



Development, fertility and childbearing age: A Unified Growth Theory [☆]

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Received 21 April 2017; final version received 30 May 2018; accepted 11 July 2018

Available online 20 July 2018

Abstract

During the last century, fertility has exhibited, in industrialized economies, two distinct trends: the cohort total fertility rate follows a decreasing pattern, while the cohort average age at motherhood exhibits a U-shaped pattern. This paper proposes a Unified Growth Theory aimed at rationalizing those two demographic stylized facts. We develop a three-period OLG model with two periods of fertility, and show how a traditional economy, where individuals do not invest in education, and where income rises push towards advancing births, can progressively converge towards a modern economy, where individuals invest in education, and where income rises encourage postponing births. Our findings are illustrated numerically by replicating the dynamics of the *quantum* and the *tempo* of births for cohorts 1906–1975 of the Human Fertility Database.

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JEL classification: J11; J13; O12

[☆] The authors would like to thank the Editor, Marciano Siniscalchi, two anonymous referees, as well as Thomas Baudin, Antoine Billot, Cecilia Garcia-Penalosa, Victor Hiller, Lucie Ménager, Dominique Meurs, Fabien Moizeau, Aude Pommeret, Lionel Ragot and Holger Strulik for their helpful comments and suggestions. The authors would like also to thank participants of seminars at PET 2017 (Paris), at the Bank of Finland/CEPR Conference Macroeconomics and Demography (Helsinki), at the University of Goettingen, at the University of Poitiers, at EconomiX (University Paris West), at LEMMA (University Paris 2 Panthéon Assas), at T2M (University Paris Dauphine) and at AMSE.

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Keywords: Fertility; Childbearing age; Births postponement; Human capital; Regime shift

1. Introduction

In the 20th century, growth theorists paid particular attention to interactions between, on the one hand, the production of goods, and, on the other hand, fertility behavior, that is, the production of men. When studying those interactions, they have mainly focused on one aspect of fertility: the number or *quantum* of births. From that perspective, the key stylized fact to be explained is the declining trend in fertility.¹ That decline is illustrated on Fig. 1, which shows the cohort total fertility rate (hereafter, TFR) for cohorts of women aged 40 in industrialized countries. That fertility decline was explained through various channels, such as the rise in the opportunity costs of children (Barro and Becker, 1989), a shift from investment in children's quantity towards children's quality caused by lower infant mortality (Ehrlich and Lui, 1991; Doepke, 2005; Bhattacharya and Chakraborty, 2012), a rise in the return to education (Galor and Weil, 2000), a rise in women's relative wages (Galor and Weil, 1996), and the rise of contraception (Bhattacharya and Chakraborty, 2017; Strulik, 2017).

Although those models cast substantial light on interactions between fertility and development, their exclusive emphasis on the *quantum* of births leaves aside another important aspect of fertility, which has a strong impact on economic development: the timing or *tempo* of births.

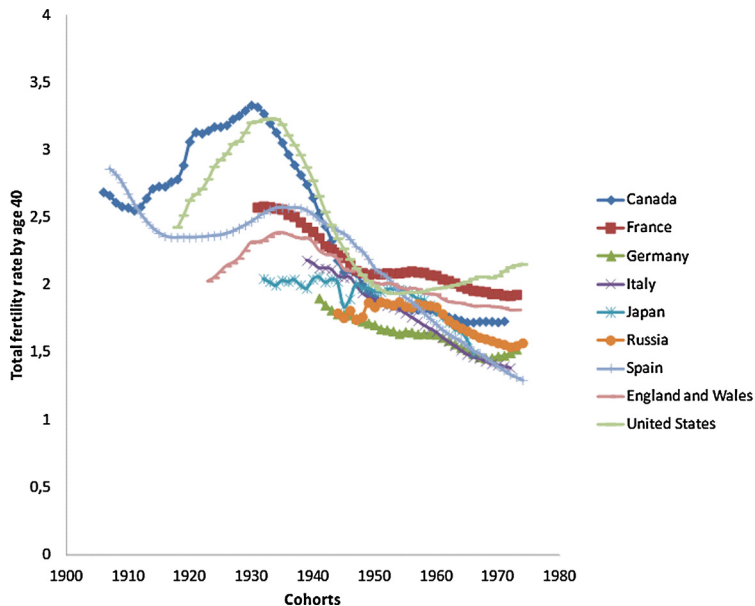


Fig. 1. Cohort total fertility rate by age 40. (For interpretation of the colors in the figure(s), the reader is referred to the web version of this article.)

Source: Human Fertility Database.

¹ Note that, although the long-run trend of the TFR is decreasing, the TFR can nonetheless exhibit significant short-run fluctuations around that trend, as shown on Fig. 1.

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