Essays in the Study of Aggregate Fluctuations

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THESIS

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Abstract

This thesis consists of three self-contained papers on business cycle fluctuations in the context of the dynamic stochastic general equilibrium framework.

The first paper examines how maintenance expenditures affect the occurrence of indeterminacy in a two-sector model economy, motivated by the empirical fact that equipment and structures are maintained and repaired. McGrattan and Schmitz’s (1999) survey on ‘Capital and Repair Expenditures’ in Canada indicates that maintenance expenditures account for a substantial fraction of output and new investment. It is shown that the endogenous maintenance expenditures reduce the requirement of the degree of increasing returns to scale to generate sunspot equilibria. In fact, the minimum level of the returns to scale required could be as low as 1.0179. This aspect is important since empirical works such as Basu and Fernald (1997) suggests that returns to scale is close to constant.

The second paper addresses the following questions in the context of a neoclassical model of the business cycle: what caused the 1890s and 1907 recessions in the U.S.? In particular, we apply the Business Cycle Accounting method to decompose the economic fluctuation into its sources: productivity, the labour wedge, the investment wedge and the government consumption wedge. Our results suggest that the economy downturn is
primarily attributed to frictions that reduce productivity and the wedge capturing distortions in labour-leisure decision. The financial market frictions would have accounted for the drop of the efficiency wedge. A contractionary monetary shock could generate a gap between the marginal rate of substitution and the marginal product of labour.

The third paper applies the accounting method proposed by Chari, Kehoe and McGrattan (2007) to identify the primary sources of economic slumps in South Australia from 1990 to 2014. We focus on three major stages: the recession in the early-1990s, the Asian Financial Crisis and the 2008-2012 South Australian slump. Our results show that the efficiency wedge is the primary transmission channel through which the primitive shocks hit the South Australian economy. Shocks such as structural transformation, collapse of motor vehicle industry might have affected the efficiency wedge. Moreover, it is illustrated that infrastructural expenditures are important in increasing the efficiency wedge. This is conformity with the fact that South Australian government is keen to support its development through the Economic Stimulus Plan. Trade openness might also be a contributor.
Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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