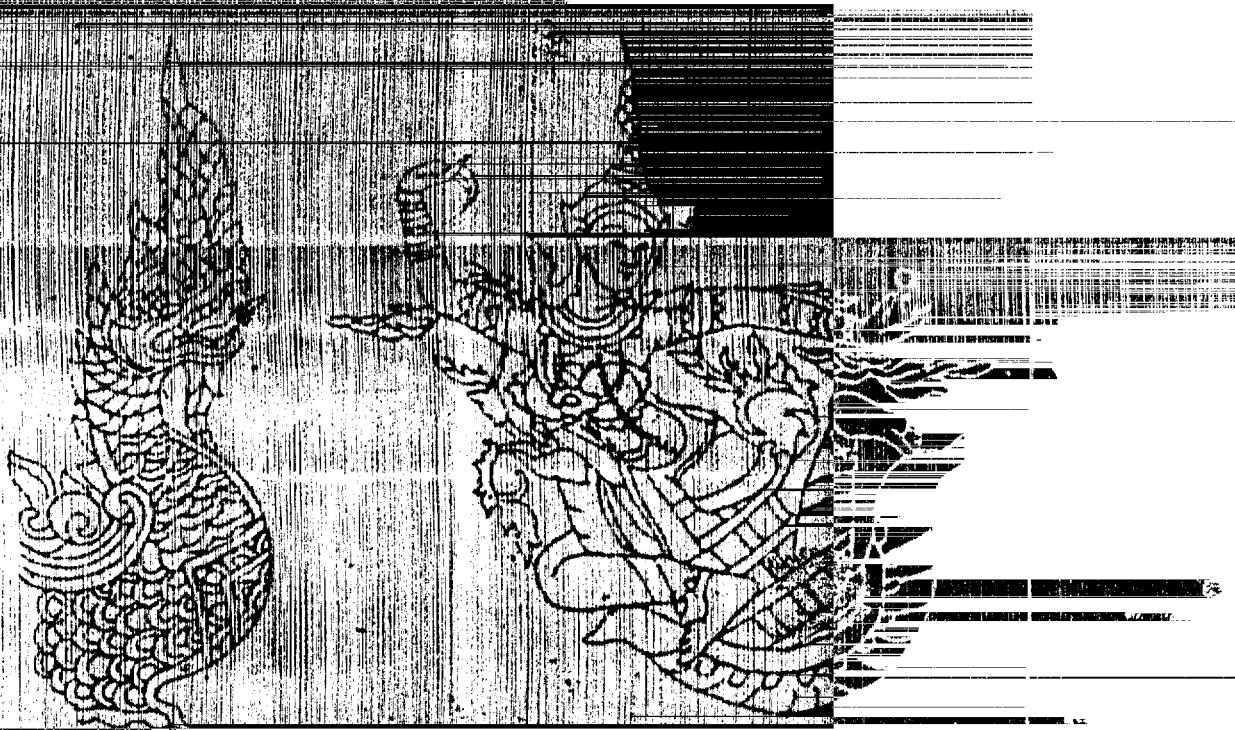


THE LESSONS OF EAST ASIA

SINGAPORE

Public Policy and Economic Development



Teck-Wong Soon
C. Suan Tan

THE LESSONS OF EAST ASIA

Singapore *Public Policy and Economic Development*

Teck-Wong Soon
C. Suan Tan

The World Bank
Washington, D.C.

Copyright © 1993
The International Bank for Reconstruction
and Development / THE WORLD BANK
1818 H Street, N.W.
Washington, D.C. 20433, U.S.A.

All rights reserved
Manufactured in the United States of America
First printing October 1993

The findings, interpretations, and conclusions expressed in this paper are entirely those of the author(s) and should not be attributed in any manner to the World Bank, to its affiliated organizations, or to members of its Board of Executive Directors or the countries they represent. The World Bank does not guarantee the accuracy of the data included in this publication and accepts no responsibility whatsoever for any consequence of their use. Any maps that accompany the text have been prepared solely for the convenience of readers; the designations and presentation of material in them do not imply the expression of any opinion whatsoever on the part of the World Bank, its affiliates, or its Board or member countries concerning the legal status of any country, territory, city, or area or of the authorities thereof or concerning the delimitation of its boundaries or its national affiliation.

The material in this publication is copyrighted. Requests for permission to reproduce portions of it should be sent to the Office of the Publisher at the address shown in the copyright notice above. The World Bank encourages dissemination of its work and will normally give permission promptly and, when the reproduction is for noncommercial purposes, without asking a fee. Permission to copy portions for classroom use is granted through the Copyright Clearance Center, 27 Congress Street, Salem, Massachusetts 01970, U.S.A.

The complete backlist of publications from the World Bank is shown in the annual *Index of Publications*, which contains an alphabetical title list (with full ordering information) and indexes of subjects, authors, and countries and regions. The latest edition is available free of charge from the Distribution Unit, Office of the Publisher, The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, U.S.A., or from Publications, The World Bank, 66, avenue d'Iéna, 75116 Paris, France.

ISSN: 1020-0924

Teck-Wong Soon is senior lecturer in the Department of Economics and Statistics at the National University of Singapore. At the time of writing, C. Suan Tan was an economist in the International Trade Division of the World Bank's International Economics Department.

Library of Congress Cataloging-in-Publication Data

Soon, Teck-Wong.

Singapore : public policy and economic development / by Teck-Wong
Soon, C. Suan Tan.

p. cm. — (The Lessons of East Asia)

Includes bibliographical references.

ISBN 0-8213-2612-0

1. Industry and state—Singapore. I. Tan, C. Suan (Choo Suan),
1945— . I. Title. II. Series.

HD3616.S423S66 1993

338.95957—dc20

93-30940

CIP

CONTENTS

FOREWORD	v
ACKNOWLEDGMENTS	vii
ABOUT SINGAPORE	ix
EXECUTIVE SUMMARY	xi
 I. DEFINING SUCCESS	 1
Structural Change and Success	1
The Re-Export Economy and World Trade	5
Economic Preconditions for Success	5
 II. INDUSTRIAL POLICY	 8
Phase I: Labor-Intensive Import-Substitution (1959-63)	8
Phase II: Labor-Intensive Export-Oriented Manufacturing (1966-73)	10
Phase III: First Attempts to Upgrade (1973-78)	12
Phase IV: Economic Restructuring (1979-84)	14
Phase V: Retrenchment and Further Diversification (1985-1990)	17
What Constitutes Singapore's Industrial Policy?	18
 III. GOVERNANCE AND INSTITUTIONAL FRAMEWORK	 19
The Civil Service	19
Statutory Boards	20
State-Owned Enterprises (SOEs) and Government-Linked Corporations (GLCs) ..	22
Economic Development Board	25
Drastic Reorganization of Government Agencies	27
Integrating and Coordinating Mechanisms	28
Tripartite Arrangements	28
 IV. DESIGN AND IMPLEMENTATION OF VITAL POLICIES	 29
Influence of the Leadership's Characteristics	29
Vital Policies	30
Costs and Benefits of Policy Changes	39
 V. POLICY CONCLUSIONS	 40
The Role of Government	40
Lessons from Japan and Other Industrialized Countries	43
Relationship between Development Success and Social Attitudes	43
Policy Lessons from Singapore's Experience	44
 BIBLIOGRAPHY	 51

FOREWORD

Policymakers everywhere are searching for lessons from East Asia's enormous success in economic development. A number of recent cross-country and thematic studies have sought to identify and analyze the policies behind this success. Among them is *The East Asian Miracle*, a recent World Bank publication, which draws in part on the Lessons of East Asia project. Study teams, including in-country nationals, examined in some depth the experiences of the highly successful East Asian economies and the public policies underpinning them.

Several clear contributions emerge from this set of country studies. The research:

- Highlights considerable variation in approaches within the group of East Asian economies. For example, some economies chose a substantial degree of government intervention; others did not. The studies dispel the notion that there is a single or uniform East Asian model of success.
- Demonstrates that a core set of good economic policies — such as macroeconomic discipline, outward orientation, and human resource development — laid the foundation for East Asia's success. Pragmatic policymaking — understood as being nonideological and reversible — seems to be at the heart of these policies and merits replication.
- Disperses some of the myths about the more idiosyncratic interventions, such as "picking winners" in industry, which sometimes produced the desired result and sometimes did not. Because presence or absence of institutional features seems to have affected the outcomes of these interventions, applications to other regional contexts must be approached cautiously. A dominant finding of the studies is that serious diversions from macroeconomic equilibrium were largely avoided, even by strong interventionists. At the same time, the later generation of industrializers were more successful when they avoided these industrial policies.

A question not easily answered is why East Asian governments adopted fundamentally sound policies and were apparently able to achieve better results from their active policies and to incur lower costs from errors. In this connection, the studies touch on such dimensions of policymaking as the role of the state, leadership, and the bureaucracy. It is one thing to describe the institutional features accompanying a successful episode, however, and quite another to know why and how those features came about. For instance, why did East Asian leaders apparently hold themselves more accountable for economic performance than has been the experience elsewhere? How did the governments manage to gain sufficient national consensus to put difficult policies into effect? These aspects of political economy cannot be ignored. Our analytic tools, however, are severely limited in penetrating these issues, in assessing their impacts, and in assigning credit to them. These country studies are only one step, although a significant one, in deepening our understanding of the experience of East Asia. It is hoped that they will prompt additional work on the institutional foundations of rapid growth.

Gautam Kaji
Vice President
East Asia and Pacific Region

ACKNOWLEDGMENTS

This paper and all the papers produced as part of the country studies project have benefited from the insights and observations offered by discussants and commentators at a conference held at the East-West Center in Honolulu, November 19-21, 1992. The participants included the following regional and country experts: Duck-Soo Han, Hal Hill, Chalmers Johnson, Wolfgang Kasper, Hyung-ki Kim, Paul Kreisberg, Chung H. Lee, Manual Montes, Seiji Naya, Takashi Nohara, John Page, Tambunlerthchai Somsak, Wanda Tseng, Wing Thyee Woo, Ippei Yamazawa, and Zainal Aznam Yusof. The papers also benefited from a Bank-wide review of the project in August, 1993.

The country studies team included Amar Bhattacharya, Leung Chuen Chau, Scott Christensen, Carl Dahlman, David Dollar, Kim Kihwan, Saha Dhevan Meyanathan, Mari Pangestu, Peter Petri, Ismail Salleh, Ammar Siamwala, Teck-Wong Soon, C. Suan Tan, and Vinod Thomas. The country authors would like to acknowledge fruitful dialogue with our country counterparts and the analytic work prepared in World Bank country departments as part of Bank economic and sector work. The country studies were edited by Rupert Pennant-Rea. The project assistant was Jason Brown. This project was undertaken with the support of Lawrence H. Summers, Nancy Birdsall, John Page, and Gautam Kaji, Callisto Madavo, Marianne Haug, and Vinod Thomas.

Danny M. Leipziger
Country Studies Director

ABOUT SINGAPORE

"What made Singapore different in the 1960s from most other countries of Southeast Asia was that she had no xenophobic hangover from colonialism..... We have never suffered from any inhibitions in borrowing capital, know-how, managers, engineers and marketing capabilities. Far from limiting the entry of foreign managers, engineers and bankers, we encourage them to come." - Lee Kuan Yew

"Whether for trade or industry, Singapore has found by experience that the free enterprise system, intelligently supported, gives her the degree of flexibility which has ensured her survival and prosperity, through her ability to adapt quickly to changing circumstances." - Goh Keng Swee

"We draw sustenance not only from the region but also from the international economic system to which we as a Global City belong and which will be the final arbiter of whether we prosper or decline." - S. Rajaratnam

*"The PAP (People's Action Party) almost certainly became the only socialist party in the world pursuing a capitalist policy of free enterprise on the economic plane, for the purpose of spending the money thus earned according to its socialist principles." - Albert Winsemius **

* Dr. Albert Winsemius, the leader of the UN Mission to Singapore in 1960-61 to assist the government in drawing up the blueprint for Singapore's industrialization, was subsequently retained by the government as an adviser for 22 years until 1984.

EXECUTIVE SUMMARY

Development Strategy and Macroeconomic Performance

In the three decades following self-rule in 1959, Singapore has transformed itself from a resource-poor maritime center into a dynamic, industrialized economy. Real GDP growth averaged 8.2 percent from 1960 to 1990. The city state now enjoys a mature economic structure, with the modern service sector accounting for a larger share of GDP than manufacturing. Poverty has all but disappeared and social indicators are among the highest in the region. At the macroeconomic level, Singapore's development has been characterized by its stability and the continuing importance of investment and trade. Inflation has been modest and the balance of payments has remained in surplus. The value of trade has typically been around three times GDP and the share of gross domestic investment has remained above 30 percent since the 1960s.

Owing to its lack of resources, Singapore is a re-export economy. As the economy developed, re-exporting activities have evolved from simple processing and repackaging to the transforming of inputs into higher-value outputs. Following a brief experiment with import-substitution in 1959-1963, the economy's dependence on imported inputs has led to a stress on free trade. Nevertheless, the state has played an important role in promoting those industries that it foresaw as major export earners. Beginning in the late 1960s, the government favored the development of labor-intensive manufacturing, particularly light electronics and textiles. As the labor surplus disappeared, a plan for industrial upgrading was launched in the mid 1970s, putting greater emphasis on capital- and skill-intensive activities. External supply shocks led to a phase of restructuring in 1979-84, which was notable for the state's attempts to attract high-technology investments through its support of large wage increases and human resource development. Singapore experienced a severe recession in 1985, prompting concern at the declining competitiveness of manufacturing. In response, the state has sought to reduce labor costs and further diversify the economy's structure towards higher-value production.

Throughout its efforts to promote the development of various sectors, the state has pursued a fairly consistent industrial policy. This policy has had two main elements. First, the state has sought to create an environment conducive to the growth of private enterprise, among both indigenous and foreign investors. Second, it has intervened through the market to guide private sector development and has established "government-linked corporations" (GLCs) where private investors have not responded to financial incentives. Apart from stable macroeconomic policy, the favorable environment has been based upon public investments in human capital and infrastructure and the maintenance of good labor relations. As early as 1960, the government introduced a five-year plan for education which emphasized the study of technical subjects. Joint government-industry training centers have been established by the Economic Development Board (EDB) in collaboration with Multinational Corporations (MNCs). Infrastructure policy has concentrated on developing efficient transport and communications networks. Senior trade union leaders have been brought into government to establish a consensus in support of economic strategy.

Singapore's investment incentives have been more generous than those offered by other developing nations, reflecting its choice of MNCs as the vehicle for launching the industrialization process. The state has allowed foreign companies complete ownership of their investments in almost every field. Initially, tax exemptions were offered for incremental capital expenditures, interest payments and profits; and for as long as 20 years to export producers. As a result, there was a surge in foreign direct investment (FDI), beginning in the late 1960s and concentrated in light manufacturing.

As the economy developed, the state has engaged in broad industrial targeting to encourage the transformation from labor- to skill-intensive activities. Incentives were made conditional on investments being above a certain size. In the early 1970s, industries with the desired level of technology were offered a complete tax holiday for five years. The EDB intensified the investment promotion effort by establishing a network of 22 overseas offices and extending incentives to service industries. By the early

1980s, these policies were paying dividends as FDI expanded in computers, finance, electronics, machinery, printing and pharmaceuticals. By the late 1980s the notion of Singapore as a total business center proved successful as several MNCs set up headquarters in the city-state.

The state maintains an extensive direct involvement in the economy, through its statutory boards and GLCs. In 1990, the public sector accounted for 18 percent of total employment. Statutory boards are de facto extensions of the civil service, supervised by the ministries and answerable to parliament, but with autonomy in the day-to-day management of their operations. There is a statutory board in almost every socio-economic field, including public housing, transport and education. They have remained profitable and generate large operating surpluses. GLCs were established for strategic reasons (defense-related) or where the private sector was slow to invest (hospitals and medical services). GLCs tend to be large and earn better returns than local private sector companies (but less than foreign-invested enterprises). They compete both on the domestic and international market and face a hard budget constraint, as illustrated by the closure of some GLCs in the early 1980s.

Governance and institutional framework

Singapore has benefitted from social and political stability and the close relationship between government and the civil service. Throughout three decades of rapid economic growth, the same party has pursued consistent development goals, based on an unchanging philosophy. From Lee Kuan Yew to Goh Chok Tong, Singapore's leaders are of similar intellectual mold and share a common vision. The bureaucracy is staffed with skilled technocrats and managers who are actively involved in policy design and enjoy high status and benefits. Political autonomy has provided the government with the flexibility to change policies and to reorganize agencies that have not been effective.

The government has succeeded in maintaining a broad consensus in support of its strategy. Social stability has been aided by a number of policies that address equity issues. The vast majority of people live in public housing and employers pay mandatory contributions into the state pension fund on behalf of their employees. At a higher level, business and labor representatives are involved in the policy-making process, and the former are consulted frequently by bureaucrats.

The governmental system in Singapore places great emphasis on the central direction of policy and the maintenance of strong inter-agency connections. The Prime Minister and Cabinet are responsible for controlling and coordinating this system; assisted by a small group of senior civil servants and government appointees who each hold several different jobs. High-ranking public officials double as governors of GLCs and statutory boards, providing communication channels between management and the supervising ministers. The government exercises control through a combination of formal and informal processes, always working to ensure that organizations act in accordance with broader national objectives.

The EDB, a statutory board under the Ministry of Finance, has an all-embracing responsibility for promoting development. Initially, its core function was to attract investment. Divisions such as finance, industrial facilities and technical consulting provided specialized services to potential investors. To stimulate industrial development, the EDB made subsidized loans and, where appropriate, took direct equity investments. As its functions have grown in scale and complexity, several of its divisions have been hived off into separate organizations. Singapore has often been compared to a corporate-state because of the extensive role of the statutory boards and GLCs.

I. DEFINING SUCCESS

In November 1990 Lee Kuan Yew handed over the Prime Ministership of Singapore to Goh Chok Tong. In the three decades following self-rule in 1959 the first generation leaders, as epitomized by Lee Kuan Yew, Goh Keng Swee and S. Rajaratnam, had transformed the island-state from a "basket economy"¹ into one of Asia's four newly industrializing 'mini-dragon' economies. In keeping with the central role played by a well-defined strategy between 1959 and 1990, the second Prime Minister set out his agenda in The Next Lap (1991) and The Strategic Economic Plan (1991). The first document places human resource development at the center of the continuing development effort and sought the people's support for the new leadership's efforts to raise living standards. The second document outlines the elements of a science-, technology- and R&D-based strategy to transform Singapore into a developed nation on a par with Western Europe and the United States in 30 years' time.

Both the political transition and the economic platform reflected the two ingredients that have been crucial to Singapore's economic performance: social and political stability, coupled with the moral authority enjoyed by the first generation leadership. Our study will attempt to identify the nature of the interaction between economic growth and political conditions, to see if there are policy lessons for other developing countries.

Section 1 reviews Singapore's 30-year developmental experience and structural change and brings into focus the underlying philosophy and rationale that influenced policy design and decision-making throughout the period. Section 2 discusses the various developmental phases that Singapore has been through during the last 30 years. By reference to the strategic framework, the rationale for the major economic policies adopted at the beginning of each developmental phase and the need for subsequent policy adjustments will become clear. Section 3 looks at the institutional framework for policy implementation and formulation. Singapore's public sector agencies comprise not only the government Ministries and Departments (that is, the civil service proper) but also a large number of statutory boards and state-owned enterprises (SOEs) that are generally referred to in Singapore as government-linked corporations (GLCs). Unlike SOEs in many other developing countries that are usually inefficient and ineffective (Klitgaard, 1991), these SOEs have been successful and profitable.

Section 4 analyzes the design and implementation of vital policies, dealing particularly with how regulations were designed in a free market context to encourage savings and boost long-term growth. Section 5 concludes by placing public policy and the role of government in the wider domestic international contexts. The section analyzes the sources of growth and points to the importance of timing for interventions by the state. It offers some potentially useful lessons for other small, resource-poor developing countries.

Structural Change and Success

Over the 30-year period, there have been 5 phases of development:

Phase I: Labor-intensive, import-substitution industrialization (1959-65);

Phase II: Labor-intensive, export-orientation industrialization (1966-73);

¹ In a 1967 report in the Far Eastern Economic Review, David Bonavia concluded that independent Singapore had no future and that the "only sensible answer is a fresh accommodation with Malaysia to restore the natural economic relationship"

Phase III: First Attempt to Upgrade the Economy (1973-78);

Phase IV: Economic Restructuring (1979-1984);

Phase V: Retrenchment and Further Diversification (1985-1990).

