

MEASURING NETWORKS BEYOND THE ORIGIN FAMILY

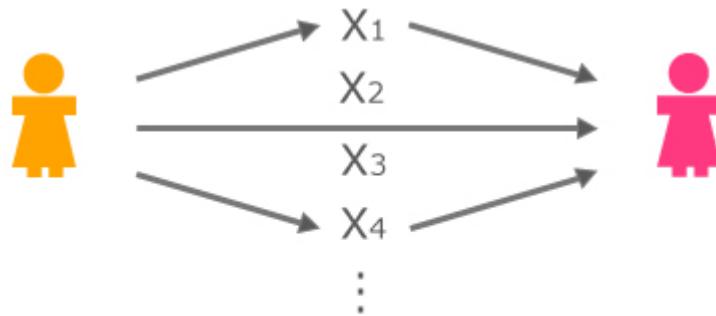
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Robert D. Mare
University of California – Los Angeles

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

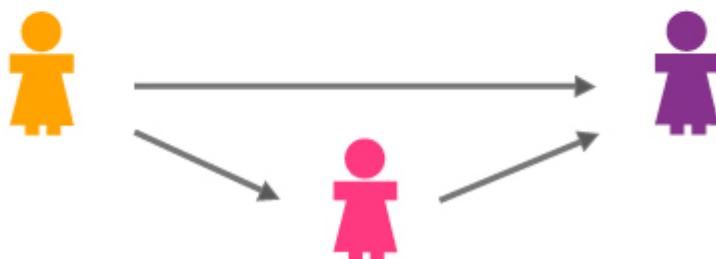


Generation 1 Generation 2 Generation 3

Markovian



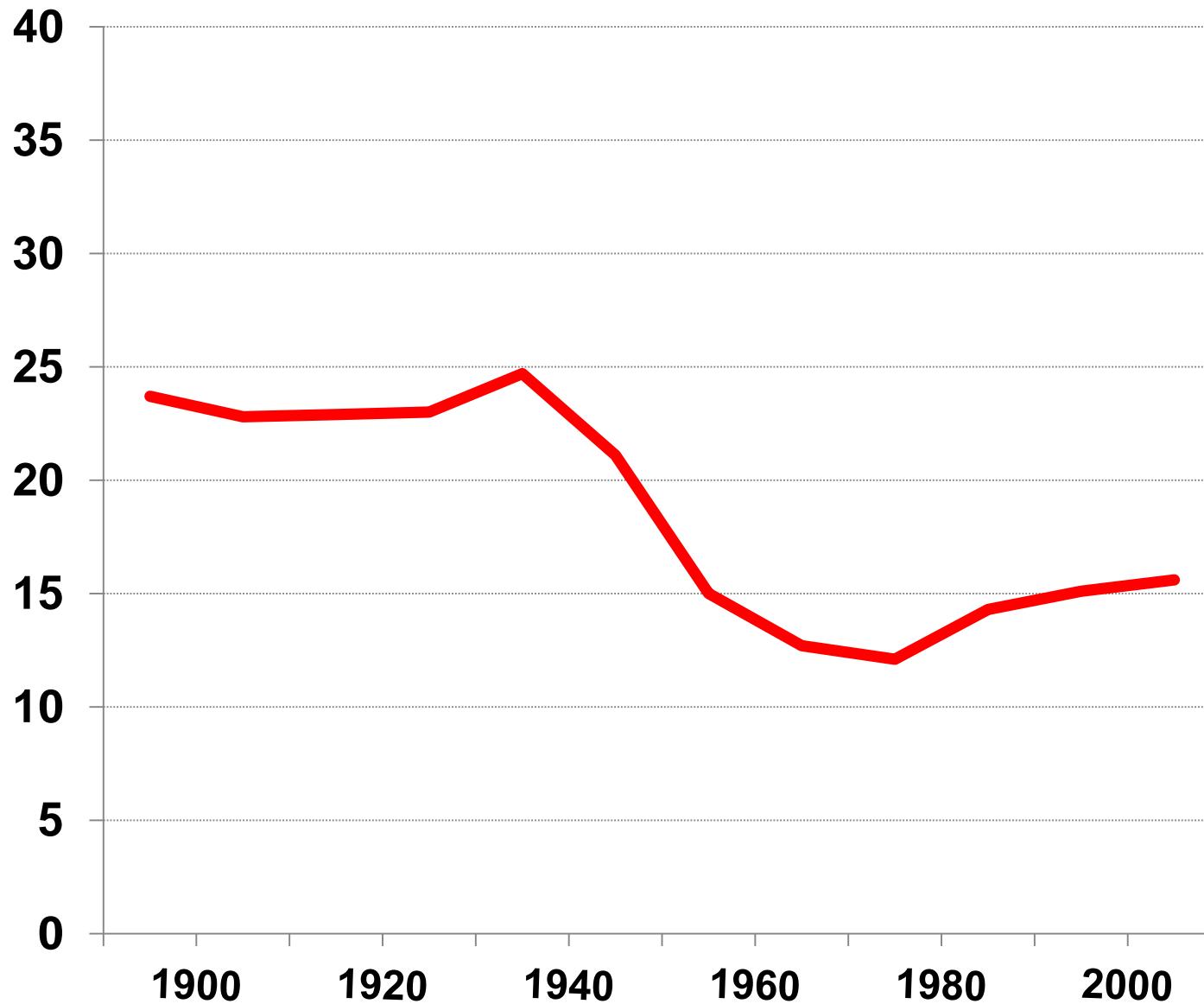
