

Microsimulation and the Risk of Eviction among Family Members

Yi Wang, PhD Candidate in Public Affairs, University of Minnesota



UNIVERSITY OF MINNESOTA



Link to my personal webpage

Research Question

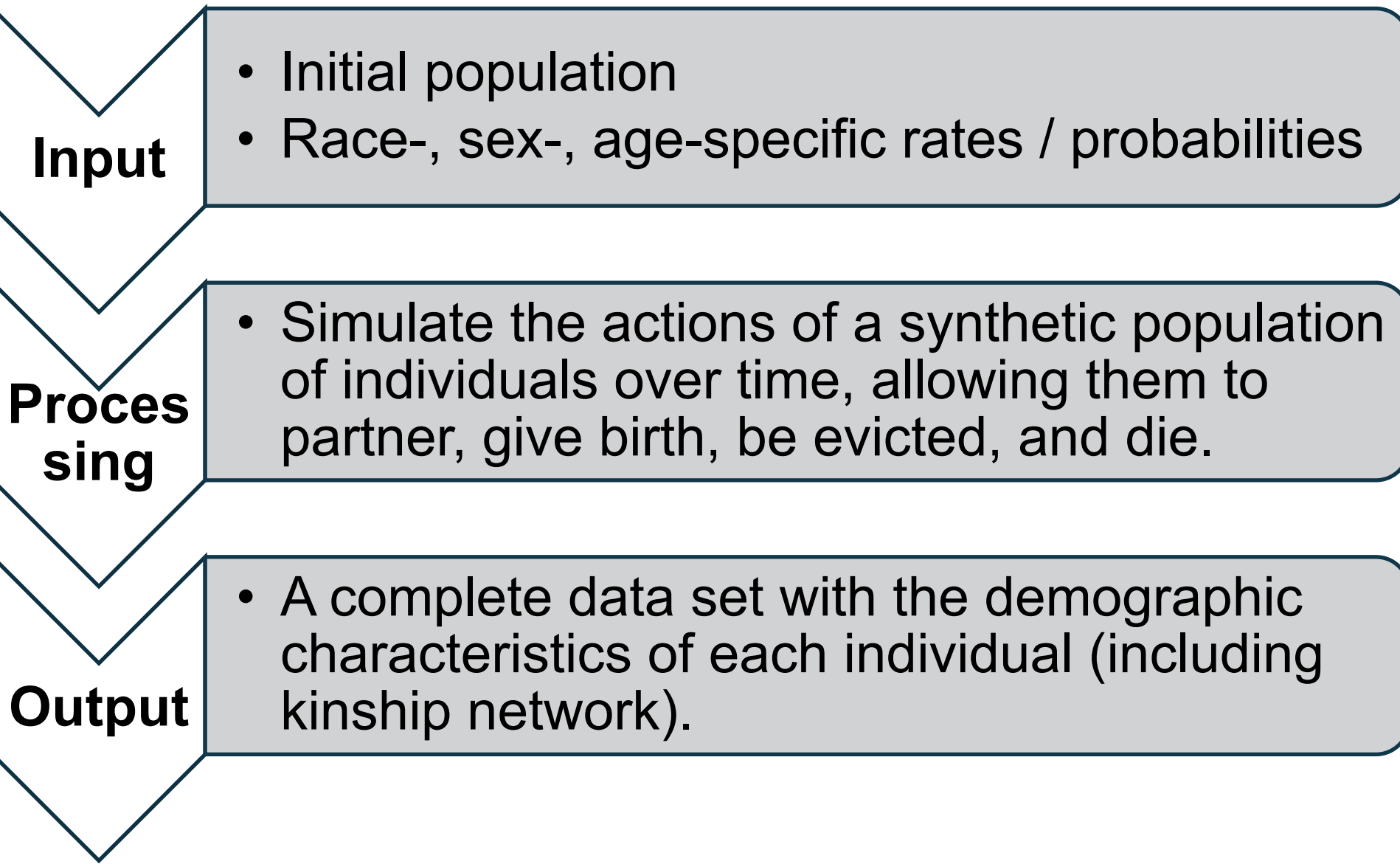
What are the risks of eviction among family members of black and white Americans?

