Reproduced from *Trade, Protectionism, and Industrial Adjustment in Consumer Electronics* edited by Tan Loong-Hoe and Chia Siow Yue (Singapore: Institute of Southeast Asian Studies, 1989). This version was obtained electronically direct from the publisher on condition that copyright is not infringed. No part of this publication may be reproduced without the prior permission of the Institute of Southeast Asian Studies. Individual articles are available at < http://bookshop.iseas.edu.sg >

TRADE, PROTECTIONISM, AND INDUSTRIAL ADJUSTMENT IN CONSUMER ELECTRONICS

The Institute of Southeast Asian Studies was established as an autonomous organization in May 1968. It is a regional research centre for scholars and other specialists concerned with modern Southeast Asia, particularly the multifaceted problems of stability and security, economic development, and political and social change.

The Institute is governed by a twenty-two member Board of Trustees comprising nominees from the Singapore Government, the National University of Singapore, the various Chambers of Commerce, and professional and civic organizations. A ten-man Executive Committee oversees day-to-day operations; it is chaired by the Director, the Institute's chief academic and administrative officer.

The ASEAN Economic Research Unit is an integral part of the Institute, coming under the overall supervision of the Director who is also the Chairman of its Management Committee. The Unit was formed in 1979 in response to the need to deepen understanding of economic change and political developments in ASEAN. The day-to-day operations of the Unit are the responsibility of the Co-ordinator. A regional Advisory Committee, consisting of a senior economist from each of the ASEAN countries, guides the work of the Unit.

TRADE, PROTECTIONISM, AND INDUSTRIAL ADJUSTMENT IN CONSUMER ELECTRONICS Asian Responses to North America

Edited by

TAN LOONG-HOE
Institute of Southeast Asian Studies

and

CHIA SIOW YUE

National University of Singapore

Field Report Series No. 22
ASEAN ECONOMIC RESEARCH UNIT
INSTITUTE OF SOUTHEAST ASIAN STUDIES
1989

Published by Institute of Southeast Asian Studies Heng Mui Keng Terrace Pasir Panjang Singapore 0511

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the Institute of Southeast Asian Studies.

© 1989 Institute of Southeast Asian Studies

The responsibility for facts and opinions expressed in this publication rests exclusively with the authors, and their interpretations do not necessarily reflect the views or the policy of the Institute or its supporters.

Cataloguing in Publication Data

Trade, protectionism, and industrial adjustment in consumer electronics: Asian responses to North America / edited by Tan Loong-Hoe and Chia Siow Yue.

(Field report series / Institute of Southeast Asian Studies [Singapore]; no. 22)

- 1. Electronic industries -- Asia, Southeastern.
- 2. Electronic industries -- East Asia.
- 3. Electronic industries -- North America.
- 4. North America -- Commercial policy.
- 5. Free trade and protection -- Protection.
- I. Tan, Loong-Hoe.
- II. Chia, Siow Yue.
- III. Institute of Southeast Asian Studies (Singapore).
- IV. Series.

DS 501 I594 no. 22 1989

ISBN 981-3035-26-9 ISSN 0217-7099

Printed in Singapore by Kim Hup Lee Printing Co Pte Ltd

CONTENTS

List	of Tables	vi
List	of Figures	xi
Contributors		xii
Prefa	ace	xiv
I	Protection for Consumer Electronics in North America and Implications for Southeast and East Asia Mohamed Ariff	1
II	Trade, Protectionism, and Industrial Adjustment: The Case of Malaysia's Consumer Electronics Industry H. Osman-Rani	32
III	North American Trade Protectionism, Industrial Adjustment, and Singapore's Consumer Electronics Industry Tan Loong-Hoe and Linda Low	62
IV	Trade, Protectionism, and Industrial Adjustment: The Case of Hong Kong's Consumer Electronics Industry Tzong-Biau Lin and Chyau Tuan	112
V	Industrial Adjustment to Trade Restraints: The Case of the Korean Consumer Electronics Industry Wan-Soon Kim and Chong-Keun Won	159

