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***TOTAL FACTOR PRODUCTIVITY IN INDONESIAN
MANUFACTURING, 1975-1993***

Henricus Haryo Aswicahyono

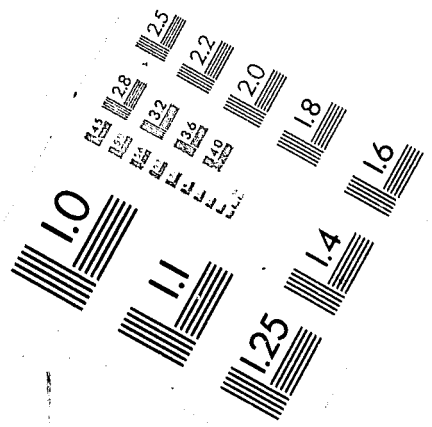
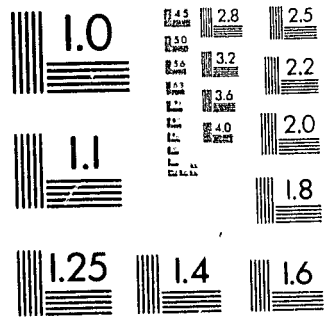
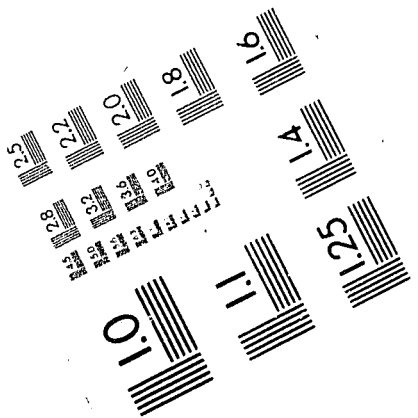
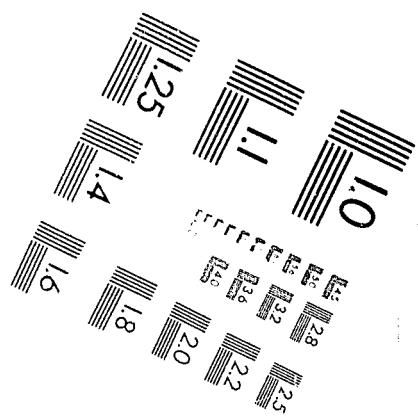
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Doctor of Philosophy
of The Australian National University

September 1998

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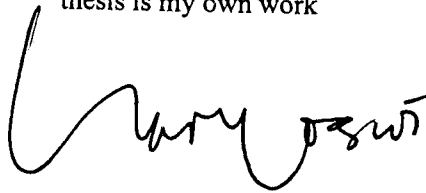
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A handwritten signature in black ink, appearing to read 'Haryo Asicahyono', with a large, sweeping initial 'H'.

H. Haryo Asicahyono

September 1998

ACKNOWLEDGEMENTS

This study has benefited from the supervision by a number of people. I owe the greatest intellectual debt to my thesis supervisor, Professor Hal Hill, who provided excellent guidance and support throughout the course of this thesis, and whose encouragement led to a greatly improved final draft. Professor Hal Hill was always enthusiastic about my work, made himself available for consultation and was very prompt in giving comments. I am also grateful to Dr George Fane and Dr Kali Kalirajan, my thesis advisers, whose advice on several technical issues was extremely valuable. I have also benefited from discussions with Kelly Bird and Agus Setiabudi at the various stages of this study.

I express my thanks to Dr. Hadi Soesatro, Dr. Mari Pangestu, Mr. Harry Tjan Silalahi, Ms Clara Juwono, and Ms Threes Hendarti who went beyond the call of institutional ties to give encouragement and support throughout the course of the thesis. I wish also to gratefully acknowledge the financial support of the Centre for Strategic and International Studies and AUSAID for the funding of the coursework and the thesis. I have benefited greatly from the excellent facilities provided by the Department of Economics, RSPAS, and Indonesia Project. I also wish to thank the staff of the *Badan Pusat Statistik* for providing much help with requests for data. Special thank are owed to Carol Kavanagh who kindly proof-read the final draft of the thesis. I also appreciate the assistance provided throughout the course of the thesis by Sonya Bodger, Liz Drysdale, and David Dinham.

A long period of study would not have been possible without warm and friendly environment. I greatly appreciate the kindness and hospitality of Graham and Catharina Williams during my stay in Canberra. To my friends, Chatib Basri, Kelly Bird, Hanafie

Sofyan, Kurnya Roesad, Agus Setiabudi, Endah Sulistyowati, and Nugrahani, I thank them for the support and joy they have given. I am grateful to my sisters and brothers, especially mbak Ninik, mas Yon, Piping, Nana, mas Budi and mbak Wiwik who provided an excellent environment during my stay in Jakarta. Last but not least, special thanks go to my mother for her prayers, *prihatin* and considerable support.

ABSTRACT

This study uses quantitative techniques to estimate total factor productivity (TFP) growth for three-digit non-oil manufacturing industries in Indonesia over the period 1975 to 1993. The thesis begins with a review of growth and structural change in Indonesian manufacturing. Next, a literature review of various aspects of TFP and the theoretical framework is provided. TFP growth for individual sectors and aggregate TFP growth are calculated and presented to demonstrate the effect of change in the policy regime on TFP growth. Then, the nexus between the economic environment and TFP is examined.

