EFFECTS OF GOVERNMENT EXPENDITURE, FISCAL POLICY AND INSTITUTIONS ON THE ECONOMIC GROWTH OF ASIAN ECONOMIES

HUSSIN ABDULLAH

FEP 2008 2
EFFECTS OF GOVERNMENT EXPENDITURE, FISCAL POLICY
AND INSTITUTIONS ON THE ECONOMIC GROWTH OF ASIAN
ECONOMIES

By

HUSSIN ABDULLAH

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfilment of the Requirements for the Degree of Doctor of Philosophy

April 2008
DEDICATION

This work is dedicated,

To the memories of my late mother Hajah Sanah Mohd Yusof for her love, wisdom and sacrifices,

To my beloved wife Normala Mehat and loving daughter Nur Syasya Alya and sons; Muhammad Hilmi, Muhammad Haikal, Nasrun Akmal and Nasrun Haziq. “Thanks for your loving care and endless encouragement”
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEDICATION</td>
<td>ii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>ABSTRAK</td>
<td>v</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>vi</td>
</tr>
<tr>
<td>APPROVAL</td>
<td>viii</td>
</tr>
<tr>
<td>DECLARATION</td>
<td>x</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xiv</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xvi</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>xvii</td>
</tr>
</tbody>
</table>

## CHAPTER

### 1 OVERVIEW OF THE STUDY

1.1 Introduction 1
1.2 The Issues
   1.2.1 Growth and Government Expenditure 4
   1.2.2 Fiscal Policy and Economic Growth 15
   1.2.3 Role Institutions and Economic Growth 19
   1.2.4 Interaction term and Economic Growth 27
1.3 Problem Statement 28
1.4 General and Specific Objectives of the Study 33
1.5 Significance of study 33
1.6 Scope of the Study 36
1.7 Organization of study 37

### 2 ECONOMIC BACKGROUND

2.1 Introduction 38
2.2 Fiscal Operation 40
2.3 Revenue and Expenditure Structure 45
2.4 Financing the Fiscal Deficits 49
2.5 Fiscal Consolidation 56
2.6 Efficiency of Rule of Law and Institutions 58
2.7 Historical Fiscal Policy Orientation 63

### 3 LITERATURE REVIEW

3.1 Theoretical Literature
   3.1.1 Economic Growth Theory 73
   3.1.2 Government Expenditure and Economic Growth 75
   3.1.3 Fiscal Policy and Economic Growth 82
   3.1.4 Role Institutions and Economic Growth 86
   3.1.5 Interaction Term and Economic Growth 90
3.2 Empirical Literature
   3.2.1 Economic Growth 92
   3.2.2 Government Expenditure and Economic Growth 93
   3.2.3 Fiscal Policy and Economic Growth 99
4 METHODOLOGY AND DATA
4.1 Specification of the Model 112
4.2 Theoretical Growth Model using Production Function 113
  4.2.1 Extension of the Model 119
  4.2.2 Relationship between Institutions and Economic Growth 125
  4.2.3 Extension of the Model for Interaction Term 126
4.3 Estimation Procedure 128
  4.3.1 Time Series Unit Root Tests 128
  4.3.2 Panel Unit Root Tests 129
4.4 Co-integration Tests 139
  4.4.1 Panel Co-integration Tests 139
  4.4.2 FMOLS Estimation 145
4.5 Dynamic Panel Data Analysis 148
  4.5.1 OLS Levels Estimation and Within Groups Estimation 151
  4.5.2 GMM Estimators for Dynamic Panel Data Model 154
    - One-step and Two-step GMM 154
  4.5.3 GMM Estimators for Dynamic Panel Data Model 162
    - System GMM 162
  4.5.4 The Sargan/Hansen Test for Over-identifying Restrictions 167
4.6 Data and Choice of Variables 170

