

CAN
EAST ASIA
COMPETE?

Innovation for Global Markets

SHAHID YUSUF
AND
SIMON J. EVENETT



THE WORLD BANK
Washington, D.C.

A copublication of
the World Bank and
Oxford University Press

© 2002 The International Bank for Reconstruction and Development / The World Bank
1818 H Street, NW
Washington, DC 20433

Telephone 202-473-1000
Internet www.worldbank.org
E-mail feedback@worldbank.org

All rights reserved.

First printing September 2002
1 2 3 4 05 04 03 02

A copublication of the World Bank and Oxford University Press.
Oxford University Press
198 Madison Avenue
New York, NY 10016

The findings, interpretations, and conclusions expressed here are those of the author(s) and do not necessarily reflect the views of the Board of Executive Directors of the World Bank or the governments they represent.

The World Bank cannot guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply on the part of the World Bank any judgment of the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this work is copyrighted. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For permission to photocopy or reprint, please send a request with complete information to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA, telephone 978-750-8400, fax 978-750-4470, www.copyright.com.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN 0-8213-4998-8

Cover design by Naylor Design Inc., Washington, DC

Library of Congress Cataloging-in-Publication Data

Yusuf, Shahid, 1949-

Can East Asia compete? : innovation for global markets / Shahid Yusuf and Simon J. Evenett.

p. cm.

Includes bibliographical references and index.

ISBN 0-8213-4998-8

1. Technological innovations—Economic aspects—East Asia. 2. East Asia—Economic policy. 3. East Asia—Economic conditions. 4. Finance—East Asia. 5. Competition, International. I. Evenett, Simon J. II. Title.

HC460.5.Z9 T422 2002
338'.064'095—dc21

2002028868

CONTENTS

Foreword	vii
Preface	ix
Abbreviations and Acronyms	xiii
1 East Asia Enters Round Two	1
A New Dynamic: Why and How	1
East Asian Development: Round Two	14
Notes	15
2 The National and Regional Development Context	17
Industrial Restructuring and the New Face of Policy	17
Context for Reform in East Asia	21
Notes	31
3 The Warp and Weft of Innovation	33
Role of the Business Environment	36
Clusters: The Spatial Dimension to Innovation	47
Local-Global Networking	55
Global Circulation of Knowledge and of Knowledge Workers	56
Research and Innovation by Firms: The Growing FDI Dimension	59
Logistics and Supply Chains	62
Conclusion	66
Notes	69

4	Financial and Business Services	73
	The Banking Sector: Crisis Avoidance, Macroeconomic Stability, and Growth	74
	Salience and Competitiveness of Business Services	89
	Future Role of Business Services	94
	Notes	96
5	ICT: Beyond the Hype	99
	What's at Stake?	99
	Making the Most of the Internet: The State's Role	117
	From Fixed-Line to Wireless Internet Access	124
	Wireless Infrastructure, Competition, and Policy	134
	Internet-Based Growth in East Asia	137
	Notes	138
6	Managing the Global Interface	143
	Reaping the Benefits of Open Trade and Investment Regimes	144
	Conclusion	166
	Notes	167
7	Innovating to Win	171
	Why Innovation Matters	172
	Can East Asia Retain Its Lead?	177
	What Should East Asia Do?	180
	Notes	182
	References	183
	Index	205

Box

5.1	Impacts of the Internet	116
-----	-------------------------	-----

Figures

1.1	Number of Patents with a Foreign Coinventor, by Sector, OECD Countries, 1980–84 and 1992–96	8
1.2	Share of Patents with a Foreign Coinventor, Major OECD Economies, 1985–87 and 1993–95	9
1.3	U.S. Patent Grants, Selected East Asian Economies, 1995 and 2000	12

2.1	Trade Barriers, Selected Country Groups and China, 1984–87 and 1994–97	22
2.2	Inequality, Selected East Asian Nations, Selected Years	27
2.3	Japan’s Declining Influence in East Asia, Selected Years	29
2.4	Allocation of Japanese Bank Lending to East Asia, 1990 and 2000	30
3.1	Opinions as to Whether Intellectual Property Is Well Protected, Selected Economies	39
3.2	Likelihood that the Well Educated Will Remain at Home, Selected Economies	59
4.1	Electronic versus Paper Payments, Selected Years	91
4.2	Connections to Leading U.S. Law Firms, Selected Asian Cities, 1997	93
5.1	Use of the Internet by <i>Fortune</i> Global 500 Companies	107
5.2	Comparison of Number of Cellular Subscriptions with Fixed-Line Telephones, Indonesia, 1996–2001	132
5.3	Investment in Telecommunications as a Share of GDP, Selected East Asian Economies, 1990–99	135
6.1	Projected FDI, Selected East Asian Economies, 2000 and 2001	145
6.2	Shift of FDI to Northeast Asia, Selected Years	146
6.3	Growth of China’s Low- and Medium-Tech Exports, 1990–2000	149
6.4	Degree of Protection in the Telecommunications Sector, Selected Economies	163
6.5	Effect on Net Interest Margins of Trade and FDI Barriers to Banking Services, Selected Economies	164

