRODUCTION OF MEN IN COLLEGE EDUCATION, *PSID*

Long-term effect =
college progeny per
college family / college
progeny per non-
college family

No effect →
ratio = 1

**One-Sex Model,
PSID**

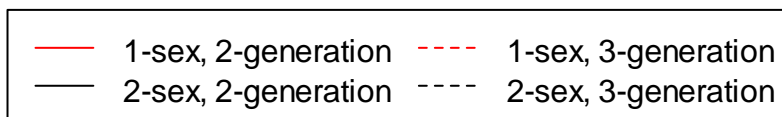
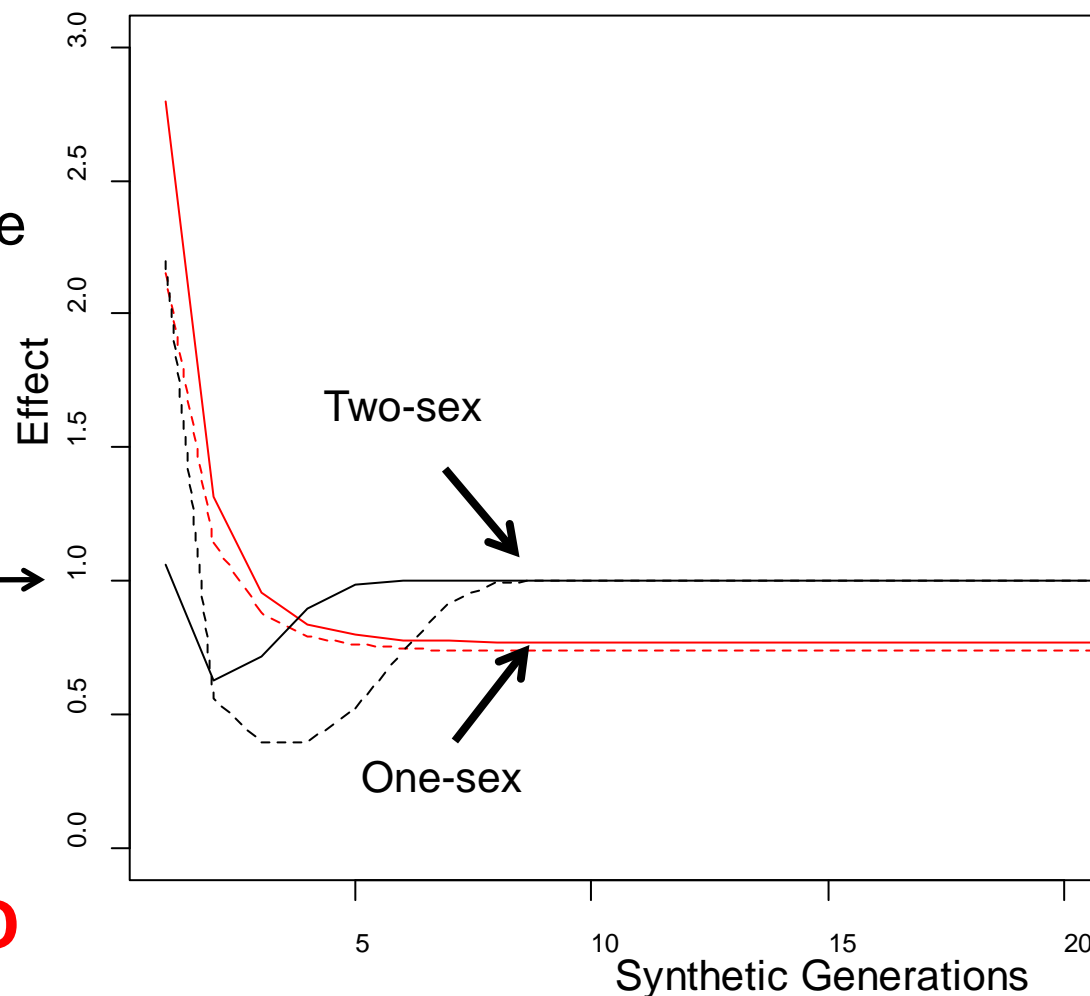


MULTIGENERATIONAL REPRODUCTION OF RESPONDENTS IN COLLEGE EDUCATION, *PSID*

Long-term effect =
college progeny per
college family / college
progeny per non-
college family

