Demographic transition and economic growth: Empirical evidence from Greece

George Hondroyannis¹, Evangelia Papapetrou²

¹ Bank of Greece, Economic Research Department, El. Venizelou 21, 102 50 Athens, Greece, (Fax: 01-323-3025; e-mail: ghondr@hua.gr) and Harokopio University
² University of Athens, El. Venizelou 21, 102 50 Athens, Greece (Fax: 01-323-3025; e-mail: epapapet@econ.uoa.gr) and
Bank of Greece, Economic Research Department

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Abstract. Over the past decades, due to a combination of declining fertility rates and rising life expectancies, most industrialized countries have experienced aging populations and low numbers of young populations that may pose economic problems in the future. This paper investigates the relationship first between fertility rate and infant mortality rate and second among demographic changes, real wages and real output in Greece over the period 1960–96. When we control for fluctuations in overall economic activity and the labor market on the bivariate relationship between fertility and mortality rates, the evidence suggests that Granger-causation must exist in at least one direction. The results show that in the long run a decrease in infant mortality rates, taking into consideration economic performance and the labor market, causes a reduction in fertility rates. Also, employing the vector error-correction models, the variance decomposition analysis and the impulse response functions, the empirical results support the endogeneity of fertility choice to infant mortality, the labor market and the growth process.

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1. **Introduction**

Most countries, industrialized or not, experience important demographic changes, one of the most important of which is the transition from a phase of rapid population growth to one in which population growth is low. Initially, a country experiences a mortality decline and fertility rises, both contributing to a rise in population growth. With some time lag, the reduction in mortality triggers a steady and continuous decline in fertility. This pattern is called the “demographic transition”, as earlier formulated by Notestein (1945).

While the transition theory lies at the center of modern scientific demography, economists have made few attempts to understand the causal links that generate the demographic transition. Demographers such as Kirk (1996) and Van de Kaa (1996) have summarized the theories, seeking to give a causal explanation of the demographic transition. Independent of demography theory, the study of fertility has long been studied from the perspective of economics research. The debate between followers of Malthusian theory and neoclassical economists shows the crucial link between fertility, mortality and economic growth. However, the modern economic theory of population emphasizes the interdependence between infant mortality and fertility in the context of economic theories of behavior (Sah 1991; Cigno 1998). Recently, the study of changes in fertility has been recognized as an important correlate of economic growth and has received considerable attention.

Becker (1960, 1973) in his pioneer studies supports the notion that fertility is a variable endogenous to the economic system and develops a theoretical framework explaining that the relationship between fertility and economic growth depends on a number of socioeconomic factors such as the incentive for having children, the “quality of children”, the efficiency of private capital markets and intergenerational transfers within the family. Recently many economists such as Becker (1988, 1992), Becker and Barro (1988), Barro and Becker (1989), Ehrlich (1990), Becker et al. (1990), Ehrlich and Lui (1991), and Wang et al. (1994), based on the microfoundations of economic theory, treat both population and income growth as endogenous variables in an effort to develop a coherent model of economic growth and explain the process of dynamic economic growth.

The major trend in the literature today is the development of theoretical dynamic models which treat population growth and development as simultaneously determined endogenous variables, rather than as the separate outcomes of different economic systems. Over the last two decades, most of the work on endogenous population and economic growth has been theoretical. Only a few empirical studies, Yamada (1985), Ehrlich and Lui (1991), Wang et al. (1994), have examined the effects of population growth and fertility on economic growth, mainly for the U.S.A. However, there is only limited empirical evidence for other industrialized countries of Western Europe and some developing countries (Yamada 1985; Winegarden and Wheeler 1992; Brander and Dowrick 1994; Barlow 1994).

It is thus of interest to examine whether the conclusions drawn on factors affecting demographic changes and economic growth could be applied to other medium-sized countries like Greece. Greece represents a reasonably large country, and its demographic developments closely resemble the general trend in most OECD countries, that is decreasing fertility and infant mortality.