

Ideal family size, acceptability of contraceptive use and social network processes

Social network analyses of diffusion of belief and behavior through social learning and influence have a prominent place in the demographic and health literature. A wide range of bio-demographic processes have been theorized to be influenced by social network processes. Fertility has been a particular focus (Bongaarts & Watkins, 1996; Casterline, 2001; Montgomery & Casterline, 1996). The empirical literature detailing associations between network and family building processes has been limited for the most part to analyses of the use of contraception (Behrman, Kohler, & Watkins, 2002; Bond, Valente, & Kendall, 1999; Gayen & Raeside, 2010; Kohler, Behrman, & Watkins, 2001; Kohler, 1997; Montgomery & Chung, 1999; Montgomery et al., 2003; Valente, Watkins, Jato, Van Der Straten, & Tsitsol, 1997), and control over the pace of family building (Sandberg, 2005; Sandberg, 2006).

Despite the theoretical importance of ideation concerning family size and the acceptability of contraceptive use in demographic transition theory (Caldwell, 1976; Coale, 1973; Notestein, 1953), and the theoretical emphasis given to social diffusion related to these (Bongaarts & Watkins, 1996; Casterline, 2001) no prior social network research, to our knowledge, has addressed the association between social network characteristics and structure and these ideational elements. Such research may be particularly important in areas of sub-Saharan Africa where fertility remains high, as ideation concerning family size (and potentially the acceptability of contraceptive use) may be a bell-weather for potential fertility declines (Casterline, 2001).

In this paper we address these relationships, presenting the first results from the Niakhar Social Networks and Health Project (NSNHP), a new and innovative source of demographic network data from rural Senegal. Funded by the NIGMS, the NSNHP was designed to overcome critical inferential problems associated with the collection of conventional social network data, including respondent-reporting of network members' (alters) characteristics and the structural censoring of types of interaction investigated and number of alters elicited (Sandberg 2014). This data represents perhaps the most extensive survey social network data ever collected (eliciting on average, 46 named and 27 unique networks alters per respondent over 4 theoretical domains and 17 discrete types of interaction) linked to high-quality, prospectively collected, bio-demographic, economic, and social data from a pre-existing demographic and health surveillance system for both respondents and their alters.

Our analyses address the associations between social network structure and characteristics of network alters with respondents' beliefs concerning ideal family size and the legitimacy of contraceptive usage. Using egocentric network data (where only respondents, or 'egos' are interviewed, with an effective sample size of 1000) we model social learning and influence mechanisms related to ideal family size and perceived acceptability of contraceptive use and as a function individual, social network and

aggregate neighborhood and community level characteristics. These include on all three levels, measures of education, socioeconomic status, and most importantly, fertility and family building experience. These specifications test hypotheses concerning the influence of exposure to relatively novel information (smaller family sizes) and normative expectations (larger average family sizes) arising from the empirical experience egos are exposed to through social interaction. Using sociocentric data (where both ego and their network members, or 'alters' are interviewed, with a total network size of approximately 1600) we add to these specifications neighborhood and social network measures of perceived ideal family size and contraceptive acceptability (in the latter case in interaction with structural characteristics of the networks) to estimate stronger tests of these hypotheses as well the direct diffusion of these ideational elements.

References

- Behrman, J. R., Kohler, H.-P., & Watkins, S. C. (2002). Social networks and changes in contraceptive use over time: evidence from a longitudinal study in rural Kenya. *Demography*, *39*(4), 713–738.
- Bond, K. C., Valente, T. W., & Kendall, C. (1999). Social network influences on reproductive health behaviors in urban northern Thailand. *Social Science & Medicine*, *49*(12), 1599–1614.
- Bongaarts, J., & Watkins, S. C. (1996). Social interactions and contemporary fertility transitions. *Population and Development Review*, *29*(2).
- Caldwell, J. (1976). Toward a restatement of demographic transition theory. *Population and Development Review*, *2*(2), 321–366.
- Casterline, J. (2001). Diffusion processes and fertility transition: introduction. In N. R. C. (U. S.). C. on Population & J. B. Casterline (Eds.), *Diffusion processes and fertility transition* (pp. 1–35). National Academies Press.
- Coale, A. J. (1973). The demographic transition reconsidered. In *International Population Conference* (Vol. 1). Liege, Belgium: IUSSP.
- Gayen, K., & Raeside, R. (2010). Social networks and contraception practice of women in rural Bangladesh. *Social Science & Medicine*, *71*(9), 1584–1592.
- Kohler, H.-P. (1997). Learning in social networks and contraceptive choice. *Demography*, *34*, 369–383.
- Kohler, H.-P., Behrman, J. R., & Watkins, S. C. (2001). The density of social networks and fertility decisions: evidence from south Nyanza district, Kenya. *Demography*, *38*(1), 43–58.
- Montgomery, M. R., & Casterline, J. B. (1996). Social learning, social influence, and new models of fertility. *Population and Development Review*, *22*(Supplement), 151–176.
- Montgomery, M. R., & Chung, W. (1999). Social Networks and the Diffusion of Fertility Control in the Republic of Korea. In R. Leete (Ed.), *Dynamics of Values and Fertility Change*. Oxford: Oxford University Press.

- Montgomery, M. R., Kiros, G.-E., Agyeman, D., Casterline, J. B., Aglobitse, P., & Hewett, P. C. (2003). Social networks and contraceptive dynamics in southern Ghana. *Population Council Working Papers No. 153*.
- Notestein, F. W. (1953). The Economics of Population and Food Supplies. In P. of the E. international C. of A. Economics (Ed.), (pp. 13–31). London: Oxford University Press.
- Sandberg, John F. Forthcoming. “ Le rôle des observatoires dans la recherche sur les réseaux sociaux”. In Niakhar : 50 Années de Recherche en Population et Santé.
- Sandberg, J. (2006). Infant Mortality, Social Networks, and Subsequent Fertility. *American Sociological Review*, 71(2), 288–309.
- Sandberg, J. F. (2005). The Influence of Network Mortality Experience on Nonnumeric Response Concerning Expected Family Size: Evidence From a Nepalese Mountain Village. *Demography*, 42(4), 737–756.
- Valente, T. W., Watkins, S. C., Jato, M. N., Van Der Straten, A., & Tsitsol, L.-P. M. (1997). Social network associations with contraceptive use among Cameroonian women in voluntary associations. *Social Science & Medicine*, 45(5), 677–687.