

**TOTAL FACTOR PRODUCTIVITY AND PERFORMANCE
OF RESOURCE-BASED INDUSTRY IN MALAYSIA**

BY

ROZILEE BIN ASID

EGA 99031

**SUBMITTED TO THE FACULTY OF ECONOMICS AND
ADMINISTRATION, UNIVERSITY OF MALAYA IN
PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE DEGREE OF MASTER OF ECONOMICS**

OCTOBER 2001

Perpustakaan Universiti Malaya



A511375327

Acknowledgement

I would like to express my gratitude to Associate Professor Dr. Idris Jajri for his valuable advice and guidance throughout the preparation of this research paper. To my family, especially my mother, Pn. Lasah bte Ag. Basar and father Mr. Asid bin Asin, and also my brothers and sisters, a very special mention, not only for their patience, encouragement and attention during the period of my study but also for every aspect of my life.

To Djuliana Jamaludin, thank you for your support and to Mohd. Safri Saiman, Irwaan Iskandar Abraham and Yusnieza Syarmila Yusoff thanks for your help during our study sessions and all friends, thank you for your cooperation, which gave me strength and encouragement during the completion of this research. Thank you, May Allah bless you all.

Abstracts

The development of Resource Based Industries (RBIs) in Malaysia since it was first launched in 1984 has seen as turning point of the industry to gain momentum in line with the corresponding industrial policy. By using the two inputs Cobb-Douglass model specifically growth accounting model, this study tries to estimate the total factor productivity (TFP) growth for the periods of 1981-1997 in collaboration to review its development and resilient performance. Using the 3-digit-level industrial classification, it was found that six (out of 14) of the RBIs show a positive gain of TFP growth. In broad categories (5-digit-level classification), 30 industries (out of 61) were identified and classified with high, medium and low positive growth. Although the industry (RBIs) is classified as 'sunset industry' since the former industrial policy concentrated and sound favourable to its counter part (Non-RBIs especially for electronic and electrical appliances) but for one reason the industry still contributes positively in terms of labour absorption, value added increment and capital accumulation (compared to Non-RBIs). Since the industry is not competitive (export performance) in world markets due to uncertainty (in price especially for wood and wood products and rubber products) and competition (study empirical finding), it is hoped that the Second Industrial Master Plan or IMP2 (1996-2005) would inject a new direction for the expansion and development of this industry.

Contents

<i>Acknowledgement</i>	<i>i</i>
<i>Abstracts</i>	<i>ii</i>
<i>List of Tables</i>	<i>vi</i>
<i>List of Charts</i>	<i>vii</i>
<i>List of Appendices</i>	<i>viii</i>

Chapter 1	Page
Introduction	
1.1 Performance of manufacturing industries in Malaysia	1
1.2 Objectives of Study	1
1.3 Organization of Study	2
Chapter 2	
Literature Review on Total Factor Productivity (TFP)	
2.1 Introduction	4
2.2 Definition of Productivity and TFP	4
2.3 Previous Studies of Total Factor Productivity (TFP)	5
2.4 Some Preliminary Findings	13
Chapter 3	
Resource Based Industry in Malaysia	
3.1 Introduction	14
3.2 Previous Study in RBIs	15
3.3 Characteristics of RBIs	19
3.4 Importance of RBI	20
3.4.1 Employment Opportunities	20
3.4.2 Contribution to GDP	23
3.4.3 Manufacturing Investment in RBIs	26
3.5 Conclusion	28

Chapter 4

Methodology of Study

4.1	Introduction	29
4.2	Theoretical Framework	29
4.3	Limitation of Study	33
4.3.1	Limitation of Model	33
4.3.2	Limitation of Measurement	33
4.3.2.1	Measurement of Output	33
4.3.2.2	Measurement of Capital	34
4.3.2.3	Measurement of Labour	35
4.4	Source of Data and Measurement	35
4.4.1	Value Added	35
4.4.2	Capital Input	36
4.4.3	Labour Input	36
4.5	Statistical Package	36
4.6	Estimation Step and Procedure	36
4.7	Determinants Factor of TFP Growth	37
4.7.1	Explanation of explanatory variables	38
4.7.1.1	Value added growth	38
4.7.1.2	Exports Growth	38
4.7.1.3	Wage per Unit Labour	38
4.7.1.4	Capital-to-value added ratio (CVAR)	39

Chapter 5

Total Factor Productivity (TFP) Growth:

