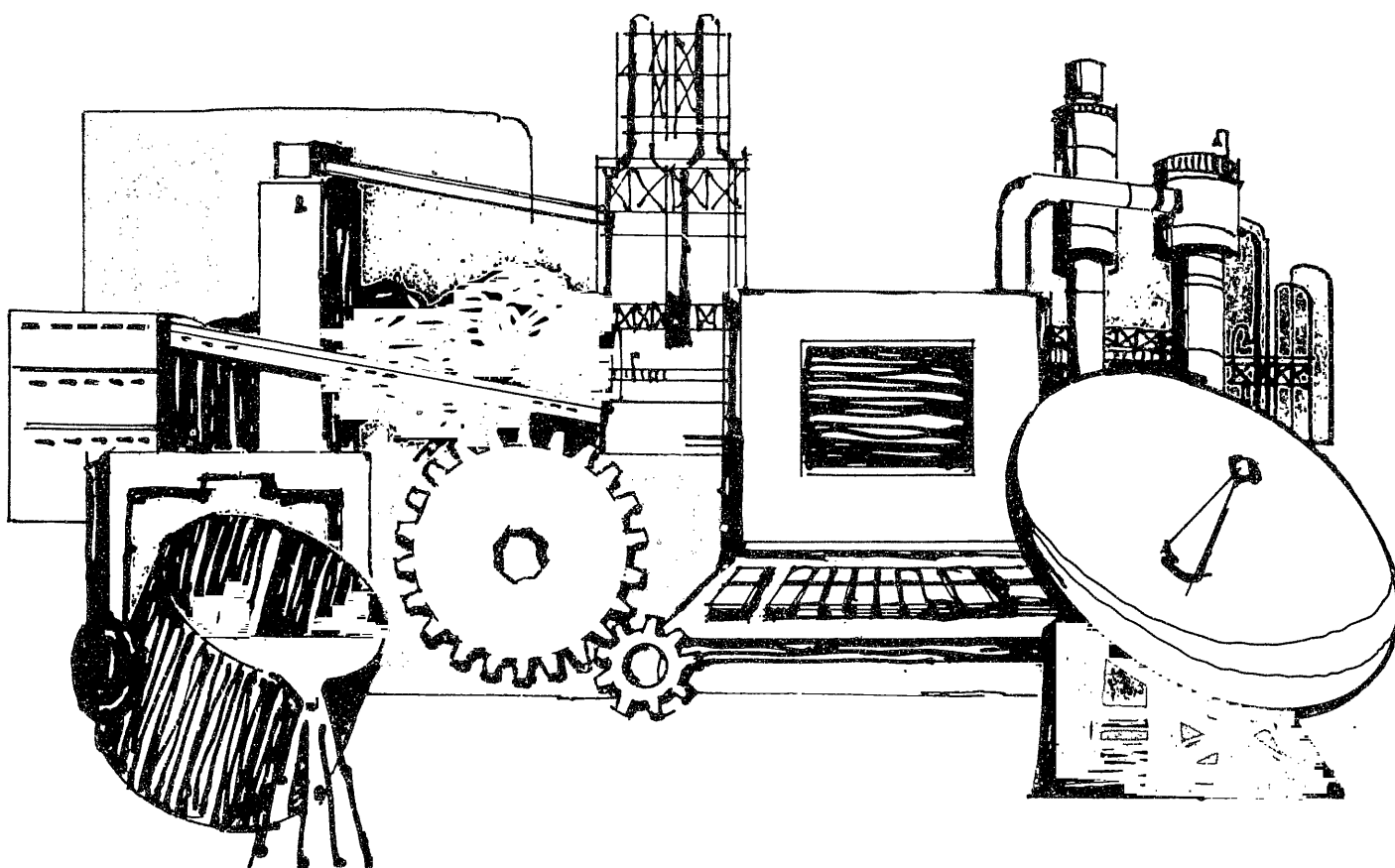


WORLD BANK TECHNICAL PAPER NUMBER 21

Industrial Restructuring

Issues and Experiences in Selected Developed Economies

Alan R. Roe



Public Disclosure Authorized

Public Disclosure Authorized

WORLD BANK TECHNICAL PAPERS

- No. 1. Increasing Agricultural Productivity
- No. 2. A Model for the Development of a Self-help Water Supply Program
- No. 3. Ventilated Improved Pit Latrines: Recent Developments in Zimbabwe
- No. 4. The African Trypanosomiases: Methods and Concepts of Control and Eradication in Relation to Development
- (No. 5.) Structural Changes in World Industry: A Quantitative Analysis of Recent Developments
- No. 6. Laboratory Evaluation of Hand-operated Water Pumps for Use in Developing Countries
- No. 7. Notes on the Design and Operation of Waste Stabilization Ponds in Warm Climates of Developing Countries
- No. 8. Institution Building for Traffic Management
- (No. 9.) Meeting the Needs of the Poor for Water Supply and Waste Disposal
- No. 10. Appraising Poultry Enterprises for Profitability: A Manual for Investors
- No. 11. Opportunities for Biological Control of Agricultural Pests in Developing Countries
- No. 12. Water Supply and Sanitation Project Preparation Handbook: Guidelines
- No. 13. Water Supply and Sanitation Project Preparation Handbook: Case Studies
- No. 14. Water Supply and Sanitation Project Preparation Handbook: Case Study
- (No. 15.) Sheep and Goats in Developing Countries: Their Present and Potential Role
- (No. 16.) Managing Elephant Depredation in Agricultural and Forestry Projects
- (No. 17.) Energy Efficiency and Fuel Substitution in the Cement Industry with Emphasis on Developing Countries
- No. 18. Urban Sanitation Planning Manual Based on the Jakarta Case Study
- No. 19. Laboratory Testing of Handpumps for Developing Countries: Final Technical Report
- No. 20. Water Quality in Hydroelectric Projects: Considerations for Planning in Tropical Forest Regions

() Indicates numbers assigned after publication

Industrial Restructuring

Issues and Experiences in Selected Developed Economies

Industry and Finance Series

Volume 3

This series is produced by the Industry Department of the World Bank to disseminate ongoing work done by the department and to stimulate further discussion of the issues. The series will include reports on individual sectors in industry, as well as studies on global aspects of world industry, problems of industrial strategy and policy, and issues in industrial finance and financial development.

Already published are the following:

- Volume 1. Structural Changes in World Industry: A Quantitative Analysis of Recent Developments
- Volume 2. Energy Efficiency and Fuel Substitution in the Cement Industry with Emphasis on Developing Countries

Forthcoming are:

- Volume 4. Energy Efficiency in the Steel Industry with Emphasis on Developing Countries
- Volume 5. World Sulphur Survey

WORLD BANK TECHNICAL PAPER NUMBER 21

Industrial Restructuring

Issues and Experiences in Selected Developed Economies

Alan R. Roe

with contributions from
Bo Carlsson, Kemal Dervis, Harinder Kohli, and Peter Petri

The World Bank
Washington, D.C., U.S.A.

Copyright © 1984
The International Bank for Reconstruction
and Development / THE WORLD BANK
1818 H Street, N.W.
Washington, D.C. 20433, U.S.A.

First printing May 1984
All rights reserved
Manufactured in the United States of America

This is a document published informally by the World Bank. In order that the information contained in it can be presented with the least possible delay, the typescript has not been prepared in accordance with the procedures appropriate to formal printed texts, and the World Bank accepts no responsibility for errors. The publication is supplied at a token charge to defray part of the cost of manufacture and distribution.

The views and interpretations in this document are those of the author(s) and should not be attributed to the World Bank, to its affiliated organizations, or to any individual acting on their behalf. Any maps used have been prepared solely for the convenience of the readers; the denominations used and the boundaries shown do not imply, on the part of the World Bank and its affiliates, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries.

The full range of World Bank publications, both free and for sale, is described in the *Catalog of Publications*; the continuing research program is outlined in *Abstracts of Current Studies*. Both booklets are updated annually; the most recent edition of each is available without charge from the Publications Sales Unit, Department T, The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, U.S.A., or from the European Office of the Bank, 66, avenue d'Iéna, 75116 Paris, France.

Alan R. Roe is chairman of the Department of Economics at the University of Warwick, Coventry, U.K., and a consultant to the World Bank.

Library of Congress Cataloging in Publication Data

Roe, Alan.

Industrial restructuring.

(World Bank technical paper ; no. 21)

Bibliography: p.

1. Industry. 2. Industry and state. I. Title.

II. Series.

HD2328.R64 1984 338.9'009172'2 84-7370

ISBN 0-8213-0366-X

Abstract

The rationalizing and restructuring of industries is an increasingly important phenomenon in all countries of the OECD and in many developing countries as well. This paper examines that phenomenon from a number of different angles. It defines a taxonomy of restructuring in terms of the level at which restructuring takes place (company, sector or economy-wide) and the motivation behind it (defensive or positive). It attempts to identify the market failures that may justify government intervention with the process. The paper then uses this analytical framework to examine why the pressures on governments to intervene have so manifestly intensified in recent times, and to identify types of industries most likely to be the object of such intervention. Finally, the paper provides a selective and comparative overview of the industrial restructuring experiences of six major OECD countries. The juxtaposition of the theoretical arguments for intervention to correct market failures with the descriptive analysis of OECD country experiences, provides both an analytical framework and certain policy implications of relevance in a developing country context. The insights gained will be used both to conduct studies of industrial restructuring in selected developing countries, as well as to help design specific assistance packages for some of them.

Abstrait

La rationalisation et la restructuration des industries est un phénomène de plus en plus important dans tous les pays de l'OCDE et, également, dans de nombreux pays en développement. Dans le document ci-après, on a étudié ce phénomène sous différents angles. On y a défini une méthode de classification des opérations de restructuration, selon l'échelle à laquelle elles ont lieu (entreprise, secteur ou économie nationale) et les motifs auxquels elles répondent (défensifs ou positifs). On s'est efforcé de déterminer quelles imperfections du marché pouvaient justifier une intervention des pouvoirs publics dans ce processus. Ce cadre analytique établi, on a examiné pourquoi les pressions des pouvoirs publics pour qu'ils interviennent s'étaient si manifestement intensifiées depuis quelque temps et on a cherché à déterminer dans quels types d'industries une intervention de l'Etat était la plus probable. Enfin, on a esquissé un tableau d'ensemble, sélectif et comparatif, des activités de restructuration industrielle dans six grands pays de l'OCDE. La juxtaposition des arguments théoriques militant en faveur d'une action pour remédier aux déficiences du marché et de l'analyse descriptive des mesures prises dans les pays de l'OCDE, en même temps qu'elle fournit un cadre analytique utilisable dans le contexte des pays en développement, permet de formuler certaines conclusions qui pourront influencer la politique de ces pays. Les connaissances acquises seront utilisées pour effectuer des études sur la restructuration industrielle dans des pays en développement sélectionnés, et aideront à mettre au point des programmes d'assistance spécifique à l'intention de certains d'entre eux.

Extracto

La racionalización y reestructuración de las industrias es un fenómeno de importancia creciente en todos los países de la Organización de Cooperación y Desarrollo Económicos (OCDE) y también en muchas otras naciones en desarrollo. En este trabajo se examina ese fenómeno desde varios ángulos distintos. Define una taxonomía para la reestructuración en términos del nivel en el que tiene lugar (compañía, sector o toda la economía) y la motivación que la respalda (defensiva o positiva). Procura identificar las fallas del mercado que podrían justificar la intervención gubernamental en este proceso. Luego se utiliza este marco analítico para examinar la razón por la que se han intensificado en forma tan manifiesta en épocas recientes, las presiones para que los gobiernos intervengan, e identificar los tipos de industrias en los que es más probable que haya intervención. Por último, el documento da una visión general, selectiva y comparativa, de las experiencias de reestructuración industrial en seis países importantes de la OCDE. La yuxtaposición de los argumentos teóricos en favor de la intervención para corregir deficiencias del mercado con los análisis descriptivos de las experiencias de los países de la OCDE proporciona a la vez un marco analítico y ciertas deducciones importantes en materia de políticas en el contexto de un país en desarrollo. Los conocimientos adquiridos se aplicarán a la realización de estudios de reestructuración industrial en determinados países en desarrollo y contribuirán también a elaborar diversas medidas de asistencia para algunos de ellos.

Table of Contents

	<u>OVERVIEW</u>	xi
I.	<u>BACKGROUND</u>	1
	What Is Restructuring	3
	The Changing Structure of World Industry	5
II.	<u>INDUSTRIAL RESTRUCTURING AND MARKET FAILURES</u>	9
	Positive Restructuring	10
	Defensive Restructuring	12
	Capital Market Imperfections.....	13
	Labor Market Imperfections.....	15
	The Availability and Adoption on New Technologies...	19
	The Effects of "Shocks" and the Responses to Them...	20
III.	<u>THE ACCELERATING PRESSURES FOR INTERVENTION</u>	25
	Information and Intervention	25
	Macro-economic Policy and Micro-Level Intervention..	26
	Which Industries Will Be Most Affected?.....	29
IV.	<u>COUNTRY COMPARISONS</u>	32
	Differences in Country Approaches	32
	Importance of Macro-economic Growth Prospects.....	32
	Role of Planning vs. Timely Information Sharing.....	33
	Role of Banks	36
	Use of Holding Companies	39
	Use of Public Ownership	41
	Degree of Consistency of Approach	43
	How Successful Is Intervention?	45
V.	<u>CONCLUSIONS</u>	50

Acknowledgment

The authors would like to thank Antonio Tenorio and Wilson Peiris for organizing the numerous rounds of typing and retyping associated with this paper, and Perla Sanz for editorial assistance and for managing the finalization of the paper.