Key Takeaways

- There are clear differences of magnitude in the black and white experiences of eviction among family members.
- For the 2000 cohort, the probability of parents/grandparents being evicted at age 2 for an average black individual is nearly 5 times higher than that for an average white individual.

Why Microsimulation?

- Information on family members are limited in housing surveys.
- The microsimulation approach allows us to infer people's lifetime trajectories of kinship and their experience related to kinship networks.



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Calibration of Input Rates

Input

Program used: SOCSIM

- Black and white populations were simulated separately.
- Initial population: 50,000 individuals in each group.

Simulation period: 1880-2019

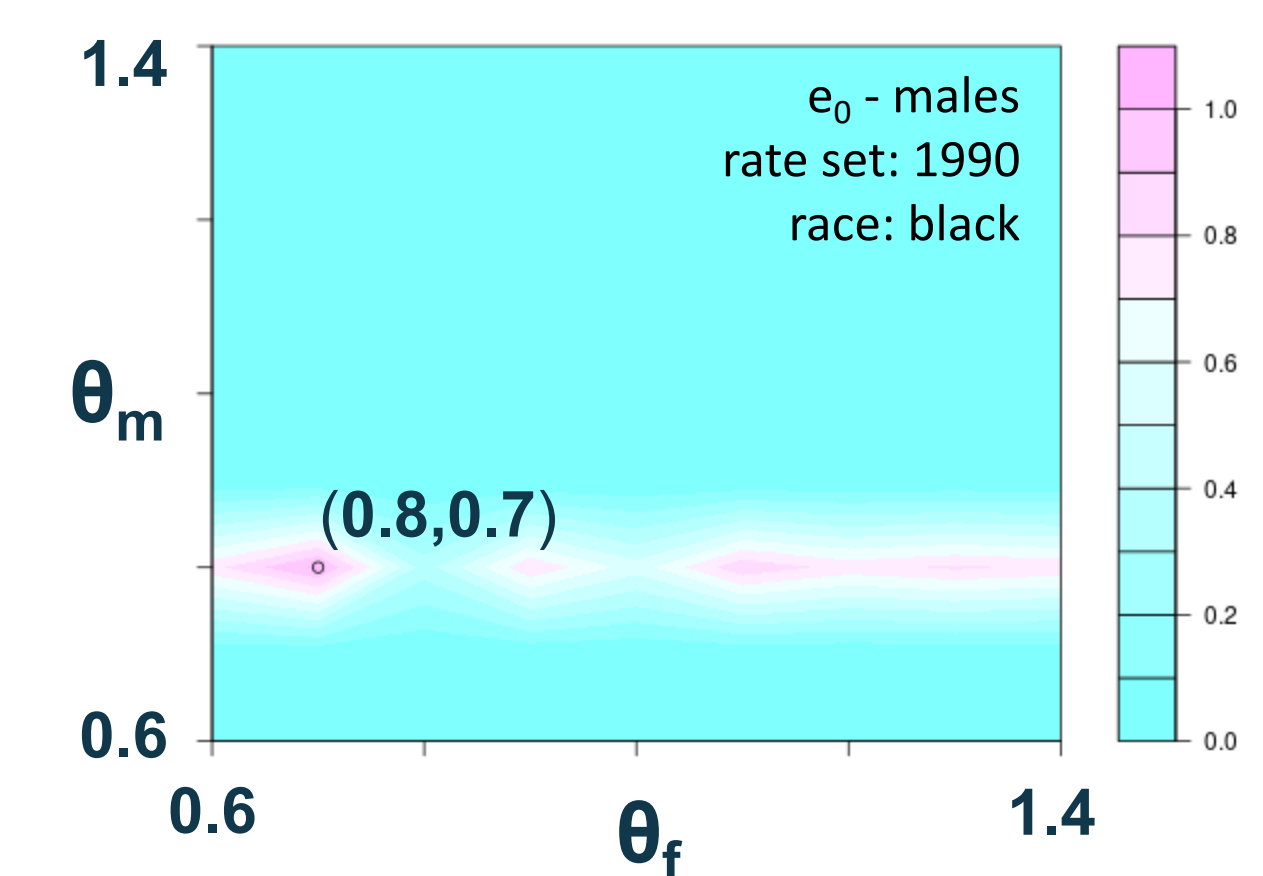
The simulation starts from 1880 to produce a population with a complete kinship structure.