5 RESULTS AND DISCUSSIONS
5.1 Preliminary Analysis 175
  5.1.1 Time Series Unit Root Tests 175
  5.1.2 Panel Unit Root Tests 176
5.2 Co-integration Tests 181
  5.2.1 Panel Co-integration Tests 182
  5.2.2 Co-integration Estimation Results - FMOLS 184
5.3 Dynamic Panel Data Estimators 203
  5.3.1 OLS and Within Groups Results 204
  5.3.2 First Differenced GMM and System GMM Results 211
  5.3.3 Diagnostic Results 222
5.4 Summary 224
6 CONCLUSIONS
6.1 Summary 227
6.2 Conclusion 236
6.3 Policy Implication 238
6.4 Limitations of the Study 245
6.5 Suggestion for Further Studies 246

REFERENCES 248
APPENDICES
   Appendix A 263
   Appendix B 273
   Appendix C 277

BIODATA OF STUDENT 283
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Growth Rates of Real GDP and Government Expenditure (% of GDP) for Developed Countries</td>
<td>5</td>
</tr>
<tr>
<td>1.2</td>
<td>Growth Rates of Real GDP and Government Expenditure (% of GDP) for Developing Countries</td>
<td>6</td>
</tr>
<tr>
<td>1.3</td>
<td>Government Expenditure (as % of GDP) and Annual Growth Rates of Real GDP for Selected Asian Countries</td>
<td>9</td>
</tr>
<tr>
<td>1.4</td>
<td>Asian Economies; General Government budget balance (percentage of GDP)</td>
<td>18</td>
</tr>
<tr>
<td>2.1</td>
<td>Asian Economies; General Government Budget Balance (percentage of GDP)</td>
<td>43</td>
</tr>
<tr>
<td>2.2</td>
<td>Fiscal Operation in East, Southeast, and South Asian Regions, 1985-2003 (% of GDP)</td>
<td>44</td>
</tr>
<tr>
<td>2.3</td>
<td>Government Revenue by item (% of revenue)</td>
<td>47</td>
</tr>
<tr>
<td>2.4</td>
<td>Government Expenditure by item (% of Expenditure)</td>
<td>50</td>
</tr>
<tr>
<td>2.5</td>
<td>Fiscal Balance, External Debt, Central Government Debt, and Interest Payment (as a % of GDP)</td>
<td>54</td>
</tr>
<tr>
<td>2.6</td>
<td>Contribution to fiscal consolidation by item (change over the period, as a % of GDP)</td>
<td>58</td>
</tr>
<tr>
<td>5.1a</td>
<td>Panel Unit Root Tests: Level</td>
<td>179</td>
</tr>
<tr>
<td>5.1b</td>
<td>Panel Unit Root Tests : First Difference</td>
<td>180</td>
</tr>
<tr>
<td>5.2</td>
<td>Panel Cointegration Tests for Heterogeneous Panel (dependent variable: real per capita GDP)</td>
<td>185</td>
</tr>
<tr>
<td>5.3a</td>
<td>Within Group FMOLS Results, Without Time Dummies - Dependent variable: real GDP per capita 206</td>
<td>191</td>
</tr>
<tr>
<td>5.3b</td>
<td>Panel Group FMOLS Results, Without Time Dummies - Dependent variable: real per capita GDP</td>
<td>192</td>
</tr>
<tr>
<td>5.4a</td>
<td>Within Group FMOLS Results, With Time Dummies - Dependent variable: real GDP per capita</td>
<td>197</td>
</tr>
</tbody>
</table>
5.4b Panel Group FMOLS Results – With Time Dummies
- Dependent variable: real per capita GDP

5.5a Estimation of the Model 1 and Model 3
- Dependent variable $\Delta \ln rgdpc_{it}$

5.5b Estimation of the Model 2 and Model 4
- Dependent variable $\Delta \ln rgdpc_{it}$

5.5c Estimation of the Model 5 and Model 6 (with interaction)
- Dependent variable $\Delta \ln rgdpc_{it}$

