

Chapter 2

FERTILITY DECISIONS: ECONOMIC THEORY, EMPIRICAL ANALYSIS, AND POLICY RELEVANCE

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1. INTRODUCTION

This chapter discusses methodological issues concerning empirical research on the determinants of household fertility decisions. We hope to facilitate exchange of research results between researchers, who have shaped their research methods in different environments.

Economic theory shows that past, current and expected future prices affect behaviour. The costs of a child include expenditures on larger housing, the schooling of the child and of course on goods such as clothes, food and toys and sports equipments. In addition to these child related expenditures, much emphasis in economic theory is placed on the opportunity costs of time spent with the child. For example a woman who is thinking of when to have her first child will be interested not only in the income, that she will not earn during a year of career break if she decides to have her child now but also the effects of a career break on future earnings. These considerations may as well interrelate with her education decision and saving plan. Indeed she will be interested in the full lifetime earnings consequences of her timing of maternity. Differences in opportunity costs results in differences in the timing of births. Economic theory offers less clear guidance on what the benefits are of having children and, in particular, how these benefits may differ across women or households. The benefits are considered the joy of having children, i.e. most households prefer having children to remaining childless. Once children are present, the well-being of parents is affected by their children's well-being and they will therefore invest in, for instance, the schooling of their children. Children as an insurance against financial difficulties at old age is a financial incentive for having children and investing in their education. However, in societies with well-developed old age provisions such as, for instance, public old age pensions, this is unlikely to be the dominant explanation for why a household has children.

These theoretical considerations of if or when to have children are most often the point of departure of empirical economic research on lifecycle fertility. When modelling patterns of lifecycle fertility and its determinants many assumptions have to be made to get to a statistical model that is feasible to estimate. The resulting models proposed in the literature are mainly of a reduced form, i.e. a model that approximates the costs and benefits of children and the way these affect the choice of when to have a child. For instance, using educational levels of the woman as a proxy for the opportunity costs of having children. A few empirical studies remain close to a tightly specified theoretical economic model, usually based on a constrained intertemporal utility maximization problem, and they model explicitly preferences and expectations. Such a model can be referred to as a structural model.

This chapter discusses also what one can expect from a statistical analysis with respect to economic interpretations and policy relevancy of the empirical results. This issue is related to causal inferences and the definition of an exogenous variable as against an endogenous variable. In principle only exogenous variables can explain behaviour while another endogenous variable should be treated as simultaneously determined. One solution to this problem proposed in the literature is to use predetermined variables. However, attempting to explain timing of maternity using only variables that were determined in the past may not be enough since expectations about the future play a role when making fertility decisions and may as well affect variables that are assumed to be predetermined.

Timing of maternity is an intrinsically dynamic decision. Since we are interested in the timing, a dynamic statistical model is to be preferred. The first economic theory models of fertility were static i.e. they attempted to explain complete life-cycle fertility and they considered only one period, thought of as consisting of the whole life-time period from age at marriage to the end of the fecund period or until retirement (Becker 1973, Willis 1973). Such models are linear regression models and for these models methods have been developed to control for endogeneity. However these methods cannot always be applied to nonlinear models. For example instrumental variables techniques like two stage least squares are, generally speaking, available for linear models and not for non-linear models like hazard models.

Hazard models are by far the most common tools for analysing timing of events like timing of maternity. The dependent variable in such a hazard model is the duration until an event occurs. In this volume hazard models are used in chapter 6 de la Rica and Iza, chapter 9 Kreyenfeld, chapter 10 Kantorova and chapter 11 Gustafsson and Worku. If one studies the duration until first birth starting at the age of marriage the major reason for postponement of maternity may fall outside the analysis. The explanation for postponement of maternity is more likely to be the extension of youth education and women's desire to complete education and secure a job before entering into a long-term relationship with the intention to start a family. Most studies on timing of fertility therefore start the clock of the duration at age 15 of the woman. Not yet mentioned is that husbands characteristics such as education and earnings are known to be important determinants of household fertility (see, e.g., chapter 11 Gustafsson and Worku). The empirical difficulty with taking this into account in an empirical analysis is that husbands' characteristics are usually only