

Lifespan Kin Availability in Three Low Fertility Populations

Short Abstract:

There is significant room for variability in the composition of kin networks even under low population fertility. This project examines the presence of close kin (parents, spouses, siblings and children) over individuals' life span in three low-fertility populations: Brazil, India and Tunisia. Microsimulation methods are used to model populations to present the consequences of varying fertility – holding the patterns of mortality and nuptiality constant – for kin availability. Implications for family support, burden of care, and intergenerational transfers will be discussed.

Purpose: Reductions in mortality and fertility have produced dramatic changes in the structure of kin networks, specifically, their age- and sex-structure. On face, the impacts of demographic transition are unambiguous: families comprise longer-lasting kin ties, albeit with a smaller number of kin. To be sure, contemporary post-transition societies show some convergence in family size (Myrskylä, Kohler, & Billari, 2009). Yet low population fertility does not imply, much less necessitate, monolithic kin configurations: As it happens, there's ample evidence of variability of all of these factors in post-transition populations with low fertility (Goldstein, Sobotka, & Jasilioniene, 2009). A low population TFR can be achieved with substantial heterogeneity in maternal fertility (eg Table 1).

Some of the effects of transition on family structure are less obvious, and can yield unintuitive results: fertility decline reduces the number of kin brought into the family, but mortality decline increases the likelihood of having more surviving kin. Different patterns of nuptiality complicate matters further: fertility decline can take the form of postponement or early stopping, producing divergent inter- and intragenerational spacing among family members, and union dissolution and reconstitution produce yet different fertility outcomes.

Consequently, not only the maximum size of one's kin network, but also the timing of vital events such one's age at the death of a family member or the range of kin available near one's own death, depends upon more than simply the completed parity of women in the family. is in part a function of the variance in that pattern of fertility, not simply its level (Preston, 1976). That is, both the level and variance of population completed parity shape the population proportions of kin network features as viewed from the child's generation.

Finally, and paradoxically, the population diversity of kin configurations can increase with fertility decline. That is, the population proportions having only sisters, or only brothers, or only lateral kin of the same or of the opposite sex, is great in lower fertility populations than in those where large families prevail. This diversity of kin networks has implications for individual experience over the life course (Field et al, 1997; Kertzer et al, 1997)

Data and Methods:

Measuring kin networks involves significant empirical challenges, particularly for contemporary populations. Data elicited from respondents are subject to error

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(White & Reidmann 1997; Masquelier 2013), and are of course censored at time of interview. Therefore, elicited methods *cannot capture events that have happened yet*. In response to these limitations, this study uses empirically-derived demographic schedules to produce simulated populations. These populations are meant to provide illustrative examples of heterogeneity within low fertility, and are best thought of as *scenarios* rather than as population projects *per se*.

Empirical fertility schedules are produced from recent period fertility measures from three population surveys: the 2006 Brazil Reproductive Health Survey (RHS); the 2005-06 India Demographic and Health Survey (DHS); and the Tunisia's 2001 Pan-Arab Project for Family Health (PAPFAM). Fertility schedules comprise: distribution of ages at first birth and distribution of completed parities. These per-country schedules are combined with mortality and nuptiality schedules that are, to facilitate comparison, held constant.

From these schedules populations are projected via microsimulation. This technique has been used extensively for demographic projection and for the analysis of both historical and contemporary populations (cf Morand et al, 2010). Early social simulation approaches were plagued by unsupportable assumptions about the independence of social phenomena (Ruggles, 1993), but contemporary microsimulation methods address these issues (Billari & Prskawetz, 2003; Imhoff & Post, 1998).

This study uses SIMKIN (Casterline, 2001, 2012) software for the microsimulation of kin sets. The simulation generates a population of individuals, "egos," and their kin. Ego is guaranteed parents, but the presence of all other kin is conditional on the fertility, mortality and nuptiality patterns of ego and her kin-network. This study uses a combination of empirical and theoretical distributions to model patterns of fertility, mortality and nuptiality characteristic of low fertility, low mortality populations. Kin networks are measured from the perspective of individual egos, examining the close kin composition over the entire life span and measuring the following properties: size of kin network; the gender and age composition of sibships; the ages at which ego gains and loses family members; and the duration of kin ties. Variation across demographic scenarios is explored through empirical schedules of age at onset of childbearing, total fertility rate, and the distribution of completed parity.

Measures:

Composition of egos' kin network will be measured at multiple points along the life span (discussed below), and will be presented as population proportions. Measurements comprise: the size of the close-kin network; sibship composition with respect to age range (youngest-oldest) and sex composition; marital and parenthood status of siblings and adult children. Population proportions having illustrative kin configurations (children with single parents; only children) will also be compared across the three scenarios.

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This study takes a life-course perspective, taking measurements at specific *ages* and *stages*. *Childhood* is operationalized as the period from ego's birth to age eighteen¹, and for clarity kin composition will be measured at birth and ages five and eighteen². *Ego's parents' dependence and death* is operationalized as the moment of each of ego's parents' deaths³, with the assumption that the period closest death is the period of greatest dependence. Similarly, *ego's dependence and death* is operationalized as the moment of ego's death.

Finally, durations of kin ties will be compared across the three scenarios, presented as the years both ego and her family member are both alive.

Preliminary findings:

This extended abstract offers no preliminary findings, as analyses are incomplete.

Works Cited

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¹ Eighteen is chosen for convenience, and is not claimed to be indicative of adulthood legally or otherwise.

² Preliminary analyses suggest that kin composition from age ten to eighteen is quite stable.

³ Preliminary analyses suggest that the kin composition at one year prior to ego's death is trivially different from the composition at the moment of death, but this tentative finding will be tested again as analysis is finalized.