6.1 Summary of the Sign of Long Run Effect
B1 Level/Constant (ADF unit root tests on individual data)
B2 Level/Constant + Trend (ADF unit root tests on individual data)
B3 First Difference/Constant (ADF unit root tests on individual data)
B4 First Difference /Constant + Trend (ADF unit root tests on individual data)
C1 Individual Fully Modified OLS estimator
- (dependent variable is real per capita GDP (rgdpc)
C2 Individual Fully Modified OLS estimator
- (dependent variable is real per capita GDP (rgdpc)
C3 Individual Fully Modified OLS estimator
- (dependent variable is real per capita GDP (rgdpc)
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>Changes in the Rule of Law</td>
<td>24</td>
</tr>
</tbody>
</table>
EFFECTS OF GOVERNMENT EXPENDITURE, FISCAL POLICY AND INSTITUTIONS ON THE ECONOMIC GROWTH OF ASIAN ECONOMIES

By

HUSSIN ABDULLAH

April 2008

Chairman: Professor Muzafar Shah Habibullah, PhD
Faculty: Economics and Management

This study determines the long run relationship between government expenditure, fiscal policy and economic growth, the role of institutions on economic growth, and whether institutions require complimentary factors to influence economic growth through an interaction term effects between government expenditure and institutions, and fiscal policy and institutions on economic growth of thirteen Asian economies. It is particularly important because economic growth has declined and become stagnant significantly and government expenditure does not inhibit the full exploitation of the growth potential of Asian economies. There is also a broad consensus that the developments in fiscal policies contribute to the relatively weak growth performance. Weak fiscal positions have left little room for further fiscal expansion in most Asian economies when faced by economic slowdown. Generally efficiency of the role of institutions is sadly lacking, and there are numerous deficiencies in the functioning of
role of institutions in Asian countries. We formulated a simple growth model which is based on the augmented version of the Solow model in a sample of thirteen Asian countries as case studies using recently developed panel cointegration methods; FMOLS introduced by Pedroni (1996, 2000 and 2001) and GMM estimators developed for dynamic models of panel data, introduced by Arellano and Bond (1991) and Blundell and Bond (1998). The findings indicate that there is a positive and negative coefficient and significant long run relationship between government expenditure, fiscal policy and economic growth. The results of institutions and interaction term indicate that there is a role of institutions and the institutions require complimentary factors to influence economic growth through an interaction term effects. The findings also indicate that initial real per capita GDP, saving in physical capital (investment) and population growth rate are in line with Solow model which is the negative coefficient on initial GDP as in most published growth regressions is interpreted as conditional convergence while investment and population growth are positive and negative, respectively. Several important conclusions can be drawn from the study. Government policies and institutions seem to play an important role and attract investment are correlated with higher growth. It is also possible to account for plausible interactions drawing upon research from various disciplines in social sciences. It can be hoped that models built using an interdisciplinary approach can better account for observed variation in the data.
LIST OF ABBREVIATIONS

ADB  Asian Development Bank
ADF  Augmented Dickey-fuller
AIC  Akaike Information Criterion
BERI Business Environment Risk Intelligence
FDI  Foreign Direct Investment
FMOLS Fully Modified Ordinary Least Square
GCC Cooperation Council Countries
GDP  Gross Domestic Production
GNP  Gross National Production
GMM Generalized Method of Moment
ICRG International Country Risk Guide
IMF  International Monetary Funds
IPS Im, Pesaran and Shin
LDCs Less Developed Countries
LLC Levin, Lin and Chu
MW  Maddala and Wu
OECD Organization for Economic Co-operation and Development
OLS Ordinary Least Square
PVBC Present-Value Borrowing Constraint
SAARC South Asian regional Cooperation Council
SOEs State Owned Enterprises
System GMM System Generalized Method of Moments
VAR Vector Autoregression
WDI World Development Indicator
PKC  China
HKG  Hong Kong
KOR  Korea
JPN  Japan
INDO Indonesia
MAL  Malaysia
PHIL Philippines
R&D  Research and Development
SIN  Singapore
THAI Thailand
BAN  Bangladesh
IND  India
PAK  Pakistan
SRI  Sri Lanka