In constant Singapore Dollar terms,² GDP increased 10-fold from \$5 billion in 1960 to \$53 billion in 1990. Given the high level of foreign participation in this growth, the indigenous GDP is much lower and with a widening gap over time. In 1966 (when its data first became available), indigenous GDP was \$6.7 billion, some 91% of the corresponding \$7.4 billion for GDP. By 1990, the indigenous GDP of \$36.5 billion amounted to only 64% of total GDP. Between 1960 and 1990, per capita indigenous GDP increased almost 4-fold from \$3455 to \$13,150. This is significantly lower than the 7-fold increase in per capita GDP from \$3068 to \$21,100 over the same period.

Table 1 highlights the main dimensions of structural change over the period, and shows how economic openness has been a permanent feature. Trade has typically been around 3 times the GDP. Another striking feature is the tripling of gross domestic investment within the first decade, to 33% of GDP; by 1980, its share had reached 41% of GDP. The sectoral shares of GDP show the decline of primary activities, from 3.3% in 1960 to a negligible 0.4% in 1990. Despite the counter-cyclical nature of construction activity, its contribution to GDP has remained at about 10%. The shifting importance of manufacturing and services is seen from the rapid growth in manufacturing's share, from 19% of GDP in 1960 to nearly 30% in 1980, followed by a slight decline to 26% for 1990. Trade and transport services have maintained their share at about 30% of GDP, while financial and other services have risen from 30% of GDP in 1970 to 38% in 1990.

Sound macroeconomic management and financial prudence account for the absence of external debt. The balance of payments has been solidly in surplus and foreign reserves have grown. Macroeconomic stability is manifest in relatively stable prices throughout the period. With the exception of the 1973-78 period of high oil prices, prices (as measured by the GDP Deflator, Consumer and Wholesale Price Indices) increased on average by barely 4% a year.

One of Singapore's earliest successes was in family planning. The population rose from 1.6 million in 1965 to only 2.6 million in 1990. But with the postwar "baby boomers" growing into adults from the 1960s onwards, the labor force expanded almost 10-fold, from 162,000 to 1,524,000 in 1990. The growth slowed down, though, to only 1½ percent a year during phase V, as compared with the average annual 30% increase during phase II. (All details are in the Appendix tables.)

Other socio-economic indicators include the impressive record of public housing. The number of people living in owner-occupied public flats rose from 9% of the population in 1970 to 92% in 1990. An additional 7% live in rented public flats. Literacy rates (among people above 10 years of age) rose from 72% in 1970 to 90% by 1990; and student enrolment ratios increased from 80% (for primary schools) and 43% (secondary) in 1970 to an average of 93% for both groups in 1990. Better quality education is also reflected in the significant declines in student-teacher ratios at both primary and secondary levels.

² Unless otherwise specified, all Dollar amounts refer to Singapore Dollars.

Table 1: Structural Change in Singapore, 1960-1990

	1960	1970	1980	1990
% GDP				
<u>Economic Openness</u>				
Total Trade	356	210	370	327
Exports	164	82	165	155
Imports	192	130	205	172
<u>Gross Domestic Investment</u>	10	33	41	38
<u>Gross National Savings</u>				
Private	..	76.3 ^a	55.4	53.8 ^b
CPF	..	22.1	30.0	n.a.
Non-CPF	..	54.2	25.4	n.a.
Public (Government)	..	23.7	44.6	46.2
<u>Sectoral Shares</u>				
Agriculture, Fishing & Quarrying	3.3 ^c	2.5	1.3	0.4
Construction	11.5	11.7	8.9	6.7
Manufacturing	19.2	25.4	28.6	26.1
Trade & Transport Services	30.6	30.9	30.0	28.5
Financial & Other Services	35.4	29.5	31.2	38.3
<u>Payments Balance & Reserves (US\$m)</u>				
Overall Balance of Payments	..	184	663	5431
Foreign Exchange Reserves	..	1012	6567	27748

Sources: Yearbook of Statistics, IMF International Finance Statistics.

^a For 1974.

^b For 1988.

^c For 1966.

Some of the main features of the developmental phases were:

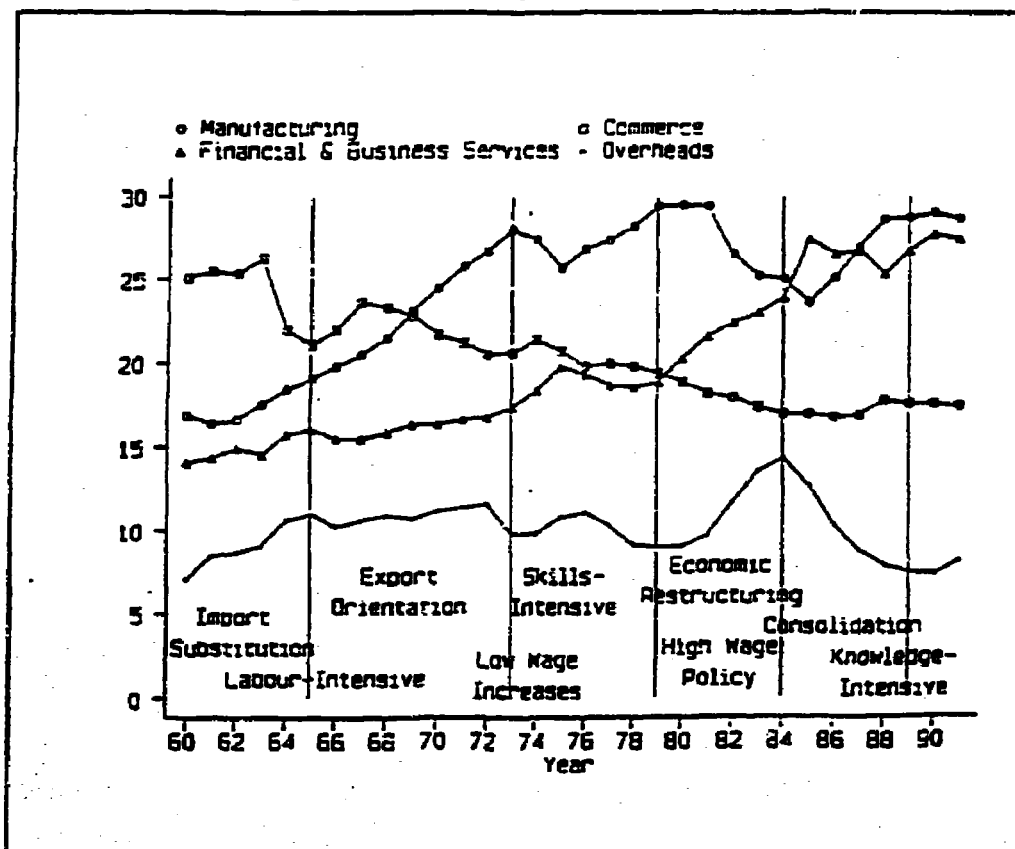
- growth in private consumption, from \$4.1 billion in 1960 to \$26.3 billion between 1960 and 1990;
- changes in the pattern of private consumption. Shares for food and clothing declined; those for rent and utilities, transport and communications increased slightly; those for Furniture and

Household Equipment and Medical Services were broadly stable; and there were significant increases for Recreation and Education, and Other Goods and Services;

- sharp rise in domestic savings, from 10% of GDP in 1965 to 40% in 1985, a year of recession;
- slowdown in the rate of foreign capital inflow in the 1980s, from 13.8% of GDP in 1973 to 0.1% in 1985;
- a steep rise in gross fixed capital formation (GFCF), from 17% of GDP in 1965 to 42% in 1985; and
- balanced growth in the secondary and tertiary sectors, with higher sectoral shares of employment in manufacturing in the earlier phases giving way to growth in Services from phase IV.

Figure 1 illustrates the time paths for the sectoral shares of GDP. Over time, the share of construction and utilities (referred to as "Overheads") has remained fairly stable, except for the early 1980s. The rise in manufacturing continued through the early 1980s, until the high wage policy and global recession precipitated a decline. In contrast, the rise in the share of Financial and Business Services is more gradual. Significantly, the share of Commerce and Transport services declined continuously, to about 17% in 1990.

Figure 1: Changing Sectoral Composition and Economic Development



The Re-Export Economy and World Trade

The openness of the economy and the role of international trade are reflected in the high Trade/GDP ratio of 200-350%. The impact of the 1970s oil price hike is reflected in the highest annual average growth rates for trade values during this period. Despite persistent current account deficits, continuous capital inflows have ensured growing balance of payment surpluses, from \$1 billion in 1973 to \$9.9 billion in 1990. Official foreign reserves have increased at a similar pace, from \$5.8 billion in 1973 to \$55.8 billion in 1990, equivalent to about 5-8 months' worth of imports.

Historically, re-exports have been an integral part of Singapore's entrepot trade. But export-oriented activities have evolved from those based on simple processing and repackaging to the transforming of inputs into higher-value outputs. Since Singapore has virtually no natural resources, all exports rely on imported inputs and are therefore re-exports. Lloyd and Sandilands (1988) thus consider Singapore to be "A Re-Export Economy (that) is an internationally trading economy in which imported inputs are used in the production of some or all export-production activities." The result is a high Trade/GDP ratio by international standards, with export-led economic growth hinging on how much value is added domestically.

A re-export economy has several implications for overall growth. The Dixit-Grossman model (19...) of a re-export economy shows that free trade and capital-intensification will jointly raise the value-added content of tradables that use intermediate inputs. Because of the absence of a domestic resource base, export growth in any sector entails increased imports of intermediate goods as well as of final goods. Thus export growth enhances production efficiency and export competitiveness. These gains are then fed back into the domestic sector via their impact on the prices of tradables (other exportables) and nontradables (such as labor and infrastructure).

Trade data shows that Singapore's share of world trade has been rising continuously, from 0.7% in 1965 to 1.8% in 1990. Trade is concentrated in commodities such as Beverages and Tobacco (SITC 1), Petroleum Products, Oil Bunkers, Chemical and Medical Products, and Plastic Materials (SITC 3 for Mineral Fuels, Lubricants and Related Materials), Animal and Vegetable Oils and Fats (SITC 4) and Office Machines, Industrial Machines, Electric Motors and Resistors, TV sets and radios, Electronic Components, Ships, Boats and Oil Rigs (SITC 7 for Machinery and Transport Equipments). In these commodities, Singapore's share of world trade averaged about 2.5% in 1990.

Economic Preconditions for Success

Of the four 'mini-dragon' economies, Singapore is the smallest. In 1959/60, it covered 582 square kilometers and had a population of about 1.6 million. It also differed from the other 'dragons' in the virtual absence of an agricultural sector, natural resources, and industrial tradition and entrepreneurship. Normally, these factors would have been considered a great handicap. But Singapore's policymakers turned them into an advantage by acting on the simple premise that "..... people are Singapore's only productive asset," (Goh, 1977:81).

In retrospect, the government had little choice but to look to industrialization as a means to generate employment for its growing labor force. While the decision to use foreign investment, particularly that from the MNCs, was pragmatic, its outcome was by no means certain — especially in

view of the tumultuous period preceding independence.³ A hospitable stable environment was thus recognized to be a necessary, but insufficient, condition for attracting foreign investors. Developing an efficient infrastructure that would lower operational cost was essential for transforming Singapore into a competitive base for MNCs.

At the same time, the government recognized the need for a competent bureaucracy to help implement its policies. It also understood the vital importance of industrial peace. Having won its political mandate in 1968 — partly because of the speed with which it solved the housing problem for the lower income group — the government was able to begin mobilizing labor's support for good industrial relations when it shifted to export-oriented industrialization.

From the start, it was clear that the government would have few qualms about intervening to supplement and/or reinforce market forces. Although such interventions do not always lead to the desired results, in Singapore's case they were designed so effectively that they created the preconditions for success. This emphasis on the design of economic policies and government intervention will be a recurring theme of this paper.

The strategic framework the government used has consisted of: (a) defining the constrained economic growth objective function; (b) identifying the two "engines of growth" to be used; and (c) setting the criteria for policy design.

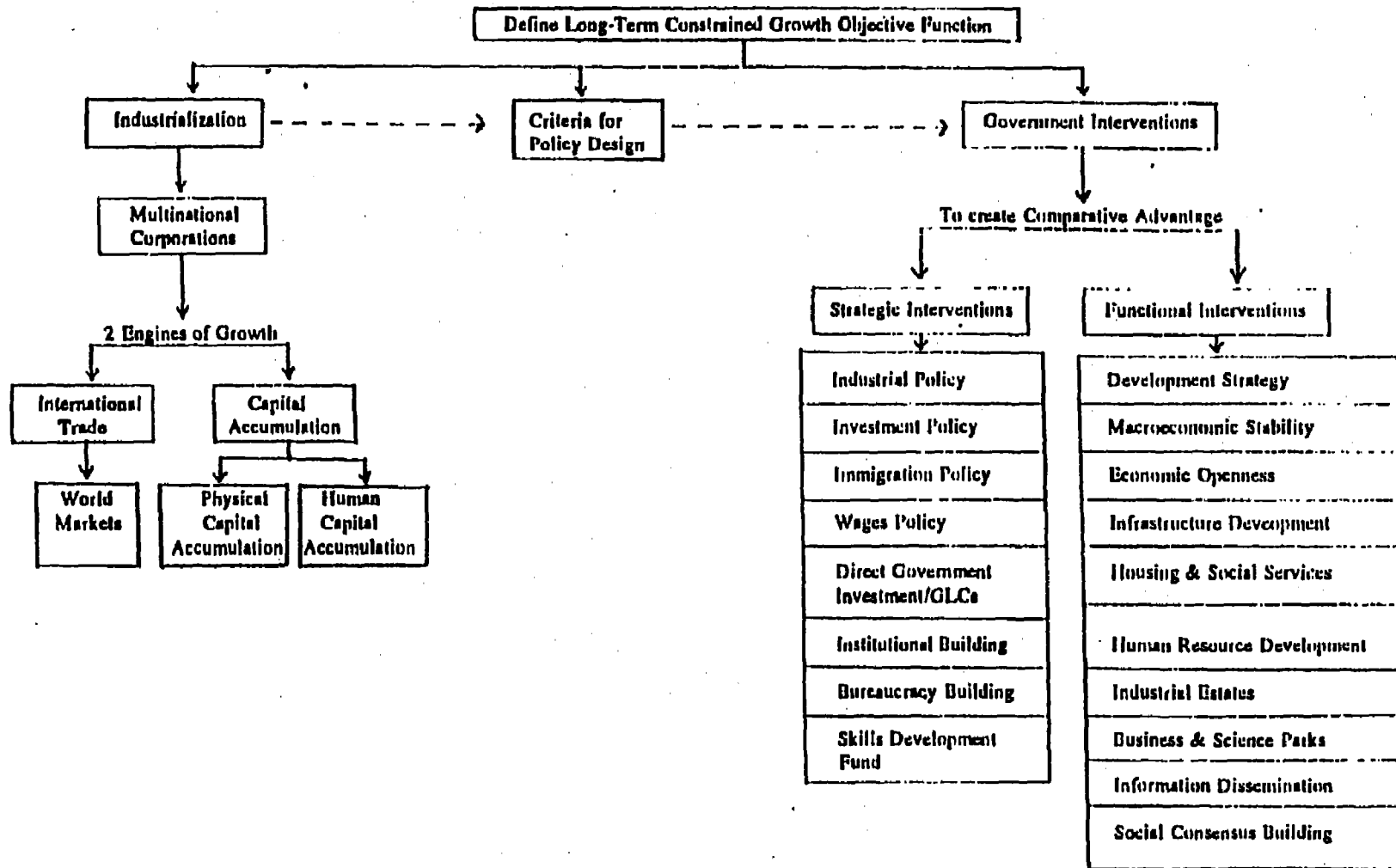
To implement this framework required other strategic decisions:

- choice of MNCs as the vehicle for launching the industrialization process;
- identifying government interventions to enhance industrialization;
- minimizing domestic uncertainties and maximizing investor confidence in Singapore through macroeconomic stability;
- free-market orientation and openness for competitive sourcing of inputs (including human resources), rapid transmission of external changes and minimal scope for rent-seeking unproductive activities; and
- facilitating the evolution of entrepot trade via intensification of international division of labor.

Figure 2 provides a schematic presentation of the guiding framework. More details on the rationale underlying this framework are in Section 5.

³ For details of the political struggles during this period, see Bloodworth (1986), Chan (1971) and Rajaratnam (1966).

Figure 2: Summary of Strategic Framework for Economic Development



II. INDUSTRIAL POLICY

This Section discusses the evolution of Singapore's industrial policy over the five developmental phases. It is worth noting that apart from an initial five-year plan (State of Singapore Development Plan, 1960-64), the government did not produce any more five-year plans. However, this does not mean that it has not practiced planning. It took a flexible approach to planning, one that did not depend on a rigid time frame.

In view of its openness and vulnerability, Singapore has always emphasized the need for continuous monitoring of its external environment, with policy being refined as and when needed. However, the government usually ensured that any major modifications to its developmental strategy were thoroughly explained. Although the details of some policy changes might appear drastic (or draconian) to some observers and critics, these changes were, on closer examination, well-coordinated and designed to work towards achieving the government's long-run objective for economic growth.

Phase I: Labor-Intensive Import-Substitution (1959-63)

Initial Conditions. When Singapore attained self-government in 1959, its social, economic and political environment was not vastly different from those of other former colonial countries. It was an underdeveloped Third World country with widespread poverty, low levels of education, inadequate housing and health facilities, and high unemployment. These problems were compounded by rapid population increases, and the complexities of its ethnic mix. But Singapore had two potential advantages: its hard-working people, and its geographic location. Reflecting these endowments, the main economic activity at the time was entrepot trade, and the services supporting this trade (such as banking, regional shipping, warehousing, transportation and some intermediate processing industries). Unfortunately, entrepot trade was assessed to have "very limited possibilities for expansion" (State of Singapore Development Plan, 1961-64).

Under such dismal conditions, the People's Action Party leadership that assumed power in 1959 had little choice but to look towards industrialization as the basis for providing jobs. However, the small size of the domestic market was a handicap, so the new government considered it essential to expand this market through economic and political union with Malaya into the Federation of Malaysia. During this initial phase of development, the idea of Singapore as an independent nation was not even contemplated. Even so, its government made a firm and early commitment to provide the people with decent housing, basic medical care, and better education.

In becoming a member of the Federation, Singapore was assured of a reasonably large hinterland which could be protected by tariffs and quantitative import restrictions. Thus, like most developing countries, Singapore based its initial industrialization strategy on import-substitution. Because of its severe unemployment at the time, the government sought to attract labor-intensive industries.

Policy Responses. To improve the dismal housing conditions of the people, the government established in February 1960 a new housing authority. The Housing and Development Board (HDB) was given the objective of building and providing large-scale subsidized housing. The HDB was to embark on a mass housing program. The government also introduced in 1960 a Five-Year Plan in education whose main features were: (a) equal treatment for the four streams of education: Malay, Chinese, Tamil and English; and (b) emphasis on the study of Mathematics, Science and Technical subjects.

These two features are instructive. The first reflected the reality of a multi-racial society, and the second reflected the early realization of the types of education and training required for industrialization. As a first step towards achieving these aims, the government embarked on an accelerated school building program, aiming to provide a place for every school-age child in Singapore (Soon, 1988).

In 1961 the government established a second statutory board, the Economic Development Board (EDB), to centralize all industrial promotional activities. To ensure success, the EDB had ample funds and strong powers (a) to grant loans or advances to, or subscribe to stocks, shares, bonds or debentures of, industrial enterprises; and (b) to acquire land for the purpose of industrial sites. These powers enabled the EDB to provide capital to enterprises in need of assistance, to invest directly in industrial ventures, and to establish industrial estates furnished with all the required facilities--power, water, gas, roads, railways, and even a deep sea port. The EDB was also able to provide some discretionary incentives; the main one was the "pioneer status" award, introduced in 1959, which gave five-year tax holidays to labor-intensive companies.

Economic Outcomes. The anticipated benefits of the merger with Malaysia did not materialize. Instead, after Singapore joined Malaysia in 1963, severe internal political difficulties were encountered, as well as an external challenge arising from the confrontation with Indonesia's President Sukarno.

In the initial phase, Singapore's achievements were modest. Manufacturing share of real GDP increased from 16.9 percent in 1960 to 19.1 percent in 1965, which was considered disappointing after the prodigious efforts of the government and the EDB. Real GDP grew at an annual compound rate of 5.7 percent during this period, a fair achievement given the economic slump of 1964. The total inflow of foreign investment during this period was S\$157 million, not a large amount but still indicating some success in attracting foreign companies, particularly those aiming for the expanded Malaysian market.⁴ However, even though 21,000 new jobs were created in manufacturing, unemployment was still estimated to be well over 10 percent.⁵

Such modest achievements led economists and other commentators to suggest that this was a period in which Singapore's policies were ineffective and unsuccessful. Young (1991:27), for example, noted "that the failure of Singaporean policies at this time is typified by the fate of the 17,000 acre Jurong Industrial Estate, created to attract foreign investment." Despite such assessments, it is important to realize the significance of this period in laying the foundations for Singapore's later success. Strong institutions were established, including the two strongest statutory boards, the HDB and the EDB.

