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Valtiotieteellinen tiedekunta

Laitos-Institution-Department
Department of Economics

Tekijä-Författare-Author
Lehmijoki, Ulla

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Demographic transition, a shift of both fertility and mortality to a lower level, took place in Europe and its offshoots together with industrial revolution. The decrease in mortality started in end of the eighteenth century and that of fertility around 1900. Because the decrease in fertility much lagged that in mortality, population growth accelerated temporarily. The transition escalated to developing countries and the peak population growth in these countries took place in the mid of 1960s.

Chapter one gives a survey of demographic transition theories. The traditional theory of transition sees it as an outcome of industrialization. Economic, cultural, and homeostatic theories are discussed. A panel data analysis shows that the mortality, the share of agricultural labor force, the level of per capita income, and the rate of economic growth are important determinants of total fertility.

Chapter two combines population function, giving population growth as a function of income with a standard Ramsey model and solves it in virtual time. The model might have multiple steady states. Global analysis shows that stable saddle path either spirals from the focus between two saddles or runs from the origin. A proof for global optimality in the case of variable discount rate is given. Calibrated version shows that high population growth can lead the economy to a poverty trap.

Chapter three shows that in the early development, the mortality decrease led to lengthening of life and increase in population growth. Lengthening of life increases the possibilities and motivation for formal and informal learning and human capital accumulation. Human capital in turn decreases mortality and fertility. In early development, income increases increased population growth. Model of economic growth has a poverty trap if the income share of capital is low.

Chapter four derives four demographic clubs by regression tree analysis. Three clubs exhibit conditional convergence in time series unit root tests. Gini coefficients 1960-1995 show that decrease in population growth in poor countries leads to decrease in income inequality. Per capita income is high if population growth from 1995 to 2030 is low.

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