xvii
Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

KESAN PERBELANJAAN KERAJAAN, DASAR FISKAL DAN INSTITUSI KE ATAS PERTUMBUHAN EKONOMI BAGI EKONOMI ASIAN

Oleh

HUSSIN ABDULLAH

April 2008

Pengerusi: Professor Muzafar Shah Habibullah, PhD

Fakulti : Ekonomi dan Pengurusan

Kajian ini menentukan hubungan jangka panjang di antara perbelanjaan kerajaan dan dasar fiskal dengan pertumbuhan ekonomi, menentukan peranan institusi ke atas pertumbuhan ekonomi, dan menentukan sama ada institusi memerlukan faktor sampingan untuk mempengaruhi pertumbuhan ekonomi melalui kesan terma kerjasama di antara institusi dan perbelanjaan kerajaan, serta institusi dan dasar fiskal ke atas pertumbuhan ekonomi di tiga belas negara-negara Asia. Kajian ini penting terutamanya kerana didapati pertumbuhan ekonomi telah menurun dan menjadi signifikan lembab dan perbelanjaan kerajaan tidak berada di dalam penerokaan yang sepenuhnya dalam potensi pertumbuhan di dalam ekonomi Asia. Terdapat juga pendapat yang menyatakan pembangunan dalam dasar-dasar fiskal menyumbang kepada kelemahan prestasi pertumbuhan ekonomi. Umumnya terdapat kekurangan kecekapan peranan institusi dan
ACKNOWLEDGEMENTS

Fist and foremost, I would like to take this opportunity to convey my highest appreciation to my supervisor Prof. Dr. Muzafar Shah Habibullah for his time, patience, valuable suggestions and tremendous support throughout the period of the study. His consistent guidance and advice had allowed me to successfully complete this thesis. I would also like to thank Professor Dr. Ahmad Zubaidi Baharumshah and Associate Professor Dr. Tan Hui Boon as members of my supervisory committee for their suggestions, views and comments at various stages of the study.

I am very grateful to my wife, Normala Mehat for her patience, especially for tolerating the vacuum I created during the period of this study. I thank her and my daughter and sons for enabling me to accomplish my life long dream.

Special thanks also go to all friends, especially Dr. Tajul Ariffin Masron (USM), Dr. Sivabalasingam Veerasingam (Ministry of Finance Malaysia), Dr. Mohamad Fuzi Saidin (PUSRAWI) and Mr. Azam Masbah (Legal Aid Bureau), who had always encouraged me to endure this difficult task, given me their warmest helps along my path to graduation, and accompanying me during my most difficult time, and happiest hours in the campus. My sincere appreciation also goes to the Library Unit, Central Bank of Malaysia, particularly Mr. Mohd. Fauzi Hussain (Executive) for providing me with the required data.
This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of requirements for the degree of Doctor of Philosophy. The members of the Supervisory Committee are as follows:

**Muzafar Shah Habibullah, PhD**  
Professor  
Faculty of Economics and Management  
Universiti Putra Malaysia  
(Chairman)

**Ahmad Zubaidi Baharumshah, PhD**  
Professor  
Faculty of Economics and Management  
Universiti Putra Malaysia  
(Member)

**Tan Hui Boon, PhD**  
Associate Professor  
Faculty of Economics and Management  
Universiti Putra Malaysia  
(Member)

---

**AINI IDERIS, PhD**  
Professor and Dean  
School of Graduate Studies  
Universiti Putra Malaysia

Date: 10 July 2008
DECLARATION

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or at any other institution.