Substantive social overheads were also developed during this period, as can be seen from the rise in the construction share of real GDP from 5.4 percent in 1960 to 9.4 percent in 1965. The government also boosted the capacity of educational and training institutions. Without all these initial efforts, it is doubtful whether Singapore could have survived the crisis it faced in the mid-1960s.

⁴ Ryokichi (1969) noted, for example, that "... the anticipated formation of the Federation of Malaysia during 1962-63 ... was a very important motivating factor, not only in bringing manufacturers to Singapore but also in increasing the size of plant and equipment."

⁵ No official unemployment figure was published. Yoshihara (1976) cited an unemployment figure of 12.3 percent from Blake, D.J., "Employment and Unemployment in Singapore," in Chalmers, W.E., Critical Issues in Industrial Relations in Singapore, Donald Moore Press, 1967.

Phase II: Labor-Intensive Export-Oriented Manufacturing (1966-73)

Changes in Environment. Singapore's difficulties with the Federation of Malaysia proved intractable, and resulted in independence being thrust upon it in 1965. This reduced its access to the Malaysian market. A further blow came in 1967 when the British government announced its intention to withdraw its military base in Singapore by 1971. This threatened a further loss of investment confidence, an impending recession and a worsening of the unemployment situation.

Although the situation seemed dire, the Singapore government's policy initiatives during the previous phase had already begun to bear fruit:

- The government's success in tackling the housing problems led to its strong credibility with the people.
- The heavy investment in education and vocational training was beginning to produce a substantial pool of semiskilled workers.
- The EDB had developed several industrial estates, the largest on reclaimed swampland at Jurong. These estates offered industrial sites with excellent physical infrastructure at subsidized rates.
- The EDB had also developed its organizational capability and had accumulated considerable experience in investment promotion. It was also entering into joint-ventures with investors, the first of which was Jurong Shipyard, a joint venture between the EDB and a Japanese firm.

Singapore's main economic problem remained high unemployment, so its main development priority had to be job creation. Without access to the Malaysian market, the government had little choice but to abandon import substitution as its growth strategy. Industrialization behind tariff walls was clearly not a feasible option for a small city-state with no raw materials. Instead, the government switched its investment promotion efforts to labor-intensive export-oriented manufacturing.

Policy Responses. The Singapore government acted quickly to implement its new approach. In 1967 the Economic Expansion Incentives Act provided new tax incentives for investment:⁶

- tax relief was allowed in certain circumstances for incremental income resulting from capital expansion;
- a 90 percent remission of tax profits was allowed to approved enterprises for periods of up to 15 years; and
- tax exemptions were allowed on interest on foreign loans, royalties, know-how and technical assistance fees.

These incentives, though similar to those offered by many developing countries at the time, were more generous on average.

⁶ Cited in Goh (1973).

Though fiscal incentives and the efforts of the EDB did much to help the new strategy, what was even more critical was the government's success in obtaining public support for its policies. At the 1968 general elections the PAP won all 58 parliamentary seats. Seizing upon this success, the government introduced several policy initiatives that, with hindsight, translated the economic preconditions created in the previous phase into economic success. With industrial stoppages widespread at the time, the government acted swiftly to promote better industrial relations. The Employment Act of 1968 abolished some discriminatory practices, rationalized pay structures by doing away with abuses on overtime, and reduced retrenchment benefits. In the same year, the Industrial Relations (Amendment) Act removed a big source of friction between labor and management by placing matters such as promotions, methods of recruitment, transfers, task assignments and retrenchment firmly within the prerogative of management and not subject to negotiation. These legislative changes resulted in a transformation of the role of trade unions, which had hitherto taken an adversarial and confrontational stance.

The PAP government had already strengthened its relationship with the union movement by including six central committee members of the National Trades Union Congress (NTUC) as parliamentary candidates in the 1968 general elections. Building on the changes in industrial relations, the NTUC held a seminar on "Modernization of the Labor Movement" in November 1969, at which the Prime Minister persuaded the union movement to shed its role as "a combat organization for class war," and to accept the interests of the nation (NTUC, 1970). One of the key recommendations of the seminar that was subsequently put into practice related to the promotion of tripartism involving the government, employers and labor for the purpose of achieving higher productivity, greater efficiency, and faster economic growth. These measures laid the foundation for a close relationship between the unions and the government, which came to be called the "PAP-NTUC symbiotic relationship." The promotion of tripartism and industrial peace must surely be regarded as an important component of industrial policy.

In the cause of investment promotion, the government reorganized the EDB in 1968, hiving off several of its functions to other agencies and statutory boards (see Section 3). The government also continued to stress the development of human resources and physical infrastructure. It intensified its efforts to improve telecommunication, port and air services. And, to promote macro-economic stability, it raised the contribution rate to the Central Provident Fund (CPF), a pension scheme established by the British Colonial government in 1955, to 25 percent of workers' wages. This increased the amount of real savings available for non-inflationary finance.

Economic Outcomes. These policy initiatives prompted a surge in direct foreign investment, particularly after 1967. In manufacturing, investment commitments during 1968-73 totalled more than S\$2.3 billion. The bulk came from the United States, which replaced the United Kingdom as the largest source of foreign investment. Most of the early US investments were in petroleum refineries and electronics. Singapore was also fortunate that political uncertainties in Hong Kong resulted in some textile and garment plants moving from there to Singapore. These investments generated a large increase in industrial employment and exports. The number of workers in radios, televisions, semiconductors and other electronic devices rose from 1,611 in 1966 to 44,483 in 1973. In textiles and clothing, the number of workers increased from 2,459 in 1966 to 35,012 in 1973. These two industries alone generated more than half the total growth of about 147,500 in manufacturing employment during this period.

The government was able to seize fresh opportunities. Thus, when the Bank of America (BoA) proposed to set up a foreign currency unit in Singapore similar to its Eurocurrency unit in London, the government responded by tax-exempting the interest derived from nonresident deposits in these units, that came to be called Asian Currency Units (ACUs). BoA's entry was followed by a rapid succession of

other banks, mainly foreign, and this resulted in the phenomenal growth of the so-called Asia Dollar Market (ADM). The subsequent expansion of financial services provided economic diversification, and also facilitated the inflow of foreign investment by making financial resources more readily available. Indeed, it was the growth of the ADM that provided the impetus for Singapore's aspirations as a regional financial center.

Real GDP grew at an impressive 13 percent a year from 1966 to 1973, with the share of manufacturing rising sharply from 16.0 percent to 22.3 percent. Direct exports as a percentage of total sales in manufacturing rose from 43.3 percent in 1966 to 53.9 percent in 1973. Gross domestic capital formation as a percentage of GDP rose rapidly, from 21 percent to 40 percent in 1973.

Phase III: First Attempts to Upgrade (1973-78)

With the attainment of full employment in the early 1970s, labor surplus was replaced by labor shortage. This created the need to import large numbers of workers from neighboring countries.⁷ Singapore also experienced a sharp decline in the inflow of foreign investment from S\$708 million in 1972 to S\$376 million in 1973.

In such changed circumstances, the government maintained its long-term growth objective, but modified its economic strategy. It moved its investment promotion efforts away from labor-intensive manufacturing industries, and sought instead to upgrade and restructure the economy, putting greater emphasis on quality, skills and technological content. A two-pronged approach to achieve this was announced by Hon Sui Sen (Hon, 1973), then Finance Minister: to intensify efforts to attract manufacturing industry (such as petrochemicals, machine tools, precision engineering, sophisticated electronics, office equipment and machinery) and to assist existing industries to upgrade their skill and technological level.

Hon (1973) also announced a ten-point program designed to upgrade the skill and technological level of the entire manufacturing sector which included the following policy initiatives: (i) a wage policy based on an orderly increase in cash wages, under the guidance of the National Wages Council (which was established in 1972) to ensure the international competitiveness of wage costs in Singapore for medium- and high-technology industries; (ii) manpower development-intensified efforts to promote industrial training, including allowing training expenses by medium- and high-technology industries to be amortized for tax purposes; (iii) an open-door policy for admitting qualified foreign engineers, technicians and other professionals, and skilled workers needed for the implementation of various medium- and high-technology industrial projects; and (iv) a special tax concession (five-year complete tax holiday) to industries with desired levels of technology.

⁷ It is only natural that once the pool of domestic unemployed workers had been absorbed by the expansion of the manufacturing sector, inflow of foreign workers would follow. While detailed statistics are not published on a yearly basis, the 1970 Census of Population showed a total of 72,590 noncitizen and nonresident workers in 1970, or about 11 per cent of the work force.

Economic Outcomes. This initial attempt to upgrade the economy was hindered by the first oil crisis in 1973, and the world recession that followed in 1974-76. Despite this, Singapore's real GDP grew by 7.4 percent a year in 1974-79, compared with the developing countries' average of about 4.8 percent. The government's efforts to attract investment achieved some success with the inflow of foreign investment recovering. However, economic growth was achieved not because of the upgrading of manufacturing, which actually showed a decline in 1975. Indeed, during the two low years of 1974 and 1975, growth came from construction (reflecting the investment in infrastructure) and financial services (as a consequence of the expansion of the ADM). As noted by Goh (1980), economic upgrading slowed down as "fear of recession and its resulting unemployment cause[d] the economy to cling on to labor-intensive industries," and kept wage increases down. Ironically, because of the low wages, manufacturing was able to grow towards the end of the 1970s, helped by the continuing inflow of foreign workers into Singapore.

Discussion. That the government was able to recognize the need to upgrade and restructure the economy so soon after achieving full employment is a reflection of its perceptiveness to fundamental changes in the economic environment. The policy initiatives announced in 1973 were noteworthy for being introduced at a time of prosperity — not out of desperation, as had happened at the beginning of the previous phase.

With the stylized strategic framework in mind, it is easy to see that Singapore's dependence on international trade made it determined to remain internationally competitive. This was reflected in the measures to ensure orderly wage increases through the National Wages Council (NWC). The establishment of the NWC might be regarded as a signal of the government's reluctance to permit market forces to determine wage increases. In the event, the NWC became a powerful instrument for promoting the tripartism considered essential for industrial peace.

Further, while acknowledging the role of direct foreign investment in economic development, the government also wanted to enhance the human resources and supporting infrastructure needed for a healthy business environment. In particular, it recognized the need to upgrade the skills of the entire work force. Thus, this phase saw the establishment of a strong foundation for industrial training. While the government continued to strengthen its educational institutions, it also initiated the establishment of the joint industry training centers through the EDB. These EDB training centers, established in collaboration with MNCs, provided the framework for a highly successful Joint Industry Training Scheme.

Although some analysts, as well as the government, consider this early attempt to upgrade industrially as having been aborted by the first oil shock and world recession, it was more a matter of imported labor moderating the upward pressure on wages as well as the move away from labor-intensive industries. Without foreign workers, many of the labor-intensive industries would have shifted prematurely out of Singapore during this phase. Without the skilled work force produced by the Joint Industrial Training Scheme, the MNCs would not have been able later to obtain the high quality supporting services they required for the more capital-intensive industries sought by Singapore. The rapid growth of the ADM contributed to the growth of the financial and business sector, facilitated economic diversification and resulted in Singapore becoming a financial center.

Phase IV: Economic Restructuring (1979-84)

The environment prevailing in the late 1970s was essentially similar to that at the beginning of the previous phase. The labor market was tight, and the inflow of foreign workers continued unabated.⁸ For its part, the government laid stress on upgrading and restructuring the economy. Success in attracting foreign investment had caused the economy to become highly dependent on foreign firms, especially in manufacturing (see Table 2). Far from being disturbed by this, the government sought to increase the inflow of foreign investment. By this time, it had recognized that such efforts also required continual improvements in infrastructure and the skills of the workforce.

Table 2: Share of Majority Foreign-Owned Firms in Manufacturing, 1980

Contribution To:	Percent
Gross Output	73.7
Value-Added	67.4
Employment	58.4
Direct Exports	84.7

Source: Report on the Census of Industrial Production, 1980.

With the slowdown in the industrialized economies, it was expected that they would turn more protectionist, and provide less capital to the rest of the world. Moreover, unlike the mid-1960s and the 1970s, when there was little competition for foreign investment, the Singapore government expected other economies to offer inducements to MNCs.

In these circumstances the government saw an increasing need for economic diversification. In its Economic Development Plan for the Eighties, released as an appendix to the 1980 Budget Speech (Goh, 1980), it stressed that Singapore must diversify: (a) its economic activities, into new information-based services, such as computer, medical, consultancy and warehousing services; and (b) its markets, so as to reduce the threat of protectionism and expand its exports to developing countries.

The government's views on foreign investment were reiterated in no uncertain terms in this plan. It stressed that Singapore would not place unnecessary burdens or restrictions on foreign investors: "we cannot reserve nor demarcate areas for local businesses, nor compel foreign companies to combine with local companies." The government re-affirmed its commitment to allow foreign companies 100 percent ownership of their investments in almost every field.

In its assessment of the previous efforts at industrial upgrading, the government concluded that low wages encouraged the inflow of labor-intensive, low-technology investments and, as such, were an

⁸ The 1980 Census of Population showed that the number of foreign workers in Singapore had increased to nearly 120,000 in 1980, an increase of about 50,000 since 1970.

obstacle to upgrading and restructuring. With this in mind, it decided to institute "corrective" or "high" wage increases over the three-year period 1980-83, to be followed by market-oriented wage increases. The EDB would also intensify its investment promotion efforts, through an extensive network of 22 overseas offices in the U.S., Japan and Europe. In an apparent attempt at industrial targeting, eleven primary and supporting industries were designated for promotion: automotive components, machine tools and machinery, medical and surgical apparatus and instruments, specialty chemicals and pharmaceuticals, computers, computer peripheral equipment and software development, electronic instrumentation, optical instruments and equipment (including photocopying machines), advanced electronic components, precision engineering products, and hydraulic and pneumatic control systems.

Although these policy initiatives attracted much attention, the government's efforts in the area of education and industrial training received less publicity. In practice, both approaches were complementary: the EDB's success in attracting particular industries was predicated on the availability of suitably skilled workers. These promotional efforts by EDB substantiate the finding by an IMF study on foreign direct investments, which concluded that incentives per se were not directly significant for FDI. Rather, they were important in drawing attention to a relatively unknown place, and to provide the critical mass of investors needed to spur growth and development (IMF, 1985).

Economic Outcomes. The economy responded positively to the various policy measures. The EDB's efforts helped to induce a large inflow of foreign investments in the desired industries. Net investment commitments in 1980-84 averaged S\$1.7 billion per annum, led by strong expansion in new, higher value-added industries such as computers, electronics, machinery, printing and pharmaceuticals. While real GDP grew at 8.5 percent per annum during this period, growth in manufacturing output averaged only 5.1 percent. The construction sector, however, grew by a phenomenal 21.6 percent per annum and financial and business services sector by 11.3 percent.

Discussion. Given the heavy investment in manufacturing during this period, the growth in its output was disappointing. Instead, the rapid development of financial and business services, with their productivity rising the fastest during this period, provided further impetus to Singapore's aspiration to be a financial centre. A growing consensus was beginning to form on the need for Singapore to accelerate the diversification of its already well-diversified economy.

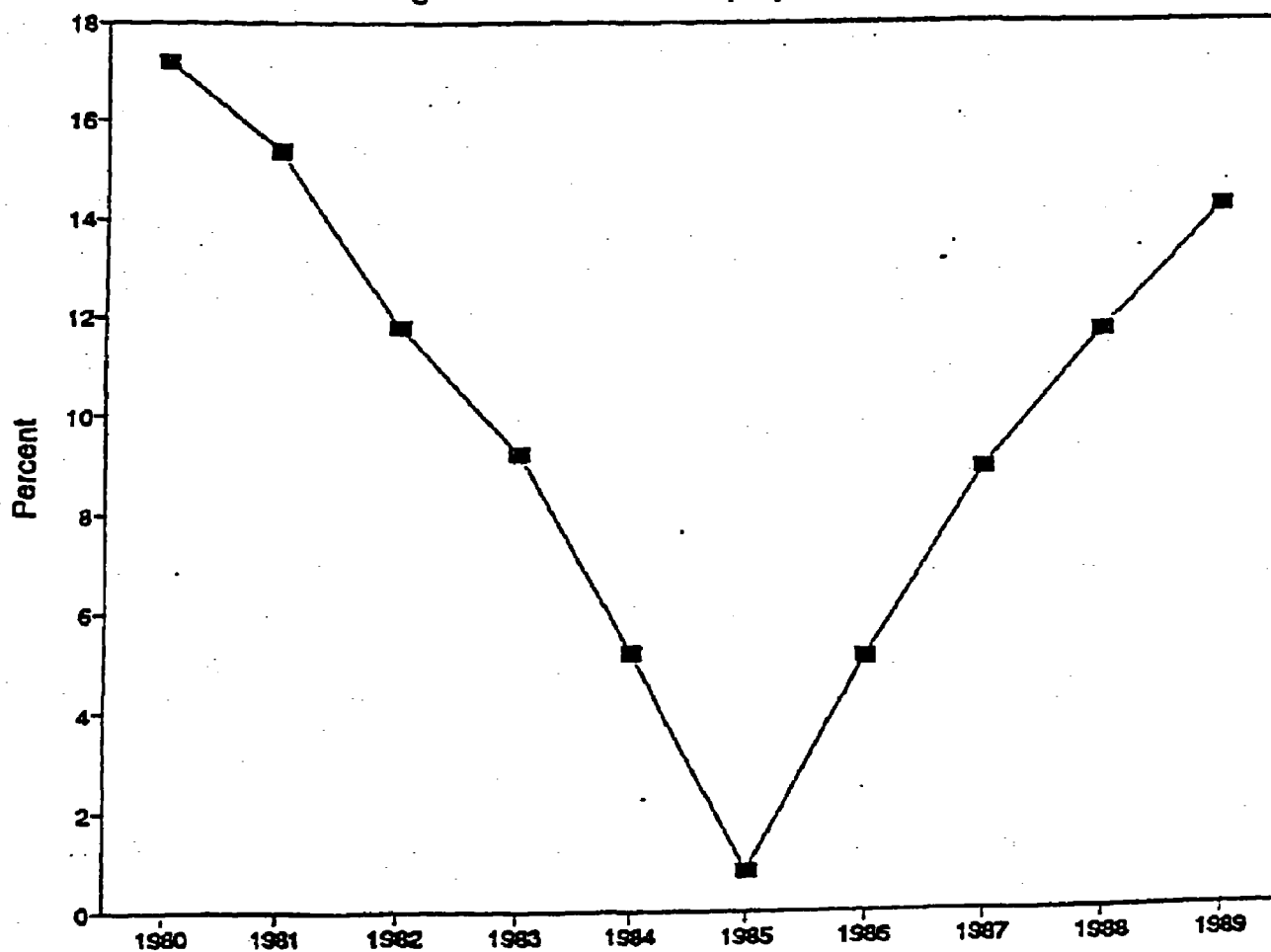
Although it is difficult to assess the full impact of the oil crises, it did harm the oil- and marine-related industries. In contrast, the costs of the high-wage policy of 1979-84 are clearly seen in the lackluster performance of manufacturing. Its profits were squeezed by the higher relative unit labor costs coming at the same time as a prolonged global recession, and hence reduced external demand. As Table 3 and Figure 3 reveal, productivity growth was maintained throughout 1979-84; but the return on equity investment fell from 1983, reaching a low in 1985.

Table 3: Comparison of Average Wage Increases and Productivity Growth of Asian NICs, 1979-84 (%)

Country	Wage Increases		Productivity Growth
	Nominal	Real	
Hong Kong	12.9	1.1	3.9
Taiwan, China	15.2	6.6	4.8
Singapore	11.6	6.5	4.6
South Korea	17.7	4.1	3.9

Source: Table 2.2, Report of the Economic Committee, MTI.

Figure 3: Return on Equity Investment



Phase V: Retrenchment and Further Diversification (1985-1990)

Singapore had its first severe recession in 1985, when real GDP declined by 1.6 percent. Coming after a long period of growth, the recession took the government by surprise. The Economic Committee, established under then-Minister of State for Trade & Industry Lee Hsien Loong, concentrated on the immediate task of getting out of recession. The Committee concluded that changed global demand had created structural problems for several key industries, in particular, the oil- and marine-related industries. It also noted a sharp rise in business operating costs, due to three main factors: (a) high labor costs resulting from the increased rate of CPF contributions and from rapid wage increases continuing beyond the planned three years; (b) creeping rises in fees and charges levied by the Public Utilities Board, Port of Singapore Authority, Jurong Town Corporation, and other statutory boards; and (c) the strength of the Singapore dollar, as a result of the success in attracting foreign capital.