Markovian



Non-Markovian

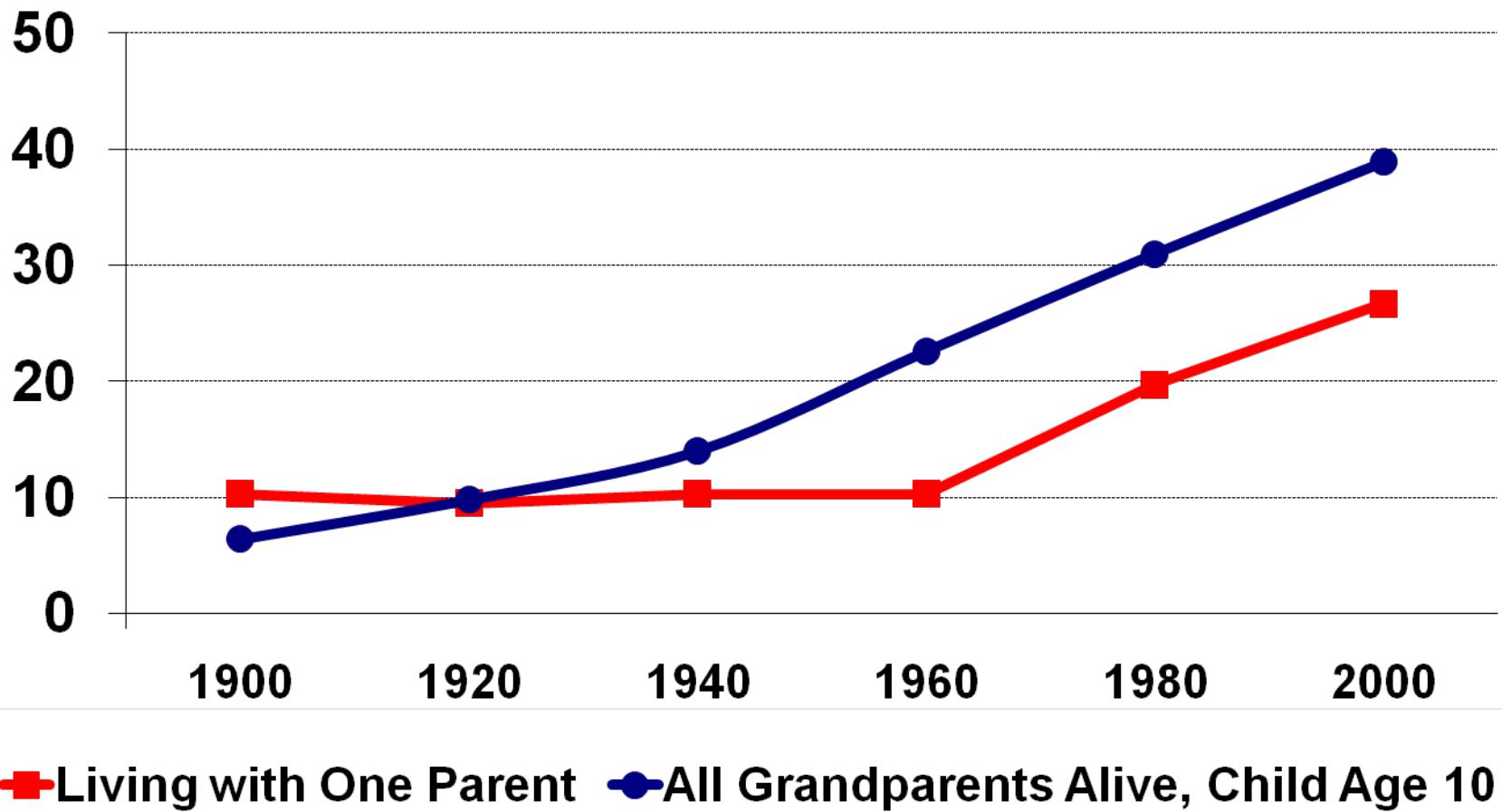
- Class #1
- Class #2
- Class #3

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



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)

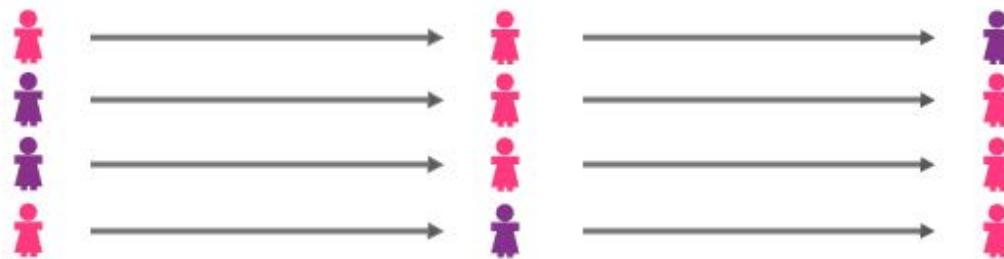
COUNTING AND MEASURING GRANDPARENTS

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

RECOMMENDATION:

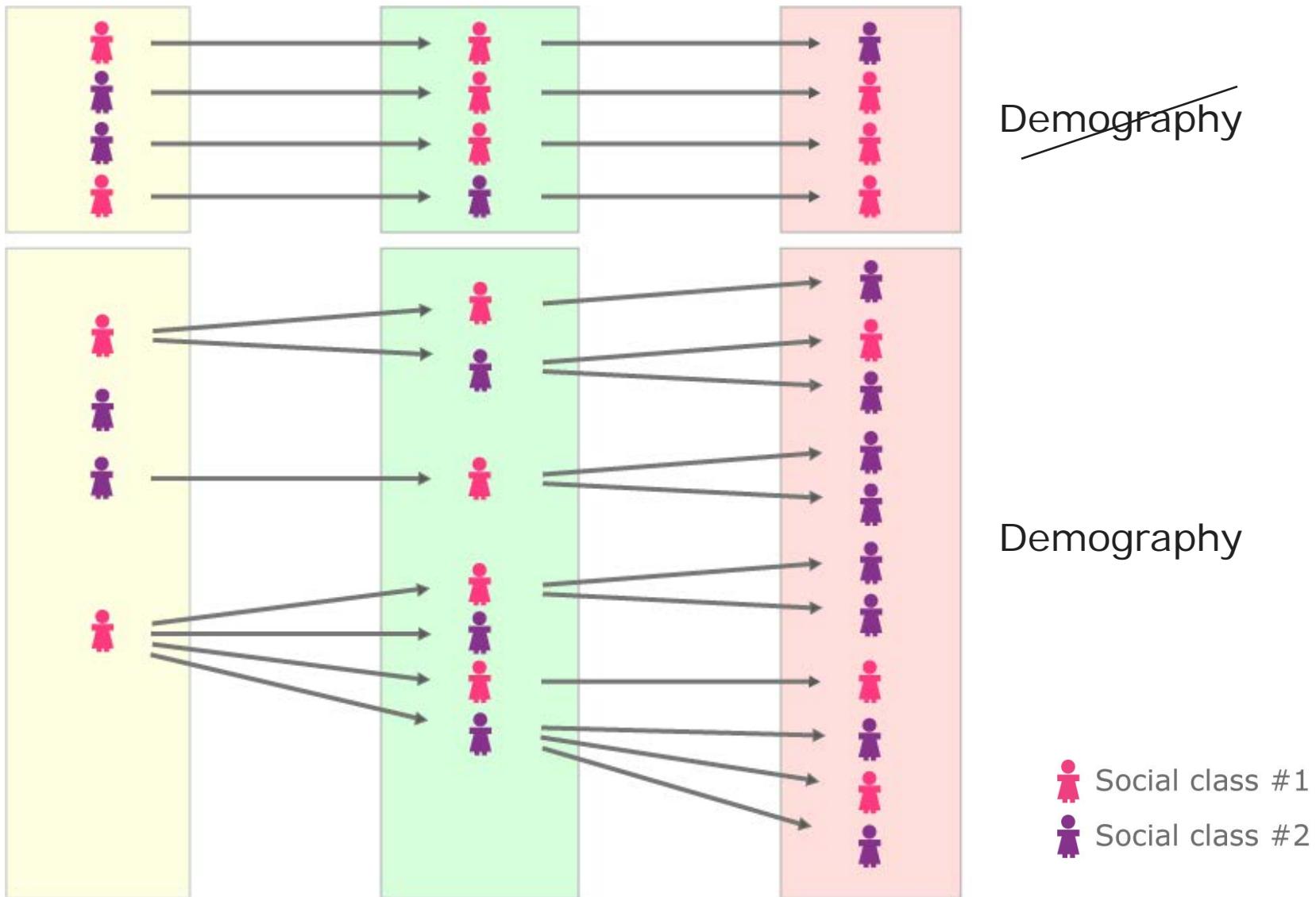
- Pilot a combination of #3 and #4

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)

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

S and F denote number of men in successive generations