_____________________________
HUSSIN ABDULLAH

Date: 13th May 2008
I certify that an Examination Committee has met on 14th April 2008 to conduct the final Examination of Hussin Abdullah on his Doctor of Philosophy thesis entitled “Fiscal Policy, Institutions and Economic Growth in Asian Economies” in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

**Zulkornain Yusop, PhD**
Associate Professor Faculty of Economics and Management
Universiti Putra Malaysia
(Chairman)

**Zakariah Abdul Rashid, PhD**
Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Internal Examiner)

**Law Siong Hoo, PhD**
Lecturer
Faculty of Economics and Management
Universiti Putra Malaysia
(Internal Examiner)

**Pazim@Fadzim Othman, PhD**
Professor
Faculty of Economics and Administration
Universiti Malaya
(External Examiner)

HASANAH MOHD. GHAZALI, PhD
Professor/Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:
CHAPTER 1

OVERVIEW OF THE STUDY

1.1 Introduction

Economic growth serves as the prominent standard for measuring the performance of an economy. It is the most important factor in the success of nations, and should be the central objective of every developed or developing country’s governmental policy. Countries succeeding in the race to prosperity serve as models for other developed or developing nations seeking to emulate them and increase their affluence.

Economic growth implies increases in per-capita real gross domestic product (GDP), namely widening of the production scale in a country as a whole, or more efficient use of its economic resources to produce goods and services. Although development per se encompasses a wide range of phenomena ranging from indicators of “quality of life” to “human development,” the increase in per-capita GDP is a major component of economic and social development. Since the scale of production or productivity can only be increased in the long run, secular economic growth is considered a long run phenomenon (Kibritcioglu and Dibooglu, 2001).

Classical economists such as Smith, Ricardo, Marx, and Malthus were concerned with the growth of the economy. These classical economists focused on the savings-
investment nexus, as the main factors influencing the growth process. Effects on savings and capital formation in particular had to be considered, if fiscal operations deter growth. To avoid distorting effects on the overall level of capital formation, public investment is to be loan-financed, diverting savings from private into public capital outlays. The burden of public consumption in turn is to be borne in the current period and to be paid for by taxation. The Solow growth model is a model of growth that shows how savings, depreciation and population growth determine steady-state economic growth.

When Keynesian economics took over in the 1930s, the macro model shifted from a presumption of market clearance to the one of market jamming. Unemployment became the dominant policy concern, and the Keynesian view of market failure – the system’s inability to balance savings and investment at full employment, along with the importance of monetary policy to overcome an infinitely elastic liquidity preference – assigned fiscal policy a unique position in overcoming these ills (Mario et al., 1997).

Before World War I, economists worked in a tradition that was mainly for peace, free trade, and self-adjusting mechanisms of a market economy and for limited government. The Great Depression of the 1930s generated dissatisfaction among certain economists over the classic laissez-faire model in explaining the high and persistent unemployment. The Great Depression brought considerable harm to the world economy, as beggar-thy-neighbor policies and protectionism spread, and resulted in negative growth in many countries during early to mid-1930s. As mentioned earlier, much of the skepticism toward laissez-faire gained momentum during the Great Depression, when
unemployment and poverty reached levels that had not been thought possible before (Tanzi and Schuknecht, 2000).

With the experience of the industrialized warfare machinery and the expansion of the welfare state, economists found their new expanding field of activity in government, and consequently the dominant philosophy of the discipline changed from laissez faire to interventionism. Keynes’ 1936 General Theory stated that government intervention smooth out fluctuations in the business cycle and this has been reflected by the successful government control of economies in World War II. The Keynesian school of thought suggests that government expenditure accelerates economic growth. Thus, government expenditure is regarded as an exogenous force that changes aggregate output. Economic growth accelerated again after World War II when governments and newly created international institutions provided a more stable and market-friendly economic climate during the postwar reconstruction.