An Empirical Analysis

5.1	Introduction	40
5.2	The TFP Growth: Aggregated RBIs, Non-RBIs and Total Manufacturing	40
5.3	The TFP Growth for 3-Digits Level	44
5.4	The TFP Growth for 5-Digits Level	48
5.5	Total Factor Productivity Growth: Empirical Finding	51

5.6	Factors That Contribute to TFP Growth: Empirical Finding	59
5.7	Conclusion	64

Chapter 6

Conclusion and Policy Implication

6.1	Introduction	65
6.2	The Industrial Master Plan: What Can We Expect?	65
	6.2.1 The Industrial Master Plan (IMP): The Enhancement of Prevailing Policies	65
6.3	Future Prospects of RBIs in Malaysia	70
6.4	Related Future Issues in RBIs and Manufacturing	75
	6.4.1 Manpower Constraint	75
	6.4.2 Technology Advancement	78
	6.4.3 Competition and Uncertainty	79
6.5	Conclusion	80

Bibliography

Appendices

List of Tables

<i>Table 3-1</i>	Employment by Sector (1980-2005), percentage (%)	22
<i>Table 3-2</i>	Share in Gross Domestic Product by Industrial Origin, 1970-2005 (percentage)	24
<i>Table 3-3</i>	Growth of Manufacturing Industries, 1995-2000	25
<i>Table 3-4</i>	Approved Manufacturing Project, 1996-2000	27
<i>Table 5-1</i>	The Regression Equation: RBIs, Non-RBIs and Total Manufacturing Sector, 1981-1997	41
<i>Table 5-2</i>	Explanation of Source of Growth 1981-1997: RBIs, Non-RBIs and Total Manufacturing Sector	42
<i>Table 5-3</i>	The Estimated Regression Equation for All 14, 3-Digits RBIs	45
<i>Table 5-4</i>	Explanation of Source of Growth 1981-1997: 3-Digits Industry	46
<i>Table 5-5</i>	Explanation of Source of Growth 1981-1997: Positive TFP 5-Digits Industry	49
<i>Table 5-6</i>	Explanation of Source of Growth 1981-1997: Negative TFP 5-Digits Industry	50
<i>Table 5-7</i>	TFP Contribution and Industrial Ranking for RBIs: 3-Digits Level	52
<i>Table 5-8</i>	Gross Exports of Resource Based Industry (RBIs): 1981-2000	54-55
<i>Table 5-9</i>	TFP per Output contribution and Industrial Ranking for RBIs: 3 & 5-Digits Level, 1981-1997	57-58
<i>Table 5-10</i>	TFP, Exports and Output Growth Rates, 1982-1997 Annual Average (Selected Industry)	60
<i>Table 5-11</i>	Estimated Regression Equation for Selected 3-Digits RBIs	62
<i>Table 6-1</i>	Selected Industrial Production Index (value added Growth) for RBIs, 1990-2000	71
<i>Table 6-2</i>	Malaysia: Total Approved Manufacturing Investment by Industry, 1980-1999	73
<i>Table 6-3</i>	Expected Demand for Workers by Industry, 1990-1998	77

List of Charts

<i>Chart 6-1</i> The IMP1: The Strategic Emphasis of Industries in Relation to Market and Resources	67
<i>Chart 6-2</i> The IMP2 Strategy: Value Chain of Manufacturing	69

List of Appendices

<i>Appendix A-1</i>	The Regression Equation for Cyclical Periods: RBIs, Non-RBIs and Total Manufacturing	P-1
<i>Appendix A-2</i>	Resource Based Industry: 3-Digits Level Classifications	P-2
<i>Appendix A-3</i>	Pattern of TFP Growth for 3-Digits Level of RBIs: 1981-1997	P-3: P-4
<i>Appendix A-4</i>	Resource Based Industry: 5-Digits Level Classifications	P-5: P-6
<i>Appendix A-5</i>	The Estimated Regression Equation for All 61, 5-Digits Levels RBIs: 1981-1997	P-7: P-9
<i>Appendix A-6</i>	Percentage Contribution of Gross Exports RBIs and Non- RBIs: 1981-2000	P-10
<i>Appendix A-7</i>	Ranking for Resource Based Industry: 3-Digits Levels Classifications	P-11
<i>Appendix A-8</i>	Ranking for Resource Based Industry: 5-Digits Levels Classification	P-12
<i>Appendix A-9</i>	Strategic Emphasis for Resource Based Industry in Eight Malaysia Plan (2001-2005)	P-13: P-14