LIST OF TABLES

1.1	World-wide Demand for Consumer Electronics Products	8
1.2	Characteristics of the Asian Electronics Industry	13
Appe	endix 1.A Market Access for Electronics Products to the United States, 1986	21
Арре	endix 1.B Tariff Schedules of the United States Annotated (1986) Electronics Products Eligible for the U.S. Generalized System of Preferences	23
Appe	endix 1.C Market Access for Electronics Products to the European Community, 1986	25
Appe	endix 1.D Customs Tariff Schedules of Japan, 1985	27
2.1	Growth of Electronic Productions in Malaysia, 1970-83	35
2.2	Exports and Imports of the Export-Oriented Electronics Industry, 1973-82	36
2.3	Paid-up Capital and Fixed Asset Structure of Electronics Firms by Size as at End of 1983	37
2.4	Ownership of Approved Electronics Projects in Malaysia, 1971-81	38
2.5	Structure of the Malaysian Electronics Industry, 1976-84	40
2.6	Production of Selected Electronics Items in Malaysia, 1981 and 1982	42
2.7	Malaysian Export and Import of Electronics Items, 1978, 1981, and 1984	44

2.8	Malaysian Export of Consumer Electronics Products by Destination, 1978	46
2.9	Malaysian Export of Consumer Electronics Products by Destination, 1984	47
2.10	Projected Demand for Major Electronics Products in Malaysia, 1985-95	49
2.11	Projected Supply of Major Electronics Products in Malaysia, 1985-95	50
3.1	Market Access for Singapore's Electronics Products to the United States, the EEC, and Japan	64
3.2	Electronics Markets	66
3.3	Singapore's Exports under the Generalized System of Preferences (GSP) Scheme in 1984	66
3.4	Percentage Distribution and Ranking* of Principal Statistics of the Electronics Industry, 1980-84	69
3.5	Relative Shares of Various Branches of the Electronics Sector, 1980-84	72
3.6	Relative Shares of the Subsectors of the Electronics Industry in Percentage of Total Value Added	73
3.7	Performance of the Consumer Electronics Industry, 1970-84	78
3.8	Singapore's Entry Pattern of Electronics Firms by First Year of Production, Major Source of Capital, and Subsectors, 1967-80	79
3.9	Domestic Exports of Consumer Electronics Products, Singapore, 1979-84	81
3.10	Position of North America in Singapore's Domestic Exports of Consumer Electronics Products, 1984	82
3.11	Firm Survey of Singapore's Consumer Electronics Industry: Major Data	86

3.12	Singapore: Census of Consumer Electronics Firms, 1985		87
3.13	Perceptions of Market Performance		88
3.14	Market Destination of Firms, 1984		89
3.15	Firm's Eligibility for Trade Concessions		90
3.16	Views on Existing Protectionist Policies' Effects on Business Activity		91
3.17	Perceived Effects of Recent Recession on Business Activity		93
3.18	Corporate Responses to Trade Protectionism in the DME Markets		95
3.19	Ways the Singapore Government Can Help Firms/Industries to Effectively Overcome Protectionism from Developed Countries		97
3.20	1986 Budget Provisions of Fiscal Incentives to Promote Investment	â	102
4.1	Growth of Gross Domestic Product in Hong Kong, 1961-81		115
4.2	Growth of International Trade in Hong Kong, 1961-85		116
4.3	A Profile of the Electronics Industry in Hong Kong, 1960-78		117
4.4	General Conditions of Consumer Electronics* in Hong Kong, 1970-84	,	118
4.5	Hong Kong's Export Position of Radios, 1979-81		123
4.6	Unit Value Index of Domestic Exports, Selected Commodities		123
4.7	Main Markets for Domestic Exports of Principal Commodities	:	124
4.8	Relative Performance* of the Major Commodity Groups in Consumer Electronics, Hong Kong, 1977-81		125
4.9	Labour Input and Gross Output of Consumer Electronics in Hong Kong by Sector, 1980-83	1	126

4.10	Consumer Electronics Firms by Ownership, 1983	128
4.11	ISIC 383 in Hong Kong by Size, 1983	130
4.12	Selected Economic Indicators of Consumer Electronics in Hong Kong, 1978-83	132
4.13	Selected Economic Indicators of Consumer Electronics in Hong Kong by Ownership, 1983	134
4.14	Skill Level of Electronics Employees, Selected Years	135
4.15	Total Output (Sales) and Exports of Consumer Electronics in Hong Kong, Selected Years	137
4.16	Production and Export Performance of Foreign Electronics Firms (FEF)	138
4.17	Sales of Electronics Products by Major Markets, by Firms with U.S. and Japanese Interest, 1983	139
4.18	Size Distribution of the Sample by Average Number of Workers Employed	141
4.19	Size Distribution of the Sample by Value of Production	141
4.20	Product Coverage of the Sample	141
4.21	Major Overseas Markets for the Sampled Firms	143
4.22	Actions Taken in Response to Market Changes	143
Appe	endix 4.A Value of Domestic Exports of Consumer Electronics in Hong Kong by 4-Digit Commodity Groups, 1970-84	148
Appe	endix 4.B Annual Changing Rates of Domestic Exports of Consumer Electronics in Hong Kong by 4-Digit Commodity Groups, 1970-84	151
Appe	endix 4.C Relative Position of SITC 4-Digit Commodity Groups as Percentage of Domestic Exports of Sixteen Major Groups in Total	153
Appe	endix 4.D Cost Structure by Major Industrial Groups, 1973-83	155