OVERVIEW

i. The basic objectives of this paper are to develop an organizing framework to guide the examination of government policies towards the rationalization and restructuring of industry, and to review the experience with such policies recently followed by selected developing countries. While discussions of various aspects of such policies abound, they are predominantly descriptive in nature, and relatively few attempts have been made to probe analytically into either the reasons why restructuring has become such an important issue in the 1980s, or the types of policy response which are efficient or otherwise desirable. As a consequence, the theoretical debate about approaches to industrial restructuring has been relatively little affected by the empirical fact that more efforts to restructure industry are deemed necessary in almost all countries, and that governments have become increasingly involved in the process, often contradicting their apparent commitment to the "free" market mechanism.

ii. Our ultimate objective is to establish analytical guidelines which can help formulate appropriate industrial restructuring policies in developing countries. In this context, it is particularly important to identify those circumstances, if any, in which the unaided working of market forces may not generate efficiently the re-allocation of resources indicated by the evolution of relative prices. This type of analysis should also assist the Bank in identifying circumstances and policies under which its financial and technical assistance can support the efficient industrial restructuring efforts of member countries. In this paper, the analysis is based entirely on the recent experiences of selected OECD countries. These countries have together accumulated considerably more experience with the problems of industrial restructuring than have the developing economies. They collectively utilize an extremely rich and varied menu of policy approaches towards industry, and provide an ample

variation of different approaches towards government policies in the market economies. Thus, while a study of the developed country experiences cannot tell us everything we need to know about restructuring policies in developing countries, it can provide a basis for defining the issues to be addressed in the next stages of the work which will focus explicitly on selected developing countries.

iii. Since this paper already represents the distillation of key issues on a topic which is extremely complex, both theoretically and descriptively, this overview does not attempt to comprehensively summarize the paper. Instead, it highlights four key findings of the paper, in addition to giving its brief outline.

iv. The layout of the paper is broadly as follows. Chapter I sets down some definitions as well as a taxonomy of restructuring utilized in the latter sections of the paper. Particularly important is the distinction drawn between those restructuring operations which are motivated, or even forced by adverse circumstances ("defensive") and those which involve a degree of volition ("positive"). The distinction corresponds pretty well with the popular two-way representation of the industrial policy problem as, on the one hand, what to do about older and struggling ('sunset') industries, and, on the other, what to do about newer and emerging ('sunrise') industries. Chapter II identifies several of the "market failures" which provide the theoretical basis for intervention in the restructuring process. These failures largely fall into two categories, namely, pure market failures, notably various externalities, and other non-market failures, particularly numerous institutional rigidities in markets. These are discussed separately in relation to three main factor inputs into production: labor, capital and technology. This analytical framework is used in Chapter III to analyze why the pressures for governments to intervene in the restructuring of particular sectors of industry have so manifestly accelerated in recent times, and then to identify industries that would most likely receive such intervention. Chapter IV presents a selective overview of the industrial restructuring experiences of six major OECD countries: Britain, France, Germany, Italy,

Japan and Sweden.^{1/} The purpose here is both to inform the more analytical work of the earlier chapters and, at the same time, extend it by drawing in a number of relevant institutional issues. These issues, which will also figure prominently in the subsequent stages of the proposed work on developing countries, include the role in the industrial restructuring process of banks, the role of state holding companies, the role of formal planning arrangements for industry and the role of public ownership of industry. Finally, Chapter V briefly presents some of the major conclusions of the paper.

v. Four central findings which emerge from the analysis can be usefully highlighted. First, and most prominently, interventionism with industry has become widespread in the OECD countries in recent years. And, such government intervention with the market process is no longer confined to those countries which have traditionally been interventionist in approach. The interaction of sluggish world growth with particular social and/or strategic priorities has provoked significant selective aids to industry even in the more market-oriented economies such as the Federal Republic of Germany. In practice, there has been a retreat from reliance on the unaided market mechanism in many OECD countries.

vi. Second, although a wide variety of arguments can provide a theoretical justification for intervention, the intervention actually practiced in particular countries cannot always be related to those arguments. Indeed, in most of the countries examined in the paper, industrial policy interventions seem to have arisen far more as pragmatic responses to particular problems, i.e., when perceived social difficulties become serious, and especially when jobs need to be protected, rather than as well-thought out responses to anticipated failings of market processes. Most theoretical arguments for intervention concern market failures that hinder efficient and timely movement of factors of production--labor, capital and technology--necessary for industrial restructuring. In

^{1/} These overviews in turn are taken from six more detailed working papers which rely heavily on secondary source materials.

practice, interventions have sometimes further retarded, rather than facilitated such movements. A plausible, though still to be tested, hypothesis could be that industrial interventions could have achieved their objectives more effectively, had they been generated earlier and on a less pragmatic basis. For the developing economies the dilemma that this suggests is that while there may be some obvious market failures which could justify government intervention, it may nonetheless be ill-advised where administrative and institutional structures are not sufficiently strong and disciplined to ensure the correct design and implementation of policies to address particular identified problems.

vii. Third, the range of policies adopted in the OECD countries in the recent past to facilitate industrial adaptation has gone way beyond the trade and other incentive-based policies which often dominate the policy debate in the developing country context. It is clear, for example, that direct subsidies now play a much more important "protective" role than tariffs in the Western European economies. Restructuring at the level of the whole economy is best seen as a complex integrated process in which "correct" macro-economic and trade policies play a part alongside sound policies for, for example, education, training, technology development and investment in infrastructure. The relatively more successful countries such as the Federal Republic of Germany, either through good fortune or good organization, have achieved flexibility in their economies by establishing a balance between these various aspects of policy and by not putting an extreme emphasis and reliance on any one of them.

viii. Fourth, the paper demonstrates both the extremely wide range of institutional approaches to restructuring being followed in the OECD countries, as well as the extreme difficulty of ensuring that generalizable and guaranteed results will emanate from particular institutional reforms. The two most obvious examples involve the distinction between the public versus private approaches, and between a planned versus a purely market approach to industrial development. In designing prescriptions, it is futile to suggest that private ownership is "better" for industrial development than public ownership, when major industries came in public

ownership in the first place because of the inadequacy of the "market" in organizing their appropriate adjustment (e.g., steel in France and parts of the automobile industry in Britain). Similarly, industrial planning cannot be recommended as an appropriate component of industrial policy without identifying which characteristics of a planned approach are necessary to overcome particular inadequacies of markets. Germany, for example, has been successful in organizing the diffusion of industrial information which is one major argument for a planned approach without resorting to planning as such.

ix. The analysis in the paper has an important message for the developing economies. Interventions with the process of industrial development, as well as the institutional apparatus to support them, are likely to be the more successful the more closely they can be tailored to address particular identified failings of the market mechanism. Pre-packaged institutional reforms imported from elsewhere, be they interventionist or market-oriented in approach, do not guarantee success.

x. Market forces rarely work in a textbook fashion and smoothly re-allocate resources in response to a changing environment. Much social, economic and political pain is associated with the restructuring process and this fact is likely to represent a powerful force to slow it down. Experience suggests that government interventions which systematically look for and attempt to correct market failures and facilitate its working have the best chance of success. To achieve such a consistent, market supporting approach, the totality of policy measures affecting industry need to be looked at in a systematic and coordinated way, and not allowed to evolve as ad hoc responses to changing social and political pressures.

I. BACKGROUND

1.01 The troubled circumstances of the world economy since the mid-1970s have brought into sharper focus the need for significant structural adaptation in many countries both developed and developing. In the case of the developed economies, debate about structural adaptation has focused on the industrial sector and on the need for policies to "restructure" (or, in the alternative terminology, to "positively adjust"), the composition of that sector in the face of shifts in demand patterns, relative prices, the geographical location of production, new technologies and other exogenous forces.

1.02 It has been widely accepted that the reasonably prompt re-allocation of labor and capital in response to changing circumstances is essential for economic efficiency in any country. There is an equally clear consensus that in most of the advanced OECD countries, and in many other countries besides, the market does a reasonable job in ensuring that these factor movements take place. While all governments have some influence on the shifts of capital, labor and technology into or out of a few industries (either directly or indirectly), the advanced economies have not been characterized by substantial government intervention directed to "organize" these shifts. And yet the issue of government policy towards the restructuring and rationalization of industry has increasingly come to the fore and is the single most important aspect of the debate on contemporary industrial policy in most OECD countries. This issue has become particularly important during the 1980s recession, as industrial policy in many countries has emphasized the need for "restructuring" as part of a strategy to improve competitiveness and to defend or extend national shares of particular markets.

1.03 These developments generate numerous issues both conceptual and practical. At the conceptual level, some of the issues are: (a) What are the circumstances under which market forces may fail to organize the appropriate re-allocation of labor, capital and technology between

different sectors of the economy; (b) Have these circumstances become important enough in the past ten years to account for the escalation of government involvement; and (c) Do the "theoretical" causes of market failure provide any clue as to the types of industry that may need particular help in order to achieve restructuring, and as to the type of help required.

1.04 These conceptual issues are worth exploring even though definitive answers to them are elusive, because they can help define any patterns to government policies for industrial restructuring and thus help avoid the need to look at each industry case as a separate occurrence with unique characteristics. It is also the case that they can provide a valuable basis for studying the restructuring experiences of different countries, and provide a framework for the discussion of industrial policy not only in the advanced OECD economies but also in the semi-industrial developing economies.

1.05 While there are numerous studies on industrial restructuring, their approach has almost always been descriptive. Such studies leave a number of unanswered questions, including: (a) Are there significant differences in the ways in which different countries have approached restructuring policy; (b) Can these differences be explained in terms of the theoretical arguments which justify intervention in the first place; (c) Is there a consistency to a country's approach over time or is this approach hostage to changing circumstances; and (d) How successful do interventions appear to have been.

1.06 The remainder of this paper attempts to answer these and related questions by constructing a profile of the industrial restructuring experiences of the key Western European economies and Japan. Only selective references will be made to particular policies, institutions and practices in the constituent economies; a fuller discussion on these is available in six informal background papers on France, Britain, Germany,

Sweden, Italy and Japan.^{1/} These background papers in turn are based on secondary source materials and attempt a brief synthesis of different approaches to the restructuring problem in these six countries.

What Is Restructuring

1.07 There are three main contexts in which the term "industrial restructuring" is used in this paper, and these need to be differentiated. There is first the set of changes (e.g., of product mix, technologies, production location, plant configuration, etc.) that takes place in the context of an individual company or a narrowly defined set of companies grouped by common ownership or some similar characteristic.^{2/} These changes are a natural and continuous part of the evolution of a market-oriented economy. However, government policy may interact with the process by influencing some of the market elements (e.g., prices) that influence this evolution. Also, government policy in an increasing number of countries is directly intervening in the restructuring process to finance, advise on or even compel particular types of restructuring in an individual company or well-defined group. Such direct government intervention is most likely, though not exclusively, in publicly-owned companies.

1.08 Second, the term "restructuring" can concern a sector-wide view of the industrial process and involve changes in the composition of broadly defined sub-sectors of industry. Such changes might include some of the same elements already discussed (i.e., product mix, technologies, etc.), but additionally could include efforts to amend the size distribution of firms within a sub-sector, and efforts to introduce wholly new firms and lines of activity.

^{1/} A separate study of the U.S. experience is under way but its findings cannot yet be incorporated in this paper.

^{2/} There is some evidence that banks in certain countries are beginning to orchestrate restructuring operations involving several companies even where these are not linked by common ownership.

1.09 The third, and the broadest, context in which the term "restructuring" is used involves an economy-wide view and changes within that. It is generally agreed that Japan has provided a demonstration of how a judicious combination of private sector energies with a supportive and imaginative government intervention can help to fabricate a pattern of comparative advantage in a country quite different from its static comparative advantage as conventionally defined. Numerous other countries have attempted to replicate some aspects of what they perceive to be the Japanese success in this field. Today few governments refrain from formulating some form of strategic concepts about the shifts in the overall structure of their industrial sectors that they would like to see emerge in the medium to longer term. Thus, the concept of industrial restructuring in its broader economy-wide sense is increasingly important, and is of central concern to those involved in developing overall industrial and development strategy for both developed and developing countries.