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

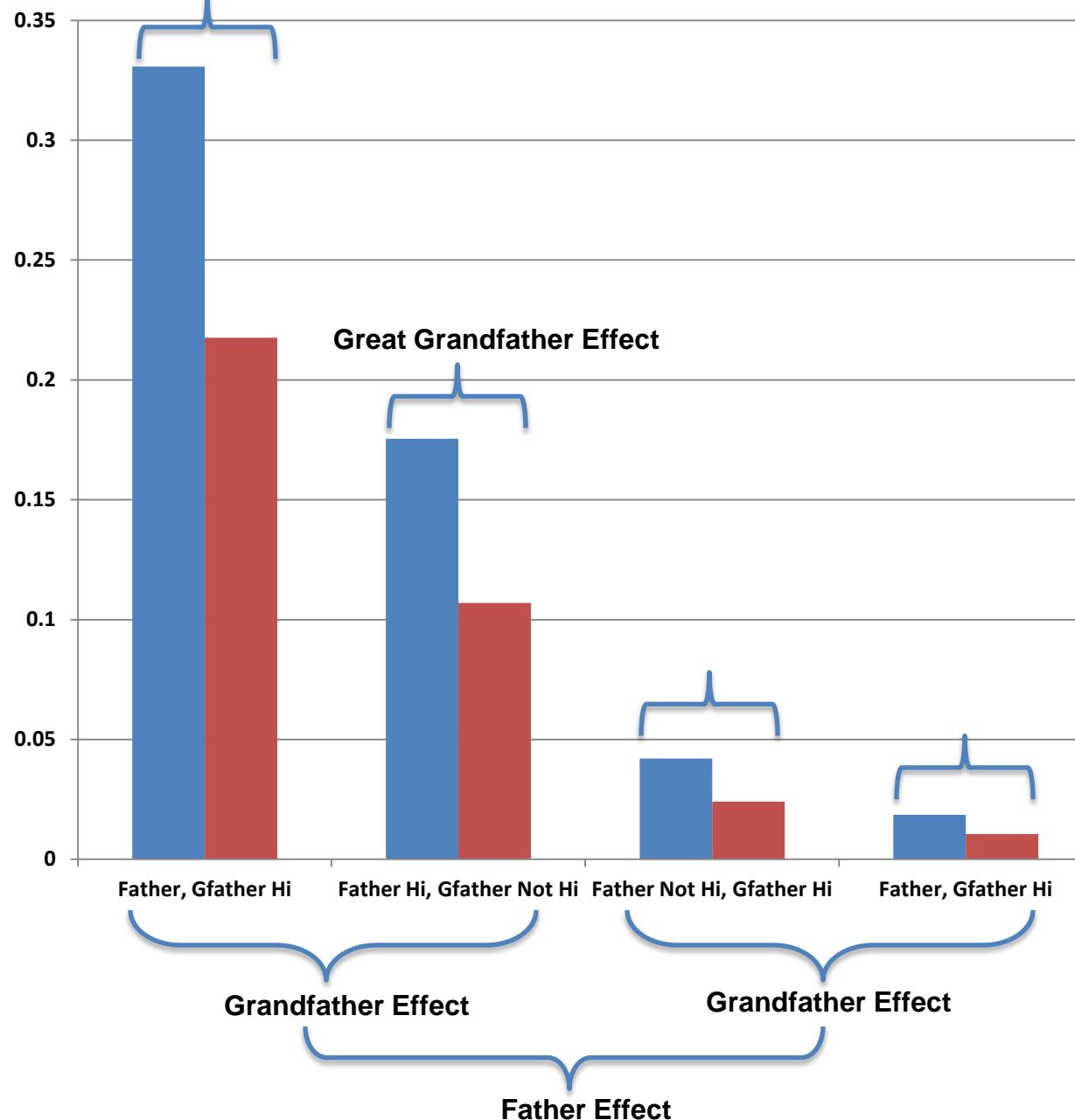
Sons (per wife): $r_{ij} = H(\text{position, father's position, etc.}; \# \text{ of high status ancestors}; \text{generation})$

