Human capital accumulation and the macro-economy in an ageing society

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How does the demographic structure of the population affect the macroeconomic performance of an economy? To answer this question we build a general equilibrium overlapping generations model of a closed economy featuring endogenous factor prices. Finitely-lived individuals are endowed with perfect foresight and make optimal choices over the life cycle. In addition to selecting age profiles for consumption and the hours of time supplied to the labour market, they also choose a number of important life-cycle dates, namely the age at which they end their educational period and enter the labour market, and the age at which they retire from the labour market. The optimal schooling period is such that it balances the marginal costs and benefits of education. Once the agent enters the labour market, human capital is accumulated as a result of work experience, the extent of which is determined by the intensity of labour supply. As the agent gets older, biological deterioration sets in and human capital depreciates at an increasing rate. This ultimately prompts the agent to withdraw from the labour market. The microeconomic model is embedded in an overlapping generations general equilibrium setting. The microeconomic and macroeconomic effects of three demographic shocks are studied. The first shock consists of a pure *longevity boost*, i.e. agents live longer but the crude birth rate is unchanged. The second shock consists of a pure *baby bust*, i.e. a decrease in the crude birth rate with a given life expectancy. Finally, the third *hybrid shock* combines the longevity boost and the baby bust. Robustness check are performed by investigating the effect of state-space (borrowing) constraints on microeconomic plans and macroeconomic outcomes.