1.10 In addition to the broad distinction between individual company, sectoral, and economy-wide restructuring described above, there is a second definitional distinction more difficult to pin down. This concerns the motivation for a restructuring effort and especially the question of whether that motivation is positive or defensive. Defensive restructuring occurs where circumstances have already pushed a company, or even a whole sub-sector, into a position where, in the absence of adjustment measures of some form or another, it is unable to produce an "acceptable" long-term return on capital. Companies in such a situation can usefully be characterized as capable of surviving but only if subsidized either by the government, their bankers or the shareholders. The obvious examples are in the traditional industries of the industrialized countries such as shipbuilding, steel and textiles. In contrast, positive restructuring relates to the situation where a company, or a subsector, which has been making an acceptable return on capital, moves into a new area of production

or a new technology that offers the prospect of improved returns.^{3/}
Restructuring in this sense may or may not be encouraged by government
intervention.^{4/}

The Changing Structure of World Industry

1.11 The broad facts about the shifts in the structure of world industry during the past two decades are documented in a companion paper.^{5/} They include: a continuing shift towards production that requires higher levels of skill and technology; a marked deceleration after 1973 in the pace of industrial output growth not only in the developed market economies (DMEs), but also in the centrally planned economies (CPEs), and in the less developed economies (LDCs); and a marked unevenness in the pace of growth of different industrial sectors, with the chemical and machinery sectors accounting for two-thirds of overall growth (a growth rate very much out of proportion with their combined share of world manufacturing value-added). At the same time, world trade in manufactures grew at a rate 50% higher than the growth of production and, while the bulk of this trade (75%) continued to take place between the industrial countries, the share of LDC exports rose considerably (to almost 10% by

^{3/} It can be noted that any attempt to statistically separate out cases of defensive and positive restructuring would be difficult for two reasons. First, the ex ante motivation for restructuring will be partly based on expectations which in the event may or may not turn out to be correct. Some apparently "positive" operations may be motivated by a perception that, in their absence, future circumstances might force down rates of return sufficiently to necessitate defensive restructuring interventions or subsidization at some future date. Second, the measurement of rates of return for this purpose is not entirely unambiguous. Fortunately, in the more obvious cases where defensive restructuring has been necessary (e.g., steel, shipbuilding), rates of return have been clearly unsatisfactory.

^{4/} A recent example where it has been so encouraged would be the governmental attempts in many countries to increase activity in the area of information technology.

^{5/} Chad Leechor, Harinder S. Kohli, and Sujin Hur, Structural Change in World Industry: A Quantitative Analysis of Recent Changes (Washington, D.C.: World Bank, November 1983).

1980), while the share of the CPE countries fell (to under 8% by 1980). The level of intra LDC trade in manufactures rose extremely rapidly (it more than tripled in current dollars in the five years after 1975), as did the share of such trade in the total of LDC exports (37% by 1980).

1.12 These and other trends in world industry could usefully be explained in terms of two inter-related elements; those concerning the product composition of total output and those concerning its geographical location. The evolving level of world incomes, combined with its changing international distribution and the varying income elasticities of demand for different products, generate some "natural" changes in the demand for different products in different locations. Even in the absence of sharp movements in relative prices such as those caused by the recent oil-price increases, and technological changes, these developments would produce systematic changes in the structure of each country's demand for manufactured products. A country's income elasticity of demand for steel is, for example, higher in the early stages of its industrialization than in its more mature stages. Unless export markets can be expanded, a country's economic growth generally will imply a natural slowing of the growth of a country's steel output after a certain point. Technological change, however, often intervenes with these natural trends. For example, in the past two decades technological break-throughs have led to reductions in the relative prices of synthetic materials (such as plastics used in equipment manufacture, in consumer durables and in construction materials). The price reductions in turn have clearly caused a downward shift in the growth of demand for traditional, technologically more mature products such as steel and aluminum. The accelerating substitution of electronic for mechanical technologies in many manufacturing areas such as automobiles is another example of the importance of technological developments in changing the structure of demand for different products.

1.13 Unfortunately, even the broad demand and technological trends in relation to the major products can only partly explain why industrial structure (in the two dimensions of location and product), has altered in the way it has during the past 20 years. This is because the relative

prices which influence the patterns of demand and the pace and nature of technical change are both endogenous. Also the shifting patterns of trade in manufactured products is explained by at least three other developments. First, the reduced physical weight of many products and the long-term reduction of international transportation costs, have improved the economics of manufacture of some products in locations different from the locations in which they are purchased (the production of numerous electronic products in the LDCs is a good example of this). Second, the increasing relative cost of labor in most high income countries has strengthened the economics of off-shore production. Third, until recently, an increasingly liberal world trading environment of the past 20 years, combined at the same time with an increasingly free international movement of labor and capital, has permitted offshore production which formerly was not feasible.

1.14 Finally, the sharp upward adjustment of the relative price of oil since 1973/74 has impacted on our two-way calculus in different ways. It obviously raised the relative price of, and dampened the growth of demand for, many products that use energy as a major input. In part this adjustment in demand was achieved through an accelerated development of new technologies to produce competing or similar products with lower energy input. It also lessened the demand for final products that depend on energy for their use, especially automobiles, and for products, notably ships, used to transport and, to a lesser extent, produce oil products. In addition, the sharp short-term change in transportation costs which the oil-price hike generated cast a new light not only on the best method but also on the best location for the production of certain materials. Thus, for heavier raw materials such as phosphates, which could formerly be mined in one country such as Morocco and then processed in a second such as France and exported to a third and distant country, such as India, the balance of economic advantage increasingly moved in favor of processing of raw materials on location. This by itself had some impact on shifting the location of some part of industrial production away from DMEs and towards the LDCs. But beyond this, the sharp relocation of the ownership of the world's investable capital associated with the emergence of OPEC, clearly

gave rise to big changes in the location of world industry. Quite suddenly after 1974, a number of OPEC countries such as Saudi-Arabia, Kuwait, Nigeria and Venezuela had capital-surpluses which they were anxious in part to use for building up indigenous industry. At the same time, numerous oil importing and capital-deficit countries, especially in the DME category, needed to engineer a deflation of their economies and through this process severely depress the rate of industrial demand and investment. Finally, the emergence of OPEC as a leading market moved the geographical balance of the main markets for industrial goods and so encouraged additional shifts in both the location and the nature of some of the goods produced.

1.15 The impulses coming from the oil price hike provided a somewhat unusual overlay to the natural evolution of the world industrial structure associated with a shifting pattern of incomes and technologies. Whether or not these and other impulses were, or are now, allowed to have their full effect on the structure of industrial production and its location will depend upon trade policies, as well as on aspects of macro-economic policy such as the exchange rate. To the extent that some countries operate these policies in a highly distorting fashion, part of the factors influencing the geographical location of production will lie with these policies rather than with the factors we have already considered.

II. INDUSTRIAL RESTRUCTURING AND MARKET FAILURES

2.01 We now turn to the substantive question of why market forces may fail to produce necessary restructuring, and why government interventions may sometimes be justified to help achieve this. In addressing this question we concentrate mostly on restructuring at the level of the individual company, although it will be clear that many of the arguments adduced will also be relevant to explaining the case for intervention at the sub-sectoral or economy-wide levels. For analytical purposes, heavy reliance is placed in this section on our earlier distinction between positive and defensive restructuring, with the latter being analyzed by reference to the different influences that may prevent a market-directed re-allocation of the three factors of production, namely, capital, labor and technology. The arguments for interventions to assist restructuring can be grouped into two broad categories. First, there are several types of pure market failures and notably any externalities which drive a wedge between the social benefits of a resource re-allocation process and the direct private benefits. Second, there are numerous non-market failures such as rigidities in labor and other markets which are imposed (often for good non-economic reasons) by governments, unions, banks and other institutions or which arise from inappropriate institutional structures. In this and the next two sections, we will attempt to elaborate on these points.

2.02 In spite of their inherent ambiguities, the distinction between positive and defensive restructuring suggested earlier provides a convenient analytical framework for examining the issues. We begin with the simpler case of positive restructuring. Next, we assume that certain disturbances have reduced rates of return and analyze the problems of the market in coordinating the appropriate defensive restructuring actions. Finally, we look rather more closely at the nature of disturbances and responses to them.

Positive Restructuring

2.03 If a restructuring operation satisfies the conditions for being classified as positive, and in particular is being contemplated by a company/sector already earning an "acceptable" return on its capital, then the market failure most likely to abort that operation would be one associated with capital markets. In particular, if the company's expectation of the return on its new restructuring investment was significantly higher than the comparable expectations of its bankers, or if its evaluation of risk was significantly lower, then capital may fail to flow to such an investment even though the ex post return may be extremely attractive. The essential problem is that investments of this type may combine both high potential profitability and high risk, while banking organizations typically maintain rather conservative attitudes to risk.^{6/}

2.04 But this having been said, it is the case that the diversification of banking sectors in the direction, for example, of venture capital financing seems to have occurred naturally and with little government intervention in some countries, notably the United States. Why cannot this same natural development of financial markets be expected in other countries?^{7/}

2.05 One possible explanation is that a certain minimum scale of effective demand for venture capital and similar facilities may be required before the supplying institutions are able to obtain sufficient pooling of risks to raise their overall risk-adjusted rate of return sufficiently to justify their involvement. But even where the latent (or "notional") demand for these facilities is large, it may not be made visibly effective

^{6/} The phenomenon of equilibrium credit-rationing recently discussed by Stiglitz and Weiss in "Credit Rationing in Markets with Imperfect Information" American Economic Review, Vol. 71, No. 2 (June 1981), p. 393, is also of possible relevance here.

^{7/} A question related to this would concern the reasons for the rather limited internationalization of the activities of the successful U.S. venture capital companies.

while the institutions to respond to this demand do not exist. In this situation the government may be justified in acting as the catalyst to stimulate the necessary institutional changes. In other cases where even the latent demand is small, subsidies to new types of risk-taking institutions may be justified to ensure that the new investments which they might finance are not aborted through an inadequacy of finance. In the majority of LDCs, where the incidence of positive and innovative restructuring investments is fairly low, one would not expect to see specialized institutions, geared to financing for such investments, as a natural part of the financial scene. Thus there may well be cases of capital market failure in relation to the few such investments which may be contemplated.

2.06 These problems will be exacerbated in many cases by tax structures. In particular, in situations where both the corporate and the individual income tax rates are high, the supply of corporate risk capital from private savers will be low and borrowers will be forced to rely heavily on institutional sources of funds which are likely to be allocated on a more conservative basis.

2.07 In addition to market failure in the sense just described, intervention in the process of positive restructuring may be legitimized by the presence of various externalities. In particular, the R&D element in positive restructuring investments may often generate a rate of social profitability which is significantly greater than its private profitability. Although various devices such as licenses and patents are available to increase the returns to the developers of new technologies over and above the private profit they could obtain by their own direct investment in these technologies, these devices are often inadequate to adjust the private profitability of R&D enough to reward the developers fully for the social benefits they may create. In other cases where the developers of new technologies, because of a monopolistic market structure, are able to fully exploit their R&D investment, a somewhat different problem may arise in the form of the inadequate access to new technologies of certain would-be users. Pharmaceuticals is a good example. For these

and other reasons (e.g., defense, other strategic considerations and the sheer scale of the resources needed for much modern R&D), governments of most industrial economies have seen fit to provide high levels of subsidization to particular forms of industrial R&D. The questions about this type of subsidization are not about its underlying principle, or the need for it, but are concerned with the inherent difficulties of assessing the size of the externality (and so the size of the justifiable subsidy), and with the practical problems of determining how to allocate the subsidy.

2.08 Finally, a much more difficult area as far as a government is concerned is associated with entrepreneurship. Frequently, a country is argued to have potential in some new area of industrial activity, but the organizing ability to turn this potential into bankable investment projects is lacking. In one sense entrepreneurship might be viewed in the same terms as industrial R&D. If there is an inadequate supply of this factor, this could well be argued to be attributable to an inadequate private rate of return which might be correctible by subsidy. However, this analogy cannot be taken too far since the failure of a country to find the entrepreneurship to pursue apparently promising investment opportunities is normally a systemic problem requiring broad-ranging changes in the business environment, social and political attitudes, tax structures and so on. It cannot obviously be handled (as the deficiency of R&D might well be) by specific and reasonably narrowly-targeted subsidies.

Defensive Restructuring

2.09 When we turn to defensive restructuring, the situation becomes far more complex partly because the outward movement of factors from a company or sector (e.g., labor force reductions), which may be a part of this restructuring, will often encounter constraints that can significantly undermine the performance of markets. In situations where these necessary movements are large (e.g., labor force reductions in steel and shipbuilding in recent years), the resistance to them is also likely to be considerable. In addition, the market's evaluation of sound new investments within an unprofitable company may well be compromised by the

inability of that company to provide the necessary levels of internal financing (forcing gearing ratios which are excessive by industry standards), and also by the fact that the company's balance-sheet ratios will have to carry the burden of previously unsatisfactory investments as well as the new ones. So capital may flow less readily to a "good" new investment which happens to be located in a company already burdened with past excessive debt, than to a "less good" investment in a company with less accumulated debt. Moreover, it is not necessarily always the case that the balance-sheet ratios inherited from the past are a reliable guide to management efficiency.

2.10 In order to throw a little more light on the nature of market failures in these circumstances of defensive restructuring, it is convenient to refer in the next sections to the main factors of production (labor, capital and technology), and discuss what could hinder their market-directed movement either into or out of industries which are restructuring. This in turn should provide some clue as to the types of interventions which governments might legitimately consider without breaching canons of economic efficiency.

Capital Market Imperfections

2.11 The main source of the capital market imperfection outlined above is an externality. A sound new investment in an otherwise ailing company will generate benefits not only to those who finance this investment but also to those who have made earlier (and, as it turned out, unsound) investments in the same company. This will happen because of the increase in the value of the company which the new and successful investment will produce. In the limiting case of bankruptcy this is not a problem, as the new investors will be able to buy out both the old equity and loan capital at a suitably reduced price and so extract for themselves the full benefits from the new investments. But where the problems of the company stop short of bankruptcy, the new investor may need to share the benefits of his investments with the owners of the old capital; consequently their expected personal return on that investment may be lower (than in the bankruptcy

case), and the flow of finance for such investments will be correspondingly sub-optimal. This problem seems to apply irrespective of the nature of the investment--it would be equally true of a new investment concerned solely with rationalizing existing capacity (including redundancy payments and other closure costs), as of an investment concerned with expanding capacity.

