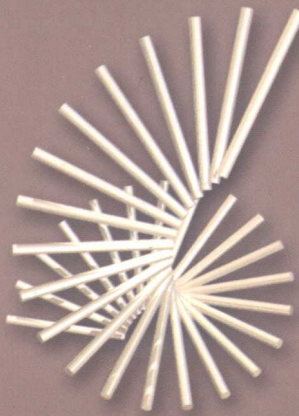

公共经济计量分析

邹　洋◎著

An Applied Econometric Analysis in Public Economics

南開大學出版社

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About the Author

Zou Yang, Associate Professor of Public Finance at School of Economics, Nankai University. Mr. Zou received his Ph.D. in International Public Policy from Osaka University in Japan in 2006. His research fields include Public Economics, Applied Econometrics and Game Theory, etc. Some of his academic papers written in English and Japanese have been published in *Applied Economics*, *Journal of Economic Policy Studies* and *International Public Policy Studies*, etc. Recently he published several textbooks and papers written in Chinese. He also reported his research results at international academic conferences actively.

A Dedication: On Professor Zou and His Study/Research Memoir in Japan

Professor Zou started his study of economics in Japan at Kansai University. In 1999 he entered the Graduate School of Economics, Kansai University, where he started to study western-style economics, perhaps, almost from the beginning. He was really industrious in those days and spent a very successful period, I guess. He obtained the master degree and furthermore completed a number of research papers, which has contributed to lead him to present position, I believe.

In the spring of 2002 he visited me at my office of Osaka University, and that was the first time we saw each other. In October of the next year he was allowed to study and do research at the Osaka School of International Public Policy (OSIPP), Osaka University. At the beginning or much of the days in OSIPP Professor Zou and I spent time simply to make clear what problem he was now analyzing, from what point of view(s), and what method was most appropriate or effective for the purpose to solve questions. It means that those days were very unproductive to him as especially apparent when compared to his master-course period, and thus it would be a hard time to him.

The purpose for me to do so was clear, I think. He had completed a few research papers in addition to the master thesis before he came to Osaka University. I however thought that all of his arguments/analyses lacked something, one or some of the requisites for good research papers/arguments. Those were, I thought, the clarity of the question(s)

analyzed, the point of view(s) from which an analyst looks at the question studied, the appropriateness or effectiveness of the method applied in order to solve questions, and so on.

He was however really patient, enduring and industrious also at Osaka University. Those natures would be really necessary to researchers perhaps in any field of science, and were ones that brought him to a success in his career as a researcher. He succeeded to obtain the doctoral degree of applied economics in a period shorter than the regular one. He could, though it might be helped also by luck, obtain a job of teacher-researcher at Nankai University in his own country just after obtaining the doctoral degree.

It seems that his patience and industriousness had been kept unchanged after he obtained the present job at Nankai University. He has been really productive both in education and research. He has written newly five more papers, and also published a few writings for teaching purpose.

Via such course or evolution he is about to publish a book, titled "An Applied Econometric Analysis in Public Economics," which might summarize most of his research activities after he had intended to be an economic scientist. As the title suggests, the main method of his analysis of economic problems is the use of econometrics, and he finds or makes clear reasons behind or implicit in economic phenomena/problems and clues and ways/procedures to solve those problems.

I hear that his book consists of the three groups of arguments any of which concerns with the economic activities of the government in the present economy and consists of a few chapters respectively. Specifically, the concern of the first part is in how the public-sector activities affect economic growth in his and other countries. The second part pays its attention to the effects of public-sector activities on consumption behaviours in the private sector. The purpose of the third part is to examine

the relationship between the public activities and economic efficiency. Of course any of the concerns or subjects of those arguments will be very important in order to understand how an economy behaves and how the government activities affect and can control those behaviors. These are the reasons why many economists/researchers have tackled such subjects as a numerous number of papers analyzing those questions have been produced by now and perhaps are on the way of production.

I thus hope and believe that this book by Professor Zou contributes, even a little, to those enormous scientific arguments that have been accumulated by now. I hope and believe also that Professor Zou will continue to make efforts and to contribute to perhaps such not-easily-cleared and boundless arguments.

YAMADA, Masatoshi
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February 19, 2009

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Parts of this book are based on my doctoral dissertation. I am grateful to my academic instructor, Professor Masatoshi Yamada (Graduate School of Economics, Osaka University) for his earnest and careful instructions. Without his invaluable instructions, I would have not been able to make any progress in writing my doctoral dissertation. I appreciate the financial support from Ministry of Education, Culture, Sports, Science and Technology of Japan in writing my doctoral dissertation. Before I entered the doctor program, I had been studying abroad for four years. I regret that I could not take care of my sick father, Shourong Zou, who died on twelfth September, 2003. He even could not hear the news of my admission to the doctor program. Through this book, I wish I could alleviate my regretting and missing to my father.