Some economists assign a critical role to the government in the process of economic development. A larger government size is likely to promote economic growth since the government has an important role in reconciling conflicts between private and social interests, and it can secure an increase in productive investment and provide a socially optimal path for economic growth (Ghali, 1998). Once the relationship between the size of government and economic growth is tested and understood, it can be used in an appropriate manner to increase the growth rate of an economy.
Governments in recent decades have been relying more and more on the forces of the marketplace and reducing their intervention in market outcomes. The government’s role should be more of a protector of the disadvantaged and a regulator of private sector activity – not as a direct producer of goods and services other than defense and domestic law and order. Currently, many governments still play an excessive role in their economies. But a lesser role would improve economic efficiency and living standards, and would also improve society by eliminating the government’s assistance to particular groups that do not create employment for the lower skilled.

1.2 The Issues

This section will focus on the issues of government expenditure, fiscal policy, institutions and interaction term with economic growth.

1.2.1 Growth and Government Expenditure

In traditional Keynesian macroeconomics, many kinds of government expenditure can contribute positively to economic growth. High levels of government consumption are likely to increase employment, profitability, and investment via multiplier effects on aggregate demand. Thus, government expenditure raises aggregate demand, leading to increase output depending on the size and effectiveness of expenditure multipliers. Günalp and Gür (2002) stated that the size of government is one of the most frequently employed variables, since it can be directly influenced by government policies. If the size of government can affect the growth rate of output, then, it can be an important factor in explaining the observed differences in long run growth rates among countries.
Table 1.1 applies to 16 developed countries, the major countries in Europe plus the United States, Canada, and Australia. These data show an average per capita growth rate of GDP of 2.2 percent per year and an average government expenditure of 32.5 percent of GDP over roughly a century, with a breakdown by a 10-year period as shown in the table. The reduction in the growth rate of GDP from 2.8 percent per year in 1970-1979 to 1.7 percent per year in 1990-1999 corresponds to the often-discussed productivity slowdown. On the expenditure side, government expenditure increases from 28.1 percent of GDP in 1970-1979 to 35.7 percent of GDP in 1990-1999. Generally, the developed countries tend to have larger governments.

Table 1.1: Growth Rates of Real GDP and Government Expenditure (% of GDP) for Developed Countries

<table>
<thead>
<tr>
<th>Period</th>
<th>Growth Rate of GDP (percent per year)</th>
<th>Government Expenditure (as a percentage of GDP)</th>
<th>Number of Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-1979</td>
<td>2.8</td>
<td>28.1</td>
<td>16</td>
</tr>
<tr>
<td>1980-1989</td>
<td>2.1</td>
<td>33.7</td>
<td>16</td>
</tr>
<tr>
<td>1990-1999</td>
<td>1.7</td>
<td>35.7</td>
<td>16</td>
</tr>
</tbody>
</table>


Table 1.2 contains figures for 16 developing countries in Asia and Latin America. The average growth rate from 1970-1999 is 5.1 percent per year, and for government expenditure is about 16.9 percent of GDP. The breakdown into three sub-periods is as shown in the Table. The size of governments in developing economies is significantly smaller in terms of general government\(^1\) activities.

\(^1\) General government is the consolidated account of the central government, provincial and local governments, plus other government entities including social security fund (Kohsaka, 2004).
If we look at Table 1.1 and Table 1.2, we see a very different picture of growth and government expenditure. Growth in developing countries was, on average, more than 2.9 percent a year in 1970–1999 as compared to developed countries. On the government expenditure side, developed countries have more than 15.6 percent of GDP compared to developing countries. Another interesting point is that any increases in government expenditure would result in slower economic growth in the economy as a whole.

Recently, in reviewing the experience of developing economies, the government expenditure is smaller in terms of volume of percentage but the growth rate of GDP tends to have larger shares of percentage. By contrast, developed countries have larger government expenditure and smaller growth rate of GDP. Generally, we can conclude that the effect of government expenditure on economic growth is negative for developing economies. Between 1970 and 1999, the government expenditure in developed economies grew much faster than that of the developing economies. That means developed economies, on average, spend 32.5 percent of GDP higher than developing economies which is about 16.83 percent of GDP. On the other hand, from 1970 to 1999, the average growth rate of GDP has been declining for both economies.