2.12 If this externality is to be avoided, thereby permitting the market to direct adequate capital resources into (defensive) restructuring investments, then efficient procedures must exist for writing down the value of the capital in companies where the long-term rate of return has fallen below acceptable levels. In the case where the whole of a company's capital is in the form of equity, this requires the existence of efficient equity markets. Where, as is more probable, heavy indebtedness is also involved, it also requires early recourse to bankruptcy or some similar procedure which can potentially write off part of the claims of creditors and the providers of loan capital.^{8/} In the absence of either or both of these requirements, a degree of government intervention would be justified to boost investment in the company to the level that would have prevailed in the absence of the externality. This might be arranged through direct government investment on its own account or through some device, such as subsidized loans, to bring the private rate of return on investment closer to the social rate.

2.13 In this present paper we will make no attempt to delve into the interesting question of why the device of bankruptcy is not used readily or efficiently enough to provide straightforward market solutions to the movement of capital into defensively restructuring companies. However, we can note that in few countries is bankruptcy regarded as simply the technical device for repricing assets that our own argument has represented it to be. In addition it will normally carry connotations of failure and

^{8/} It is of course likely, as a company becomes progressively more distressed financially, that, either intentionally or otherwise, it will acquire mounting debts which will overshadow the market value of its equity.

finality which may discourage its more active use. We can also conjecture that where the onus for making a company bankrupt rests with its creditors, the characteristics of a company, especially its size, may have a crucial bearing on whether or not the creditors choose to exercise their option. Size is important partly because most creditors will be more hesitant about writing down large debts than small ones. But it is also the case that, for reasons to be discussed below, creditors will hold some expectation that government action will be invoked more readily to bail out large companies than small. This very expectation will increase the probability of the capital market failure as we have defined it, and will increase the likelihood that government intervention may indeed be required. Bankruptcy, in other words, may be partly an endogenous phenomenon the incidence of which may be dependent on perceptions about possible government involvement in the defensive restructuring process.

Labor Market Imperfections

2.14 By contrast with the case of capital, the physical movement of labor out of a company or industry (and not just its revaluation) may often be a key element in a defensive restructuring operation. Largely for this reason, the labor-market imperfections which may preempt a wholly market-based solution to restructuring are numerous as well as relatively complex.

2.15 Our analysis of the market imperfections can conveniently be conducted in the framework of a two-commodity model suggested by Michael Mussa (Journal of Political Economy, 1974). In the first variant of that model, capital is specific and immobile as between the two productive sectors, while labor is potentially mobile. Beginning from an equilibrium situation in which wage rates (defined in terms of units of one of the two commodities) are equalized in the two sectors, an assumed shift in the demand price of one of the commodities (call it X), will, in the absence of labor market imperfections, have the following effects:

- (a) initially, raise the value of the marginal product of labor used in producing X relative to that used in producing the other commodity (Z);
- (b) initially, establish a differential in the wage rates in the two sectors (the wage in X exceeding that in Z); and
- (c) stimulate a movement of labor from Z to X, a corresponding movement in opposite directions along the two marginal productivity of labor schedules and so, eventually, the establishment of a new equalized wage rate (higher or lower than the original one depending upon the commodity chosen as the numeraire).

2.16 Evidently, the parable of the two-commodity world does not carry over in every respect to the real world. However, it does throw some light on the more obvious of the labor market imperfections. Most obviously, if certain rigidities prevent the establishment of the wage differential (stage b) above, then no incentive is provided for labor either to leave the sector in relative decline, or to move to the expanding sector. The rigidities in question are most likely to derive from one of two sources, both of which have been intensively debated in other contexts. These are first, trade-union resistance to wage cuts, and second, legislated restrictions concerning unemployment and other welfare benefits which will affect workers' attitudes to the choice between work and leisure. It is interesting to note that, from the viewpoint of our present discussion, these two rigidities may not be equivalent. The first, namely wage rigidity taken by itself, will have the effect of triggering lower employment in the sector in relative decline. This in turn will establish an effective wage differential, as far as the marginal worker is concerned, of from zero (if he becomes unemployed), as against the going wage in the expanding sector (if he relocates). This large differential may well be enough to achieve the required shift of labor albeit in a less efficient manner than that suggested above. By contrast, in the second case (the "safety-net" case), the effective differential facing the marginal worker

is his eligible welfare benefit (if he becomes unemployed), or the going wage in the expanding sector (if he relocates). Depending on the prevailing level of benefits, this incentive to relocate may be inadequate to stimulate the necessary movement.

2.17 In addition to these sources of labor market imperfections that operate by distorting the motivations of workers to change jobs, there are others that operate on the motivation of employers. A common example of this would be the requirement for employers to wholly or partly finance redundancy schemes for their workers. In some cases, the present discounted value of restructuring schemes involving the laying-off of labor may be less than the immediate private costs of redundancy payments, and, for this reason, industries in relative decline may be deterred from such restructuring. The obvious extreme example of this would be where the terms of the redundancy impose an annualized private cost on the firm equal to the wages which would have been paid in the absence of any redundancies. This situation, in turn, would be replicated, in its effects, by trade-union or legislative restrictions which substantially limit the ability of a company to shed labor.

2.18 It can be seen that, in virtually all the cases just mentioned, the source of market imperfection is one which derives from government responses to a perceived social problem such as unemployment. Thus, it might be argued that the imperfection could be avoided if governments were to renege on their commitment to address this problem. However, in most countries, such an argument does not assume much practical importance since the political and other non-economic reasons for the governments to provide a palliative to address the unemployment problem are pre-eminent. The interesting debate in most countries then is not about the existence of the government-inspired distortions but (a) about ways of organizing safety-net and redundancy schemes so as to minimize their economic inefficiencies, and (b) given that certain inefficiencies persist, about whether there are additional forms of intervention that can mitigate the consequences of these at the industry level. As an example under (a), it can be noted that efficient restructuring is more likely to be achieved if the financial

costs of redundancy are not allowed to fall merely on the companies that face the need to declare redundancies, but are spread wider than this (perhaps by way of general taxation). As regards point (b), it can be noted that certain forms of subsidy to the movement of labor (e.g., retraining allowances) are needed to the extent that they are partly because of artificial impediments to wider wage differentials between contracting and expanding industries.

2.19 Finally, it is fairly obvious that labor market constraints are likely to represent a more severe impediment to effective restructuring in situations characterized by long-run unemployment than those characterized by long-run full-employment. The simple reason for this is that in the latter situation, displaced workers will be able to weight the wage in a new location by a probability of almost unity of finding a job (and with low costs of search), and so will have reasonable expectations of sharing in the enhanced private profitability of the restructuring which takes place. In the former situation, by contrast, they are asked to accept a high personal sacrifice in order to help the realization of that same increment to private profitability. It is scarcely surprising to find that there is resistance to such a request. Equally, it is not surprising that labor resistance to restructuring is particularly severe where very large-scale redundancies are involved, especially where they are regionally highly concentrated (since they will then obviously reduce the probabilities of finding alternative employment without incurring major relocation and search costs).

2.20 In the post-war years, the traditional government remedy for this aspect of the restructuring problem has been to offer full employment as an explicit target of macroeconomic policy. As more and more industrial country governments have given up on this target, the labor market aspects of restructuring have become that much more difficult. While an alternative approach to the full-employment pledge is urgently required to help markets deal with the restructuring problem, no country has yet found such an approach. The result in most countries is an ad hoc, politically highly charged, and, in the event, a rather changeable approach to subsidization of surplus labor in particular industries.

The Availability and Adoption of New Technologies

2.21 To the extent that a defensive restructuring exercise involves the incorporation of new technologies, some of the factors likely to prevent this from taking place represent an amalgam of many of the factors already considered. To the extent that it requires new investment, the inadequacies of the market to properly evaluate the investments of troubled companies will come into play. To the extent that it implies the shedding of labor, one or more of the imperfections in labor markets will have an impact. Thus, it is not difficult to identify sound reasons why a degree of government intervention to assist the process might be justified.

2.22 In addition, the policies of government or the strategic exercise of monopoly power may prevent the adoption of new technologies by companies which could benefit from them. As regards the former, to the extent that policies of trade protection or a limitation of direct foreign investment prevent physical investments that embody new technologies, then the task of certain companies in restructuring to take advantage of these technologies is clearly impeded. In this case--admittedly more relevant for LDCs than the OECD countries--the first best strategy is to liberalize policies towards trade and foreign direct investment. And it is far from clear that second-best policies directed primarily at the restructuring issue can be effective without such liberalization. In the second case, and especially where an overseas monopolistic supplier of technology is restricting its availability, then the policies to achieve a first-best solution are beyond the jurisdiction of the domestic government, and attempts to achieve a second-best solution by, for example, support of a domestic research effort, might well be justified.

2.23 A final reason for possible government assistance with the adoption of new technologies as part of the restructuring process is associated with the risks of these technologies. To the extent that these risks and the scale of the investments needed to implement the new technologies are large, then any one individual company (especially one already in financial difficulties), may be deterred from accepting them

even though the expected return is attractive. In this situation an intervention which implicitly spreads the risks of the investment across the economy more generally might well be appropriate.

The Effects of "Shocks" and the Responses to Them

2.24 We have so far considered some of the cases where the market may not be able to fully organize an appropriate response to circumstances which necessitate a degree of industrial restructuring in a particular company or group of companies. We now turn to a rather closer consideration of the nature of the disturbances ("shocks") which precipitate the need for restructuring, and some possible responses to them. This is important since, in addition to the factors already considered, the chances of market forces being able to organize a proper response to some exogenous shock would seem to depend on three related factors, namely:

- (i) the nature and circumstances of the initial disturbance or error which produced the inadequacy of the return on capital in the first place;
- (ii) the nature of the reaction (e.g., plant closure, new investments, etc.) needed to fundamentally deal with the original disturbance; and
- (iii) the wedge between optimum response time and actual; and its cost, the magnitude, duration and nature of any "bailing-out" (subsidization) which avoided the need for a prompt adjustment to this disturbance.^{9/}

2.25 As regards the first of these, it can certainly be agreed that mistaken judgments about investments and other aspects of business activity

^{9/} A further factor concerning the influences of incomplete information and inertia is dealt with in the subsequent chapter.

are a relatively frequent occurrence and are normally not a matter of great moment. Companies are able to maintain liquid reserves against unexpected dips in profitability, to maintain shareholder support if rates of return are temporarily unacceptable, and, in many circumstances, to rely on special financial support from their bankers if they nonetheless face temporary liquidity problems. All these methods of temporary support may together help a company avoid or delay a response to some external disturbance. However, their ability to do so will be the greater the smaller is the magnitude of that disturbance; the lower is the degree of its correlation with similar disturbances affecting other companies; and the greater is the degree to which it can be anticipated and planned for. None of these conditions was satisfied by the set of shock-waves emanating from the 1973 oil crisis which were large, highly correlated in their impact on different companies, and largely unanticipated. Because of the unique nature of the 1973 shocks, we can conjecture that not only were many companies placed under more acute pressures to respond to the disturbance than had been the case with earlier and smaller shocks, but, in addition, many of the inefficiencies associated with earlier disturbances--to which full adjustment had not been made--were revealed as unsupportable on a long-term basis.

2.26 Moving beyond the specific circumstances of 1973, it should be clear that any given disturbance/error (e.g., a mistaken investment) could have quite different consequences in two different countries or at two different points in time depending on the precise conjuncture of factors just described. From this it can follow that, even in a reasonably non-distorted market economy, errors of response to some initial disturbance may well occur. For example, in periods of easy finance, especially if this follows a period of prolonged prosperity, disturbances which require a fundamental restructuring response may instead be accommodated merely by increased borrowing or the depletion of liquidity. Similarly, in periods of tight money, following periods of prolonged depression, even relatively minor disturbances may cause fundamental adjustments of behavior (and even possible bankruptcy) in distressed companies. The market is certainly not always able to provide consistent responses to given disturbances.

2.27 As regards the second factor, it is certain that the nature of the fundamental restructuring reaction which a disturbance/error necessitates has clear consequences for whether the market will be allowed to organize that response or not. Some possible reactions may have consequences that are largely confined in their effect to the company itself, or have additional social consequences that are unambiguously desirable (e.g., certain pricing adjustments or a major plant expansion). More commonly (given our definition of defensive restructuring), the reaction will involve negative social consequences in addition to the (presumably positive) consequences for the company itself. The most obvious of these is a package of restructuring measures which involves the laying-off of labor in a situation where unemployment (either in the particular region where the company is located, or nationally) is already high. In such a case, the private market-inspired adjustment to the disturbance will not take due account of the social costs of that adjustment, and some form of government intervention may be justified. The real issue concerns the nature of that intervention and, in particular, whether it should take the form of pre-empting the adjustment at the company level, or should seek more generalized ways of moderating the social costs of adjustment (e.g., cost sharing for re-training of labor). We will return to this issue later.

2.28 The third factor (i.e., the magnitude and duration of any bail-out operation), is related to the first and second factors. It is essentially concerned with the proposition that a relatively modest initial disturbance, potentially capable of being dealt with by market forces, can be converted into a major problem requiring the intervention of government, if the initial reaction to it is "wrong." The reaction may indeed be wrong if:

- the company, its shareholders and its bankers wrongly diagnose as temporary some disturbance that is more fundamental (albeit

small), and so finance their way through the problems it brings;
or

- they correctly diagnose it as a non-temporary disturbance but, because of a propitious environment (e.g., easy monetary policy), they decide^{10/} to finance their way through its associated problems rather than adjust to it; or
- the correct private market-based reaction to the disturbance is aborted by a government approach to handling the social costs of adjustment (e.g., manpower lay-offs), which essentially avoids, rather than compensates for, these costs. A good example would be legislation preventing lay-offs which, from a private profitability point of view, are clearly necessary (e.g., Portugal after the 1974 revolution).