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I also appreciate useful comments and suggestions from the participants at Chinese Economists Society 2008 China Conference at Nankai University, International Symposium on China's Local Government Finance Reforms at Peking University, International Conference on Assessment of Western China Development and Future Prospects at Xi'an, the 3rd International Conference on Public Management in the 21st Century: Opportunities and Challenges at Macau University, etc.

For publication of my papers and this book, I would like to thank Mr. Mark Taylor (Editor of *Applied Economics*), Mr. Mitsuo Sasaki (Editor of *Journal of Economic Policy Studies*), Professor Qingwang Guo (School of Finance, Renmin University of China, Editor of *Public Economic Review*), Mr. Naihe Wang, Mr. Bing Wang and Mr. Lijun Song (Editors of Nankai University Press), etc. for their kind support, and the anonymous referees for their useful comments and suggestions.

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master thesis, which is the starting of my present research.

Of course, any errors or shortcomings are the responsibility of the author.

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2009.3.30

Introduction

This book consists of three parts. It studies the topic of the interactions between public-sector activities, private behaviours, growth and efficiency by different econometric methods.

Part Ⅰ includes three chapters which focus on the effects on economic growth of public and private sectors' activities. In Chapter 1, we examine the relationship between public and private investment and GDP growth for Japan and the US. We here, based on the features of the data of the two countries, apply the methods of Generalized Method of Moments (GMM) and Ordinary Least Squares (OLS) to Japan and the US, respectively. It is shown that both public and private investment contribute to economic growth greatly in Japan, while in the US public investment seems to play a less important role than private investment.

In Chapter 2, we analyze the same problem for China. However, reviewing the corresponding data of China, we find that we had better apply Vector Error Correction Model (VECM). It is found that in China public investment contributes greatly to economic growth while private investment seems to do not.

In Chapter 3, we give a panel analysis by using China's provincial data (1999-2004) to investigate the relationship of innovative inputs, patent and production outputs. We estimate the panel models by pooled IV (Instrument Variable)/Two-stage Estimated Generalized Least Squares (EGLS) to correct for endogeneity of explanatory variables due to omitted variable problem or measurement error problem. The result suggests that

technological innovation plays an important role in promoting productivity and economic development.

Part II includes three chapters which focus on the effects of public-sector activities on private consumption. In Chapter 4, based on the pooled data of Japan and the US, we apply an augmented consumption function to investigate the effects of private investment, government consumption, and public debt on private consumption by the methods of pooled OLS and Seemingly Unrelated Regression (SUR). It is shown that public debt may bring net wealth to private agents in some degree. It is also shown that government consumption contributes greatly to private consumption.

In Chapter 5, based on the assumption of inter-temporal optimization and "effective" consumption theory, we investigate the effects of public-sector activities on private consumption in Japan by the methods of OLS and SUR for system equtions. It is shown that: (i) government consumption exhibits strong positive effect on private consumption. It is similar to Feldstein (1982) and Cambell and Mankiw (1990), but is different from Kormendi (1983), Aschauer (1985) and Graham (1993); (ii) public debt has relatively weak positive effect on private consumption. This accords with Feldstein (1982), while contradicts Kormendi (1983).

In Chapter 6, we develop the "effective" consumption theory, and combine it with Euler equation to estimate the effects of public-sector activities on private consumption for Japan (1964-2000). We find that: (i) government consumption expenditure exhibits stronger influence on private consumption expenditure than public debt outstanding; (ii) current government consumption expenditure and public debt outstanding show positive effects on private consumption expenditure, which is contrary to their past values; (iii) current public debt outstanding as well as its past values and past government consumption expenditures, may affect present government consumption expenditure.

Part III includes three chapters which focus on the effects of public-sector activities on economic efficiency. In Chapter 7, we present panel estimation on the performance of government procurement system reform using China's provincial data over the period 2001-2004. It is shown that changes in centralized procurement ratio, open bidding ratio and treasury direct payment ratio mostly positively affect fiscal money savings (ratios). It is also shown that the enforcement of "Government Procurement Act" started in 2003 is effective, and the modernization process of government procurement practices in China is rapid and successful.

In Chapter 8, we apply Dynamic Computable General Equilibrium Models (DCGEM) to investigate the influences of uniform commodity taxation on the labor and capital's prices and supplies, and the consumer's utility level using Japanese 2000 I/O table. We make a comparison to labor and capital taxation. It is shown that increases in commodity taxation do much more harms to economic efficiency than labor and capital taxation.

In the last chapter, we decompose export rebate into three factors (that is, FOB price, foreign exchange rate and tax rebate rate), and estimate their effects on export growth by Multiple Regression and GARCH models for China. At the same time, we apply static game model to analyze the interactions between export enterprise and tax authority. The main results are: (i) the influence of foreign exchange rate on export growth is the greatest and increase of 1% in the former may bring about 1.2% of increase in the latter; (ii) changes in FOB price and export growth show 1:1 relationship; (iii) the estimated coefficient on the lagged one period's export tax rebate rate is positive but small (0.003) under significance level of 1%.

Text Figures

Text Tables