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

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

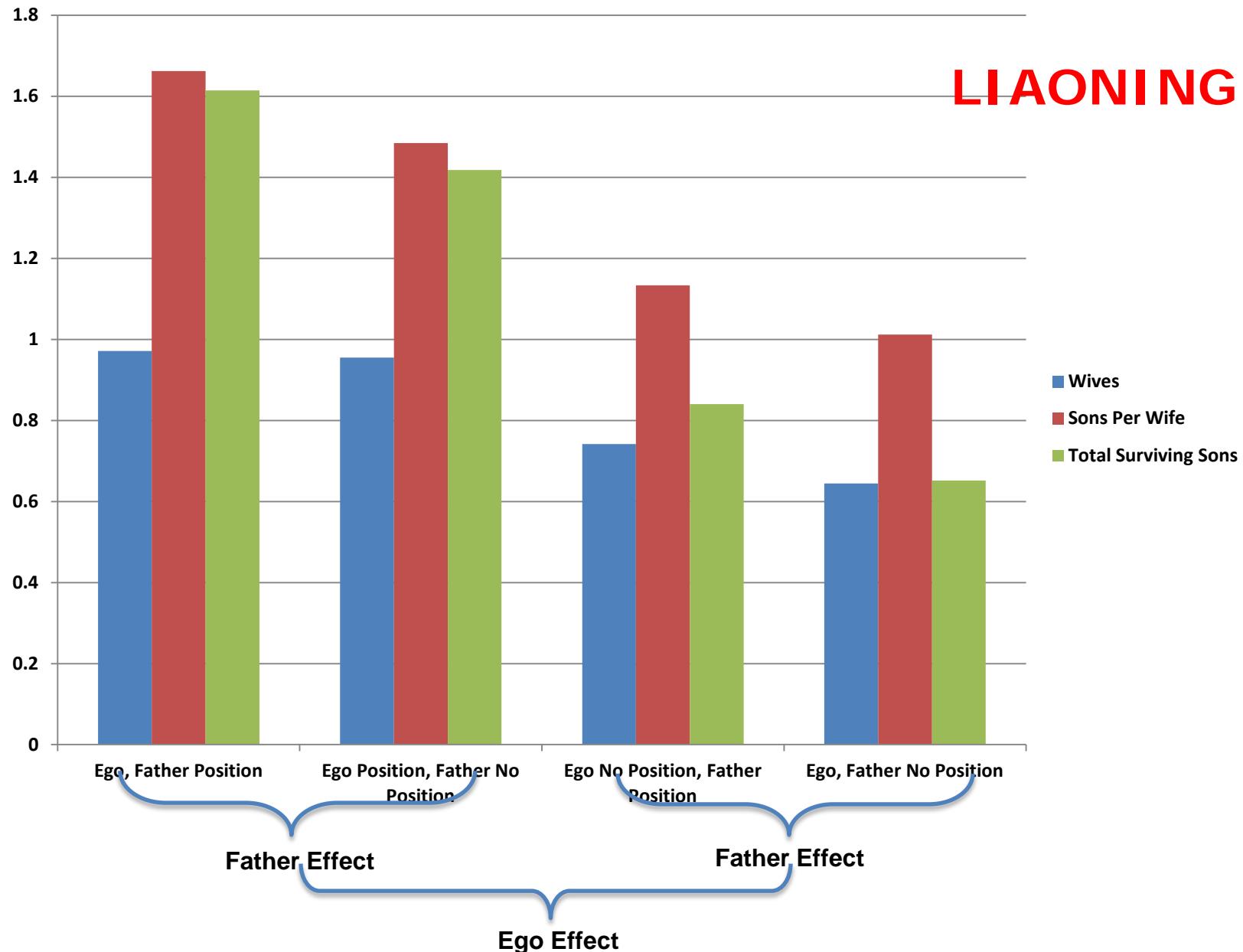
Probability of
High Status
Position



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

LIAONING