2.29 Given that in practice, corporations and governments do behave in these ways, what are the consequences? Evidently they can be serious because they have the effect of perpetuating into the future a rate of return on capital which, by definition, is already unsatisfactory. This necessarily means that balance-sheet positions will deteriorate (i.e., debt will rise and liquidity will fall), and that profit and loss positions will be subject to the further strain of progressively increasing financial charges. Depending upon the institutional mechanisms which an economic system has available to restrain the financial flows (e.g., increased bank lending and government subsidies), supporting this process, the process may have some limit. But it is not uncommon either for these restraints to be fairly trivial (for example, when a bank's lending to an unprofitable company is sustained by their common ownership), or for the restraints to be consciously relaxed in situations such as those of the current recession, when corporate distress is widespread. In the absence of a serious limit, the process may degenerate into a syndrome of "corporate

^{10/} Or, more likely, they may fail to decide to make any significant changes in their ways of operating (see Chapter III).

distress financing" which has had its most serious manifestation in many Latin American economies. This process, by causing an accelerating demand for limited loan funds, provokes massive upward pressure on interest rates and so leads initially to liquidity problems (as a result of higher nominal interest rates), and then to the destruction of already limited equity as the attempt of distressed companies to borrow further drives up real interest rates far above the underlying return on capital.

2.30 Although we can agree that most economic systems will contain mechanisms to avert this extreme manifestation of the problem, our discussion concerning defensive restructuring nonetheless leaves us with some clear reservations about the likely effectiveness of the market mechanism to organize such restructuring. The most important point to emphasize by way of conclusion is that the margin between the market succeeding in provoking the correct response to a disturbance and its failing to do so is a fairly narrow one. Furthermore, it does not require rampantly interventionist government policies to abort the correct response; relatively modest interventions or shifts in the prudential standards and other policies of financial institutions may also contribute to such a result. Finally, it should be added that our analysis has been based throughout on the premise that the initial situation in individual companies (and the economy) prior to some disturbance is reasonably sound. The inadequacies of the market to prompt a correct set of responses to a disturbance are even greater if the starting point were characterized by a massive distortion of relative prices and a structure of industrial production which reflected these. In this situation (which often characterizes the starting point for the process of industrial restructuring in the LDCs), there is little guarantee that the market would be able to adjust correctly to a shift of circumstances.

III. THE ACCELERATING PRESSURES FOR INTERVENTION

Information and Intervention

3.01 There are many factors which explain why "market failure" in the terms defined above may have become more prevalent in the past ten years. The magnitude of the shifts in relative prices has been unusually large (especially for energy and oil-related production) and these have suggested a re-allocation of resources which, because it was large, was difficult to handle. The pace of technological progress has also been unusually fast, and has had a profound effect on optimal production methods and resource requirements in many industries. The relatively rapid adjustment of many of the NICs to the oil crisis has accelerated the geographical relocation of industrial production referred to earlier. The market growth assumptions underlying certain major investments in the early 1970s (notably in the steel sector especially in Britain and France) were dramatically in error and precipitated the need for a major restructuring by the end of the 1970s. But this in turn was exacerbated by long response delays attributable to several of the reasons referred to in the previous section, which increased the size of the necessary response.

3.02 In this somewhat turbulent environment the standard corporate problem of first obtaining the correct information as to the changes in product mix, scale of production, technology etc., which it needs to consider and second, reacting correctly to that information, has been greatly complicated. In particular, it has been easy to confuse the signals concerning fundamental shifts in demand patterns and assume that a disturbance requiring a fundamental long-term adjustment was in fact a rather transitory development that would quickly reverse itself. In general, the informational signals about profitable shifts within the industrial structure are much easier to interpret when the overall circumstances of the sector involve smooth growth and are generally assumed to be "normal." This has certainly not been the case in the past ten years. In addition, the inertia which always acts to slow down the

introduction of new developments at the company level certainly appears to have been intensified by recent circumstances. Companies which in other historical periods might have been forced by low rates of return to "defensively" restructure, appear to have found some breathing space in the fact that general norms of acceptability of rates of return in some sectors are now much lower. Other companies have been deterred from undertaking positive restructuring investments by virtue of the high cost of capital and/or the poor market prospects for the products they sell. Evidence from the study of particular industries and countries would certainly suggest that speedy adjustment to major disturbances have been the exception rather than the rule, and that the long response delays have invariably exacerbated the scale of the problem with which the market has ultimately had to try to cope.

Macroeconomic Policy and Micro-Level Intervention

3.03 Another way of stating this problem is to say that the pressures or "demand" for industrial restructuring have accelerated at a time when the ability to react positively (let us call it the "supply" of restructuring) has been severely reduced. There are several aspects of this.^{11/} The first is that in all industrial economies (though to widely varying degrees), the competitive forces of the market provide an important mechanism for arranging the continuous adjustment of production to shifts in demand, new technologies, etc. This mechanism works better in periods of stability and growth than in periods characterized by stagnation and substantial uncertainty. But the 1973-1983 period has been one of slow growth as well as one in which uncertainty has been exacerbated by several factors, including high and variable inflation, instability of many major exchange rates, a wholly altered approach to international trade, and an unprecedented pace of diffusion of new technologies. Both by reducing rates of investment and by encouraging companies to abandon a medium and long-term view of their major business decisions, this combination of slow

^{11/} Some of these arguments are developed more fully in OECD, Positive Adjustment Policies: Managing Structural Change (Paris, 1982).

growth and instability has tended to reduce the "supply" of positive restructuring which the market was able to deliver.

3.04 Second, market responses work best, other things being equal, if macroeconomic policies are able to provide a consistent backcloth against which microeconomic decisions can be formulated. This is a major reason why many economists argue for macroeconomic policy to be operated by reference to clearly defined and publicized long-term rules, rather than on a discretionary and changeable basis. But, unfortunately, in the 1970s not only have the exogenous shocks (to which macro policy may need to respond) been extremely severe, but the policy rules actually chosen have been somewhat unsuccessful in terms of ensuring macroeconomic stability and, in addition, have been subject to reversal in some OECD economies. Moreover, these reversals occurred at different times in different countries. For example, just as the U.S. was firmly committing macro-policy to a strict form of monetarism in 1980-1981, France attempted to launch a "Keynesian" expansion program after the election of the new socialist government. It now seems clear that unless these policy rules are combined with reasonable international coordination of policies, attempts to enforce them can result in severe misalignments of the relative values of some exchange rates with associated effects on trade, production and investment.^{12/} In this sense, approaches to monetary policy and approaches to industrial policy are strongly complementary international issues.

3.05 Third, though somewhat more contentious, it can be argued that the rising share of government expenditure in GNP in many industrial economies has progressively increased the part of national product which is allocated by centralized administrative procedures, rather than by the market. This is one example of a number of developments which have combined to reduce the flexibility of labor and product markets. Another important example is the increasing "management" of international trade via various non-tariff barriers. A third is the role of transnational

^{12/} See R. McKinnon, "Currency Substitution and Instability in the World Dollar Standard," American Economic Review, Vol. 72, No. 3 (June 1982), pp. 20-333.

corporations in moving productive capacity across national borders for reasons only partly connected with movements of relative prices.

3.06 These elements, and others not mentioned, seem to have produced a dynamic in which the apparent failure of macroeconomic policies to achieve their conventional objectives, such as full employment, stable growth, etc., has encouraged the greater use of specific industry level interventions, such as protection and subsidization, as an alternative way to produce these desired results. But since the failure of macroeconomic policies stems at least partly from the proliferation of micro-level interventions that have short-circuited the market responses upon which macro policies depend for their effects, this process obviously becomes self-reinforcing--the greater the micro-level interventions, the lower the likely success of macro policies and so the greater the perceived need for yet more micro-level interventions. This is particularly true in the light of the emerging evidence that micro-level intervention frequently impedes the re-allocation of resources in the required direction.^{13/}

3.07 Given that there are also well-established cases where government intervention can be justified by reference to various market failures (e.g., externalities, social costs), the working of the process just described has very considerably complicated the task of interpreting the motivations behind the policy interventions now observed. However, a number of general points can be made. First, the incidence of interventions meant to support restructuring is now far greater in most countries than was the case, say, ten years ago. Second, many of the traditional pre-1970 approaches to this have broken down in the more difficult circumstances of the recent past. A good example is Germany's basic reliance on the market and Italy's use of the giant state holding

^{13/} Evidence recently adduced shows that industrial subsidies in Western Europe amount to between 4 and 16% of value-added. A large share of this money has gone precisely to the industries most in need of restructuring but often with the explicit aim of preventing or delaying restructuring. See B. Carlsson, "Industrial Subsidies in Sweden: Macroeconomic Effect and International Comparisons," The Journal of Industrial Economics, Vol. XXXII, No. 1 (September 1983), pp. 1-23.

company. Third, many of the interventions which we now observe, whether by design or accident, may delay rather than accelerate the process of restructuring. Finally, several forms of intervention (even some which can be classified as "positive") seem likely to have international feedback effects that will further exacerbate the problem. An obvious example is the reduction in international purchasing power (and so incomes) associated with various protectionist devices. Less obvious are the possible global excess capacities which may arise from the heavy subsidization of products in high technology areas (e.g., information technology and nuclear industries).

Which Industries Will Be Most Affected?

3.08 If the above analysis of the causes of market failure is correct, then it is clear that large resource shifts into, but more relevantly, out of industries with large production units will be more difficult to handle through the market than resource shifts in industries characterized by small production units. The distortions that cause the "failure" of labor markets are more likely to be prevalent where there is a large body of labor (which may have the political and economic muscle to resist wage cuts, maintain generous redundancy payments etc.) where the reabsorption in other industries of redundant labor is difficult because it often comes in non-marginal amounts, and where, therefore, the distributional consequences of restructuring are large and more likely to be resisted.

3.09 These problems in turn are further exacerbated by three additional factors. First, because of the severe social consequences of restructuring in the larger industries, governments have shown a high propensity to accommodate the fundamental weaknesses of some of them by subsidy, thereby delaying adjustment and, in the process, reducing the possible role of the market when the pressures for a more fundamental restructuring can no longer be avoided. Second, the high regional concentration of certain large industries (notably coal, steel and shipbuilding in almost all the OECD countries) increases the non-marginal

character of the labor which needs to be shed and so is likely to aggravate the difficult distributional aspects of restructuring. Third, industries characterized by large production units are more likely to involve non-competitive market structures which may well hamper prompt adjustment. This is not only because the competitive pressures for adjustment is less but also because these structures are likely to involve dominant institutional investors who may represent a force for delay, because their large political clout may be an important element in encouraging governmental bail-outs, and because heavy absolute involvement of bank finance may make banks cautious about pushing for "standard" modes of adjustments which in these circumstances will put a large part of their own capital at risk.

3.10 While there are theoretical reasons why both labor and capital markets might fail to deliver appropriate restructuring, the arguments seem to be stronger in relation to labor markets because of the high social costs and serious distributional issues involved. Consistently with this conclusion, we find that it has been in the large labor-employing industries of the OECD (steel, coal, shipbuilding, cars) where government intervention with restructuring has been most pervasive. In general, the problems with large capital-intensive industries which employ relatively little labor such as petrochemicals and refining have been handled with less need for government involvement.

3.11 However, there is another potential explanation for the dichotomy which runs in terms of the product cycle. In fact, most of the large industries requiring intervention have been "mature" industries where the growth rate of global world demand, and certainly the prospective growth rate of demand for the output produced in the main OECD countries, is low. By contrast the industries requiring less intervention are new industries (e.g., petrochemicals), which can still look forward to a relatively rapid future growth of demand and where the difficulties in the way of major new investments for restructuring purposes are consequently lower.

3.12 Finally, there are important differences between industries in terms of the technological content of restructuring. In all countries, governments seem to implicitly accept that there is a socially optimal amount of technological innovation in industry (including R&D) which cannot be fully delivered by the market either because of the externality already referred to or because of the monopolistic exploitation of particular technologies by patentees. They have consequently provided heavy subsidies for this purpose. The amounts have varied; prestige may sometimes have dominated the serious economic arguments as the main motivation, but the pervasiveness of this type of intervention is readily apparent. It is interesting that while the common perception that Japanese policy has placed great emphasis on the technological upgrading of its industry (most latterly in semi-conductor technology) is probably correct, this is not reflected in particularly high Japanese subsidy outlays by comparison with other countries.^{14/} Germany is probably the heaviest spender of the countries we have considered, with an estimated 20% of the total costs of industrial R&D being borne by the government. The German approach is also of interest in that it attempts to diffuse R&D support widely across industry, by contrast with Britain where assistance has normally been heavily concentrated and where the objective of support to high technology has often been confused with the objective of supporting particular high technology companies. In France, the government support for technology has been heavily concentrated on certain key industries, notably armaments, nuclear industries and, more recently, electronics.

^{14/} See Philip H. Trezise, "Industrial Policy in Japan," in Industry Vitalization: Towards a National Industrial Policy (Oxford: Pergamon Press, 1982).