Tables

1.1	Research and Development Expenditures, Selected Economies, 1997	7
1.2	Cell Phone Subscriptions, Selected East Asian Countries, 1996–2000	11
3.1	Estimates of TFP Growth, Selected East Asian Economies, Selected Years	34
3.2	Business Environment Rankings, Selected Economies, 2001–02	36
3.3	Enrollment Ratios, Selected East Asian Economies, 1996	40
3.4	Science and Mathematics Achievement Scores at Age 14, Selected Economies	42
3.5	Indicators of R&D Effort and Outcomes, Selected East Asian Economies, Selected Years	43

3.6	Perceived Role of Clusters, Selected East Asian Economies	54
3.7	Patents Filed, Selected Economies, 1968–97 and 1992–97	61
4.1	Legal Protection for External Financiers of Firms, Selected East Asian Economies	85
4.2	Financial Restructuring, Selected East Asian Economies	86
4.3	Trade in Services, Selected Economies, 1987 and 1997	90
5.1	Contribution of Computer Hardware to U.S. Output Growth, Selected Years	101
5.2	Decomposition of Productivity Acceleration, United States, 1995–2000 Compared with 1973–95	102
5.3	Contribution of ICT Capital and TFP in ICT Production to Growth in GDP and Labor Productivity, Selected Countries and Years	105
5.4	Contributions of Computer Hardware to GDP Growth in the Republic of Korea and Singapore, Selected Years	106
5.5	U.S. Public Attitudes toward Government Regulation of the Internet	118
6.1	Indexes of the Restrictive Effect of Policies toward FDI, Selected East Asian Economies and the United States	163

FOREWORD


The recent history of economic development argues against complacency—rapid and stable growth is something of a high-wire act that is not easily sustained. Yet a group of East Asian economies did manage to defy expectations for nearly three decades. The 1997–98 economic crisis interrupted this remarkable sprint, and even though some of the countries appear to have gotten their second wind, their average growth rates are slower. All economies in the region are in the grip of uncertainty and are casting around for a mix of policies and a political economy that will restore their earlier and effortlessly magical performance.

As is becoming increasingly apparent, an investment-led, state-directed approach that derives much of the demand pull from exports of manufacturers may not yield the impetus it did in the past. The middle- and upper-income economies of East Asia in particular are past the stage when such a recipe would be sufficient to generate annual gross domestic product growth of 7 percent or more. For most of them the answer to their economic ambitions is likely to lie in more complex and variegated approaches that blend significant institutional deepening with efforts to combine resource mobilization and much greater levels of innovativeness and productivity. How they might achieve this is the subject of this study, which is part of a project on East Asia's future development prospects conducted jointly by the World Bank and the government of Japan. By drawing upon some of the latest research findings, the authors show how the East Asian model responsible for the “miracle” of past decades can be modified


and augmented so as to return those East Asian economies that persevere with reforms to a high growth trajectory.

Against the backdrop provided by the 1997–98 crisis and the tentative recovery of East Asian economies thereafter, this study presents the context in which new policies will be deployed, and by analyzing the options the authors indicate how a combination of institutions and policies would buttress the innovativeness that will be the basis of East Asia's competitiveness.

The great merit of this book, and one that should recommend it to a broad audience, is that it lucidly summarizes the issues currently being debated and suggests how the discourse can be moved to the next stage and provide East Asian policymakers with the guidance they are urgently seeking.