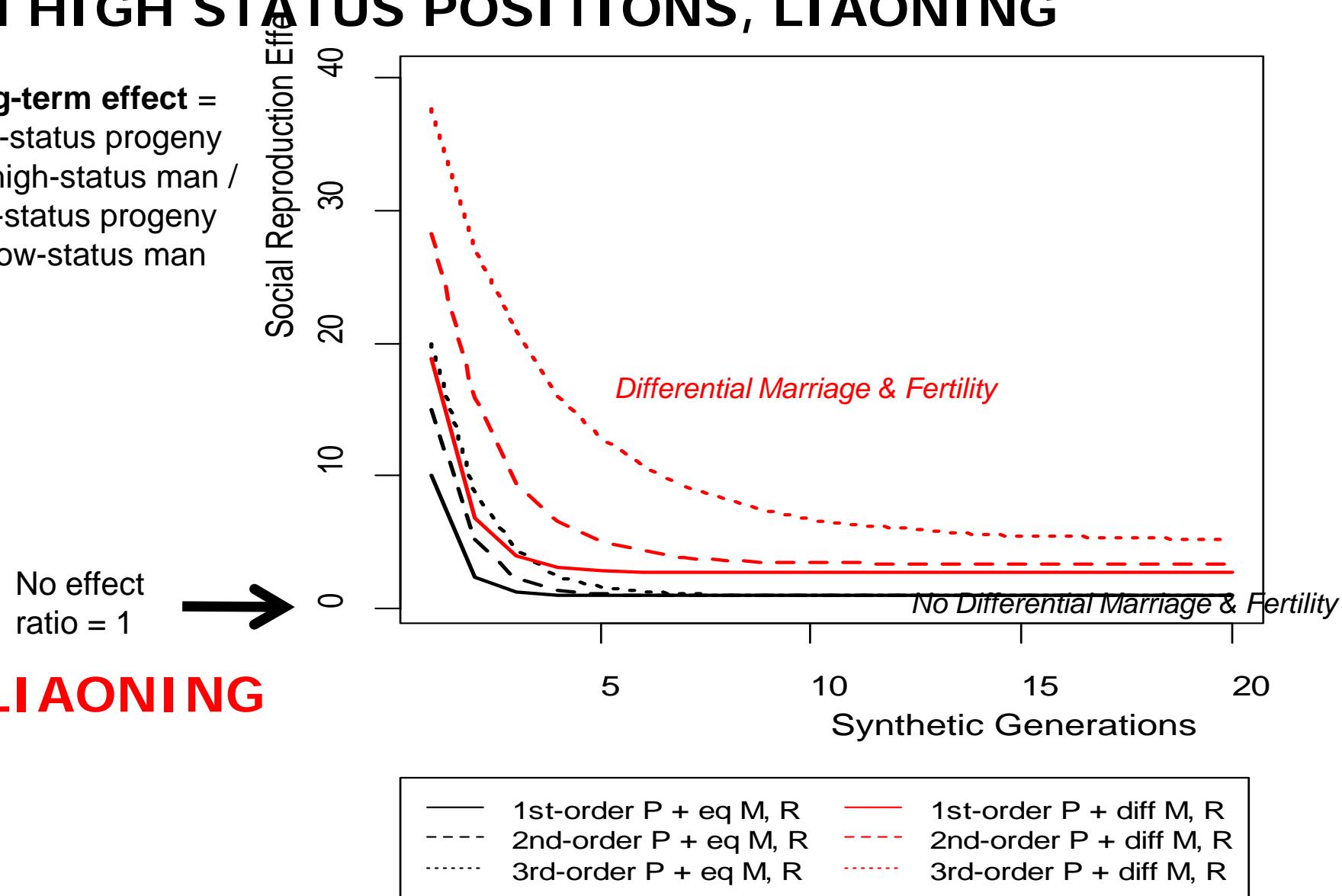
Number
of Wives
and Sons



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



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

Taxonomy of Multigenerational Effects

TWO-SEX MODEL (Song & Mare 2013)