IV. COUNTRY COMPARISONS

Differences in Country Approaches

4.01 Differences in the approaches of various countries to industrial policy are easy to overstate. It is a fact that all the countries we are considering are mixed economies in which the market does most of the work of re-allocating resources between companies and sectors. Our discussion is mostly concerned with the residual cases where this does not happen. Nonetheless, there are interesting differences in emphasis and approach which we will review below. In doing so we will move frequently between consideration of defensive and positive restructuring.

Importance of Macro-economic Growth Prospects

4.02 We argued earlier that in countries where the broad macro-economic conditions are favorable and a reasonable rate of growth is generally expected, the difficulties posed by necessary restructuring will be smaller than in countries faced with high unemployment and macro-economic instability. This is undoubtedly one of the reasons why Japan has been able to introduce far more rapid corrections to her allocation of industrial resources than have the slower growing and less stable of the European economies such as Sweden, Britain and Italy. In the case of steel, in particular, the fast growth of her domestic demand for steel as well as the background of near full-employment made it easier for Japan to arrange an early introduction of the large integrated processes (and to establish a position where profitability was possible at only 70% capacity utilization) than was possible for Britain and France. Here these new developments came dramatically late (i.e., the eve of the first oil crisis), and, because of the pressures of severe unemployment, the proper rationalization of capacities did not take place until the late 1970s. Our earlier arguments suggest a number of reasons why, notwithstanding the relative extent of the adjustments initially needed in the different countries, the costs of the eventual adjustment are likely to be greatly

increased as a consequence of delays of the type experienced in Britain and France's steel industries. Beyond a certain point, the costs of failing to make the necessary adjustments will increase rapidly and will add weight to the prospect that some intervention with market forces will be necessary to bring it about.

Role of Planning vs. Timely Information Sharing

4.03 It may of course be argued that the work of MITI in guiding Japanese industry as to its desirable future evolution is also a factor of major importance in explaining the better performance of Japan in restructuring its steel industry. But two factors argue against evaluating this "planning" element as the most crucial. First, the French government too has had a long tradition of indicative planning, yet has had problems with adjusting its industrial structure more than Japan. Second, it seems reasonably well established that by contrast with the shipbuilding sector (where reconstruction has often needed large subsidized credits), the Japanese steel industry has often followed a course of action contrary to that suggested by MITI. This is also the case in other key industries. It is probably not so much the "industrial planning" aspects of MITI's role that have been important in the recent past, but more the "sharing of information" that it has encouraged. Better and more timely information can be made available by a public agency and yet decisions can still be taken quite independently by corporate actors.

4.04 Evidence for the proposition that the timeliness and effectiveness of restructuring, and the need for government intervention in it, is strongly conditioned by prevailing macro conditions (and the social implications of restructuring which they define) also comes from German experience. It is significant that the end of the post-war phase of policy which most truly characterized the German liberal approach to economic policy (the free working of competitive markets, the absence of centralized planning, the primacy of the goal of price stability etc.), ended with the serious recession of the mid-1960s. In particular, the more interventionist approach of the new Christian and Social Democratic coalition recog-

nized a coherent program of structural financial aids as a legitimate part of the government's economic program. The 1967 Law which embodied this provided powers for the government to assist with structural adjustment in industry (e.g., the reduction of excess capacity), as well as with structural maintenance (i.e., the protection of jobs and output). A more recent example of how even a market-oriented economy such as Germany needs to compromise its general approach to restructuring comes with the large federal government financial support to the proposed rationalization of the steel industry into two giant groups (the "Rhine" and the "Ruhr" groups).

4.05 Our first main proposition then would be that the timeliness, effectiveness and the role, if any, of the government in industrial restructuring, are strongly conditioned by the underlying growth, unemployment levels and general macro-economic health of the economy. All of the economies we have considered (and the main companies within them) have sufficient technical competence to reasonably identify market and technological developments in existing industries, and define the types of new investment, the rationalization of labor forces etc., necessary to benefit from these trends. The differences between countries lie more in the practical flexibility and prevailing incentives for introducing these changes, and these are heavily conditioned by the country's macro-economic health and policies.

4.06 This in turn leads to a second proposition that the existence, or non-existence, of formal planning mechanisms may be somewhat irrelevant to the effectiveness with which industrial restructuring proceeds. In Japan, for example, although the indicative plans (prepared by the Economic Planning Agency) are linked up with MITI's periodic statement about its vision of a preferred pattern for future industrial growth,^{15/} the "plans" which emerge have no binding force on anyone. Above all, they imply no necessary commitment of budgetary resources nor any commitment to a set of policy measures which might be necessary to fulfill the plans. Probably the best way to regard the planning that goes on in the countries we have

^{15/} Trezise, op. cit.

examined would be as one of several possible mechanisms for improving the flow of information to industry. Even the most ardent enthusiasts of the market recognize that a complete and reliable diffusion of information is crucial to its proper performance. For example, Germany, which has always eschewed a planning approach, does place great emphasis on dissemination, to industry, of detailed information on structural trends and specific technical developments.^{16/} A part of this is her system of "structural reports," the first of which was submitted in 1979. Of course, it can be argued that planning is not only a device for disseminating information; it also represents a valuable mechanism for establishing dialogue and, possibly, consensus among the different interest groups in particular industries. It is certainly true that Japanese planning involves a high level of interaction between senior businessmen and public officials. But if a consensus emerges from this, it is because the conditions for a consensus (some of which we discussed in the previous section) are already there. In the case of Britain where the conditions are not present, there is no evidence that the rather sophisticated planning process introduced by the Labour government in 1975 (i.e., a system of 39 sector working parties) had any significant effect in helping to achieve the restructuring of key industries, although it certainly did increase dialogue about this. The conflicts between labor and capital within these working groups, combined with the difficult macro-economic background, rendered them virtually impotent to deliver the implementation of restructuring which their deliberations showed to be necessary.^{17/}

4.07 Assuming that planning's prime function in the OECD countries is one of several possible mechanisms for the better dissemination of information, what conclusions can be drawn about the contribution of such mechanisms to the restructuring process? Unfortunately, there is no obvious method, for example, of establishing the size of the benefits which

^{16/} In this context, it is significant that in some LDCs, the last thing that happens to reports on industry is their dissemination to industrialists.

^{17/} Wyn Grant, The Political Economy of Industrial Policy (Cambridge: Butterworths, 1982).

German industry has derived from the copious information with which it has been supplied by government. What can be said however, is that information comes relatively cheaply (compared with many services governments provide), and ought to be provided in abundance as an important aspect of restructuring in any mixed economy.

Role of Banks

4.08 We next turn to an analysis of one of several institutional factors which do seem to involve major differences between countries, namely, the role of banks in restructuring. This has two aspects. First, where governments exert close direct or indirect control over bank loan portfolios, this provides a mechanism through which they can influence structural changes in particular industries or companies. Credit allocation has certainly been a key element in France's industrial policy (even before the extensive bank nationalizations of 1981), as well as that of Japan through the Japan Development Bank, and earlier, the Reconstruction Finance Bank. Second, even where the banks are not controlled by government, the way in which they inter-relate with their industrial clients has an extremely important bearing on how restructuring proceeds and whether it needs the intercession of government.

4.09 There is a very considerable variability in the bank-industry relationship across the six countries we have examined. The German arrangements are particularly interesting in this respect. In Germany, the banks are the largest source of external financing to industrial companies. They are responsible for a high proportion of voting rights in these companies (36% in the top 100 companies), and, through their inter-linked representation on the supervisory boards of companies maintain a high degree of sub-sectoral or even industry level information.^{18/} This situation produces a very strong commitment of the banks to the industrial sector (a commitment much envied in the U.K.), but also transfers prime

^{18/} John Cable and Paul Turner, "Asymmetric Information and Credit Rationing: Another View of Industrial Bank Lending and Britain's Economic Problem," University of Warwick, April 1983 (mimeo).

responsibilities to the banks when things begin to go wrong. The banks therefore represent an important pressure for rationalization and restructuring of production when the need for it arises, as well as a ready source of financial support for it. This may be one reason why the state's support function to industry is more limited in Germany than it has been in Britain, where the relationship of banking to industry is an arm's-length one. Italy probably represents the sharpest contrast to Germany in this regard amongst the countries we have studied. In Italy there are numerous difficulties with effective banking support to industrial restructuring. Not the least of these are the proliferation of numerous small banks, the unusually short maturity structure of banks lending and the handicap of central bank interventions some of which (notably credit ceilings) are forced by Italy's generally chronic macroeconomic difficulties.

4.10 In Sweden, although the banks are not allowed to hold stock, they are still a major source of industrial long-term finance through industrial bonds, and they are represented on the boards of major companies. Each major company usually deals primarily with only one bank, and as in Germany, the commercial banks accept a major responsibility when things begin to go wrong. In general they seem to have exercised this responsibility well. However, there are cases such as shipbuilding and steel, where the government has short-circuited the types of intervention which the banks are likely to have organized, in order to prevent the looming unemployment problems. In the case of shipbuilding there is at least a suggestion that this preempting of the banks' role may have produced a long-term loss of capacity larger than necessary. By cutting capacity too slowly and in the wrong places, the Swedish shipyards have lost momentum and market opportunities and so find themselves with a lower productive capacity than might have been possible if the rationalization program had been more definitive and commercially-oriented from the outset.

4.11 It is worth noting that the role of banks in some countries has evolved in a significant fashion as a consequence of the difficult economic conditions of the past decade. In Britain, in particular, the banks seem

to have made a significant response to the industrial crisis since the late 1970s by becoming more activist in relation to their industrial clients. The banks are acknowledged to have taken a leading part in restructuring the activities of client companies that have fallen on difficult times, and all major banks now maintain massive portfolios of lending to clients characterized as being in "intensive-care."^{19/} In some sense the banks had no choice but to go this route--the alternative of writing off apparently bad debts, using the criteria which would have applied before the crisis, would have cost them dear--but the development is nonetheless important.

4.12 Several important general propositions emerge from the active commercial bank involvement in restructuring as it applies in Germany and, increasingly, in Britain. First, it involves the danger that if banks merely provide "bail-out" finance without seeking genuine adjustment, then nothing is achieved (other than the eventual bankrupting of the banks). Second, there may be a presumption that the banks will do a better job of aiding restructuring than can the government since their knowledge of individual companies will be better and they will, after all, be seeking to protect their own portfolios rather than some loosely defined "public interest." Thus there is a case to be made for devising fiscal and other incentives to strengthen the banks' interest in accepting this role.^{20/} Against that there is the proviso that banks will not necessarily be able to influence the structure of a complete sector (e.g., the allocation of production to various individual companies) sufficiently to undertake the sectoral restructuring which a government might be able to attempt.

4.13 In cases where banks have less readily assumed the restructuring role that is standard in Germany, intermediate solutions have evolved which involve the collaboration of banks and government. In France, there is an

^{19/} See The Economist (March 26, 1983), p. 37.

^{20/} However, this only follows if the banks are substantially independent of government and they are allowed to pursue commercial objectives without too many hindrances.

interesting example of this in the form of the Comité Interministeriel de Reconstruction de l'Industrie (CIRI), established in 1981. Like its predecessor (CIASI),^{21/} CIRI is designed to organize the rationalization and rehabilitation of companies (especially medium-sized companies), encountering structural difficulties. It works by organizing various forms of financial assistance to the companies in return for specific, agreed programs of rationalization and reorganization. Although its work is closely coordinated with that of creditor banks, its influence on the construction of programs of support is often the dominant one. Also, by contrast with the German situation, it is able to blend together standard forms of bank lending to industry, with fiscal subsidies of various types and with devices such as the "prets participatifs" (quasi equity). During the period of the world recession it has been extremely active.^{22/}

Use of Holding Companies

4.14 A second institutional arrangement which has been extremely important in some countries is the device of the state holding company. Italy is the best example of this, and the largest of its two giant holding companies, namely IRI (Istituto per la Ricostruzione Industriale), is now the largest single industrial employer in Europe. It was founded in 1933 as a temporary agency of restructuring essentially designed to help resolve a serious banking crisis by acquiring a number of bad debts from the large deposit banks. But it became permanent in 1937 and thereafter through numerous acquisitions developed an extremely diversified involvement in numerous industrial and other sectors. As its name suggests, IRI always had the role of superintending a degree of sectoral restructuring but invariably with the handicap of having to take explicit account of a wide range of non-economic considerations (notably, the industrialization of the Mezzogiorno). The debate about the merits of powerful holding companies such as IRI and ENI has been endless. The most favorable view saw them in

^{21/} Committee for the Adaptation of Industrial Structures which operated from 1974 to 1981.

^{22/} Similar arrangements are provided through Law 675 in Italy.

the words of a former president of IRI as "an extremely elastic ductile instrument for obtaining public objectives with the minimum of resources on the part of the Treasury."^{23/}

4.15 This line of reasoning was also at the forefront of British thinking on the subject when the 1964 Labour Government founded the Industrial Reorganisation Corporation (IRC) and, in 1975 (again under a Labour Government) when the National Enterprise Board (NEB) was founded. In both these cases the hope was that those new holding companies could combine the social merits of public ownership with the market-oriented responses of private companies.

4.16 Similar arguments were voiced in Sweden where the company Statsforetag was created in 1970, notionally to relieve the Ministry of Industry of day-to-day operations of state-owned firms, but also for the ideological reason of proving that the state could manage businesses as well as private industry while, at the same time, taking proper account of wider social consideration.

