

The Evolution of Fertility Research:

A Scientometric Analysis

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As of November 2020, tens of thousands of papers have been published on fertility, including over 5,000 studies on reproductive behavior. Only in the “demographic” journals according to the Web of Science classification, there are about 10,000 publications where the concepts related to fertility are mentioned in the abstract. Analytical literature reviews, however detailed (see, e.g., Balbo et al., 2013; Guzzo & Hayford, 2020), do not cover all the contexts in which the topic is discussed, nor do they reliably indicate how common the reviewed approaches are.

We use the methods of systematic information retrieval from bibliographic databases and scientometric analysis to recreate the field of fertility research in all scientific disciplines. Using the bibliometric mapping of publications in the VOSviewer software and computational analysis on the texts of abstracts, we show how the substantial clusters of the fertility literature are located in relation to each other, which topics and theoretical approaches occupy the center and periphery of this scientific field. Working with the networks of direct citation in the CitNetExplorer software, we extract information about the founders of fertility research traditions — for example, the tradition of economic analysis of fertility associated with the name of Gary Becker (1960), — and trace the genealogy of their ideas. We study in which disciplines and in what kind of research these approaches turned out to be in demand.

A separate part of the presentation is devoted to the theoretical models of reproductive behavior. We are interested in how the models that have arisen within the framework of one discipline evolve there, are modified when imported by researchers from other disciplines, and/or when adapted for empirical analysis. For example, to the socio-psychological theory of planned behavior (Ajzen, 1991), some demographers add

a network component (Billari et al., 2009), while the insights from cognitive sciences are used to build alternative conceptual models (Morgan & Bachrach, 2011; Bachrach & Morgan, 2013). We analyze how the papers that use different theoretical mechanisms are positioned in the field of fertility research. For instance, in Figure 1, studies based on the theory of planned behavior are grouped into a separate peripheral cluster. We discuss how this picture reflects the assumptions — inherent in various disciplines and underlying the models themselves — about the decision-making process as a rational or partly automatic one.

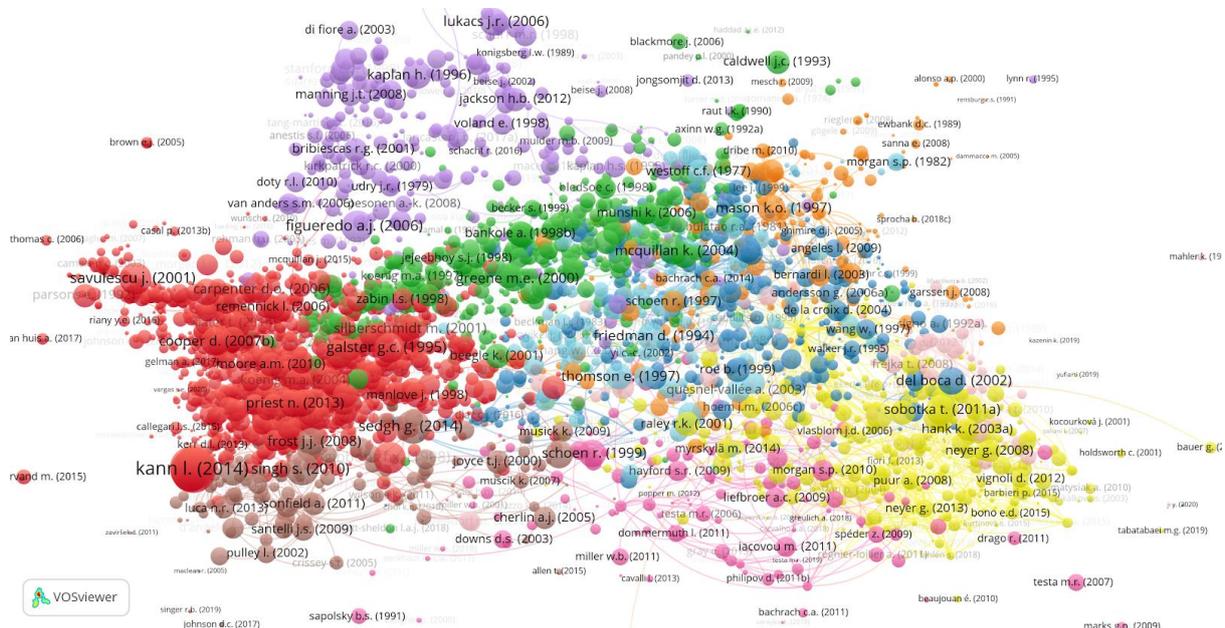


Fig. 1. Bibliographic coupling map of the literature on reproductive behavior. Nodes are colored according to the automatically identified clusters. Node size corresponds to the number of citations the paper received in the Scopus database. The literature discussing the theory of planned behavior constitutes the bright pink cluster at the bottom of the map.

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