Appendix 4.E Imports of Selected Electronics Products, Parts, and Components, 1983-84		157
5.1	Production of the Korean Electronics Industry by Type	162
5.2	Exports of Electronics Products by Type	163
5.3	Export of Electronics Goods by Country	164
5.4	Production and Export of Colour TVs	165
5.5	Export of Colour TVs by Country	166
5.6	Import of Electronics Products by Type	168
5.7	Korea's Electronics Products Trade Balance by Country	169
5.8	Production Share by Colour TV Set Makers	170
5.9	Ratio of R&D Expenditures to Total Sales by Industries	171
5.10	Local Content Ratio	173
5.11	Technology Level of Parts and Components	174
5.12	Classification of Respondents	183
5.13	Cost of Foreignness Factors	184
5.14	Ranking of Cost of Foreignness Factors	184
5.15	Results of One-Tailed t-Test	185
5.16	Motivation Factors for Direct Investment in the United States by the Korean Consumer Electronics Industry	186
5.17	Ranking of Motivation Factors by Mean Values	187

LIST OF FIGURES

1.1	Spread of Non-Tariff Barriers Facing Consumer Electronics Imports, 1973-84	7
1.2	Estimated Learning Curve Characteristics of the Products of Television Receivers	10
3.1	Growth and Decline of Value Added Various Labour-Intensive Export-Oriented Industries, 1961-84	70
3.2	Domestic Exports of Electronics Products to North America	83
4.1	Relative Positions of Major Consumer Electronics Products in Hong Kong, 1975-84	121
4.2	Involvement of Local Electronics Firms in Various Phases of the Electronics Business	131
5.1	Korean Consumer Electronics: Production Technology	172

CONTRIBUTORS

Mohamed Ariff, a specialist in International Economics, is Professor of Analytical Economics in the Faculty of Economics and Administration, University of Malaya, Kuala Lumpur.

Wan-Soon Kim is Professor at the College of Business Administration, Korea University, Seoul.

Tzong-Biau Lin holds the chair of Economics at the Chinese University of Hong Kong. He is concurrently Head of New Asia College of the University. By training he specialized in econometrics, but his research interest has been extended to economic development of the Asian NICs. He has published some fifty professional papers and several books on various topics ranging from econometric modelling to trade, tourism, and development issues. He is best known for his ERC Econometric Forecasting Model of the Hong Kong Economy, which has become a member of the Project Link since 1979.

Linda Low is Senior Lecturer at the Department of Economics and Statistics, National University of Singapore. She was Research Fellow, Economic Research Centre, University of Singapore between 1975 and 1978.

H. Osman-Rani is presently Associate Professor of Economics and Director of the Bureau of Research and Consultancy, Universiti Kebangsaan Malaysia, Bangi. He was the Dean of the Faculty of Economics in the same university from 1982 to 1984. He received his Ph.D. from the School of Economics, University of the Philippines in 1977. His research interests and publications are in the fields of industrial development, employment, and poverty.

Tan Loong-Hoe obtained his doctorate at Harvard University under the sponsorship of the Harvard-Yenching Program. Presently, he is Senior Fellow at the Institute of Southeast Asian Studies. He has been Co-ordinator of the Institute's ASEAN Economic Research Unit since April 1985.

Chyau Tuan, Ph.D. (1973), the Ohio State University, was Associate Professor at the National Taiwan University (1973-77) and Associate Research Fellow at the Academia Sinica (1975-77). He has been teaching at the Chinese University of Hong Kong since 1977 and is currently the Chairman of the Department of General Business Management and Personnel Management. He has authored numerous monographs and professional books as well as articles in refereed journals.