4.17 But in both the Italian and the British cases, the theoretical merits of holding companies have been radically different from the reality. In Italy the sheer giantism of ENI and IRI appears to have made them powerful political units in their own right and probably able to exert more pressure on government than it could itself exert. Additionally to this, two main things seem to have gone wrong. First, both ENI in Italy and NEB in Britain have proved to be convenient repositories for large lame-duck companies (e.g., British Leyland and Rolls Royce), without being given the full authority or, indeed, the resources to organize the fundamental restructuring of operations which were called for. These large companies constituted an enormous financial burden on the holding companies which, certainly in the British case, undermined their ability to deal with other and more tractable problems. In Sweden too, Statsforetag has largely remained a conglomerate of failing firms with certain exceptions and

^{23/} G. Petrilli, Lo Stato Imprenditore, (Cappelli, 1967) p. 101.

notably the state-owned tobacco monopoly, the profits of which kept the conglomerate in reasonable overall health until the late 1970s. Subsequently, the decision has been made to break up the holding company into one unit to handle commercially viable operations, and several other units to deal with the other operations where state support is still required either for employment or for other reasons. These operations include mining, steel, commercial forestry and the Swedish Petroleum Company. Following this reorganization little remains of the initial concept of the state holding company.

4.18 Second, the wide set of non-economic objectives imposed on the companies, especially in Italy, destroyed any illusion that they could replicate the conditions of operation of a private company. Examples include the general requirement (beginning in 1957) that the companies allocate a minimum percentage of their investments to the South, and the requirement for IRI to move back into the textile sector to bail-out one large producer after a prior decision to leave that sector. In recent years the burden of these political pressures has been exacerbated by massive losses in many of IRI's long-established holdings (e.g., steel, shipbuilding and even telecommunications), and the financial position of most holding companies has become desperate (the Italian companies lost Lira 2.5 trillion in 1982). The experience, in general, does not commend the holding company arrangement as an effective device for organizing restructuring.

Use of Public Ownership

4.19 There is a third and related institutional issue which some would argue is important to the question of restructuring and this is public ownership. This issue belongs to the same category as economic planning already discussed. The public ownership of an industry is one way of addressing some of the problems of restructuring. But it is not the only way of addressing these problems; it is not necessarily better or worse than the alternatives, and whether it is an effective device to do the job will depend on a whole variety of background circumstances.

4.20 It is certainly clear that in large industries where market-inspired restructuring is frustrated by the distortions (probably associated with social considerations), discussed earlier, governments are highly prone to resort to public ownership as a "solution" to the problem. The reason is simple--the losses accumulated by a failure to restructure are large to the point where the companies concerned are technically bankrupt. At the same time the scale of their role in the economy makes it unthinkable that they could cease to operate; and since governments are therefore forced to mount a bail-out operation, they might resort to public ownership as one convenient way of arranging this. In steel, for example, the trend for increased public ownership of the industry coincides significantly with the mounting restructuring problems facing most companies, and the increasing recognition of the inability of markets to handle these. Japan and the U.S. are the clear exceptions to this general proposition. In France, it was very apparent that the formality of steel nationalization at the end of the 1970s followed a period when the companies were to all intents and purposes under public control. The same is true of British Leyland in the U.K. and the major steel and shipbuilding companies in Sweden nationalized in 1977.

4.21 Our comparisons across the six countries suggest then that nationalization may sometimes be an almost endogenous event over which governments have little discretion. Furthermore, to the extent that governments deal with the social problems that the failure of market-inspired restructuring creates by means other than nationalization, there is no evidence that it is any easier to handle the social pressures against restructuring by keeping the companies private rather than by nationalizing them. The distinction between public and private ownership is less important than the distinction between good and bad management (and many public enterprises in the OECD are now very well managed), qualified by the proposition that even good management is unlikely to function well if forced to pursue a wide range of social as well as commercial objectives.

4.22 Another institutional difference between countries which seems to be important is the institution of bankruptcy. For the reasons discussed

earlier, an efficient mechanism for the re-pricing of capital in response to output price changes is an important element of capital market efficiency. At least two countries covered in this study, namely Italy and Germany, have introduced short-cut routes to bankruptcy which should, on the face of it, increase the ability of capital markets to adjust to restructuring requirements. In the case of Germany, the system of "Vergleich" provides that (with the consent of a majority of creditors and other safeguards) a loss-making company can write off up to 65% of its debts, thereby increasing the likelihood of a new injection of capital without government intervention. In Italy, Law 95 (the Prodi Law) provides for a temporary freezing of a company's debts pending agreed action on restructuring. These measures are of potential importance in strengthening capital markets.

The Degree of Consistency Of Approach

4.23 Our review confirms that there is very little consistency in the approach to industrial restructuring in any of the countries we have studied. The degree of intervention as well as the instruments of intervention have changed through time in all of the countries we have considered. This point is particularly important to stress for Japan where the popular view is of a carefully pre-meditated program for industrial evolution, implemented and sustained over a long period of time. The reality seems to be rather different not only in relation to the emphasis on particular industries (which obviously did change), but also in relation to the instruments of intervention. In the early post-war years, MITI could make use of a complete control over foreign transactions and extensive control over access to capital. Now, with capital markets and international transactions essentially free of formal control, the government's authority is limited to tax policy, direct financing of research and temporary powers to administer cartels. MITI like other large organizations has resisted the pressures to relinquish power even though the instruments which were the source of that power were progressively removed by liberalization. For example, some commentators have seen its involvement in the development of knowledge-intensive industries as a means

of preserving its bureaucratic rationale even when its control functions have substantially diminished. On other occasions it may have attempted to attribute to itself the credit for certain industrial developments which are largely the consequences of private initiative.

4.24 Japan's industrial policy--like that of Germany, France and all the other countries--has had to change as underlying circumstances have changed. The degree to which these changes are endogenous, and therefore beyond the discretion of governments, is extremely difficult to assess in general terms. However, our inclination would be to suggest a rather limited degree of discretion in most cases. The clearest evidence for this view would be from the British experience where the sharply different political philosophies of the leading political parties have not generated radically different approaches to the types of intervention which have recently been practiced in different industries. What is different about the approach of the present Conservative government as opposed to its Labour predecessor, has been a willingness to establish a macro-economic environment in which numerous overdue resources shifts have been somewhat easier for the private sector to engineer. But in those specific industries where the government itself has had to take a role, the money it has needed to spend for this purpose, the legislation which authorizes such expenditures, and the instruments of intervention have not changed very significantly (assuming, as we argued above that nationalization or de-nationalization per se may not fundamentally change the nature of a government's involvement in restructuring an industry). In Sweden too, the socialization of industry which took place under the non-socialist coalition from 1976-82 far exceeded that of earlier years when Social Democrats were in power. It is also remarkable that there has been little public debate in Sweden about the desirability of government support to steel, shipyards and other industries. Certainly there was no real opposition in Parliament no matter who was in power and it seems unlikely that policy would have been any different had the political roles been reversed.

How Successful Is Intervention?

4.25 In measuring success, it is pertinent to enquire what expectation one should have about a government intervention in restructuring. If that intervention is forced by a market failure linked with one or more of the social considerations discussed earlier, then it is clear that those considerations will not go away just because the government intervened. Indeed it would not be unreasonable for a government in such a situation to merely accept the social costs of operating a company on behalf of the taxpayer, and do little or nothing to improve its economic performance. Governments in some countries and notably Italy, France and Britain have sometimes regarded themselves as having a positive duty in this regard and have seen public ownership, for example, as being justified by its ability to maintain inefficient manning levels in particular industries. This being the case, intervention clearly cannot be successful if success is judged purely in economic terms. Certainly the country comparisons show that many interventions in older and heavier industries have been dramatically unsuccessful in their economic and commercial effects.

4.26 A clear example is the British shipbuilding industry where it is evident that the majority of the money made available by government has been motivated first and foremost by the desire to protect the industry and above all to maintain employment in the main shipbuilding areas all of which suffer high unemployment. This is true even of forms of assistance which have been explicitly linked with restructuring as an objective. In reality the closure of yards and the liberalization of restrictive union practices have been far harder to achieve than the numerous organizational changes which governments have implemented. In other instances, (e.g., steel in Britain and France), genuine adjustment has only been implemented when the circumstances of the industry have become critical (late 1970s), rather than observably bad (mid-1970s). It is difficult to say whether governments have delayed adjustment in these cases (and thereby intensified the size of the eventual restructuring problem), relative to what would have happened in the absence of intervention. However, intervention

certainly did not lead to quick and prompt resource movements in response to downward revisions of demand prospects.

4.27 In short, given that government intervention was probably unavoidable (because of the nature of the market failures), in several of the large labor-using industries, a prompt redirection of resources as a result of that intervention was hardly to be expected, and certainly is far from evident in the few cases we have studied.

4.28 A second major conclusion is that where governments have intervened predominantly in the context of a positive restructuring operation, that intervention can be successful if a sufficient policy commitment is accepted and sustained. The automotive industry in France is a good example, especially if a contrast is made with policies towards the same industry in Britain. Although the French government has tried to maintain an arms-length relationship with its leading car producers, it has been ready to provide large-scale financial assistance when this has been needed to support its preferred direction of rationalization. It has also been prepared to intervene actively in the reorganization of the components sector which it saw to be a serious handicap to the maintenance of internationally competitive car production. Above all, it has been prepared to be far more protective of its domestic market than has been the case in the other volume car producers of the OECD. In Britain, by contrast, until quite recently, intervention in the car industry involved a series of ad hoc rescue plans which evolved and changed with changing diagnoses and political attitudes. Only after 1979 were plans geared to raising productivity, through a significant pruning operation, laid down on an apparently long-term basis. At most times trade and other more general policy instruments were not used to support the industry.

4.29 In short, intervention is more likely to succeed if rationalization and restructuring can be organized on a long-term consistent basis and be given strong, committed policy support through the involvement of a comprehensive package of policy instruments.

4.30 Third, while the private sector is adept at picking winners (witness the large number of extremely successful products and companies which have emerged in the U.S. and British semi-conductor and computer industries), there is no evidence that governments are particularly bad at it either. But identifying likely product successes of the future is one thing; establishing effective intervention mechanisms to encourage the efficient manufacture of these products is quite another. Both the British and French experiences in the computer industry suggest that it is all too easy to put too many eggs in the basket of a few easily identified enterprises which the bureaucrats see as potentially able to respond to the observed future need. The reality in that industry, by contrast, is that enormously successful and giant companies have emerged in the space of a few years from modest beginnings and from a field of thousands of starters, most of whom achieve very little. In this situation it might be argued that the best government policy is to stay out of the game. However, to the extent the government perceives a need to correct the externality referred to earlier, a policy of sowing many seeds in the expectation that only a few will germinate, seems logically the most coherent way to go. In other words, an approach to supporting R&D and technological innovation in industry closer to that of the Germans than the British would seem desirable.

4.31 There is one sense in which governments do have the edge in picking winners compared with the private sector. Because they are able to support their assessments with a potentially massive array of policy instruments, they can make a significant impact on the probability of their assessment turning out to be correct. Perhaps the clearest example of this would be the French commitment to defense and nuclear industries which is supported not only by economic interventions but also by political and diplomatic ones. But even this could go wrong, since the scale for these industries which the French are targetting is dependent upon certain levels of international demand which French policy cannot control. In particular, the extremely large capacity to manufacture light water reactors in Framatome has the potential to become a white elephant of major proportions

when the pace of French government orders for these reactors slows down as it inevitably must.

4.32 The main difference between government and the private sector in this regard is not in relation to its treatment of winners, but in relation to its treatment of losers. In a well-functioning private sector, the process of eliminating bad products or bad technologies, even in fast growing industries, is very effective and the "losers" are invariably eliminated before they have the opportunity to pre-empt large quantities of resources that could better be employed elsewhere. At the same time, there is a continuous re-evaluation of the validity of earlier resource allocation decisions which, until the production unit becomes large, are readily reversed. The very nature of a government involvement, on the other hand, implies a decision to turn a blind eye to "temporarily" unsatisfactory commercial results and to use general tax receipts to permit an operation to continue in spite of these. Once this implicit decision has been made it becomes extremely difficult to make the quick "cut and run" decisions which are the hallmark of the private markets, and large errors in relation to the commitment of resources can easily arise. It is in this sense that the British Government support of ICL and the French Government support of Honeywell-Bull were wrong even though the general areas of technology in which these companies operated was clearly worthy of support.

4.33 In the area of new technology, by far the most effective approach seems to be for governments to redress the failings of perceived markets by providing general support for scientific research in particular areas and ensuring that subsidies for the commercial development of research ideas are made widely available. In this way the market could be allowed to make the numerous microeconomic decisions about which particular companies are best able to exploit the results of the research, and to benefit from available subsidies. To the extent that these decisions are incorrect, the vested interests in the political process or the bureaucracy would have only limited need or indeed ability to pre-empt the cut and run decisions that should follow.

4.34 Finally, and possibly the most interesting aspect of the discussion on the effectiveness of intervention, is the frequency with which the private sector seems able to thwart its intentions. Examples of this abound in Japan. In 1950 for example, when MITI still maintained hefty controls, Kawasaki Steel went ahead with plans to enlarge capacity against Bank of Japan and MITI guidance. The decision proved correct, as the Korean war and accelerating Japanese growth created ample steel demand. Something rather similar happened with Sumitomo Steel's expansion in 1960. More recently, in 1978 the Stabilization Scheme to eliminate 2.7 million tons of steel capacity was fully realized but meantime 6 million tons of new capacity had been created elsewhere in the system. In the automobile sector, MITI was successful in protecting the industry but not in controlling its behavior. For example, MITI strongly opposed, but could not prevent, the 1969 agreement by Chrysler to market Mitsubishi cars in the United States. By virtue of that agreement, Mitsubishi became the third largest Japanese manufacturer virtually overnight.^{24/} In 1975, MITI pointedly failed to rescue the Toyo Kogyo (Mazda) Co., but the company was later rehabilitated and restructured by its main creditor bank and has gone on to considerable success. In Sweden too, numerous attempts to merge speciality steel producers have failed. The producers have carried on in the face of these efforts and, in most cases, with a fair degree of success.