In such circumstances, the government maintained its long-term goal of economic growth. Recognizing that there was little it could do about external conditions, it considered that Singapore would have to deal with fundamental domestic problems. Thus, although it would have been politically expedient to improve international competitiveness through a weaker exchange rate for the Singapore dollar, the government chose instead to seek a reduction in labor costs, and stuck to its strong exchange rate policy.

The employers' contribution rate to the Central Provident Fund was cut from 25 percent to 10 percent. Such a move meant a reduction in workers' earnings by 12 percent⁹ and would have been difficult to implement without the support of the NTUC. Through the NTUC, the government also sought backing from the unions for two years of wage restraint. That the union movement supported the CPF cut and the wage restraint was a demonstration of both the symbiotic relationship between the government and the NTUC and the government's success in securing consensus on the measures needed to get Singapore out of recession. At the same time, the government also lowered tax rates, reduced charges for utilities as well as for international telephone and telex services, offered rebates on site rentals in the industrial estates, and port fees, etc.

As in the earlier phases, the EDB intensified its efforts to promote investment, particularly in high value-added technology-based manufacturing. It established a S\$100 million Venture Fund to enable it to co-invest in new technology companies — even overseas, when that would encourage the transfer of technology and investments to Singapore. The EDB was also charged with boosting investment in service industries, which (apart from the financial sector, which was promoted by the Monetary Authority of Singapore) had hitherto been left on their own. The EDB offered incentives for services similar to those for manufacturing, including pioneer status (tax holiday) and investment allowances. And the EDB stressed the notion of Singapore as a Total Business Center: the regional headquarter for the operations of MNCs in the Asia-Pacific region.

As in the earlier phases, the government's initiatives were successful, leading to a quick economic recovery. Real GDP grew by 1.8 percent in 1986, then by almost 10 percent in each of the following four years. Several MNCs set up their operational headquarters in Singapore.

⁹ Since employers' contributions are part of workers' gross earnings, the 15% fall in employers' contributions results in a fall in gross earnings by $(15/125 \times 100)\%$, or 12%.

Nonetheless, the severity and unexpectedness of the 1985 recession prompted several attempts to study its causes. The government's official response was the Report of the Economic Committee. This was followed by Krause, Koh, & Lee, (1987) and Lim & Associates (1988). These studies looked particularly closely at the high wage policy. They questioned the overwhelming dependence of the economy on MNCs, as well as the dominance of the government in economic management. The contribution rates to the CPF were considered to be excessive, and despite the government's efforts, the studies also suggested that Singapore had under-invested in education. (These issues are considered in Sections 4 and 5.)

What Constitutes Singapore's Industrial Policy?

The experience of the five developmental phases shows that the key elements of public policy were:

- choice of industrialization as a developmental strategy, initially to create employment;
- reliance on the private sector, particularly foreign MNCs, to establish and run enterprises, though the government would step in should the private sector fail to respond;
- investment in human capital and infrastructure;
- consensus building, maintenance of good industrial relations and the promotion of tripartism between government, industry and labor; and
- maintenance of a stable macro-economic environment through prudent fiscal and monetary policies.

The chief elements of industrial policy were the strategic interventions that were manifested through:

- liberal fiscal incentives, initially to begin the industrialization process but later to encourage specific kinds of investments and activities; and
- industrial targeting via investment incentives, which was modified over time to reflect the shift from labor-intensive, low-technology industries to skills- and capital-intensive industries.

Indeed, Singapore has now begun to embark on its next phase: to encourage investment abroad. While growth has hitherto been largely dependent on the inflow of foreign investment, future prospects depend also on the capacity to build up large stocks of foreign assets.

The most recent account of the government's overall thinking comes in the Strategic Economic Plan (1991), which was drawn up after work by eight subcommittees comprising representatives from both government and business. The Plan, which favors the positioning of Singapore as a global city, is a reflection of the rational, incremental approach to policy formulation. It reiterates the various elements of the strategic framework: emphasis on attracting high-tech, knowledge-intensive industries; promotion of high-value innovative/creative activities; investment to enhance human resources; promoting teamwork and cooperation between labor, business and government. The one new element of the plan is the call for the internationalization of local firms, to help them transcend the constraints of small size.

III. GOVERNANCE AND INSTITUTIONAL FRAMEWORK

However good the policies, they are unlikely to be effective without good governance and an appropriate institutional framework. This was recognized at an early stage by the government, in an analysis by Goh Keng Swee (Goh, 1983). He suggested that the fundamental problems with many developing countries stem from inappropriate social and political institutions. He also noted that it is essential to have as little corruption as possible, but conceded that this was an issue which was unlikely to be raised in polite circles.

The purpose of this Section is to examine how good governance has been achieved in Singapore, and the nature of its institutional framework. Apart from the civil service itself, much of the government's powers and activities are exercised by statutory boards. This section looks in detail at the Economic Development Board (EDB), and examines the major reorganization of the Monetary Authority of Singapore (MAS) in April 1981 as well as the review of the education system in 1979/80.

The Civil Service

The first generation of PAP leaders were quick to see the civil service as a vital instrument. Without its support and cooperation, their objectives could not be achieved. However, the civil service had identified itself with the British Colonial government, so it was not particularly sympathetic to the goals of the PAP government (Vasil, 1992:136). To correct this bias, the PAP government set up a Political Study Center to raise the awareness of civil servants about the problems facing Singapore. In opening the Political Study Center in 1959, Prime Minister Lee Kuan Yew said:

"My theme to you today is simply this: You and I have vested interests in the survival of the democratic state. We the elected Ministers have to work through you and with you to translate our plans and policies into reality. You should give of your best in the service of our people."

In recognizing the value of a competent bureaucracy, the PAP government made it clear to the civil service that high standards of performance were expected; and it began to appoint increasing numbers of younger and highly qualified Singaporeans on merit, replacing the seniority system hitherto practiced by the British Colonial government. The government placed particular emphasis on attracting people with technocratic-managerial skills, and introduced a scholarship system to ensure a supply of qualified young graduates to the civil service. At the same time, it decided substantially to improve salaries and benefits in the civil service so as to bring them broadly into line with the private sector. The government sought also to ensure that these competent civil servants would not feel frustrated with the implementation of policies and programs devised by politicians. It involved them actively in the formulation of policies and accorded them high status. The best civil servants were later encouraged to go into politics. In the words of S. Rajaratnam, ".....we involved them in something far more challenging and satisfying than just being civil servants--building houses, roads, keep the city clean. They were being stretched. It did not take long before we established a close link between us and the civil service. In fact, after the first two elections, the PAP became really an administration. It was no longer a party. And the civil service became a part of that." Vasil (1992:146).

Statutory Boards

The public sector comprised not just the civil service, but a large number of statutory boards. Ow (1986) describes these boards as follows:

"Statutory boards are autonomous corporate bodies established by Acts of Parliament. As such, they are legal entities and fully liable in law and do not enjoy the legal privileges and immunities of government ministries and departments. Statutory boards enjoy a much greater degree of autonomy and flexibility in their day-to-day operations and financial matters than the civil-service proper. However, the statutory boards are under the supervision of their respective Ministers who lay down the major policy guidelines and are answerable to the Parliament." (Ow, 1986:241)

Although statutory boards are not unique to Singapore, they have been atypically effective there. In the initial phases, they were often given wide-ranging powers. The first statutory board established by the PAP government was the Housing & Development Board. Its success is in sharp contrast to its predecessor, the Singapore Improvement Trust (SIT), which was established in 1927 by the British Colonial government. It built only 20,907 units¹⁰ between 1947 and 1959, housing just 8.8 percent of the population. The HDB, on the other hand, quickly provided Singaporeans with housing standards much envied by other developing countries (Tan & Phang, 1991). As Table 4 shows, the proportion of households owning the homes they occupied rose from just under 60 percent in 1980 to 90 percent in 1990.

Table 4: Home Ownership in Singapore, 1980 and 1990

Type of Dwelling	Home Ownership (%)	
	1980	1990
HDB Flats	60.8	91.7
Private Houses & Flats	72.0	87.2
Others	46.1	63.6
Overall	58.9	90.2

Source: Department of Statistics (1991, Table 28).

¹⁰ Table 2, (Yeh, 1975).

The success of the HDB and the Economic Development Board led to the establishment of other statutory boards. Indeed, as noted by Ow (1986), there is a statutory board in almost every important socio-economic field:

- industrialization and investment — EDB and the Jurong Town Corporation (JTC), established as an offshoot of the EDB in 1968 to take over from the EDB the development and management of industrial estates;
- savings — the Central Provident Fund (CPF) Board and the Post Office Savings Bank;
- infrastructure and essential services — the Public Utilities Board (PUB), the Telecommunications Authority of Singapore (TAS), the Port of Singapore Authority (PSA) and the Civil Aviation Authority of Singapore (CAAS);
- trade — the Trade Development Board (TDB), which replaced the Department of Trade in 1983;
- banking and finance — the Monetary Authority of Singapore (MAS), the Board of Commissioners of Currency, Singapore (BCCS);
- tourism — the Singapore Tourism Promotion Board (STPB) and the Sentosa Development Corporation (SDC);
- radio and television — the Singapore Broadcasting Corporation (SBC);
- housing — HDB and the Urban Redevelopment Authority (URA)
- education and training institutions — the National University of Singapore (NUS), the Nanyang Technological University (NTU), the Singapore Polytechnic (SP), the Ngee Ann Polytechnic (NP) and the Institute of Technical Education (ITE), which was established to take over the functions of the Vocational & Industrial Training Board (VITB);
- public transport — the Mass Rapid Transit Corporation (MRTC);
- promotion of information technology, and science and technology — the National Computer Board (NCB) and the National Science and Technology Board (NSTB); and
- taxation — the Internal Revenue Department was converted in 1992 to a statutory board, the Internal Revenue Authority of Singapore (IRAS).

The flexibility of these statutory boards, particularly in the recruitment and promotion of their staff, has contributed significantly to their success.

Several of these statutory boards provided services similar to those that could be provided by commercial enterprises. Indeed, the success of these boards has resulted in their accumulating sizable surpluses. As they have traditionally not been required to pay income taxes or dividends, the government decided in the 1987-88 financial year to transfer S\$1.5 billion to the government's consolidated funds from four statutory boards — PSA, TAS, CAAS and URA. From that year also, statutory boards were required to give 33 percent of their operating surpluses to the government, which is the income tax rate

of private enterprises. The statutory boards have remained profitable, and continue to show large operating surpluses.¹¹

State-Owned Enterprises (SOEs) and Government-Linked Corporations (GLCs)

The government's participation in business activities was done largely through the statutory boards and a large number of state-owned enterprises (SOEs). Since the initiative to privatize them (PSDC 1987, the SOEs have come to be referred to in Singapore as government-linked corporations (GLCs). Including the statutory boards and GLCs, the government's participation in the economy is fairly extensive, providing almost 18 percent of total employment in 1990 (see Table 5).

Table 5: Size of the Public Sector in Singapore (1990)

	Sales (S\$ mn)	Profits (S\$ mn)	No. of Employees
SOEs and GLCs	9,237	2,119	83,700
Statutory Boards	9,615	2,592	59,500
Government (include defense forces)	—	—	123,000
Total			266,200
TOTAL WORK FORCE			1,516,000

Sources: EDB, Annual Reports of Statutory Boards, cited in Goh (1992).

The rationale for establishing SOEs and GLCs has been explained by Goh (1992). In at least one instance, that of the Singapore Bus Services Ltd (SBS), the government was obliged to get involved because the private transport companies failed to provide satisfactory services to the commuting public. In other instances, SOEs were established to cope with, or to take advantage of, major events in Singapore's history. These included the establishment of Sembawang Shipyard to commercialize the British naval facility after Britain's military withdrawal. The attainment of independence provided Singapore with an opportunity in 1968 to set up its own shipping company, Neptune Orient Lines, to take advantage of the Far East Freight Conference, a cartel of British and European vessel owners. As this grouping virtually monopolized the freight business between Europe and the Far East, it ensured steady profits for its members. Also at independence, it was necessary for Singapore to establish its own defense forces. Although much military equipment could be imported, the government decided to

¹¹ The operating surpluses of ten major statutory boards (CAAS, HDB, JTC, MRT, PSA, PUB, SDC, SBC, Singapore Telecom (previously TAS) and URA) are reported in the annual Economic Survey of Survey, as about S\$2.5 billion in 1991.

establish a SOE to produce small arms ammunition. Later, several other enterprises related to defense were established. The EDB has also established several joint-venture companies, sometimes to show the government's commitment to a project.

The cumulative effect of government's decisions to establish SOEs of one kind or another has been a large number of enterprises which, as suggested by Goh (1992), can be analyzed in two tiers. First-tier companies are set up by the government (with government usually as the sole shareholder) and funded from the development account. These are generally subsidiaries of one of three government holding companies, Temasek Holdings, Singapore Technology Holdings (for defense-related industries) and Health Corporation Holdings (for hospitals and medical services). Second- and lower-tier companies are subsidiaries of the first-tier companies. GLCs are funded by the Government Holding Companies, but closed down if they are unprofitable. Since 1983, GLCs have started to be privatized to enhance the private sector in the country's future growth, not to raise revenue. In the main, GLCs have been established for strategic reasons (as in the assurance of pork supply for the domestic market) or where the private sector's inexperience resulted in slow investments in those industries that the government thought were integral to its long-term development goal. Table 6 shows the breakdown of these companies in Singapore.

Table 6: State-Owned Enterprises and GLCs in Singapore (1990)

	Temasek Holdings	Technology Holdings	Corporation Holdings	Total
No of Companies	39	5	6	50
No of Subsidiaries	469	97	—	566
Capital (\$\$ bn)	9.1	1.0	0.5	10.6
No. of Employees	65,000	12,300	6,200	83,700

Sources: Holding Companies, cited in Goh (1992).

The dominance and relative performance of the large GLCs have been analyzed by Low, Scon, & Toh (1989), using data from a credit information agency on the 500 largest Singapore companies. Despite incomplete data, the study revealed the extent of GLCs' involvement in the Singapore economy. Table 7 shows that only 4.4 percent of the 500 largest firms (or 22) were GLCs, but they accounted for 12.2 percent of sales, 19.5 percent of profits and 22.9 percent of the assets of the 500 firms. It is also worth noting that about two-thirds of the GLCs were joint-ventures.

Table 7: Percentage Distribution of Firms, Sales, Profits and Assets of Largest 500 Firms in Singapore, 1986

	Firms	Sales	Profits	Assets
Foreign	62.8	63.8	70.5	44.2
Singapore	37.2	36.2	29.5	55.8
GLC	4.4	12.2	19.5	22.9
Non-GLC	32.8	24.0	10.0	32.9
Total	100.0	100.0	100.0	100.0

Source: (Low et al., 1989).

Table 8 also shows that the GLCs are large and profitable. They have the highest average ratio of profits to sales (9.6 percent), compared with 4.9 percent for foreign firms and only 2.5 percent for non-GLC Singapore firms. However, in terms of profit to assets, foreign firms had the best return of 9 percent, compared with 5 percent for GLCs and only 2 percent for non-GLC Singapore firms.

While the success of the GLCs is generally acknowledged, the reasons for their success have been widely debated. In general, local businessmen argue that GLCs have an unfair advantage because of their close links with the government. However, Goh (1992) maintained that they are expected to operate on a competitive basis, just like private firms. Indeed, given the small size of the Singapore economy, the larger and more successful GLCs have to compete not only within Singapore, but outside as well. Even in the defense-related industries, economies of scale dictate that they should not restrict their production to the domestic market. However, it is still possible that some GLCs have an inherent advantage in the domestic market, because of their connections with the public sector. The government has shown itself willing to modify policies and regulations in response to justified complaints, and it has tried to ensure fair competition. For example, in 1983 traders complained about the monopoly of the Primary Industries Enterprise on the import of fresh pork from Malaysia; the government responded by allowing the free import of pork, provided it met veterinary and public health conditions.

Table 8: Comparative Performance of 500 Largest Firms in Singapore, 1986

	Average Sales Per Firm	Average Profits Per Firm	Average Assets Per Firm
Foreign	110.8	7.3	81.6
Singapore	106.0	5.1	174.1
GLC	301.2	28.8	603.5
Non-GLC	798.5	2.0	63.8

Source: (Low et al., 1989)

The government's insistence that the GLCs stand on their own must have contributed to their efficiency. Indeed, not all GLCs have survived Goh (1992). The first closure was in 1981, of John White's Footwear, which had difficulties in exporting to the then Soviet Union. The second example was Singapore Textiles in 1985, which failed due to poor management. The defense related industries also fared badly when they ventured into high technology enterprises not related to the production of weapons. In general, it seems fair to argue that the GLCs, like the statutory boards, are successful largely because they have had to compete. Their competitiveness appears to stem from good management and their ability to recruit well-qualified and capable staff. Moreover, they provide a useful countervailing force to the large MNCs (Low, et al., 1989).

It is worth noting one other source of concern. With the dominance of the MNCs in manufacturing, and the success of the statutory boards and the GLCs, some have argued that the indigenous private sector may be "crowded out" (see for example, Krause et al., 1987). One response might be to allow smaller local enterprises to piggy-back on the statutory boards and the GLCs in their current drive to invest overseas.

Economic Development Board

The EDB was the second statutory board established by the PAP government in 1961.¹² What is unique about it is that, unlike other statutory boards that were given one specific task, it has the all embracing responsibility of promoting economic development.

The establishment of the EDB was recommended by the 1960-61 UN Mission led by Albert Winsemius to help develop a blueprint for Singapore's industrialization. The approach and thinking of the Mission were reflected, *inter alia*, in its areas of expertise: industrial sites, electrical equipment and appliances industries, metal and engineering industries, chemical industries, shipbuilding, shiprepairing and shipbreaking industries (Chow, et al., 1990). With the agreement of the Singapore government, the mission went beyond its original terms of reference, and undertook a broad investigation to advise on economic policies and organization.

The Winsemius Report provided the basis for Singapore's first Development Plan. It made two particularly notable observations. The first was that Singapore did not lack entrepreneurs, but that they were mainly in commerce and not in manufacturing. This suggested the need for the government to participate directly to operate certain basic industries if neither foreign nor local enterprises were prepared to do so. However, said the Report, long-run government participation might harm the investment climate, unless it was true to commercial and market principles.

The second point recommended the establishment of a nonpolitical EDB, with divisions on financing, industrial facilities, projects, technical consulting, services and promotion. The Report recognized that the EDB's core function should be the promotion of investment, and that it should eventually hand over its financing activities to an Industrial Development Bank. The Winsemius Report was accepted and its recommendations implemented almost immediately.

The EDB was established as a statutory board under the Ministry of Finance. Hon Sui Sen, who later became Minister of Finance, was its first Chairman. Lim Kim San, who was then Chairman of the Housing and Development Board (HDB), and later assumed several ministerial positions, was the first

¹² The first statutory board to be established is the Housing and Development Board (HDB).

Deputy Chairman.¹³ Five other Board members representing banking, manufacturing, labor, the professions and academia were appointed. In its early years, the EDB had technical advisers from the UN and the International Labor Organization (ILO).

Even though investment promotion absorbed much of the EDB's energies, it put considerable efforts into other activities. Initially, it concentrated on the four industries identified in the Winsemius Report, namely, shipbuilding and repair, metal engineering, chemicals, and electrical equipment and appliances. As the EDB was established as a one-stop investment promotion agency, its various divisions provided their specialized services to potential investors.

Apart from the Finance Division and the Project Division, the EDB also had a Technical Consultancy Services Division (TCSD). The TCSD had three units. One was the Industrial Research Unit, established with assistance from the New Zealand Government under the Colombo Plan. It was the forerunner of the Singapore Institute of Standards and Industrial Research (SISIR). The second unit was the Light Industries Services (LIS) Unit, established with seed money from the United Nations to provide extension services to small manufacturers to modernize and expand. Parts of it were later re-grouped and centralized under the Engineering Industries Development Agency (EIDA), which became established as a company under the Companies Act. The third unit was the Manpower Development Unit, which organized management courses in conjunction with other bodies such as the Singapore Manufacturers' Association, the University and the Singapore Polytechnic. These efforts were later handed over to the Singapore Institute of Management, which was set up in 1965. The Manpower Development Unit continued to provide industrial training, and has been involved in several training centers and technical institutes in collaboration with both the MNCs and foreign governments.

Other activities of the Technical Consultancy Services Division include the establishment of the National Productivity Center (NPC) and the Product and Design Center, which became incorporated in 1967 as the Export Promotion Center. The Export Promotion Center was, in turn, absorbed into the International Trading Company Ltd (INTRACO) in 1968, which was established to boost trade with the centrally planned economies.