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

- **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

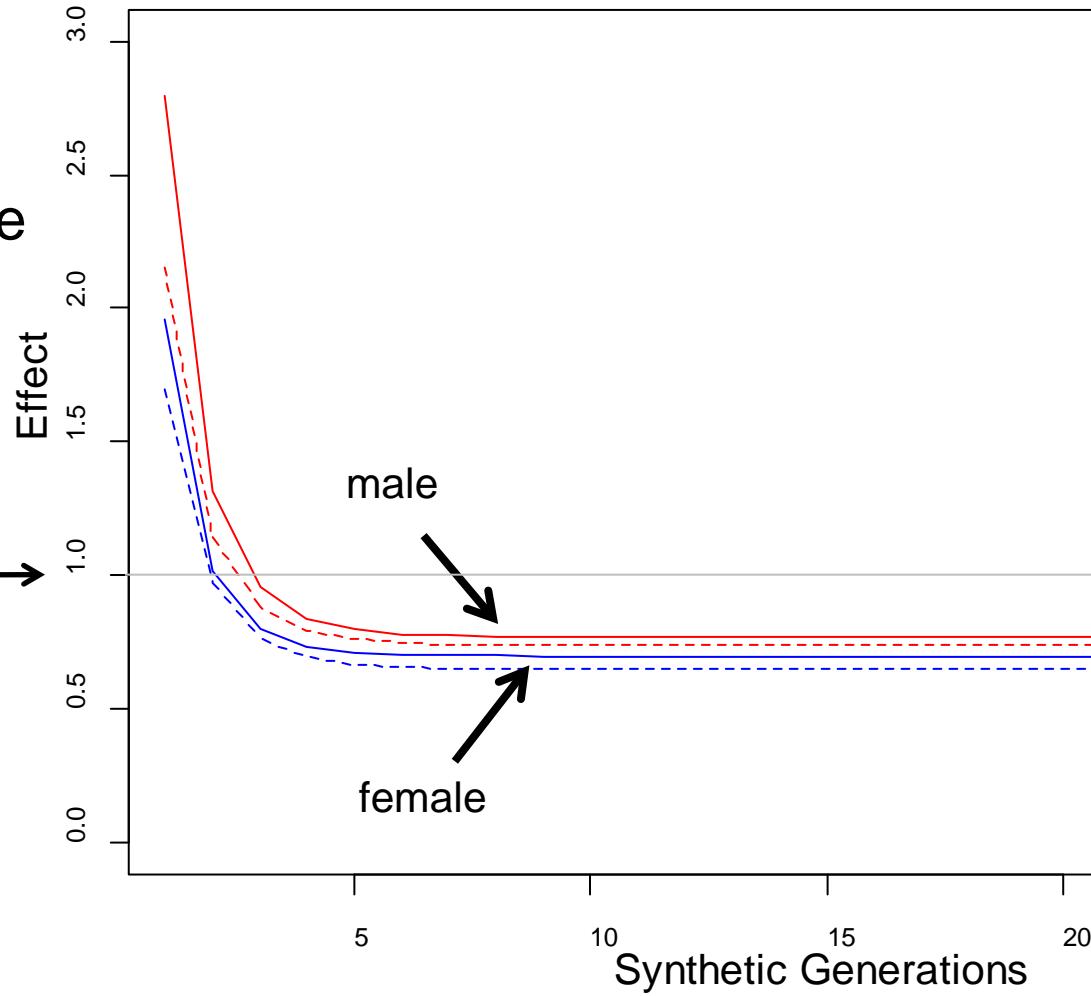
	Marriage		Fertility		Mobility	
	1-sex	2-sex	1-sex	2-sex	1-sex	2-sex
Two-generation						<i>F, M</i>
Three-generation		<i>F, M, All four GP</i>		<i>F, M, Paternal GM</i>		