Processing

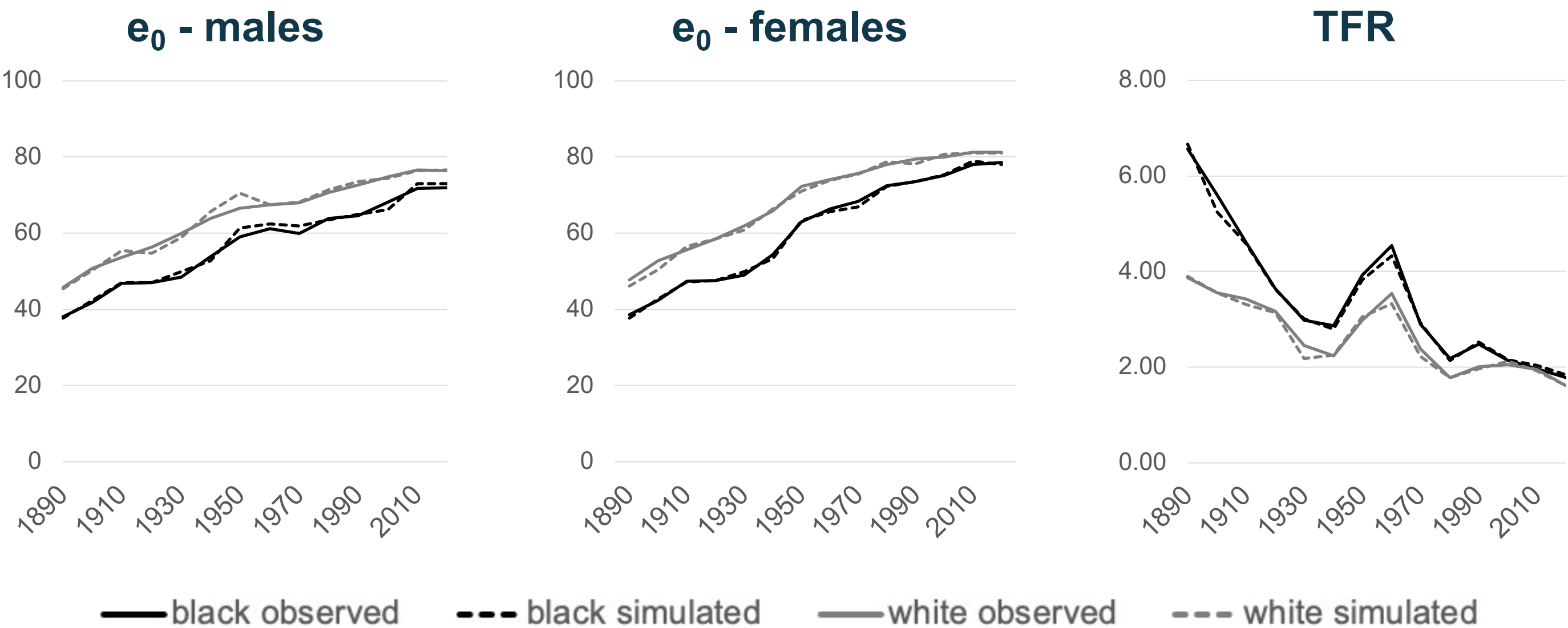
I calibrate the input rates against the known e_0 s and TFRs. Two scaling factors (θ_m , θ_f) multiplicatively adjust the levels of mortality and fertility inputs. The pair that generate the highest likelihood value is chosen as the final re-scaling parameter set.