The most notable feature of the EDB's early work was its emphasis on developing its own abilities, without becoming a sprawling bureaucracy. By 1968, when UN assistance ceased, the EDB had developed a core of competent local staff. As its functions have grown in scale and complexity, they have been hived off into separate, autonomous organizations. In 1968, with an economic crisis facing Singapore, the EDB reorganized itself and handed several of its functions to new organizations:

- (a) the Industrial Facilities Division, including the Civil Engineering Branch, was absorbed into a separate statutory board, the Jurong Town Corporation, which took charge of all the industrial estates;
- (b) the Finance Division was transformed into the Development Bank of Singapore, to serve as an industrial bank; and

¹³ The pattern of civil servants going into politics has continued. The current Prime Minister, Goh Chok Tong, and some of the 'younger' or second-generation ministers in the Singapore government were former civil servants.

- (c) the Export Promotion Center of the Technical Consultancy Services Division was absorbed into INTRACO, a government-owned trading company.¹⁴

When the EDB was charged with promoting service industries, it had to coordinate with even more government departments: the Ministry of Health (medical care), the Ministry of Education (education services), the Monetary Authority of Singapore (financial services) and the National Computer Board (information services).

Drastic Reorganization of Government Agencies

Not all reorganizations of government agencies were as gradual and orderly as that of EDB. At least two important bodies have been drastically reorganized: the Monetary Authority of Singapore (MAS), and the Ministry of Education. Both reorganizations were initiated after extensive reviews in 1979/80 by then-Deputy Prime Minister, Goh Keng Swee. While these reorganizations seemed draconian at the time, they nonetheless resulted in organizations with an improved sense of purpose.

The Monetary Authority of Singapore. The reorganization in April 1981 of the MAS, a statutory board with all the functions of a central bank other than currency issuance, was surprising. It occurred after a period of rapid growth in the Asia Dollar Market, and the MAS was widely regarded to have been extremely successful in promoting Singapore as a financial center. Indeed, it was expected to absorb the functions of the Singapore Board of Commissioners of Currency (BCCS), to become a fully-fledged central bank. Instead, it ended up transferring one major function, managing Singapore's foreign reserves, to a new organization, the Government of Singapore Investment Corporation (GSIC). Although the internal review of the MAS was never released in full, it seems to have emphasized the need to manage Singapore's foreign reserves more actively.

The reorganization of the MAS involved almost all the senior management either resigning or losing their jobs. Lim Kim San, a former Cabinet Minister, became the new Managing Director. Senior bankers were seconded from the private sector, and other senior staff were recruited from abroad. The reorganization cut the MAS's staff from 503 to 369. Its responsibilities were clarified, and it was given sufficient funds to enable it to manage the Singapore Dollar.

The reorganization of the MAS did not imply that Singapore had dropped its goal of becoming a financial center, even though the new management insisted that the Singapore Dollar should not be internationalized. The MAS decided in 1984 to revamp the former Gold Exchange of Singapore, whose members were then engaged in questionable practice, and to set up the Singapore International Monetary Exchange (SIMEX). With senior MAS managers serving in SIMEX initially, a mutual exchange arrangement was worked out with the Chicago Mercantile Exchange. SIMEX's subsequent growth reinforced Singapore's aim of becoming a financial center.

¹⁴ Despite the EDB no longer being a one-stop agency, it has been successful in providing a wide range of services to potential investors and industry through the coordination of the various government agencies, i.e., a multi-agency approach. With its constant contact with industry and its several overseas offices, the EDB has served as the 'eyes' and 'ears' of the government and provides useful feedback to the government on changes in the business environment. In performing this role, it continues to maintain good relations with industry.

The Ministry of Education. Although this reorganization did not result in the sudden departure of senior managers, nevertheless almost all the Ministry's senior officials were replaced. The report of the review of the Ministry of Education (Goh & the Education Study Team, 1979) was published as a public document and submitted to Parliament. It proposed the establishment of a Feedback and Monitoring Branch to ensure that officials took responsibility for decisions. It also recommended the strengthening of the professional staff in the Ministry as well as the establishment of a Curriculum Development Institute of Singapore (CDIS). The new Education Minister, Goh Keng Swee, described the ministry's management system that he inherited in 1979 as "dismal" and identified two major weaknesses in the "management culture": the "cult of obedience" and the "cult of secrecy." He therefore set up the Schools Council, consisting of school principals and senior ministry officials. It works by circulating a catalogue of Ministerial Committee Meeting (MCM) papers, which are kept in each school library or staff common room. All principals are free to submit comments on any paper.

Integrating and Coordinating Mechanisms

Thynne (1989a) has observed that the governmental system in Singapore involves a concerted effort to ensure coordination and control by the Prime Minister and his Cabinet. It places great emphasis on the development and maintenance of strong inter-organizational connections, and of centrally directed policy and administrative integration. It is in this sense that Singapore has been described as an administrative state. Coordination is also achieved because a relatively small group of senior civil servants and other government appointees each hold several different jobs (Chan, 1975; Pillai, 1983; Thynne, 1989a).

The coordination and control of statutory boards and GLCs has been described in detail by Thynne (1989b), from which the present discussion is drawn. In the case of statutory boards, the Acts of Parliament which established them usually enable the Ministers in charge not only to appoint the members of their governing boards and to direct them on their policies, but also to request and receive information on their projects and programs. In several cases, permanent secretaries and other senior officials are on the governing boards, so they participate directly in decision making and act as channels of communication between the boards and their Ministers. In addition, ministers and board members often hold informal discussions before important questions of policy are considered at the board level.

The same mix of formal and informal processes are also features of the arrangements with SOEs and GLCs. Particularly noteworthy is the fact that the chairmen of the three government-owned holding companies have usually been senior permanent secretaries. They are well placed to enhance the capacity of the holding companies, not just by coordinating their main policies but also by ensuring that company policies are consistent with broader national objectives. Given the power of senior civil servants, it is vital that they should not be tempted into corruption. The government's approach has been to reward these civil servants with high status and income, while at the same time instituting tough actions against anybody who is found to have abused his position.

Tripartite Arrangements

The government's approach to tripartism is best seen through the National Wages Council (NWC), which was set up in 1972 to avoid the traditional and potentially damaging 'free for all' wage negotiations between employers and unions. The NWC comprised representatives from the government, employers and the labor movement. However, it is not a statutory body and its recommendations do not have the force of law.

While the obvious rationale of the NWC was to guide wage increases, its real value is that it provides a forum for frank and open discussions. In this way, the recommendations of the NWC are arrived at by consensus rather than by majority vote. To achieve a consensus, the NWC requires fairly detailed information about the state of the economy, performance of companies, real wage increases, productivity increases and various aspects of government policy. This enables it to have an objective discussion about wage increases without the confrontational element common in traditional wage negotiations. Despite the NWC being regarded as a wage formulating body, it has actually been involved in a wide range of subjects. According to NWC (1992):

"The NWC over the years has addressed itself on various issues, other than wage adjustments. These include the two-tier wage system, job-hopping, fringe benefits, CPF increases, exchange rate changes, income distribution, including intra-wage income distribution, the investment climate, productivity issues, the competitive position of the Singapore economy, wage policy in economic restructuring, flexible wage system, extension of retirement age, part-time workers, foreign workers and the training of workers. For example, it was the recommendation of the NWC that brought about the establishment of the Skills Development Fund, based on tripartite involvement and direction of the workers' training programs."

The success of the NWC as a tripartite body has given the government a mechanism to obtain consensus and support for its economic policies. For example, it was through the NWC that the government implemented its high wage policy in 1979, to force the pace of economic upgrading and restructuring. Following the 1985 recession, the NWC provided a ready forum for the support of the government's initiatives for wage restraint and wage reform.

The success of arrangements such as the NWC has since been replicated in, for example, the Economic Committee set up in 1985, the various subcommittees or working groups which provided inputs to the Strategic Economic Plan in 1991, and a wide range of sectoral Master Plans. Through arrangements such as these, the government draws upon the resources of the private sector and ensures widespread support for its policies.

IV. DESIGN AND IMPLEMENTATION OF VITAL POLICIES

Influence of the Leadership's Characteristics

Throughout three decades of rapid economic growth, one fundamental factor has been political continuity. The same party has pursued the same development goals, on the basis of the same philosophy.

This extraordinary continuity has been reinforced by the personal characteristics of the top leaders. They were of similar intellectual mold, with academic achievements (mainly in law and economics) from top British universities. Having experienced life under the Colonial government and then the Japanese Occupation forces during World War II, they were determined to work towards Singapore's independence. They took political power in the prime of their lives. They were intellectually curious; they had an understanding of global trends, a hard-headed pragmatism, a capacity for hard work, and a belief in personal and professional integrity. Thus, the policies adopted in Singapore cannot be analyzed and understood separately from the people who were driving them.

Vital Policies

Broadly speaking, there were five groups of policies that were vital to Singapore's growth:

- Industrial and trade policy;
- Infrastructure policy;
- Human development policy, including education and industrial training;
- Labor and wage policy, including industrial relations and immigration;
- Macroeconomic policy.

Section 2 analyzed economic growth in terms of the 5 phases of development and highlighted the main elements of policy design and adjustments in each phase. This section will focus on the essential aspects of these and other policies, and their interdependence.

Industrial and Trade Policies. To encourage industrialization, the government initially relied on various incentives introduced in 1961: a 5-year tax-exemption for new industries qualifying for "pioneer" status, the protection of the domestic market via the introduction of import quotas and extension of import tariffs, public investment in establishing industrial infrastructure (sites and factories), and the supply of industrial utilities at subsidized rates. To spearhead industrialization, the EDB lent money at concessionary rates and, where appropriate, took direct equity investments. Given the high unemployment at the beginning of the period, and the lack of domestic industrial entrepreneurs and experience, there were no restrictions or qualifications on industrial investments. In 1963, accelerated depreciation allowances for pioneer industries were introduced in an attempt to raise industrial performance.

At the same time, the government's concern with the longer term led to the 1961 Commission into education reform, which laid the foundation for diversifying education to the technical and vocational areas. The government also decided to send top students overseas for training on bursaries and scholarships.

The 1965 shift in industrial policy towards export promotion involved 3 features that were characteristic of all policy design and implementation. First, the government gave consideration to those infant industries that were established during the short-lived import-substitution strategy and which needed time to adjust to the new policy environment. Secondly, it selected certain industries in electronics and marine-related activities for promotion, and gave them preferential loans and/or EDB equity participation. Thirdly, it identified science and technology as the means to create dynamic comparative advantage.

The government also responded quickly to external shocks. When access to the Malaysian market was lost, it promptly raised protective tariffs to increase protection of the domestic industries for a while. In the following year it began phasing out protection, first through removing some quotas and gradually replacing others with import tariffs. Later it reduced the tariffs, believing that the industries had had enough infant protection and should by then have become competitive. Its switch to export promotion involved redesigning some policies, largely through the 1967 Economic Expansion Incentives Bill. In addition to the "tax holidays" to new industries under the 1961 Pioneer Industries ordinance, the Bill provided indefinite concessionary tax rates on export profits. This was to attract export-oriented

industries, encourage foreign investments and entrepreneurship. From 1969 onwards, trade was continuously liberalized, and by 1973, all quotas and almost all import tariffs were eliminated.

At the same time, the government boosted incentives for industrial investments by granting longer tax-exemption periods and lower tax rates. To compensate the infant industries whose tariff protection were withdrawn, it extended the original 5-year tax-exempt period by 10 years, and gave 20-year tax-exemption to all export industries. These long exemption periods reflected the policymakers view that it might take a decade or more for the new industrialization strategy to take root. In the event, everything happened much sooner. By 1970, the tightening labor market prompted the Amendment Act of 1970, which reduced the generous tax incentives of the 1967 Economic Expansion Incentives Bill.

The government then switched to industrial upgrading and restructuring, favoring larger-scale industries so as to accelerate growth. The earlier incentives were now made conditional on (i) investments being at least S\$1 billion (or S\$150 million, if 50% of the paid-up capital came from Singapore permanent residents); and (ii) the discretion of the Ministry of Finance as to the kind of enterprise that would promote or enhance economic and technological development. Accelerated depreciation allowance also became restricted to larger investments. To accelerate industrial upgrading, the government revised the rules for tax relief (even for those industries still within the relief period), withdrawing it for those industries whose annual export sales were either (i) below S\$100,000 or (ii) less than 20% of total sales.

The onset of higher oil prices from 1973 led to further policy revisions. In 1975, the government brought in a Capital Assistance Scheme and extra EDB loans to encourage specialized projects of unique economic and technical benefit to Singapore and to assist SMEs in establishing high technology industries. To strengthen export promotion, it withdrew pioneer status concessions from firms producing exclusively for the domestic market. It also restricted the type of industries qualifying for pioneer status to: aircraft components and accessories, compressors, transformers, diesel and petrol engines, electrical and portable tools, telephone exchange equipments, microwave equipments, magnets and magnetic materials, typewriters, cameras, watches and clocks, miniature lamps, and a large range of plastic raw materials.

A further round of policy reform took place in 1979. It was aimed at industrial upgrading as well as expanding into financial and other specialized services. To encourage existing industries to invest in improving productivity, tax incentives were broadened to include tax-exemption of profits up to a predetermined level. This level was an approved percentage of fixed investment and was in excess of the normal capital allowances.

In the 1980s the government sought to encourage incentives for manufacturing firms in introducing various fiscal schemes: (i) double-deduction, on a case-by-case basis, of R&D expenditures (excluding building and equipment); (ii) accelerated 3-year depreciation for all plant and machinery used for R&D; (iii) investment allowance of up to 50% of all capital investments in R&D facilities (excluding building costs); (iv) extension of existing industry building allowances of 25% and annual allowance of 3% to new industrial building and other physical structures for R&D activities; and (v) capitalization and writing-off of lump sum payments for manufacturing licensing for 5 years.

The 1985 recession highlighted the poor performance and vulnerability of domestic small and medium enterprises (SMEs). Many closed down, leading the government to introduce a series of policy initiatives from 1986 to try to bolster the SMEs.¹⁵

The initiatives included drawing in the MNCs to help develop the SMEs. This has paved the way for the next stage of development — joint product development by the MNCs and SMEs.

This approach began in 1986, with the Light Industries Upgrading Program (LIUP). The EDB was again the coordinating agency, with MNCs and their subcontractor-SMEs taking part in the program. In 1989 the EDB launched the SME Master Plan, to renew and redevelop SMEs. Like earlier government initiatives, it will use joint public-private sector collaboration to encourage and assist SMEs. As before, public assistance was provided through information, training facilities and concessionary loans. SMEs could seek professional and advisory services from university academics at concessionary fees. The design of programs under the Master Plan also benefitted from contributions by the MNCs, larger firms and local chambers of commerce. To reinforce these efforts, the government formed an Enterprise Development Council in 1990 to provide ideas and recommendations. The Council comprises Members of Parliament, CEOs of the major MNCs, prominent local entrepreneurs, and academics.

Unlike Hong Kong and Taiwan, China, where indigenous SMEs have been an integral part of the industrial landscape, SMEs in Singapore have emerged much later in the process. As a result, SMEs in Singapore have entered directly, instead of gradually, into relatively skill-intensive activities, thereby providing another contrast to its Asian counterparts.

Infrastructure Policy. Once basic housing for the lowest income group was provided in the mid-1960s, the public housing program was integrated into the industrialization program. Guidelines for the design and location of new housing estates, industrial estates, public amenities (such as schools, shopping and recreational facilities), and the public transportation network were intended to facilitate (i) more jobs for women; (ii) domestic transportation for the labor force as well as for goods (ranging from imported industrial inputs to finished goods for export); (iii) a reduction in pollution by noise and industrial effluence; and (iv) improved quality of life. Industrial estates were spread around the island, to minimize congestion. (For further details, see Chia: 1984).

Besides ensuring adequate domestic transport, the government has aimed to modernize and expand port capacity by the early development of container port facilities. Much has been done to expand ship-

¹⁵ The unsatisfactory performance of the SMEs can be seen from the following statistics pertaining to the situation of SMEs in 1987:

- (a) while SMEs constitute about 90% of all small and medium establishments and 44% of employment, they contribute only 24% of value-added and 16% of direct exports;
- (b) only a third of SMEs are in the manufacturing sector, the majority being in commerce services trade;
- (c) the manufacturing SMEs contribute only 1.1% of total manufacturing value-added and less than 1% of manufacturing output;
- (d) value-added per worker in manufacturing SMEs averaged S\$17,000 compared with \$55,000 per worker in MNCs and larger enterprises;
- (e) among manufacturing SMEs, the share of output exported is only 4%, compared with 670% for the MNCs and larger manufacturing firms.

repairing and oil-rig construction facilities. Efficient airport facilities are now in place to boost trade and help Singapore develop into a regional communications and financial hub. Resources have also been allocated for a full-fledged fiber-optic telecommunications system that would lower costs and allow for the future integration of new telecommunication services and facilities, whenever these come on stream.

Important though physical infrastructure is, it needs to be complemented by the development of a suitable "institutional infrastructure." Singapore's government has shown an awareness that, as the economy increases in complexity, there is a growing need for government bodies to be better at managing their affairs and implementing their policies. Change cannot happen suddenly, not least because experience is a vital part of any institution's effectiveness. But the process of change must be built into the way that the public sector operates.

Human Resources and Dynamic Comparative Advantage. As in industrial and infrastructural developments, Singapore's approach to human resource development (HRD) has been gradual and systematic, with flexible timing of policy changes. The salient features of its HRD strategy were based on several considerations. First, although labor was the country's main asset, population growth had to be constrained because of limited land. Secondly, skills were necessary for effective technology transfer and industrial take-off. Lastly, dynamic comparative advantage in the longer term is relatively more dependent on accumulating human skills, not physical capital.

The design of an HRD strategy was initially complicated by (i) the government's inheritance in 1959 of an educational system geared to lower-rung jobs in the Colonial administration; (ii) the need to provide employment not only for the existing nontechnical labor force but for the postwar generation that was about to enter the labor market in the 1960s; and (iii) the multiracial population and the different language capabilities of school-leavers entering the labor force in the early 1960s.

Until 1959, the education system consisted of predominantly state schools where English was the medium of instruction (hereafter referred to as "English schools"), and Malay schools for the Malays. There were also some Chinese and Tamil schools, established privately to provide an education in the vernacular. It was against this background that language became an emotive issue, that was exploited during the independence movement period and early years of independence. The immediate task for educational reform was therefore to resolve the issues of language and standardization. In recognition of the political realities, Malay was designated the national language. At the same time, economic modernization via technical change dictated that English be designated the official language. Vernacular Chinese and Tamil became second languages.

To start a convergence process for the different language schools, the government brought in a national Primary School Leaving Examination in 1960 for all schools. Gradualism was both technically and politically expedient, since language was still being used as a political tool. In language, as in other social areas, the government was to accelerate change after its landslide election win in 1968.

After two Commission reviews in 1961 and 1962, the commissioners recommended providing technical and vocational education at the secondary school level, and creating technical colleges for Chinese secondary school-leavers.¹⁶ The next major initiative in the HRD strategy was not until 1968,

¹⁶ Chinese school students rarely qualified for admission at the time to the sole University where English was the medium of instruction.

when the government extended the formal education system to include technical and vocational education, and established joint training schemes with MNCs and foreign governments.

Parallel to the industrial upgrading efforts of the early 1970s (phase III) and late 1970s (phase IV), these training schemes were also upgraded by first being "joint" with MNCs and then "joint" with the governments of industrial nations. The joint "MNC-government" schemes resulted in the Tata-Government Training Center (Tata-GTC with India's Tata Iron and Steel) in 1972, the Rollei-GTC and Philips-GTC in 1973 and 1975 respectively. Joint government-government Training Schemes began with the Japan-Singapore Training Center in 1979 to promote Japanese investment in Singapore. It was followed by the Japan-Singapore Institute of Software Technology (1979), the German-Singapore Institute (1980) and the French-Singapore Institute (1983). To coordinate technical training and to guide future activities, a Council for Professional and Technical Education was established. Its members included the Education Minister, the Permanent Secretary of the Education Ministry, the heads of the two universities, Chairmen of the EDB and Public Service Commission, and the Deputy Secretary-General of the NTUC.

At the same time, the decline in population growth enhanced the value of skilled labor. The government therefore set about reducing the drop-out rates in primary and secondary schools. The education system was overhauled in 1979/80. By 1984, drop-out rates had fallen to about 7%, from about 30% in the 1970s. By 1986, almost every Singaporean child was receiving at least 10 years of schooling (Soon, 1988). Despite all these efforts, a study of the 1985 recession suggested that Singapore was not investing enough in education. More reforms therefore followed. Entry requirements to pre-university admission were raised, and stricter standards applied to vocational and technical institutes, polytechnics (technical colleges) and universities.

