

DISSERTATION DEFENSE

Essays in Overlapping Generations Economies

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Tuesday, September 6, 2011

8:00 am

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Chapter 1: Habit formation and sunspots in overlapping generations models

I introduce habit formation into an otherwise standard overlapping generations economy with pure exchange populated by three-period-lived agents. Habits are modeled in such a way that current consumption increases the marginal utility of future consumption. With logarithmic utility functions, I demonstrate that habit formation may give rise to stable monetary steady states in economies with hump-shaped endowment profiles and reasonably high discount factors. Intuitively, habits imply adjacent complementarity in consumption, which in turn helps explain why income effects are sufficiently strong in spite of logarithmic utility. The longer horizon further strengthens the income effect. Finally, I use the bootstrap method to construct stationary sunspot equilibria for those economies in which the steady state is locally stable.

Chapter 2: Demography and the long-run trend of interest rates and the price-earnings ratio

During the twentieth century, the U.S. witnessed a cyclical birth rate: 52 million people were born between 1925 to 1944, 79 million from 1945 to 1964, and 69 million in the baby bust from 1965 to 1984. These birth waves in turn shaped the evolution of the ratio of middle-age to young adults, or MY ratio, which captures the stance of the population pyramid at any given time. In this paper, I study the effects of demographic change, as measured by the MY ratio, on interest rates and the price-earnings ratio. In order to accomplish this, I construct a deterministic overlapping generations model with pure exchange in the spirit of Geanakoplos, Magill and Quinzii [2004]. The behavior of the MY ratio gives rise to exogenous cycles that last forty years. The first prediction of the model is that the price-earnings ratio should be in phase with the MY ratio. Since interest rates adjust to prevent any arbitrage opportunities, the second prediction is that real interest rates should move inversely with the MY ratio, except after the peak in the MY ratio. The model matches qualitatively the long-run trends in real interest rates and the price-earnings ratio in the U.S. postwar era. With production, the results do not change significantly, provided that capital adjustment costs are allowed for.

Chapter 3: Sequential incompleteness and dynamic suboptimality in stochastic overlapping generations economies with production

I study a stochastic overlapping generations model with production and three-period-lived agents. Agents trade bonds and risky capital. Unlike the two-period model, I show that a stationary equilibrium in which prices and allocations depend solely on the aggregate capital stock and the current shock does not exist. The recursive equilibrium becomes the relevant equilibrium concept. For the recursive formulation of the model, markets are sequentially incomplete and hence I show that there is room for Pareto improvements in terms of intergenerational risk sharing. Finally, I examine whether the introduction of capital income taxation improves the allocation of risk.