Nicholas Stern
Chief Economist and
Senior Vice President
Development Economics
The World Bank



Jemal-ud-din Kassum
Vice President
East Asia and Pacific
The World Bank

PREFACE

In late 1999 the government of Japan suggested that the World Bank examine the future directions of economic change in East Asia, with the emphasis on how the approaches to development followed in the region might evolve in the early 21st century. The Bank was highly receptive to the idea of analyzing the longer-term implications of the 1997–98 crisis and assembled a team that worked closely with senior Japanese policymakers and scholars. This team defined a broad-ranging study to ascertain the directions of change and to suggest policies for East Asian economies that would sustain their past growth momentum within a changing and more competitive globalizing environment.

This volume is the first of a series of publications that we expect to emerge from the study, and as such seeks to map the terrain that forthcoming books and papers will scrutinize much more closely. East Asia's industrial competitiveness was the stuff of legend in the 1980s and 1990s. Can the region sustain this competitiveness in manufactures and extend it to new products and services? This is the central question this book addresses. Experience suggests that most East Asian economies can rise to the challenge, but success is by no means a foregone conclusion. The 1997–98 crisis revealed a number of obstacles that countries will have to surmount. Moreover, their future performance is likely to be inextricably bound with their capacity to implement institutional changes and to build innovation capability, which is increasingly the arbiter of competitive strength. How East Asian economies, especially those in the middle- and upper-income

groups, might fully realize their potential to innovate will require policy, organizational, and institutional initiatives at many levels. By drawing on a wide spectrum of research, this book delineates the key issues and suggests how East Asian economies might grasp the policy nettles that lie ahead. We hope that for the general reader interested in development, this book will provide an accessible window on future possibilities and a sense of the complexity of the development effort that encourages deeper reading. We also hope that the specialist will find this a handy and stimulating progress report of events along a broad front together with a look beyond the frontier that contributes to the debate on development.

The Development Economic Research Group at the World Bank provided us with the ideal environment for conducting the research for this volume, and we are deeply grateful to Paul Collier, the director of the group, for his support, for providing us with a spacious intellectual environment, and for encouraging us to exploit the opportunities offered to the full.

Equally vital was the financial backing of the government of Japan through its Policy and Human Resources Development Fund and the access we enjoyed to senior public officials, who gave generously of their time and provided valuable feedback on earlier drafts of this book. We are deeply indebted to Haruhiko Kuroda, Masahiro Kawai, Kiyoshi Kodera, Rintaro Tamaki, Junichi Maruyama, and Takatoshi Ito. The study has been greatly enriched through our many detailed conversations with Eisuke Sakakibara, who has taken a deep interest in the research since its inception.

Members of the international steering committee of the study reviewed the initial draft of this work. Our special thanks go to Masahiko Aoki, Jemal-ud-din Kassum, Homi Kharas, Eisuke Sakakibara, Il Sakong, Sven Sandstrom, Tharman Shanmugaratnam, Nicholas Stern, Joseph Stiglitz, and Xiaochuan Zhou for their advice and for sharing with us their deep knowledge of the East Asian region. The staff of the World Bank's Tokyo office organized the seminars at which drafts of the study were discussed, and we very much appreciate the assistance provided by Shuzo Nakamura, Mika Iwasaki, Tomoko Hirai, and Hitomi Sasaki.

Our research efforts were greatly enhanced by Soumya Chattopadhyay, Farhan Hameed, and Marc Shotten. We thank them for adding

value in many ways. Mir Anjum Altaf, Kaoru Nabeshima, Shekhar Shah, and three anonymous referees gave us detailed comments on later drafts and contributed to the quality of the final product. Rebecca Sugui expertly facilitated the production of the manuscript. The leap from finished manuscript to published book was efficiently orchestrated on the tightest of schedules by our editors, Nicola Marrian and Janet H. Sasser of the World Bank Office of the Publisher. They good-humoredly introduced much-needed discipline and made sure that what started as a glint in our eyes achieved publication.

September 7, 2002

ABBREVIATIONS AND ACRONYMS

AFTA	ASEAN Free Trade Area
AMC	Asset management corporation
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
B2B	Business-to-business
CDMA	Code division multiple access
DSL	Digital subscriber line
EU	European Union
FDI	Foreign direct investment
G	Generation
GDP	Gross domestic product
HDD	Hard disk drive
HTML	Hypertext markup language
ICT	Information and communication technologies
IPR	Intellectual property regime
ISP	Internet service provider
MNC	Multinational corporation
NPL	Nonperforming loan
OECD	Organisation for Economic Co-operation and Development
R&D	Research and development
TFP	Total factor productivity
TVE	Township and village enterprise (China)
WAP	Wireless Application Protocol
WTO	World Trade Organization
XML	Extensible markup language