Better schools and universities do a great deal to raise a country's skills, but they exclude adult workers. Hence there was a complementary emphasis on continuing education and training through the NWC and the Skills Development Fund. The SDF was established to provide funds for training workers. Employers are required to pay a levy on the salaries of their employees whose monthly earnings were below S\$750. The levy was initially set at 2% of the employees' earnings, then raised to 4% in 1980. Over time, the SDF has got involved in assisting the development of domestic technological skills. For example, by 1984 it was introducing its fourth scheme, known as the "Initiatives in New Technologies", aimed at nurturing a nucleus of trained scientists and professionals for industries such as automation and robotics, microelectronics, information technology, biotechnology, optical and laser technology, engineering and materials sciences, etc.

Wages and Industrial Labor Relations. Another vital element in successful industrialization is harmonious industrial labor relations. Two factors underlie the design of Singapore's labor policy: the absence of an agricultural sector and hence minimal property ownership for the bulk of people, and the politically-instigated labor unrest throughout the 1950s and early 1960s. In the 1967 Employment Act and the 1968 Amendment of Industrial Relations Act,¹⁷ it was clearly recognized that fiscal incentives *per se* were insufficient for attracting investments. To create a hospitable investment environment, the politically diverse trade unions were consolidated into the National Trade Union Congress (NTUC). The

¹⁷ The 1967 Act standardized working terms and conditions by laying down a 44-hour workweek, limiting the annual bonus to one-month's wage and provision of retirement and retrenchment benefits only after 3-, and 5- years service, respectively. The 1968 Act pre-empted potential labor unrest and redefined labor-management relations by conferring more managerial power to employers.

"carrot-and-stick" approach to shared growth was launched through the 1969 NTUC Seminar on modernizing labor, which helped to win labor support for the government's long-term strategy. At the same time, several NTUC cooperatives in basic consumer goods and services were launched to help contain living costs and initiate the shared-growth strategy.

The creation of the NWC provided another arm for consensus building and policy coordination. Although the NWC was formed when the labor market was tightening and started with guidelines to restrain wage increases, it was clear from its tripartite nature that the NWC would also serve as a forum for a wider set of issues. This was vindicated by the major policy switch in 1979 from wage restraint to high wages, in tandem with the revised goal of moving into higher valued-added industrialization.

Because of Singapore's attractive working environment and incentives for skilled labor, immigrants came from many countries — not just ASEAN, but also South Asia and the western industrialized nations. The number of immigrants grew sharply in the early 1970s, when Singapore experienced severe shortages of skilled and unskilled labor. In 1973 migrants amounted to over 12% of the total labor force. Conversely, with the expected onset of the 1985 recession, target dates were set in 1984 to phase out all immigrant workers from nontraditional sources. (There were some exceptions, for the construction and ship-repairing industries where activities were counter-cyclical and export-oriented, respectively.) And the levy¹⁸ collected from employers of imported unskilled labor not only provided a source of government revenue but also ensured that immigrants did not detract from the government's long-term strategy to boost value added and wages.

Macroeconomic Stability and Financial Control. Macroeconomic stability has been crucial to the apparent ease with which continuous policy adjustments have been carried through. Since the government was also aiming to develop Singapore into a global financial center, this enhanced the need for currency stability and prudential regulations. Because of the small size of the economy, the balance between those regulations that impinge domestically and internationally becomes crucial.

Macroeconomic policy has been characterized throughout by low inflation, budget surpluses and a strong currency. Current accounts deficits in the earlier years turned into current account surpluses and growing external reserves. Continuous budgetary surpluses (except for 1973/74 and 1987/88) were obtained through a buoyant tax structure, capital revenue from government land sales, a policy of restricting public expenditure by charging all government services (except public goods) at full cost, and by limiting growth of public sector employment.

Given the significant roles of public housing, infrastructure development, labor and wage policies, and the compulsory CPF savings scheme, all these activities fall within the purview of macroeconomic policy. Lee [Tsao] (1988) identifies 5 areas of macroeconomic policy: (i) monetary and exchange rate policy; (ii) CPF and public sector surpluses; (iii) public sector construction; (iv) other fiscal instruments, viz. taxation; and (v) labor policy. To illustrate how these have been coordinated, the interaction between

¹⁸ The levy was originally introduced under the CPF scheme but evolved into a separate levy on imported unskilled labor working under work permits. Skilled and professional foreign workers on professional visit passes are not subject to this tax. This levy has increased over time with the rise of foreign unskilled workers. In 1992, the levy rate is S\$250/month for domestic helpers and S\$300/month for workers in other sectors. The levy is paid by employers and therefore easy to collect.

the CPF funds, money supply, exchange rate stability and the management of external reserves will be briefly reviewed.

The effect of CPF contributions on the money supply stems from the investment of CPF funds in government securities. This results in a sizable withdrawal of money supply from the system, and a consequent rise in domestic interest rates. The higher rates are likely to result in more commercial banks borrowing from offshore banks or abroad, putting upward pressure on the Singapore Dollar. Given the size of the monthly contributions (up to 40% of wages) to CPF, and the regularity of CPF purchases of government securities, exchange rate stability has been maintained by the MAS selling Singapore Dollars. The foreign exchange holdings from these Dollar sales are then handed over to the Government of Singapore Investment Corporation (GSIC) for management.¹⁹ CPF funds have therefore provided much of the government's capital for development. On average, about 40% of government expenditures went into development projects such as airport, harbors, highways, public housing, industrial estate development, water, sewerage, electricity and telephone systems, schools and universities (Lee [Tsao], 1987; Seah, 1983).

In studying the record of price stability in Singapore, Grubel concluded that "at the most fundamental theoretical level, Singapore's record of price-level changes is explained by monetary policy. Inflation was high following periods of excess money creation and low when money supply more nearly equalled demand for it" (Grubel, 1989:378). More recently, Teh and Shanmugaratnam (1992) provide the background to the evolution of monetary policy and the managed float of the exchange rate in the 1980s. In the main, the choice and effectiveness of monetary policy instruments were influenced by the high degree of openness to trade and capital flows. Since 1981, monetary policy has focused on an exchange rate policy aimed at controlling inflation. The consequent appreciation of the nominal exchange rate during most of the 1980s has helped offset increases in the foreign currency price of imports and dampened the effects of wage increases. The industrial relations and wage flexibility achieved through the NWC also benefitted the exchange rate policy, since rigidity of nominal wages would have caused a stronger impact on export competitiveness. (It should also be mentioned that the labor and wage legislations from the late 1960s engendered technical change, since technical change depends crucially on the legal and institutional framework and is therefore not exogenous. Thus Grubel's (1989) argument that the incomes policies of 1974-79 and 1979-84 were redundant, since market forces would have brought about the same wage adjustments, seems to discount the potential role of legislations and institutions in enhancing technical change.)

In their 1992 study, Teh and Shanmugaratnam also conducted model simulations of exchange rate impacts. The simulations indicate that without the Singapore Dollar's appreciation during 1988-91, inflation would have averaged 6% a year, instead of the 3% it actually did. Furthermore, the lagged effects of a weak exchange rate in 1991 would cause the CPI in 1995 to be 25 percent higher than otherwise projected.

Much has been written about the high and "forced" savings rate in Singapore through the CPF scheme. In fact, the growth in domestic savings stems not from the CPF *per se* but from a rising rate of participation in the labor force, three decades of rapid economic growth, and the maintenance of budgetary surpluses. The CPF scheme differs from pay-as-you-go social security systems in that CPF is fully-funded and individually-specific. Over time, the CPF scheme has also become more flexible by allowing members to use their funds for various approved purposes, such as purchase of approved

¹⁹ To date, GSIC's policy has been to invest these funds abroad rather than locally.

housing, medical and educational expenses and investment in securities. As a result, the gross CPF contributions increasingly overstate the extent of CPF savings. In 1989, gross CPF savings amounted to 12.5% of GDP; but net CPF savings (gross CPF savings less withdrawals for various approved uses) was only 6% of GDP, which is less than the social security contribution rate in the EC. Figures 4 and 5 show the changing shares of public and private sector savings, and the decomposition of private savings into CPF and non-CPF savings.

Figure 4: National, Public & Private Sector Savings, 1974-1987

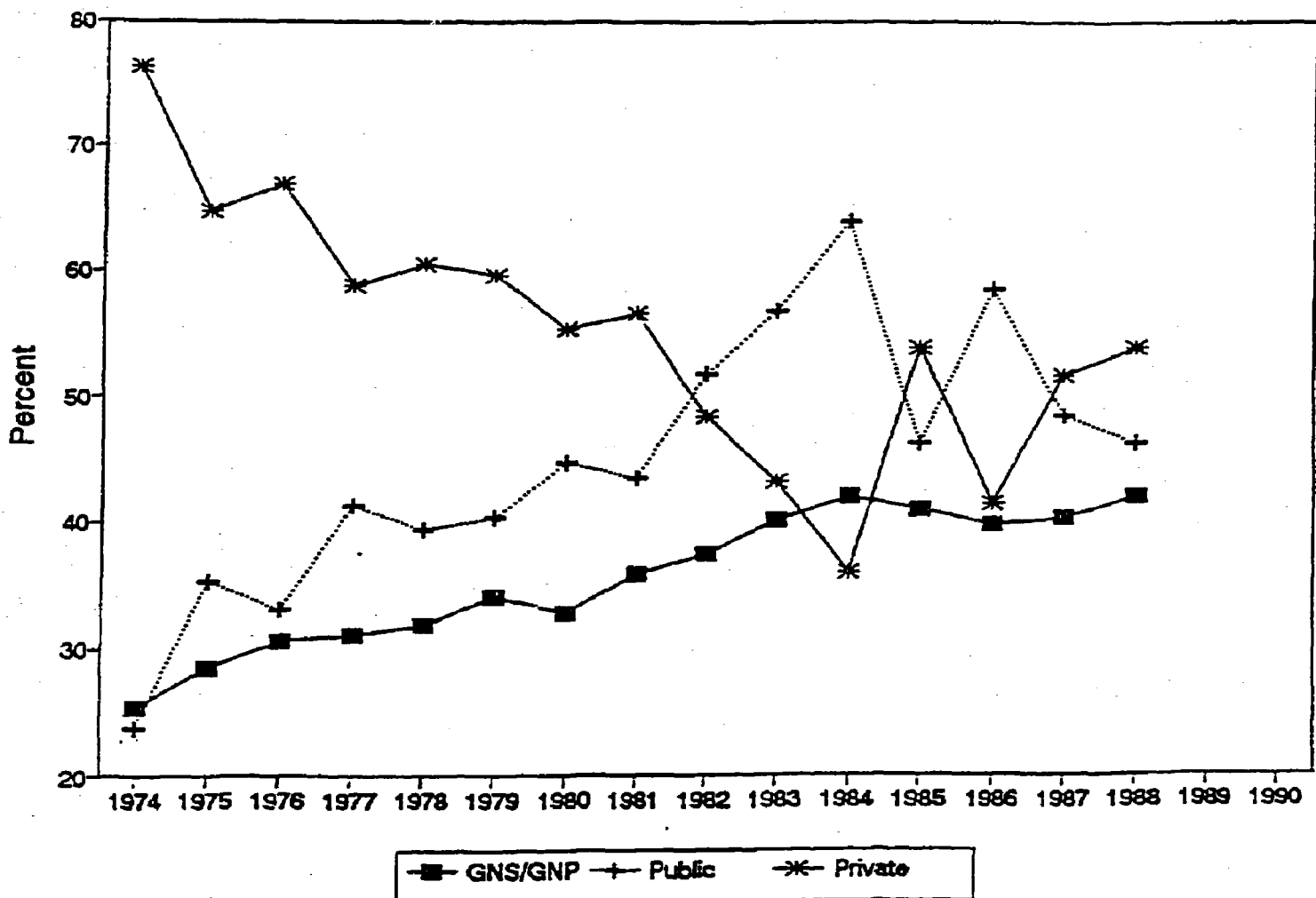
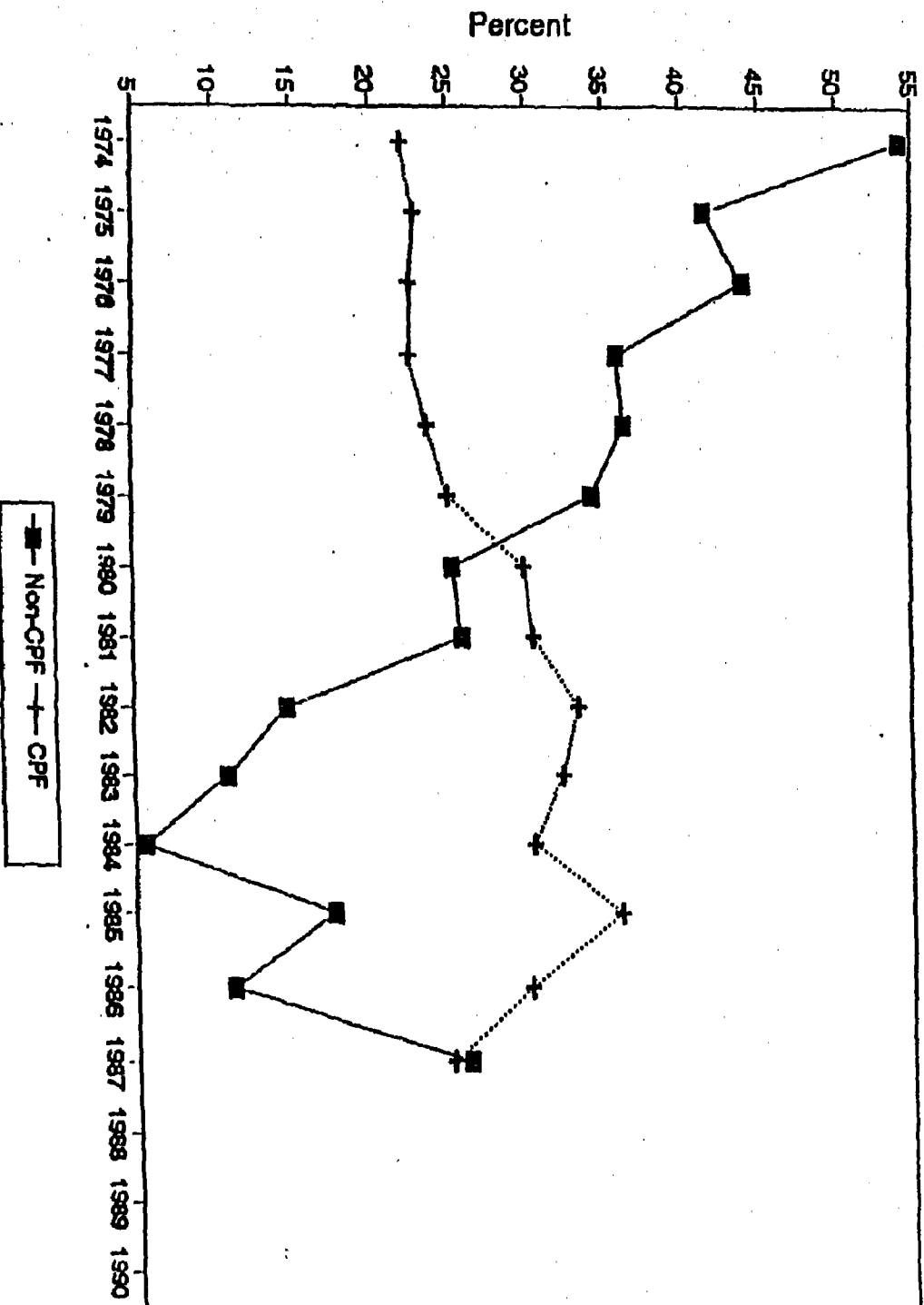


Figure 5: Savings by Private Sector,
1974-1987



Costs and Benefits of Policy Changes

Despite being a small and open economy vulnerable to external factors, Singapore has weathered the economic crises and uncertainties thrown upon it. As this paper has emphasized, much of this success is based on a long-term development strategy aimed at boosting growth. However, there have been occasions when policy was reversed or corrected, and these deserve attention as well.

One example was the switch from import-substitution to export-oriented industrialization from 1965 onwards, when policies were redesigned without prejudice to industries that had been established during the import-substitution phase. Nonetheless, some firms were closed during this period — which was socially optimal, since in the land-scarce (and eventually labor-scarce) economy, prolonged protection would have been at the expense of overall growth. Another example involved the encouragement in the early 1980s of domestic self-sufficiency in pork. The government set stringent standards for controlling pig waste, which was to be partially subsidized by a levy per pig slaughtered at an abattoir. Despite effluent treatment by all farms, however, pollution by pig waste into the Straits of Johore remained at unacceptable levels. A review revealed that self-sufficiency was unwarranted, because the domestic rearing of pigs depended on imported feed. Moreover, the production cost of pork was considerably lower in nearby China, Malaysia and Thailand. The government therefore decided to phase out the pig farms in Singapore. Pig farmers were encouraged to take up alternative (and nonpolluting) farming, such as hydroponic agriculture. Farmers who had invested substantially in effluent treatment were compensated by the government to the tune of about S\$150 million.

Perhaps the biggest policy switch happened in 1985, when the government abandoned the high-wage policy it had adopted six years earlier. In a sense, the high-wage policy may be seen as a reward for the wage restraint accepted by labor during 1972-78. By the same token, labor's cooperative attitude during the renewed wage restraint in 1985/86 was in part due to the higher wages it had enjoyed in 1979-85. Labor also recognized that lower wages would mean fewer lay-offs. In the event, retrenchment was minimal during the 1985 recession.

Because the 1985 recession followed on the heels of the unorthodox high-wage policy, various studies have tried to assess the policy's contribution to recession. Otani and Sassanpour (1988) showed that wage increases played a small role. If relative unit labor cost (unadjusted for exchange rate changes) had remained at 1980 levels during 1981-86, and all other exogenous variables were kept at actual values, GNP would have been unchanged in 1984-85 instead of declining. Lim and Associates (1988) showed that, had the 1986 cost-cutting measures been introduced in 1984, real GDP growth would have declined by only 0.5%, instead of the actual 1.6%. In their recent study, Teh and Shanmugaratnam (1992) indicate that the 1985 recession stemmed from the coincidence of 3 factors: (i) a loss of international competitiveness as the high wage policy from 1979, combined with the strong exchange rate policy from 1981, caused an increase in the real effective exchange rate; (ii) a fall in cyclical domestic demand with the ending of the construction boom; and (iii) a fall in cyclical external demand, especially in the electronics, ship repairs, petroleum refining, regional tourism and entrepot trade industries that were important to Singapore.

Perhaps the biggest benefit of the recession was that it demonstrated Singapore's vulnerability to the global environment. The high-wage policy may also have been useful in helping to overcome some initial impediments to structural change. It ensured the deliberate creation of a critical mass of high-

technology, knowledge- and skill-intensive industries and a basic level of manpower skills that made Singapore better poised for future growth.²⁰

Lee [Tsao] has pointed out the inconsistency of having high wages and a strong Singapore Dollar (Krause et al., 1988) simultaneously. Because of the country's heavy dependence on exports, and hence on global competitiveness, wages are crucial to economic performance. By maintaining a strong and appreciating dollar, wages in purchasing-power parity terms increased by more than the increases provided by the NWC guidelines. A more circumspect and gradual approach might have been to forego the strong Dollar target during the initial phase of the high-wage policy.

V. POLICY CONCLUSIONS

The Role of Government

Government has been integral to Singapore's rapid industrialization and growth. Government interventions, while extensive, have been purposeful. By constant reference to the broad but well-defined strategic framework, policy consistency was ensured without prejudice to flexibility. This is because the principles for when and how government should intervene were, in a sense, checked by the framework. It also allowed policy to be fine-tuned, rather than changed through "flip-flops." Underlying the policy design was the government's basic philosophy that Singapore "must excel in business and whatever it attempts." Public policy must therefore always be "directed to the support of this pursuit of business excellence" (Goh, 1977:17). As Figure 6 shows, this strategy has many complementary components. In Singapore's case, however, its essence has taken two main forms: MNC-led industrialization, in a stable socio-political setting.

Through the MNC-based industrialization strategy, the government's role was focused on creating the conditions to attract foreign investment. At every stage, it sought to adopt policies that would boost productivity and make Singapore a place where MNCs could climb up the value-added chain. This involved, it in, above all, infrastructure and education. The constant upgrading and expansion of physical infrastructure may be viewed as an anticipatory and cautious approach to ensure that resources are ready for the future. The predominance of huge infrastructural investments, with initial slack because of their "lumpy" nature, partly accounts for the inadequacy of the Total Factor Productivity (TFP) approach as used by Young (1991) in assessing investment performance in Singapore.