Chong-Keun Won is a staff member of the International Trade and Business Department, Hankuk University of Foreign Studies, Dongdaemun-kum Imun-Dong, Seoul.

The project on "Trade, Protectionism and Industrial Adjustment", a joint research effort of the Institute of Southeast Asian Studies (ISEAS), Singapore and the North-South Institute (NSI), Ottawa was organized with the following objectives:

- To generate and disseminate knowledge on the impact of Developed Market Economy (DME) trade frictions on (a) the industry and trade of Less Developed Countries (LDCs) and DMEs; and (b) the importing DMEs. The project, however, is confined to the developing countries of Southeast and East Asia on the one hand and North America on the other, and to a select group of manufacturing industries. It is also important that the research studies and their results be of broader or universal interest and utility given the prevalence of protectionism across all DMEs and the preoccupation of most developing countries with market access questions.
- 2. To produce analyses and lessons which are highly relevant to the concerns of national decision-makers in the countries concerned and elsewhere. For instance, at a very broad and strategic level the origins and future direction of DME protectionism is of concern to developing countries endeavouring to chart their industrial and export development and to manage serious balance of payments and debt servicing problems. The comparative nature of the project allows researchers and decision-makers to assess the merits of various strategic responses to protectionism, particularly within and between the Newly Industrializing Countries (NICs) and the near-NIC group of countries.
- 3. To provide insights on important micro-policy issues (complementing the macro-policy ones in [2]) such as the administration of "voluntary" export restraints (VERs) particularly in the allocation of export licences. For instance, within the textile and government industries of the Asia-Pacific countries, these quota regimes have important implications for economic

efficiency, income distribution, and industrial and technological change.

- 4. To address vital trade and industry policy questions for the Asia-Pacific developing countries by focusing on the related issues of industrial and labour market adjustment in the North American DMEs. The research studies compare how different DME industries have adjusted to import competition, and how effective government policy has been in facilitating (or retarding) industrial and labour market adjustment.
- 5. To strengthen and extend the capabilities of the two collaborating institutions -- ISEAS and the NSI -- to undertake, sponsor, and manage research on trade and protectionism issues. This project also provides an opportunity to create a network of experienced and knowledgeable researchers. The training of capable, young researchers is considered to be of particular importance.

The core of the research project is concerned with individual country/industry studies of the impact of protection in these countries/industries. Three industries were chosen for intensive study, namely: consumer electronics, textiles and garments, and vegetable oils. Studies on these industries were undertaken in selected countries as follows:

Consumer Electronics:

Malaysia, Singapore, Hong Kong, South Korea, and North America

Textiles and Garments:

Indonesia, Philippines, Singapore, Thailand, Hong Kong, South Korea, and North America

Vegetable Oils:

Indonesia, Malaysia, Philippines, Thailand, and North America.

The country/industry studies in the developing countries assess the impact of DME trade barriers on the level, growth, composition, and destination of developing countries' exports and on industrial development more generally. They analyse the industry and firm responses to protectionist barriers including the differences between large and small firms, and domestic and international enterprises. National policy responses to protectionist barriers are also examined. Changes in the overall structure of industrial and trade incentives and thus the countries' general development strategy are assessed. The North American studies are similarly structured with the focus

on the effects of trade restrictions on the process of industrial adjustment (often the stated aim of protectionist measures) as measured by changes in the industry's competitiveness and efficiency. Likewise, these studies examine both the corporate and government adjustment strategies and their interactions.

These studies were discussed at an international conference held on 29-31 August 1986 in Singapore. This was followed by another conference on 2-3 October 1986 in Ottawa, as it was deemed desirable to disseminate further the findings and conclusions of this project to another gathering of academics, officials from both the public and private sectors, and journalists.

The publication programme consists of four separate volumes of these revised and abridged conference papers. The NSI publishes the studies conducted by North American researchers in one volume, while ISEAS publishes the papers by the Asian researchers in three volumes, including this volume.

ISEAS and the NSI received assistance from several institutions in organizing the conferences in Singapore and Ottawa, and in preparing this and other volumes. Both ISEAS and the NSI would like to acknowledge their appreciation of such help. They are grateful to the International Development Research Centre, Canada for the financial support for the project as a whole, as well as the researchers for their contributions and co-operation in the publication process. Needless to say, both the responsibility and credit for the quality and accuracy of statements made rest exclusively with the individual authors.

The Editors