



Empirical Assessments of Social Networks, Fertility and Family Planning Programs: Nonlinearities and their Implications

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Article:

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Abstract:

Empirical studies of the diffusion of modern methods of family planning have increasing incorporated social interaction within nonlinear models such as logits. But they have not considered the full implications of these nonlinear specifications. This paper considers the implications of using nonlinear models in empirical analyses of the impact of family programs, modulated by social interaction, on reproductive behavior. Three implications of nonlinear models, in comparison with linear models, are developed. (1) With nonlinear models, there may be both low and high contraceptive-use equilibria (i.e., the ultimate level of use of modern family planning that a population can be expected to reach after the effects of a sustained change in a family planning program have worked through the population) rather than just one equilibrium as in linear models. If there are multiple equilibria, then one striking and important result is that a transitory large program effort may move a community from sustained low- to high-level contraceptive use. (2) With nonlinear models the extent to which a social interaction multiplies program efforts depends on whether the community is at a low or high level of contraceptive use rather than being independent of the level of contraceptive use as in linear models. (3) With nonlinear models, intensified social interaction can retard or enhance the diffusion of family planning, in contrast to only enhancing diffusion as within linear models. To clarify these implications, for comparison a simple and more transparent linear model is also discussed. Illustrative estimates are presented of simple linear and nonlinear models for rural Kenya that demonstrate that some of these effects may be considerable.

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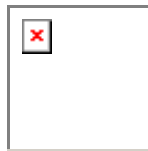
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Keywords: fertility, family planning programs, social interactions, nonlinear models

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