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**



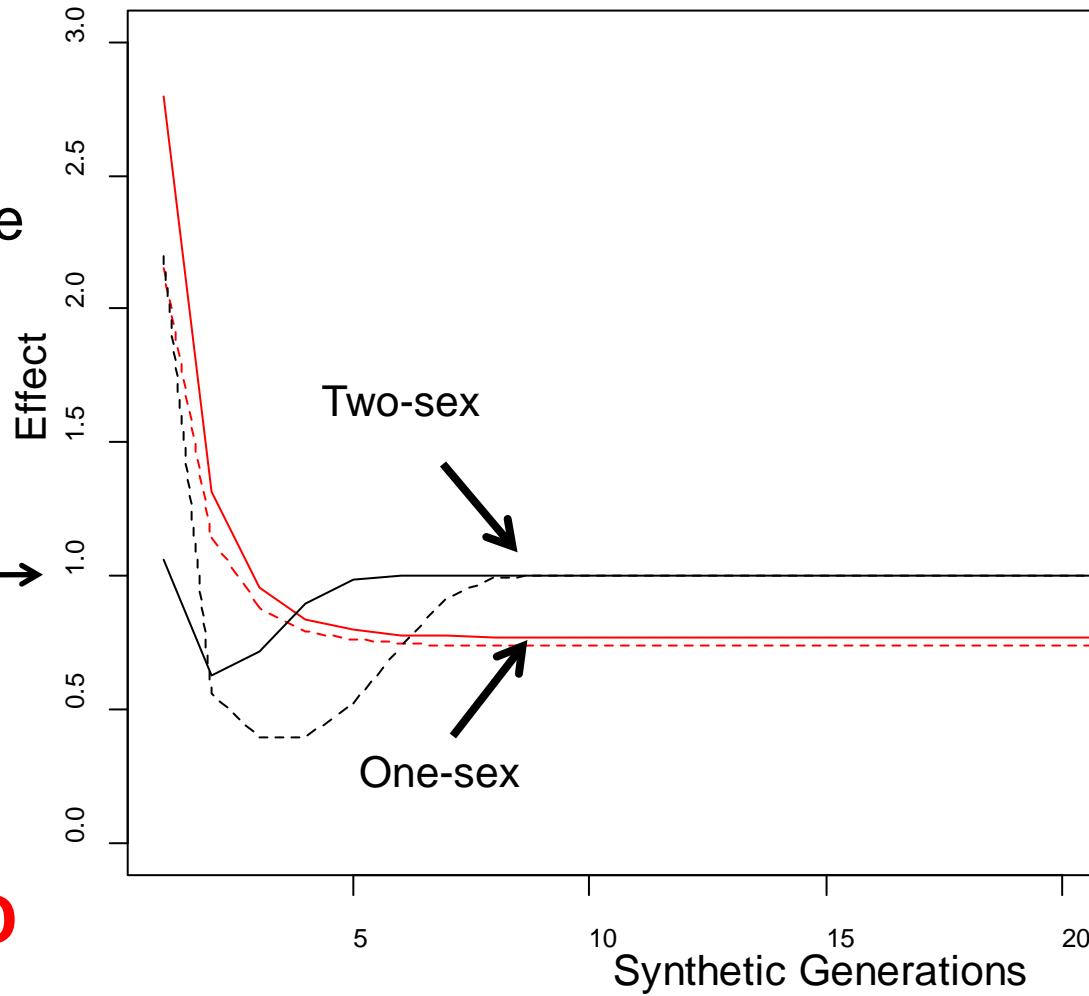
— 1-sex, 2-generation, male - - - 1-sex, 3-generation, male
— 1-sex, 2-generation, female - - - 1-sex, 3-generation, female

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



— 1-sex, 2-generation - - - 1-sex, 3-generation
— 2-sex, 2-generation - - - 2-sex, 3-generation

TAXONOMY OF MULTIGENERATIONAL EFFECTS

Marriage Market

Mobility

One-sex

Net Fertility

Generations	Mobility		
	Father	Grandfather	Great Grandfather+
None	Standard 2-Generation Mobility Studies	Hodge, Chan-Boliver, Zeng-Xie, etc.	
Ego	Mare-Maralani, Preston, Matras, Lam, etc.		(Qing)
Father		Mare-Song (Liaoning)	
Grandfather+			

One-sex

Two-sex

Generations	Mobility		
	Father	Grandfather	Great Grandfather+
None			
Net Fertility			
Ego			
Father			
Grandfather+			

Two-sex

Net Fertility

Generations	Mobility		
	Parents	Grandparents	Great Grandparents+
None	Sewell and Hauser, Beller, etc.	Warren and Hauser	
Ego			
Parents			
Grandparents+			

Song-Mare

Generations	Mobility		
	Parents	Grandparents	Great Grandparents+
None			
Net Fertility			
Ego			
Parents			
Grandparents+			

Grandparents+