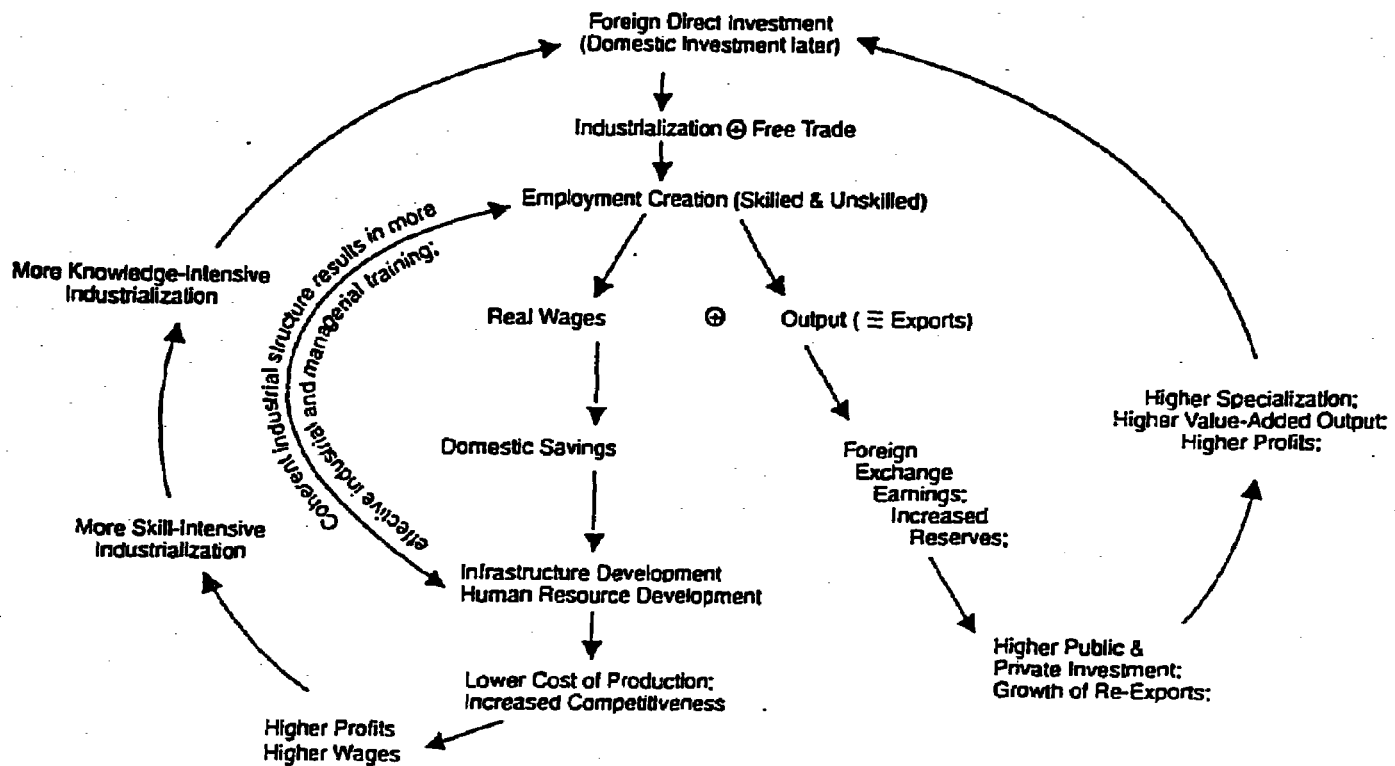
The industrialization program also required considerable investment in human capital. Besides providing the requisite education and training infrastructure, the government chose a strategy of developing broad-based basic skills that could be upgraded sequentially. By drawing lessons from the records of the various industrial approaches to science and technology in the United Kingdom, Germany and Japan, the government decided to ensure economic realism in the development of industrial skills (Goh, 1977). Hence industrialization was to be initiated through low-technology products. A set of core industries with an associated set of core skills would then lend themselves to faster progress to higher levels of technology.

With this emphasis on physical infrastructure and human skills, Singapore has been continually well placed to attract MNCs. Again, its approach was deliberate. Goh Keng Swee has stated that "it

²⁰ We are grateful to Wanda Tseng of the IMF for this point.

would take a very obtuse economist not to have recognized that the electronics industry was in a state of dynamic expansion in the mid-1960s" (Goh, 1992). The availability of low-cost but disciplined labor provided the basis for integrated circuits assembly, which became one of the first impetuses to Singapore's industrialization. As the electronics industry developed, so did Singapore's mastery of it, because of the government's increasing emphasis on science and engineering in the curriculum of secondary and tertiary education.

Figure 6: Dynamics of Development Strategy



On its own, though, MNC-led industrialization would not just have happened. It occurred in the context of social and political stability, conditions that the government has worked hard to foster and secure. Singapore is situated between the Straits of Malacca and the South China Sea, right on the route of East-West trade. Because of the strategic and geo-political importance of these waterways, politics has always been a major influence on Singapore's economic well-being. Since 1965, the country's foreign policy has been carefully crafted towards international cooperation to ensure economic and political survival. Concern with domestic socio-political stability is reflected in the firm disapproval of domestic and foreign detractors.²¹

Singapore has one other socio-political feature that is worth noting. The 3-year national service that is compulsory for all male high school graduates before they are able to enrol for their tertiary education serves not only to provide defence training, but an awareness of the geo-political and security issues behind the country's political stance. Because of the significance of domestic and regional political stability to the country's developmental effort, and its reliance on imported potable water and imported labor, national service provided another channel for consensus building among the young.

The government has adopted a policy of nonalignment and internationalism so as to preserve territorial integrity and to have even-handed relations with China, the Soviet Union and the United States. However, until 1990 it did not have diplomatic relations with China, despite the longstanding strong commercial ties between the two countries. Reasons for this lacuna have varied over time. In the early 1970s, it stemmed from caution that China's growing international prestige might encourage Chinese chauvinism in Singapore, which would have jeopardized the government's effort to establish a cohesive multiracial Singaporean society. At the same time, the government was concerned that Singapore should not be seen as either a "third China" (after Taiwan, China) nor the Chinese-origin population as a "fifth column" for China, nor as Overseas-Chinese rather than as Singaporeans.

Political stability of the ASEAN countries after the mid-1960s was unambiguously positive for Singapore. This stability not only increased the confidence of firms based in Singapore but also enabled rapid growth of the ASEAN countries themselves (apart from the Philippines). Political instability elsewhere in Asia benefited Singapore, especially the uncertainties surrounding Hong Kong. Singapore also gained from its proximity to the Viet Nam war, becoming a major supplier to South Viet Nam.

It was not just international politics that mattered; Singapore has also been affected by various changes in international economic relations. For example Singapore's correction of the high-wage policy happened to coincide with the 1985 Dollar/Yen realignment, which resulted in increased exports to the United States, Singapore's largest trading partner. With growing protectionism against Japanese imports, Japan reacted by transplanting some manufacturing plants abroad. It altered its foreign investment philosophy to one aimed at re-orienting the ASEAN countries towards Japan. With its higher

²¹ Instances of this stance are the 1971 termination of a foreign correspondent's stay because of his critical reporting, and the 1976 PAP resignation from the London-based Socialist International (this is a loose federation of anti-communist social democratic parties committed to the promotion of democracy and civil liberty with a charter that rejects any form of political cooperation with parties of political dictatorships) upon refusal by the Dutch Labor Party to withdraw its motion to expel the PAP for alleged violations of human rights and detention of political prisoners without trial (Vreeland, et al., 1977:105).

technological base, Singapore became an Original Equipment Manufacturing (OEM) base for Japanese industries as well.

Lessons from Japan and Other Industrialized Countries

Singapore had to design a development approach compatible with its size, its lack of natural resources, and its socio-political objectives. Initially, small countries with resource constraints (such as Switzerland and Israel) were examined for lessons in development. Subsequently, as industrialization progressed and greater emphasis was placed on developing industrial training programs and worker skills, Singapore's policymakers looked to countries such as Germany and Japan for models that could be adopted and adapted to suit its conditions. They came up with two main conclusions: first, science and technology must be used selectively in accordance with the given economic reality; secondly, the attitude of workers in an industrialized society differs fundamentally from what exists in an entrepot trading center.

The importance of economic relevance in the choice of science and technology was based on the leadership's comparison of postwar economic growth in Britain, versus that of (West) Germany and Japan (Goh, 1977). As a victor country, British scientists were able to build upon their advanced science foundation and focus their energies on basic research, without paying heed to the relevance of their research to the country's industrial and economic needs. The practical approach towards science and technology adopted in Germany and Japan was in direct contrast. The defeat and losses suffered by these two countries and the need for postwar reconstruction possibly reinforced their pragmatic approach in directing the use, as well as development, of science and technology towards economic ends. From the start, the building of a domestic technology base in Singapore was directed specifically at its industrialization goal.

Through this technology-minded industrialization strategy, Singapore's wages became explicitly linked to industrial countries' wages from 1972. Worker complacency would be put under pressure, since the industrial upgrading strategy translates into a "catch-up" process not only for the industries but also for their workers. The Singaporean ideal was to have a combination of the best attributes of German and Japanese workers: Germany industriousness and skills, acquired through industrial training of a complex and demanding nature; and Japanese loyalty, capacity for hard work and worker-management cooperation.

As shown earlier, industrial efficiency has been reinforced by an efficient and dedicated bureaucracy, and the cooperation between it and the private sector. Although Singapore did not have a role model for its bureaucracy, the same qualities have been significant in the economic success of Japan, Republic of Korea and Taiwan, China. Grubel (1989) points out the similarity between the NWC in Singapore and the tripartite consultative processes in Sweden.

Relationship between Development Success and Social Attitudes

Two features influenced the social makeup of the population in 1959. One was entrepot trading, which had provided Singapore's economic livelihood for more than a century; the other was the new immigrants who had come from southeastern China and southern India. Both features contributed to the social attitudes that were receptive to the government's developmental efforts.

The long tradition of trade and services associated with an entrepot society produced openness and outward-orientation in the people's attitude, as well as an emphasis on excellence so as to remain internationally competitive. Interaction with the industrialized countries that were importers of raw

materials from, and exporters of manufactured goods to, Southeast Asia meant that Singapore had had constant exposure to new ideas from the West. Furthermore, the education system established by the Colonial government produced an educated and urbane group in society much aware of the development- and income-gaps that existed between the developing and industrialized countries.

As described by Hasan (1976), a "transition syndrome" amongst migrants lends itself to a positive approach to change and progress, since the initial departure from home was motivated by the search for better economic conditions. Sowell (1983) argues that this search, often coupled with persecution or political resentment by the indigenous populations, reinforces the strong motivation of immigrants to do well in their new countries.

In the early 1960s, many of the new immigrants from China and India still identified with their home countries and planned to return once they became financially secure. But gradually economic improvements coupled with home ownership in Singapore led to the shifting of their allegiance to Singapore. By the early 1970s, these migrants had assumed full identity as Singaporeans.

The immigrants were also attracted by the changes taking place in Singapore's educational system. Before 1959, education was seen as the route to an administrative white-collar job, preferably in the offices of the Colonial government and foreign trading firms. The educational reform in the early 1960s, the establishment of schools for technical training, and the growing employment opportunities from the 1960s in industries requiring technical skills caused the shift in the population's inclination towards scientific and technical training. Immigrants saw this as being more meritocratic than the old system.

Policy Lessons from Singapore's Experience

Singapore's success shows that even the most unpromising starting-point need not stop a country from developing. What matters is a growth-oriented leadership, with a realistic strategy and intelligent policies. In more detail, four basic elements are involved: (i) government with a vision about long-term development; (ii) a stable and hospitable environment conducive to economic growth; (iii) a public policy that emphasizes investment; and (iv) the capacity for sustained accumulation of human and physical capital. Such an "integrative approach to development in which a single policy has been made to serve a plurality of purposes inevitably introduces an element of artificiality into strictly analytical studies of specific policies." (Sandhu and Wheatley, 1991:viii)

Singapore's experience points to three crucial and general lessons: (i) the importance of sound economic policies, (ii) the reinforcement of sound policies with policy implementation by a bureaucracy that is run on meritocratic lines, and (iii) government's role in winning credibility within the state and with foreign investors. None of these is shrouded in mystery or workable only when applied in Singapore. The precise circumstance may differ from country to country, but the broad outlines are clear. There is much to admire about Singapore's economic development; much to copy, too.

Appendix Table 1: Singapore - Key Economic Indicators, 1960-1990

Indicators	1960	1965	1970	1973	1978	1980	1983	1985	1990
Population (m)	1.6	1.9	2.1	2.2	2.4	2.4	2.5	2.6	2.7
GDP at 1985 factor cost (\$bn)	5.0	6.6	12.1	17.3	24.1	28.9	36.6	38.9	57.1
Domestic Exports (\$m)	3.5	3.0	4.8	8.9	23.0	41.5	46.2	50.2	95.2
Labor Force ('000)	162	557	693	818	995	1116	1206	1204	1516
Unemployment rate (%)		10.0 a/	6.1	4.6	3.6	3.8	3.2	4.1	2.0
GDP Deflator (1985=100)	42.9	44.6	47.8	59.1	74.1	87.0	100.5	100.0	110.0
CPI (1985=100)	40.9	40.7	43.2	56.7	75.6	85.3	97.0	100.0	106.3
GDFCF (\$bn)		1.0		5.6	8.1		17.5	16.4	22.0
(GDFCF/GDP) ratio (%)	9.7	16.7	32.5	34.9	35.7	40.7	47.5	42.2	37.9
ONS (\$m)									
(ONS/GDP) ratio (%)				29.1	34.0		46.1	40.1	40.5
Overall Balance of Payments (\$m)				1005.2	1511.5		2237.3	2942.0	9892.5
Official Foreign Reserves (\$m)				5800.1	11400.0		19755.3	27080.0	55795.2
Number of Months Imports				5.6	4.6		4.0	5.6	6.1

Note: All dollar values are for Constant 1985 Dollars.

a/ Estimate.

Appendix Table 2: Singapore - Growth Rates of Key Economic Indicators, 1950-90 (% p.a.)

Indicators	1959/60-65	1965-72	1973-78	1979-84	1985-90
Population	2.08	2.09	1.54	0.65	1.71
Labor Force	..	36.73	4.59	3.30	1.50
Employment	..	21.62	4.05	3.08	3.79
GDP (1985\$)	5.89	14.08	7.63	8.66	6.38
GNP (1985\$)	..	..	..	..	..
GDP, Indigenous (1985\$)	..	11.16	5.99	9.17	3.37
GNP, Indigenous (1985\$)	..	10.35	6.53	9.52	1.95
Per Capita GDP	..	9.93	6.00	8.02	4.59
Per Capita Indigenous GDP	..	..	4.38	8.55	1.63
Per Capita GNP	..	..	..	..	..
Per Capita Indigenous GNP	..	..	4.91	8.88	0.24
INFLATION RATES					
GDP Deflator	0.78	2.29	5.99	5.38	1.45
WPI	..	..	..	4.89	-1.23
CPI	..	1.29	9.55	4.72	1.16
GDP SECTORAL GROWTH					
Agric/Fish/Quarr	..	..	-5.64	-5.93	-15.42
Const. & Util	..	..	-3.30	6.38	-10.96
Manufacturing	..	..	0.43	-2.60	1.74
Trade & Transportation	..	..	1.16	-1.89	0.08
Financial & Other Serv	..	..	0.19	2.33	2.54
EMPLOYMENT SECTORAL GROWTH					
Agric/Fish/Quarr	..	..	43.70	-11.32	-11.09
Const. & Util	..	..	-3.74	6.94	-5.44
Manufacturing	..	..	-2.91	-0.42	1.09
Commerce & Transportation	..	..	1.99	-0.86	-0.24
Private Consumption					
Government Consumption					
Dom Savings	11.50	32.61	21.17	20.40	7.40
Dom Savings 1985\$	10.81	29.62	14.32	14.20	6.29
DS/GDP	9.07	15.43	6.13	5.11	-0.36
Foreign Svgs	4.49	33.69	3.05	9.48	2152.60
Foreign Svgs 1985\$	3.68	30.74	-4.12	2.65	-2046.10
FS/GDP	-1.91	16.32	-10.89	-5.76	-112.85
Gross Fixed Cap Form	19.74	23.54	13.71	20.42	4.58
GFCF/GDP	13.01	11.83	-0.45	5.05	-4.99
Public GFCF/GFCF	-3.07	-3.63	10.28	0.40	4.07

Appendix Table 2: Singapore - Growth Rates of Key Economic Indicators, 1950-90 (% p.a.)

Indicators	1959/60-65	1965-72	1973-78	1979-84	1985-90
Private GFCF/GFCF	-6.66	-1.06	6.77	-0.99	2.67
Exports	-1.96	10.65	26.55	15.14	11.51
Imports	-0.84	13.57	22.48	13.64	10.99
Ex + Imp	-1.53	12.28	24.09	14.28	11.22
Exp/GDP	-8.07	-3.63	10.28	0.40	4.07
Imp/GDP	-6.66	-3.63	6.77	-0.99	2.67
Exp + Imp/GDP	..	-2.19	8.16	-0.40	2.75

.. = Not available.

Appendix Table 3: Singapore - Indicators of Living Standard in Selected Years, 1960-1990

Item	1960	1965	1970	1973	1975	1978	1980	1985	1990
HOUSING									
Share of Total Population in Public Flats (%)			35	43	54	68	73	84	87
Share of Above Population in Owner-Occupied Flats (%)			9	16	22	37	42	64	80
EDUCATION									
Literacy Rate (%) a/			72	73	78	83	84	86	90
Student Enrollment Ratio - Primary			81	85					
- Secondary			43	50	78	79	79	92	93
Student-Teacher Ratio - Primary	33	30	30	29	30	29	30	26	26
- Secondary	28	24	22	23	26	25	22	22	21
HEALTH									
Per Capita Government Expenditure on Health (\$\$)			40	47	63	76	96	195	187
No. of Persons/Doctor			1522	1401	1395	1265	1222	972	753
No. of Persons/Dentist			5212	5362	8979	7287	6977	5157	400
No. of Persons/Hospital Bed			301	273	249	244	252	256	274
UTILITIES									
Per Capita Electricity Consumption (Kwh)						2195	2530	3448	5270
Per Capita Water Consumption (Cubic meter)						81	90	104	120
TRANSPORT & COMMUNICATIONS									
No. of Persons/Public Bus			705	459	458	401	371	293	285
No. of Persons/Private Car			15	12	16	17	16	12	10
No. of Persons/Taxi					420	305	255	234	220
Telephones/1000 Persons			78	114	141	229	291	420	180 b/
CULTURE & RECREATION									
Daily Newspaper Circulation/1000 Persons			200	202	198	227	255	279	302
National Library Members - Under 12 years old (%)			15	9	22	26	29	49	35
- Over 12 years old (%)			5	7	9	9	11	29	25
ENTERTAINMENT									
Radio & TV/1000 Persons			76	105	124	150	165	188	217
Cinema Attendances/Person					18	19	17	9	8

Note: Data pre-1970 not available.

a/ For population above 10 years of age.

b/ Estimate.

Appendix Table 4: Singapore - Initial Conditions for Each Phase, 1959-1990

Indicator	1959	1960	1965	1973	1978	1985	1990
Transport & Communications	..	12.7	..	..	..	15.7	16.4
Recreation & Education	..	6.1	..	..	..	13.6	19.1
Other Goods & Services	..	17.1	..	..	..	20.7	25.7
(+) Residents' Expenditure Abroad	..	1.6	..	..	..	6.4	9.4
(-) Non-Residents' Expenditure Locally	..	9.9	..	..	..	23.5	30.4
Government Consumption (\$bn, 1985\$)	5.4	6.2
Gross Fixed Capital Formation (\$bn, 1985\$)	20.2	14.7
Savings and Investment							
Domestic Savings (\$bn, 1985\$)	..	-1.1	.7	5.0	8.2	15.6	25.4
Foreign Savings (\$bn, 1985\$)	..	.7	.7	2.4	1.4	.007	-3.9
or Net Foreign Borrowing							
Foreign Direct Investment (\$bn)5	.8	.4	1.8	6.1
(Domestic Savings/GDP)	..	-2.7	10.2	29.1	34.0	40.1	44.6
(Foreign Savings/GDP)	..	14.0	10.8	13.8	5.8	0.1	-6.8
(GFCF/GDP)	..	9.7	16.7	34.9	35.7	42.2	37.9
Sectoral Distribution of GFCF (%)							
Construction & Public Works	..	53.4	54.2	41.5	39.1	60.9	38.8
Transport Equipment	..	14.0	6.7	19.2	26.0	11.6	15.5
Machinery & Equipment	..	32.7	39.1	39.3	36.8	27.5	49.9
Ownership Distribution of GFCF (%)							
Public Sector	..	70.9	45.4	..	..	35.5	18.4
Private Sector	..	29.1	54.6	..	..	64.5	81.6
Exports (\$bn)	..	3.5	3.0	8.9	23.0	50.2	95.2
Imports (\$bn)	..	4.1	3.8	12.5	29.6	57.8	109.8
Total Trade (\$bn)	..	7.6	6.8	21.4	52.6	108.0	205.0
(Exports/GDP) %	..	164	106	87	129	129	152
(Imports/GDP) %	..	192	134	123	166	149	175
(Total Trade/GDP) %	..	356	240	210	295	277	327
Exchange Rates							
S\$/US\$..	3.06	3.06	2.46	2.27	2.2	1.81

.. = not available.

