

Essays in the Study of Aggregate Fluctuations

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THESIS

Submitted to the University of Adelaide
in partial fulfillment of the
requirement for the degree of

Doctor of Philosophy
in
Economics

October 2015

Table of Contents

List of Tables	iv
List of Figures	v
Abstract	vi
Declaration	viii
Acknowledgement	ix
1 Introduction	1
2 Indeterminacy, Capital Maintenance Expenditures and the Business Cycle	5
2.1 Introduction	5
2.2 The Model	8
2.2.1 Preferences and Household's Choices	9
2.2.2 Production Technology	11
2.3 Equilibrium and Local Dynamics	12
2.3.1 The One-sector Model	15
2.3.2 The Two-sector Models	17
2.3.2.1 Endogenous Capital Utilization	18
2.3.2.2 Constant Capital Utilization	20

2.3.3	Indeterminacy and Maintenance Expenditures	21
2.4	Simulation	22
2.5	Conclusion	24
2.A	Elasticity of Labour Supply and the Externalities	26
3	Business Cycle Accounting of the U.S. Economy: the Pre-WWI	
	Period	28
3.1	Introduction	28
3.2	Business Cycle Accounting	32
3.2.1	The Prototype Growth Model	32
3.2.1.1	Household and Firm	32
3.2.1.2	Equilibrium	33
3.2.2	Accounting Procedure	34
3.3	Decomposition Results	38
3.3.1	The Depression of the 1890s	39
3.3.2	The 1907 Recession	47
3.3.3	Results Comparison	49
3.4	Discussion	55
3.4.1	Understanding the Efficiency Wedge	55
3.4.2	Understanding the Labour Wedge	65
3.5	Conclusion	72
3.A	Data Sources	75
3.A.1	Original Data	75
3.A.2	Constructed Data	77
4	Tracing the Sources of South Australian Economic Slumps	78
4.1	Introduction	78

4.2	Framework of the Accounting Method	82
4.2.1	The Prototype Model	82
4.2.2	Application to South Australia	84
4.3	Results and Discussion	88
4.3.1	Stylized Facts	88
4.3.2	The Early 1990s Recession	90
4.3.3	The Asian Financial Crisis	91
4.3.4	The Most Recent Recession	96
4.4	Discussion	97
4.4.1	Understanding the Efficiency Wedge	99
4.4.2	Productivity Growth: Comparison with Other States	103
4.5	Conclusion	108
4.A	Trends and Business Cycles: South Australia vs. Australia	109
4.B	Data Source	110
4.B.1	Original Data	110
4.B.2	Constructed Data	112

References **113**

List of Tables

2.1	Regions of Indeterminacy	21
2.2	U.S. Moments and Model Moments	25
3.1	Calibrations	38
3.2	Parameters of Vector AR(1) Stochastic Process	38
3.3	The Contribution of the Four Wedges to the Output Drops	39
3.4	Properties of the Wedges 1889-1901	42
3.5	Properties of the Wedges 1901-1913	48
3.6	Second Moments 1889-1913	67
4.1	Parameter Values	86
4.2	Parameters of Vector AR(1) Stochastic Process	87

List of Figures

2.1	Elasticity of Labour Supply and the Externalities	27
3.1	Real GNP per Capita in 1889-1913	29
3.2	U.S. Output, Labour, Investment and Consumption 1889-1901	40
3.3	Measured Wedges, 1889-1901	41
3.4	Output Decomposition 1889-1901	43
3.5	Labour Decomposition 1889-1901	44
3.6	Investment Decomposition 1889-1901	45
3.7	Consumption Decomposition 1889-1901	46
3.8	U.S. Output, labour, Investment and Consumption 1901-1913	49
3.9	Measured Wedges, 1901-1913	50
3.10	Output Decomposition 1901-1913	51
3.11	Labour Decomposition 1901-1913	52
3.12	Investment Decomposition 1901-1913	53
3.13	Consumption Decomposition 1901-1913	54
3.14	Capital Utilization during 1967-1983	57
3.15	Output, Efficiency Wedge and Constructed Utilization 1890-1901, 1901-1913	59
3.16	The Efficiency Wedge, the Adjusted TFP and Kendrick Measure of TFP	60
3.17	Output and Simulated Output	61

3.18	The Efficiency Wedge and Interest Rate Spread	62
3.19	Hypotheses for the Efficiency Wedge	64
3.20	Labour Wedge, Inverse of Wage Markup and Inverse of Price Markup .	66
3.21	Nominal Wage and GNP Deflator	70
3.22	Real Wage and MRS	71
3.23	Hypotheses for the Labour Wedge	73
4.1	Indexes of Real GSP and GDP (1990=100)	79
4.2	Macroeconomic Aggregates 1990-2014	89
4.3	Measured Wedges 1990-1994	91
4.4	Output Decomposition 1990-1994	92
4.5	Labour, Investment and Consumption Decomposition 1990-1994	93
4.6	Measured Wedges 1998-2002	94
4.7	Output Decomposition 1998-2002	94
4.8	Labour, Investment and Consumption Decomposition 1998-2002	95
4.9	Measured Wedges 2008-2014	96
4.10	Output Decomposition 2008-2014	97
4.11	Labour, Investment and Consumption Decomposition 2008-2014	98
4.12	Output and the Efficiency Wedge	99
4.13	The Efficiency Wedge and Investment in Infrastructure	101
4.14	The Efficiency Wedge and Trade Openness	102
4.15	State Investment in Infrastructure to Output Ratio	105
4.16	State Trade Openness	106
4.17	Index of Real GSP (1990=100)	107
4.18	Trends and Business Cycles	109

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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Acknowledgement

Foremost, I would like to express my sincere gratitude to Prof. Mark Weder, my principal supervisor, for his inspiring guidance, continuous support and patience throughout my PhD journey. My appreciation also goes to my co-supervisors, Dr. Jacob Wong and Dr. Nicolas Groshenny for their kindness and sage suggestions. I'm grateful to Linda Christensen for the professional editing.

I would also like to express my thanks to all staffs in the School of Economics. I benefited much from macroeconomics courses and workshops taught by Dr. Jacob Wong, Dr. Nicolas Jacquet and Dr. Tatyana Chesnokova. I am grateful to the excellent administrative support provided by the School. The financial support from the University of Adelaide is gratefully acknowledged. I express thanks to all of my friends for their companionship and support during these years.

Finally, I am forever indebted to my family for their endless love and encouragement.