No effect
ratio = 1

**One- and Two-
Sex Models, PSID**



TAXONOMY OF MULTIGENERATIONAL EFFECTS

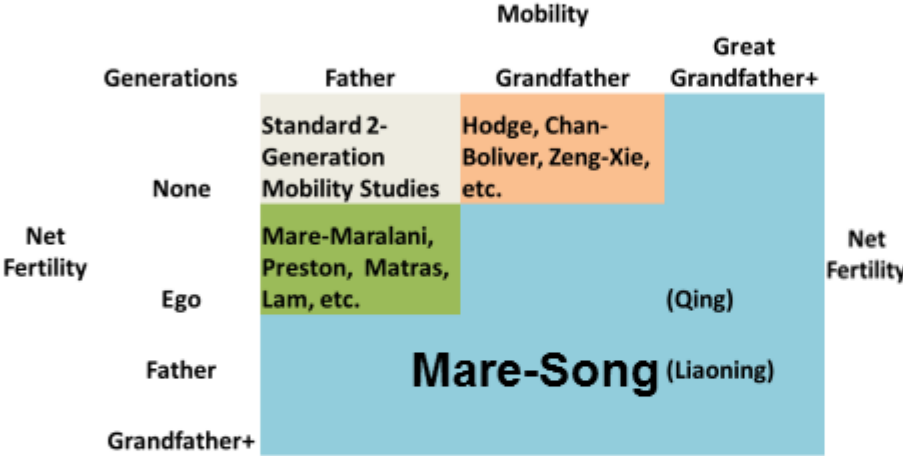
Marriage Market

One-sex

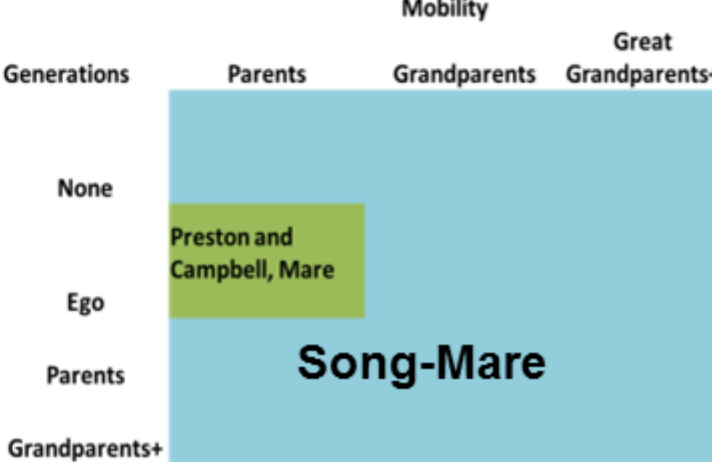
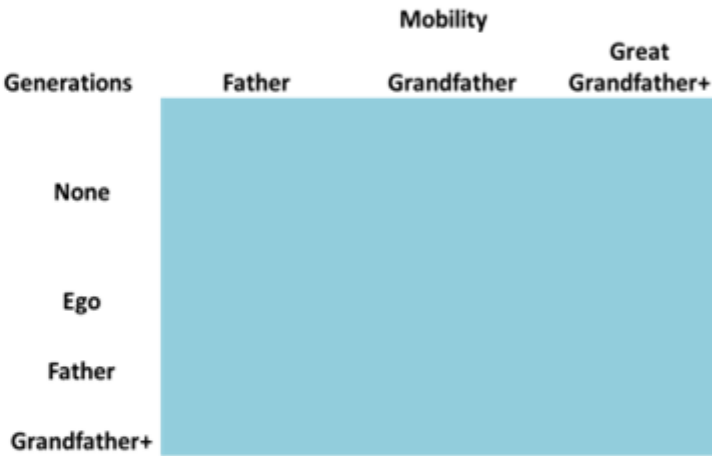
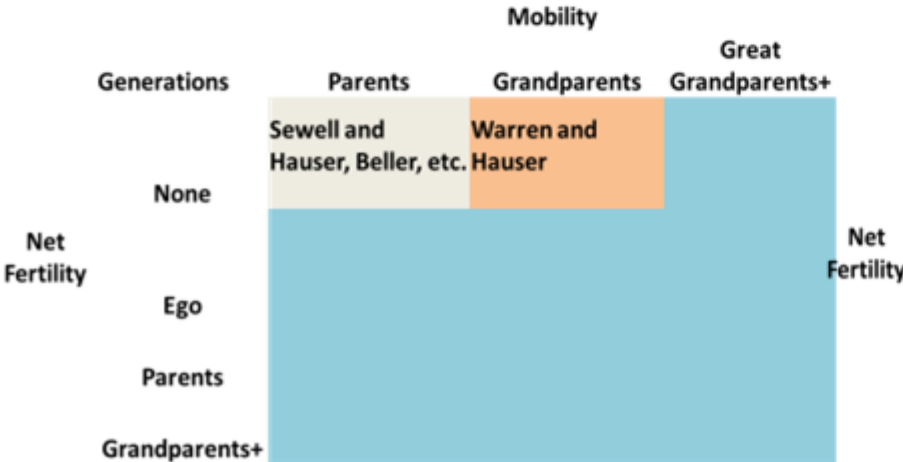
Two-sex

Mobility

One-
sex



Two-
sex



Song-Mare