The first part of the analysis is directed to measuring TFP growth in Indonesian manufacturing. A number of interesting findings emerged from the analysis. It is shown that periods of slower productivity growth coincided with periods of import substitution. It is also shown that economic deregulation from the mid 1980s enhanced TFP growth. Further decomposition of aggregate value added growth analysis reveals that, prior to the deregulation era, a considerable proportion of output growth was derived from reallocation of resources and terms of trade gains, while TFP growth within sectors played a minor role. Conversely, during the deregulation era, reallocation of resources and term of trade gains no longer made substantial contribution to output growth, while TFP growth within sectors became more important.

The second part of the analysis focuses on assessing the economic environment-TFP nexus. It was found that an increase in demand, whether it comes from import substitution or export expansion, has a strong influence on TFP growth. However, separate analysis for the pre and post-deregulation eras suggests that the importance of import substitution

as a TFP growth stimulant diminished during the deregulation era, while export expansion was an important determinant of TFP growth for both periods. It was found that the higher the level of concentration, the higher the TFP growth. This seems to contradict the hypothesis that low competition is associated with high TFP growth. However, using a more accurate measure of competition - the market share instability index - it is shown that competition does positively affect TFP growth. The positive effect of competition on TFP growth is also supported by the finding that protection correlates negatively with TFP growth. The thesis also examined the effect of foreign and government ownership on TFP growth. However, the result is insignificant, probably due to data deficiencies in the estimation of the explanatory variables.

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GLOSSARY AND ABBREVIATIONS

ARI	agricultural resource intensive
ASEAN	Association of Southeast Asian Nations
BAPEKSTA	<i>Badan Pelayanan Kemudahan Ekspor dan Pengolahan Data</i> , Agency for the Administering of Import Duty Drawback and Exemption
BIES	Bulletin of Indonesian Economic Studies
BKPM	<i>Badan Koordinasi Penanaman Modal</i> , Capital Investment Coordinating Board
BPPC	<i>Badan Penyangga dan Pemasaran Cengkeh</i> , clove trading agency
BPS	<i>Badan Pusat Statistik</i> , Central Bureau of Statistics
BULOG	<i>Badan Urusan Logistik</i> , the government's food procurement agency
CBU	completely built up
CKD	completely knocked down
CRS	constant returns to scale
DRC	domestic resource cost
DRS	decreasing returns to scale
ERP	effective rate of protection
FDI	foreign direct investment
GAPPRI	<i>Gabungan Perserikatan Pabrik Rokok Indonesia</i> , Association of Cigarette Producers
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GSP	General System of Preferences
HCI	human capital intensive
HPAEs	highly performing Asian economies

HRC	hot-rolled coil
ICOR	incremental capital-output ratio
IGGI	Inter-Governmental Group for Indonesia, the international donor consortium, to be replaced by CGI (Consultative Group for Indonesia) in 1992
INPRES	<i>Instruksi Presiden</i> , Presidential Instruction
ISIC	International Standard Industrial Classification
JV	joint ventures
KLEM	capital, labour, energy, and raw materials
<i>kretek</i>	clove-flavoured cigarettes
LNG	liquified natural gas
LP	labour productivity
<i>Malari</i>	<i>limabelas Januari</i> , refers to a riot in Jakarta on January 15, 1974
MFA	Mmultifibre Arrangement
MNC	multinational corporation
MRI	mineral resource intensive
MVA	manufacturing value added
New Order	refers to the period since the commencement of President Soeharto's rule, generally taken from March 1966.
NICs	newly industrialising countries
<i>Nota Keuangan</i>	budget, delivered annually in early January
NTB	non-tariff barrier
OECD	Organisation for Economic Cooperation and Development
<i>Pertamina</i>	state-owned oil company
PIR	<i>Perkebunan Inti Rakyat</i> , Nucleus Estate Scheme, a program to assist smallholder cash-crops farmers
PLN	<i>Perusahaan Listrik Negara</i> , State Electricity Corporation
PT	<i>Perseroan Terbatas</i> , limited liability
PVC	polyvinyl chloride, a type of plastic used to make pipe
R&D	research and development
SAKERNAS	<i>Survei Angkatan Kerja Nasional</i> , National Labour Force Survey
SGS	<i>Societe Generale de Surveillance</i> , a private Swiss surveying company which replace Indonesian customs in 1985.

SI	<i>Statistik Industri</i> , Industrial Statistics
SIR	Standard Indonesian Rubber, a grading system for Indonesian rubber
SOE	state owned enterprise
SITC	Standard International Trade Classification
<i>Tata Niaga Impor</i>	approved importers system
TFP	total factor productivity
TI	technology intensive
TRI	<i>Tebu Rakyat Intensifikasi</i> , smallholder cane intensification program
ULI	unskilled labour intensive
UNIDO	United Nation Industrial Development Organisation
VA	value added
WPI	wholesale price index

Notes: unless otherwise specified, all \$ refer to US\$.