	Year	Source
Initial population	1880	(Ruggles et al., 2021)
Life expectancy at birth (e_0)	1880-1949	(Haines, 2008)
	1950-2005	(NCHS, 2019)
	2006-2019	(NCHS, 2019)
	1880-1939	(Haines, 2008)
Total fertility rate (TFR)	1940-1979	(NCHS, 1999)
	1980-2015	(Martin et al., 2017)
	2016-2019	(Martin et al., 2021)
Mean age at marriage; Proportion married before 45	1880-2019	(Elliott et al., 2012)
Eviction filings	2000-2019	(Eviction Lab, 2018; Hepburn et al., 2020)
Total population; Average household size	2000-2019	(Ruggles et al., 2021)

Example of Estimated Likelihood Surface



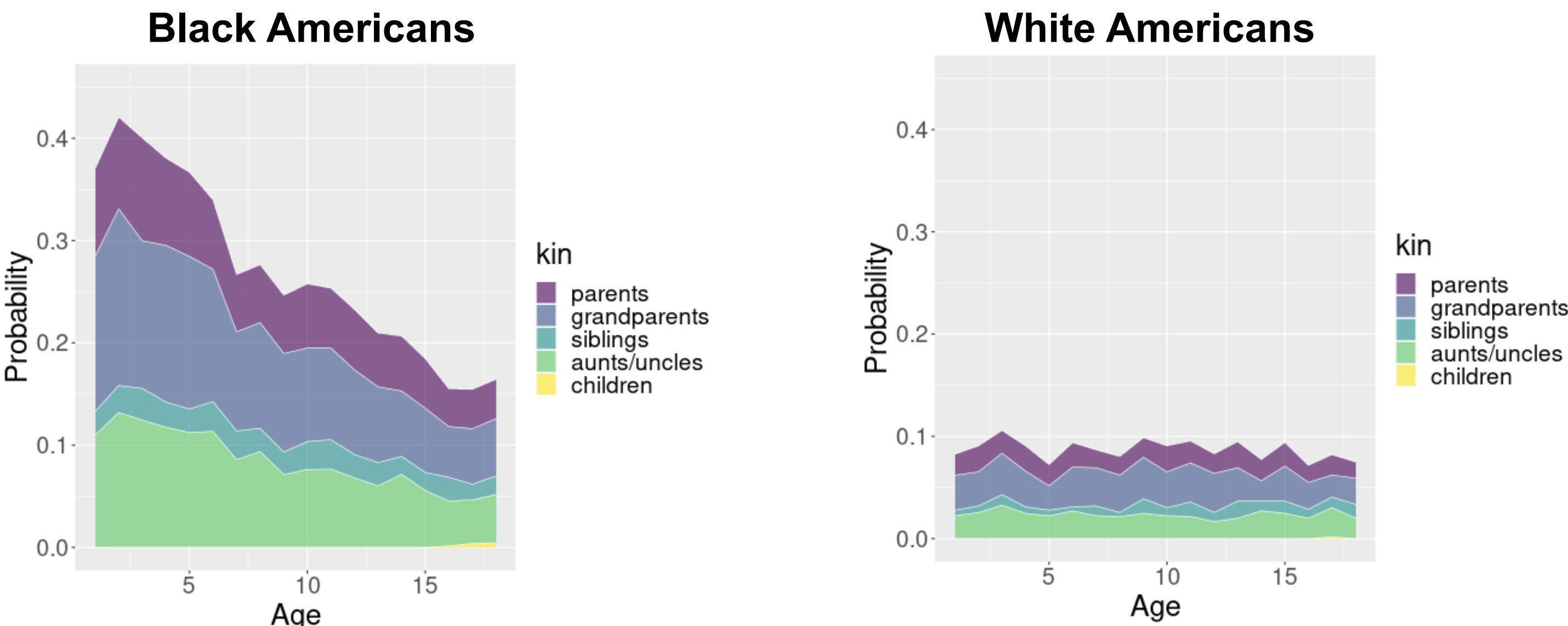
Observed vs. Simulated



Eviction Risks among Family Members

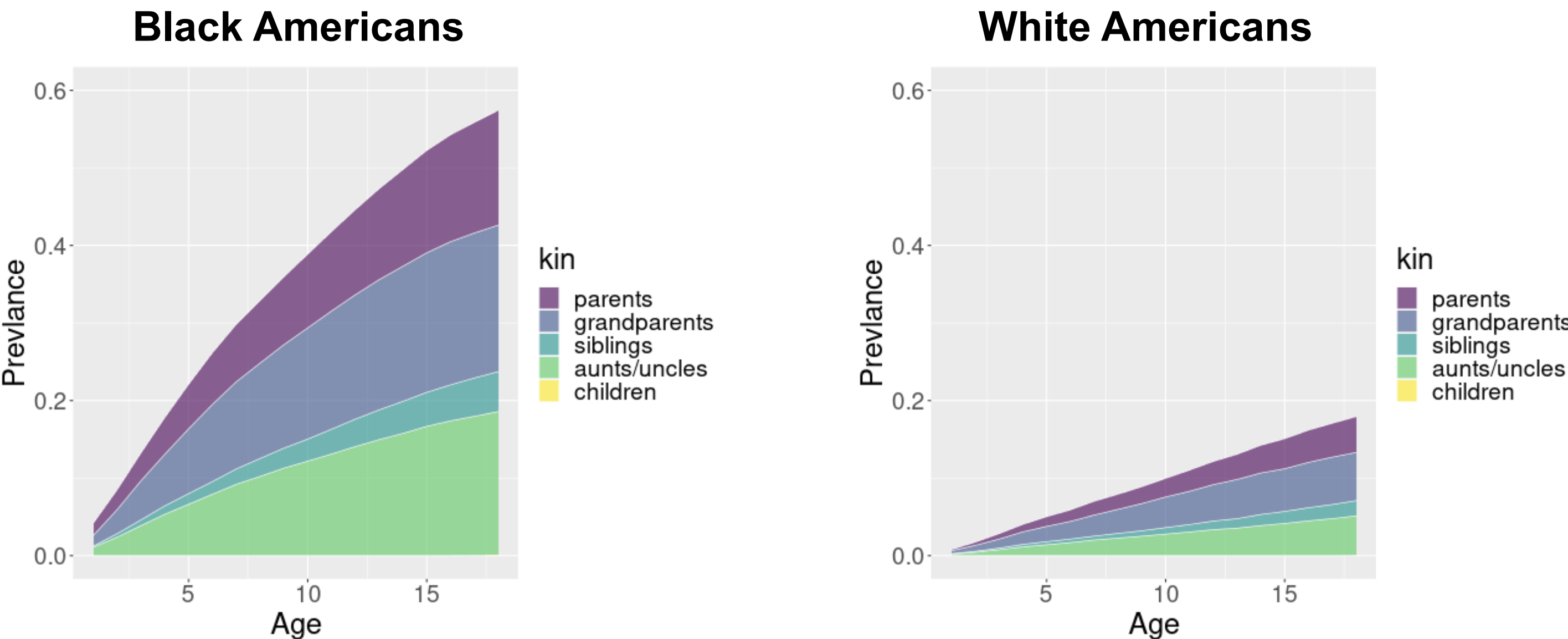
Probabilities of Eviction among Relatives over Age (The 2000 Cohort)

$$\frac{\text{Number of relatives being evicted for the first time}}{\text{Number of the 2000 cohort alive}}$$



Prevalence of Eviction among Relatives over Age (The 2000 Cohort)

$$\frac{\text{Number of living relatives who have ever been evicted}}{\text{Number of living relatives}}$$



Next Steps

- Extend the study period beyond 2019 (3 future eviction filing rate scenarios).