Appendix Table 4: Singapore - Initial Conditions for Each Phase, 1959-1990

Indicator	1959	1960	1965	1973	1978	1985	1990
Transport & Communications	..	12.7	..	..	..	15.7	16.4
Recreation & Education	..	6.1	..	..	..	13.6	19.1
Other Goods & Services	..	17.1	..	..	..	20.7	25.7
(+) Residents' Expenditure Abroad	..	1.6	..	..	..	6.4	9.4
(-) Non-Residents' Expenditure Locally	..	9.9	..	..	..	23.5	30.4
Government Consumption (\$bn, 1985\$)	5.4	6.2
Gross Fixed Capital Formation (\$bn, 1985\$)	20.2	14.7
Savings and Investment							
Domestic Savings (\$bn, 1985\$)	..	-1	.7	5.0	8.2	15.6	25.4
Foreign Savings (\$bn, 1985\$)	..	.7	.7	2.4	1.4	.007	-3.9
or Net Foreign Borrowing							
Foreign Direct Investment (\$bn)5	.8	.4	1.8	6.1
(Domestic Savings/GDP)	..	-2.7	10.2	29.1	34.0	40.1	44.6
(Foreign Savings/GDP)	..	14.0	10.8	13.8	5.8	0.1	-6.8
(GFCF/GDP)	..	9.7	16.7	34.9	35.7	42.2	37.9
Sectoral Distribution of GFCF (%)							
Construction & Public Works	..	53.4	54.2	41.5	39.1	60.9	38.8
Transport Equipment	..	14.0	6.7	19.2	26.0	11.6	15.5
Machinery & Equipment	..	32.7	39.1	39.3	36.8	27.5	49.9
Ownership Distribution of GFCF (%)							
Public Sector	..	70.9	45.4	..	..	35.5	18.4
Private Sector	..	29.1	54.6	..	..	64.5	81.6
Exports (\$bn)	..	3.5	3.0	8.9	23.0	50.2	95.2
Imports (\$bn)	..	4.1	3.8	12.5	29.6	57.8	109.8
Total Trade (\$bn)	..	7.6	6.8	21.4	52.6	108.0	205.0
(Exports/GDP) %	..	164	106	87	129	129	152
(Imports/GDP) %	..	192	134	123	166	149	175
(Total Trade/GDP) %	..	356	240	210	295	277	327
Exchange Rates							
S\$/US\$..	3.06	3.06	2.46	2.27	2.2	1.81

.. = not available.

BIBLIOGRAPHY

- Aw, Bee Yan (1991) "Singapore" in Papageorgiou, Michael and Choksi (Eds.) Vol.2;
- Blake, D.J. (1967) "Employment and Unemployment in Singapore," in Chalmers (1967).
- Bloodworth, Dennis (1986) The Tiger and the Trojan Horse, Times Book International, Singapore.
- Bryant, Ralph (1991) "The Evolution of Singapore as a Financial Centre," in Sandhu and Wheatley (Eds.) 1991.
- Chalmers, W.E. (1967) Critical Issues in Industrial Relations in Singapore, Donald Moore Press, Singapore.
- Chan, Heng Chee (1971) The Politics of Survival, 1965-1967, Oxford University Press, Kuala Lumpur.
- Chenery, H. & M. Syrquin (1986) "Typical patterns of transformation," in Chenery, H., Robinson
- Chia, Siow Yue (1984) "Export Process and Industrialization: The Case of Singapore," in Lee (ed.) 1984.
- Chia, Siow Yue (1986) "Direct Investment and the Industrialization Process in Singapore," in Lim and Lloyd (Eds.)
- Chia, Siow Yue (1991) "The Character and Progress of Industrialization," in Sandhu and Wheatley, (Eds.) 1991.
- Chow, Kit Boey, Chew Moh Leen & Elizabeth Su (1990) One Partnership in Development - UNDP and Singapore, United Nations Association of Singapore.
- Dixit, Avinash K. and G.M. Grossman (1982) "Trade and Protection with Multistage Production," Review of Economic Studies, 49 (October), 583-94.
- Dutta, M. (ed.) (1992) Asian Economic Regimes: An Adaptive Innovation Paradigm. Vol. 4A, JAI Press Inc., Greenwich, Connecticut.
- Findlay, Ronald (1991) "Theoretical Notes on Singapore as Development Model," in Sandhu and Wheatley (Eds.), 1991.
- Goh, Chok Tong (1980) "We Must Dare to Achieve" Budget Speech, 1980.
- Goh, Keng Swee (1973) "Investment for Development: Lessons and Experiences of Singapore, 1959 to 1971," paper presented at the Third Economic Development Seminar in Saigon on January 17, 1973.

- Goh, Keng Swee (1977) "A socialist economy that works," in Nair, C.V.D. (Ed.), Socialism that Works, Federal Publications, Singapore.
- Goh, Keng Swee (1977) The Practice of Economic Growth, Federal Publications, Singapore.
- Goh, Keng Swee (1983) "Public Administration and Economic Development in Less Developed Countries," Harry G. Johnson Memorial Lecture No. 4, Trade Policy Research Centre, London.
- Goh, Keng Swee (1992) "MNCs brought jobs, sparked change," The Sunday Times, August 23, 1992
- Government of Singapore (1991) The Next Lap, Times Editions Pte Ltd., Singapore.
- Grubel, Herbert G. (1989) "Singapore's Record of Price Stability, 1966-84," in Sandhu and Wheatley (Eds.)
- Government of Singapore (1991) Singapore: The Next Lap, Times Editions Pte. Ltd, Singapore.
- Hasan, Riaz (1976) "Symptoms and syndrome of the development process" in Hasan (ed.)
- Hasan, Riaz, (ed.) (1976) Singapore: Society in Transition, Oxford University Press, Kuala Lumpur.
- Hirono, Ryokichu (1976) "Japanese Investment," in Highes and You (Eds.).
- Hon, Sui-Sen (1973) "The New Phase of Industrial Development in Singapore," Address to the Singapore Press Club on March 23, 1973.
- Hughes, Helen and ou Poh Seng (Eds.)(1969) Foreign Investment and Industrialization in Singapore, Australia National University Press, Canberra.
- IMF (1985) Foreign Private Investment in Developing Countries, IMF Occasional Paper 33, International Monetary Fund, Washington, D.C.
- Klitgaard, R. (1991) Adjusting to Reality, International Center for Economic Growth, San Francisco.
- Koh, Ai Tee (1991) "Diversification of Trade," in Sandhu and Wheatley (Eds.) 1991
- Krause, Lawrence B., Koh Ai Tee & Lee (Tsao) Yuan (1987) The Singapore Economy Reconsidered, Institute of Southeast Asian Studies, Singapore.
- Krause, Lawrence (1991) "Government as Entrepreneur," in Sandhu and Wheatley (Eds.), 1991.
- Lee, Eddy (ed.) (1984) Export Processing Zones and Industrial Employment in Asia: Papers and Proceedings of a Technical Workshop, International Labor Organization, Asian Employment Program (ARTEP), Bangkok.

- Lee, Kuan Yew (1970) "The Harsh Realities of Today," Opening Address to the 1969 NTUC Seminar on the Modernization of the Labor Movement.
- Lee, Kuan Yew (1978), Speech delivered to the 26th World Congress of the International Chamber of Commerce in Florida, October 1978.
- Lee [Tsao] Yuan (1987a) "The Government in Macroeconomic Management" in Krause, et al.
- Lee [Tsao] Yuan (1987b) "Economic Stabilization Policies in Singapore," in Rana & Alburo (Eds.)
- Lim, Chong Yah and Ow Chwee Huay (1971) "The Singapore Economy and the Vietnam War," in Yoo and Lim (Eds.)
- Lim, Chong Yah & Associates (1988) Policy Options for the Singapore Economy, McGraw Hill, Singapore.
- Lim, Chong Yah and Peter J. Lloyd, (Eds.) (1988) Singapore: Resources and Growth, Oxford University Press, Singapore.
- Lloyd, P.J. and Roger Sandilands (1988) "The Trade Sector in a Very Open Re-Export Economy," in Lim and Lloyd (Eds.).
- Mirza, Hafiz (1986) Multinationals and the Growth of the Singapore Economy, St. Martins Press, New York.
- MTI (1986) The Singapore Economy: New Directions, Report of the Economic Committee, Ministry of Trade and Industry, Singapore.
- MTI (1991) The Strategic Economic Plan, Economic Planning Committee, Ministry of Trade and Industry, Singapore.
- NTUC (1970) Modernization of the labor movement, National Trades Union Congress, Singapore.
- NTUC (1970) Why Labor must go Modern, Proceedings of the 1969 NTUC Seminar on the Modernization of the Singapore Labor Movement, Singapore.
- NTUC (19) Progress into the 1980s, NTUC, Singapore.
- NWC (1992) 21 Years of the National Wages Council. Singapore National Printers, Singapore.
- Ong, Yen Har (1970) "Future Directions of the Singapore Labor Movement," in NTUC (1970).
- Otani, Ichiro and Cyrus Sassanpour (1988) "Financial, Exchange Rate and Wage Policies," in IMF Staff Papers Vol. 35 (3:474-95), September 1988.

- Ow, Chin Hock (1992) "Development Strategies, Economic Performance and Relations with the United States: Singapore's Experience," in Dutta (Ed.)
- Papageorgiou, Demetris, Michael Michaely and Armeane M. Choksi (Eds.) (1991) Liberalizing Foreign Trade, Basil Blackwell, United Kingdom.
- Rajaratnam, S. (1966) "Democratic Socialism," Speech delivered to the Democratic Socialist Club of the University of Singapore on September 17, 1966.
- Rana, Praduma B. & Florian A. Albuero (Eds.) (1987) Economic Stabilization Policies in ASEAN Countries, Institute of Southeast Asian Studies, Singapore.
- Ryokichi, H. (1969) "Japanese investment," in Hughes, H. & P.S. You (Eds.) Foreign Investment and Industrialization in Singapore, Australian University Press, Canberra.
- Sandhu, Kernial and Paul Wheatley, editors (1989) Management of Success - The Moulding of Modern Singapore, Institute of Southeast Asian Studies, Singapore.
- Seah, Linda (1983) "Sources of Finance for Economic Growth in Singapore 1965-75 with Special Reference to the Public Sector," Ph. D. Dissertation, Department of Economics & Statistics, National University of Singapore.
- Soon, Teck Wong (1988) "Singapore's New Education System: Education Reform for National Development," Institute of Southeast Asian Studies, Singapore.
- Soon, Teck Wong (1991) "Private Sector Led Development through Direct Foreign Investment," National University of Singapore (mimeo.)
- Sowell, Thomas (1983) The Economics and Politics of Race - An International Perspective, Quill, New York.
- Stoeever, William A. (1982) "Endowments, Priorities and Policies: An Analytical Scheme for the Formulation of Developing Country Policy toward Foreign Investment," Columbia Journal of World Business, Fall 1982.
- Syrquin, Moshe and Hollis B. Chenery (1989) Patterns of Development - 1950 to 1983, World Bank Discussion Paper 41, The World Bank.
- Teh, Kok Peng and Tharman Shanmugaratnam (1992) "Exchange Rate Policy: Philosophy and Conduct over the Past Decade," in Public Policies in Singapore, Low, Linda and Toh Mun Heng (Eds.), Singapore, Times Academic Press.
- Thynne, Ian (1989a). "The Administrative State," in Woon (Ed.)
- Thynne, Ian (1989b). "The Administrative State in Transition," in Thynne and Ariff (Eds.)

Thynne, Ian and Mohammed Ariff (Eds.) (1989), Privatization: Singapore's Experience in Perspective, Longman Press, Singapore.

Vasil, Raj (1992) Governing Singapore, Mandarin Paperbacks, Reed International (S) Ltd., Singapore.

Vreeland, Nena, B.G. Dana, G.B. Hurwitz, P. Just and R.S. Shinn (1977), Area Handbook for Singapore, American University Foreign Area Studies, Washington, D.C.

Winsemius, Albert (1984) Speech to the General Electric International Personnel Council Meeting in Singapore, 19 June 1984.

Woon, Walter (Ed.) (1989) The Singapore Legal System, Longman Press, Singapore.

Yoshihara, K. (1976) Foreign Investment and Domestic Response, Eastern Universities Press Sdn. Bhd., Singapore.

Young, Alwyn (1992) "A Tale of Two Cities: Factor Accumulation and Technical Change in Hong Kong and Singapore," Sloan School of Management, MIT (mimeograph).

Distributors of World Bank Publications

- ARGENTINA**
Carlos Hirsch, SRL
Caleria Guemes
Florida 165, 4th Floor-Ofc. 453/465
1333 Buenos Aires
- AUSTRALIA, PAPUA NEW GUINEA, FIJI, SOLOMON ISLANDS, VANUATU, AND WESTERN SAMOA**
D.A. Information Services
648 Whitehorse Road
Mitcham 3132
Victoria
- AUSTRIA**
Gerold and Co.
Graben 31
A-1011 Wien
- BANGLADESH**
Micro Industries Development Assistance Society (MIDAS)
House 5, Road 16
Dhanmondi R/Area
Dhaka 1209
- Branch offices:
Pine View, 1st Floor
100 Agrabad Commercial Area
Chittagong 4100
- 76, K.D.A. Avenue
Kulna 9100
- BELGIUM**
Jean De Lannoy
Av. du Roi 202
1060 Brussels
- CANADA**
Le Diffuseur
C.P. 85, 1501 B rue Ampère
Boucherville, Québec
J4B 5E6
- CHILE**
Invertec IGT S.A.
Americo Vespucio Norte 1165
Santiago
- CHINA**
China Financial & Economic Publishing House
8, Da Fo Si Dong Jie
Beijing
- COLOMBIA**
Infonlace Ltda.
Apartado Aéreo 34270
Bogotá D.E.
- COTE D'IVOIRE**
Centre d'Édition et de Diffusion Africaines (CEDA)
04 B.P. 541
Abidjan 04 Plateau
- CYPRUS**
Center of Applied Research
Cyprus College
6, Diogenes Street, Engomi
P.O. Box 2006
Nicosia
- DENMARK**
Samfundslitteratur
Rosenørns Allé 11
DK-1970 Frederiksberg C
- DOMINICAN REPUBLIC**
Editora Taller, C. por A.
Restauración e Isabel la Católica 309
Apartado de Correos 2190 Z-1
Santo Domingo
- EGYPT, ARAB REPUBLIC OF**
Al Ahram
Al Galaa Street
Cairo
- The Middle East Observer
41, Sherif Street
Cairo
- FINLAND**
Akateeminen Kirjakauppa
P.O. Box 128
SF-00101 Helsinki 10
- FRANCE**
World Bank Publications
66, avenue d'Iéna
75116 Paris
- GERMANY**
UNO-Verlag
Poppelsdorfer Allee 55
D-5300 Bonn 1
- HONG KONG, MACAO**
Asia 2000 Ltd.
46-48 Wyndham Street
Winning Centre
2nd Floor
Central Hong Kong
- INDIA**
Allied Publishers Private Ltd.
751 Mount Road
Madras - 600 002
- Branch offices:
15 J.N. Heredia Marg
Ballard Estate
Bombay - 400 038
- 13/14 Asaf Ali Road
New Delhi - 110 002
- 17 Chittaranjan Avenue
Calcutta - 700 072
- Jayadeva Hostel Building
5th Main Road, Candhinagar
Bangalore - 560 009
- 3-5-1129 Kachiguda
Cross Road
Hyderabad - 500 027
- Prarthana Flats, 2nd Floor
Near Thakore Baug, Navrangpura
Ahmedabad - 380 009
- Patila House
16-A Ashok Marg
Lucknow - 226 001
- Central Bazaar Road
60 Bajaj Nagar
Nagpur 440 010
- INDONESIA**
Pt. Indira Limited
Jalan Borobudur 20
P.O. Box 181
Jakarta 10320
- IRELAND**
Government Supplies Agency
4-5 Harcourt Road
Dublin 2
- ISRAEL**
Yozmot Literature Ltd.
P.O. Box 56055
Tel Aviv 61560
- ITALY**
Licosa Commissionaria Sansoni SPA
Via Duca Di Calabria, 1/1
Casella Postale 552
50125 Firenze
- JAPAN**
Eastern Book Service
Hongo 3-Chome, Bunkyo-ku 113
Tokyo
- KENYA**
Africa Book Service (E.A.) Ltd.
Quaran House, Mlangano Street
P.O. Box 45245
Nairobi
- KOREA, REPUBLIC OF**
Pan Korea Book Corporation
P.O. Box 101, Kwangwhamun
Seoul
- MALAYSIA**
University of Malaya Cooperative Bookshop, Limited
P.O. Box 1127, Jalan Pantai Baru
59700 Kuala Lumpur
- MEXICO**
INFOTEC
Apartado Postal 22-860
14060 Tlalpan, Mexico D.F.
- NETHERLANDS**
De Lindeboom/In-Or-Publikaties
P.O. Box 202
7480 AE Haaksbergen
- NEW ZEALAND**
BSCONZ Ltd.
Private Mail Bag 99914
New Market
Auckland
- NIGERIA**
University Press Limited
Three Crowns Building Jericho
Private Mail Bag 5095
Ladang
- NORWAY**
Narvesen Information Center
Book Department
P.O. Box 6125 Etterstad
N-0602 Oslo 6
- PAKISTAN**
Mirza Book Agency
65, Shahrah-e-Quaid-e-Azam
P.O. Box No. 729
Lahore 54000
- PERU**
Editorial Desarrollo SA
Apartado 3824
Lima 1
- PHILIPPINES**
International Book Center
Suite 1703, Cityland 10
Condominium Tower 1
Ayala Avenue, H.V. dela Costa Extension
Makati, Metro Manila
- POLAND**
International Publishing Service
Ul. Piekna 31/37
00-677 Warszawa
- For subscription orders:
IPS Journals
Ul. Okretna 3
02-916 Warszawa
- PORTUGAL**
Livraria Portugal
Rua Do Carmo 70-74
1200 Lisbon
- SAUDI ARABIA, QATAR**
Jazir Book Store
P.O. Box 3196
Riyadh 11471
- SINGAPORE, TAIWAN, MYANMAR, BRUNEI**
Information Publications Private, Ltd.
Golden Wheel Building
41, Kallang Pudding, #04-03
Singapore 1334
- SOUTH AFRICA, BOTSWANA**
For single titles:
Oxford University Press
Southern Africa
P.O. Box 1141
Cape Town 8000
- For subscription orders:
International Subscription Service
P.O. Box 41095
Craighall
Johannesburg 2024
- SPAIN**
Mundi-Prensa Libros, S.A.
Castello 37
28001 Madrid
- Llibreria Internacional AEDOS
Consell de Cent, 391
08009 Barcelona
- SLI LANKA AND THE MALDIVES**
Lake House Bookshop
P.O. Box 244
100, Sir Chittampalan A.
Cardinal Mawatha
Colombo 2
- SWEDEN**
For single titles:
Fritzes Fackboksföretaget
Regjeringsgatan 12, Box 16356
S-103 27 Stockholm
- For subscription orders:
Wennergren-Williams AB
P. O. Box 1305
S-171 25 Solna
- SWITZERLAND**
For single titles:
Librairie Payot
Case postale 3212
CH 1002 Lausanne
- For subscription orders:
Librairie Payot
Service des Abonnements
Case postale 3312
CH 1002 Lausanne
- THAILAND**
Central Department Store
306 Silom Road
Bangkok
- TRINIDAD & TOBAGO, ANTIGUA, BARBUDA, BARBADOS, DOMINICA, GRENADA, GUYANA, JAMAICA, MONTserrat, ST. KITTS & NEVIS, ST. LUCIA, ST. VINCENT & GRENADINES**
Systematics Studies Unit
#9 Watts Street
Curepe
Trinidad, West Indies
- TURKEY**
Infotel
Narlabahçe Sok. No. 15
Cagaloglu
Istanbul
- UNITED KINGDOM**
Microinfo Ltd.
P.O. Box 3
Alton, Hampshire GU34 2PG
England
- VENEZUELA**
Libreria del Este
Aptdo. 60.337
Caracas 1060-A