^{24/} C. Johnson, MITI and the Japanese Miracle (Stanford, Calif.: Stanford University Press, 1982).

V. CONCLUSION

5.01 Since this paper already represents the distillation of certain relevant issues from a topic which is extremely complex both theoretically and descriptively, no attempt will be made to draw comprehensive conclusions from the arguments we have presented. However, some final remarks about the role of intervention in the process of restructuring may be helpful. For this purpose we can return to the two-way typology which we earlier used to characterize the possible meanings of "restructuring." This can be represented in the simple six-element matrix shown below:

Restructuring at the level of Motivation	The Individual Company	A Sub- Sector	The Whole Economy
Positive	A	B	C
Defensive	D	E	F

5.02 To the extent that a government gets involved in the process of defensive restructuring, both the conceptual arguments and the descriptive evidence suggest that it is more likely to get involved at the micro level (i.e., with the cells labelled D and, to a lesser extent E). Furthermore, while the arguments focusing on economic efficiency indicate that such interventions should be designed to speed-up the re-allocation of resources that are necessitated by changing circumstance, the evidence for most countries is that the government's role has normally worked in the opposite direction and has sought to retard this re-allocation. While this may be regarded as inevitable, given the severe social consequences associated with a government behaving any differently, it is not necessarily desirable.

5.03 There may be very considerable gains to be made by governments paying more attention to the precise source of market failure which is preventing a desirable resource re-allocation and designing their policies accordingly. In addition, the design of policies for the defensive restructuring of individual companies could be improved if they could be considered by fuller reference to the re-shaping of industry in the economy taken as a whole (i.e., more attention to cell F of the matrix). Thus a policy, as epitomized by the Germans, of placing great emphasis on measures to increase labor mobility and disseminating information about new areas of potential investment is likely to be a more effective approach than one which constructs a series of ad hoc solutions to the problems of individual distressed companies. To the extent that social problems such as unemployment arise from a proposed defensive restructuring, they are normally better dealt with through interventions which do not pre-empt the adjustment at the level of the individual company. This in turn is a strong argument for leaving as much as possible of the detailed design of restructuring operations to micro-based commercially-oriented organizations such as banks, rather than involving the more distant and politically motivated bureaucracy of government whether in the form of state holding companies or the general civil-service.

5.04 In the case of positive restructuring, the role of government is somewhat different. Here, the useful analogy taken from Japanese experience would be of the government having a "vision" of its country's industrial future. Furthermore, this vision is likely to be defined at the economy-wide level and make little reference to individual companies (i.e., cell C rather than A would be emphasized). The ambition of many governments to move their industry in the direction of information technology is a good recent case in point. Here the emphasis would be for the government to concentrate on policies that create the environment in which investments in the desired new areas can thrive. An example would be the legitimate role of government in supporting the basic scientific research from which new industrial technologies can arise. While they might also back up such research by ensuring that subsidies for the commercial development of research ideas are made widely available, it

would normally be difficult for government to effectively target such subsidies on individual companies and products (i.e., to enter cell A). To the extent that governments extend their support for new developments too far towards the micro-end of the spectrum, the process whereby poor investments are speedily undone through the judgments of the market will be in danger of pre-emption by political pressures and overall industrial efficiency will consequently suffer. As argued earlier, it may not be so much in its ability to spot winners that government is at a disadvantage, but in its ability to cut its losses with losers before they pre-empt excessive scarce resources. Policies which support distressed companies, because they happen to be involved in important new technological areas, is not a good way for governments to accelerate the process of positive restructuring.

5.05 Market forces do not always work in "textbook" fashion and smoothly re-allocate resources and restructure industry in response to the many changes in exogenous variables that characterize the economic environment. Much social, economic and, of course, "political" pain can be associated with the restructuring process, and distributional considerations are often hard to separate from purely efficiency-oriented objectives. Experience would seem to suggest, however, that government intervention that systematically looks for and attempts to (i) correct market failures; (ii) increase the mobility of factors; (iii) increase the amount of information readily available to the various economic actors without attempting to be coercive, has the best chance of being successful. To achieve such a consistent, market-supporting approach, it may well be useful to look at all policy measures affecting industry and industrial restructuring in a systematic way rather than let these policies evolve in response to particular political pressures in an ad hoc and uncoordinated manner. Coordinated and systematic industrial policy may be desirable, not as a means of increasing government intervention, but in order to rationalize and limit the proliferation of the many interventions that the workings of a complex industrial society inevitably tend to generate.

World Bank Publications of Related Interest

A Brief Review of the World Lube Oils Industry

A. Ceyhan, H. Kohli, L. Wijetilleke, and B.R. Choudhury

This report assesses the structure, background, and outlook for the world lube oils industry. Presents the historical and projected lube oils demand and trends in manufacturing technologies and production capacity and provides an indicative assessment of the economics of lube oil production with detailed market and economic data.

Energy Industries Report Series No. 1.

1982. 48 pages (including 13 annexes, references).

ISBN 0-8213-7054-7. Stock No. BK 0054. \$3.

Capital Utilization in Manufacturing: Colombia, Israel, Malaysia, and the Philippines

Romeo M. Bautista, Helen Hughes, David Li, David Morawetz, and Francisco E. Thoumi

The authors surveyed 1,200 manufacturing firms in four developing countries to establish actual levels of capital utilization. The information collected was the first and remains the only data base available for the study of capital utilization. It was found that capital utilization is not as low as had been supposed. The study is concerned with factors that cause differences in levels of capital utilization and the policies that might be used to increase it.

Sector Policy Paper, No. 377. 288 pages (including references, index).

ISBN 0-8213-7054-7. Stock No. BK 0054. \$3.

The Construction Industry: Issues and Strategies in Developing Countries

Ernesto E. Henriod, coordinating author

Presents a profile of the construction industry. Points out that construction work represents 3 to 8 percent of the gross domestic product of developing countries. Fostering a domestic capability in construction, therefore, is important. Discusses problems and constraints of the industry and formulates strategies for future actions. Draws heavily from the experience of the World Bank in supporting domestic construction industries over the past ten years. Useful to contractors, engineers, and administrators in construction industry.

1984. 120 pages.

ISBN 0-8213-0268-X. Stock No. BK 0268. \$5.

Cost-Benefit Evaluation of LDC Industrial Sectors Which Have Foreign Ownership

Garry G. Pursell

Staff Working Paper No. 465. 1981. 45 pages.

Stock No. WP 0465. \$3.

Development Finance Companies

Examines the role of development finance companies as major mechanisms for assisting medium-scale productive industries, assesses their potential for aiding small enterprises in meeting socioeconomic objectives of developing countries, and discusses the evolution of World Bank assistance to them.

Sector Policy Paper. 1976. 68 pages (including 7 annexes).

Stock Nos. BK 9040 (English), BK 9058 (French), BK 9041 (Spanish). \$5.

Empirical Justification for Infant Industry Protection

Larry E. Westphal

Staff Working Paper No. 445. 1981. 38 pages (including references).

Stock No. WP 0445. \$3.

Employment and Development of Small Enterprises

David L. Gordon, coordinating author

Examines the potential role of the World Bank in encouraging developing countries to assist small enterprises and suggests that efficient substitution of labor for capital is possible in a broad spectrum of small-scale manufacturing and other activities that are able to absorb a rapidly growing labor force.

Sector Policy Paper. 1978. 93 pages (including 3 annexes).

Stock Nos. BK 9060 (English), BK 9061 (French), BK 9062 (Spanish). \$5.

Estimating Total Factor Productivity Growth in a Developing Country

Anne O. Krueger and Baran Tuncer

Staff Working Paper No. 422. 1980. 64 pages (including references, appendix).

Stock No. WP 0422. \$3.

Financing Small-Scale Industry and Agriculture in Developing Countries: The Merits and Limitations of "Commercial" Policies

Dennis Anderson and Farida Khambata

Staff Working Paper No. 519. 1982. 41 pages (including references).

ISBN 0-8213-0007-5. Stock No. WP 0519. \$3.

Fostering the Capital-Goods Sector in LDCs: A Survey of Evidence and Requirements

Howard Pack

Staff Working Paper No. 376. 1980. 64 pages (including references).

Stock No. WP 0376. \$3.

Incorporating Uncertainty into Planning of Industrialization Strategies for Developing Countries

Alexander H. Sarris and Irma Adelman

Staff Working Paper No. 503. 1982. 58 pages (including appendix, references).

Stock No. WP-0503. \$3.

Industrialization and Growth: The Experience of Large Countries

Hollis Chenery

Staff Working Paper No. 539. 1982. 38 pages.

ISBN 0-8213-0097-0. Stock No. WP 0539. \$3.

Industrial Prospects and Policies in the Developed Countries

Bela Balassa

Staff Working Paper No. 453. 1981. 30 pages (including appendix).

Stock No. WP 0453. \$3.

Industrial Strategy for Late Starters: The Experience of Kenya, Tanzania and Zambia

Ravi Gulhati and Uday Sekhar

Staff Working Paper No. 457. 1981. 63 pages (including references, annex).

Stock No. WP 0457. \$3.

Korean Industrial Competence: Where It Came From

Larry E. Westphal, Yung W. Rhee, and Garry G. Pursell

Staff Working Paper No. 469. 1981. 76 pages (including references).

Stock No. WP 0469. \$3.

NEW

Location Factors in the Decentralization of Industry: A Survey of Metropolitan Sao Paulo, Brazil

Peter M. Townroe

Focuses on decisionmaking procedures for industrial companies that are establishing new plants or relocating their plant sites. Some 581 industrial companies in Brazil participated in a 1980 survey to determine company motives for seeking a new site or building. Appendixes include nine detailed tables useful to industrial planners and company plant developers.

Staff Working Paper No. 517. 1983. 112 pages.

ISBN 0-8213-0005-9. Stock No. WP 0517. \$5.

Macroeconomic Implications of Factor Substitution in Industrial Processes

Howard Pack

Staff Working Paper No. 377. 1980. 67 pages (including bibliography).

Stock No. WP 0377. \$3.



Made in Jamaica: The Development of the Manufacturing Sector

Mahmood Ali Ayub

This book, the first detailed study of Jamaica's manufacturing sector, provides a comprehensive assessment of the important characteristics of the sector and of its structure. It relates the development of the sector during the past two decades, describes the extent of protection provided to the sector in 1978, and examines the prospects for growth of manufactured exports during the coming years. Policy recommendations are made on the basis of this analysis.

The Johns Hopkins University Press, 1981. 144 pages.

LC 80-27765. ISBN 0-8018-2568-7, Stock No. JH 2568, \$6.50 paperback.

Managerial Structures and Practices in Manufacturing Enterprises: A Yugoslav Case Study

Martin Schrenk

Staff Working Paper No. 455. 1981. 104 pages (including 4 appendixes).

Stock No. WP 0455. \$5.

Managing State-Owned Enterprises

Mary M. Shirley

Discusses efficiency of state-owned enterprises. Gives the nature and size of this sector, including industrial and commercial firms, mines, utilities, transport companies, and financial intermediaries controlled to some extent by government. Tells how to increase the sector's efficiency by defining objectives, controlling without interference, holding managers accountable for results, and designing managerial skills and incentives. Includes bar graphs and charts of information for 24 developing and developed countries.

Staff Working Paper No. 577. 1983. 116 pages.

ISBN 0-8213-0241-8. Stock No. WP 0577. \$5.

Manufacture of Heavy Electrical Equipment in Developing Countries

Ayhan Çilingiroğlu

Analyzes growth and competitiveness, comparing prices and costs with those in the international market.

The Johns Hopkins University Press, 1969. 235 pages (including 2 annexes).

LC 76-89962. ISBN 0-8018-1097-3, \$5.50 paperback.

Spanish: *Fabricación de equipo eléctrico pesado en los países en desarrollo*. Editorial Tecnos, 1971. \$5.50 paperback.

The Mining Industry and the Developing Countries

Rex Bosson and Bension Varon

An overview of the world's nonfuel mining industry, its structure and operation, and the major factors bearing on them.

Oxford University Press, 1977; 3rd printing, 1984. 304 pages (including 12 appendixes, bibliography, index).

LC 77-2983. ISBN 0-19-920096-3, Stock No. OX 920096, \$29.50 hardcover; ISBN 0-19-920099-8, Stock No. OX 920099, \$14.95 paperback.

French: *L'industrie minière dans le tiers monde*. Economica, 1978. ISBN 2-7178-0030-1, Stock No. IB 0538, \$14.95.

Spanish: *La industria minera y los países en desarrollo*. Editorial Tecnos, 1978. ISBN 84-309-0779-3, Stock No. IB 0521, \$14.95.

Occupational Structures of Industries

Manuel Zymelman

Eighty-four tables profile the occupational composition of industries in each of twenty-six countries. Data show the structure of employment by sectors and industries for each country; cross-classify 120 occupations with fifty-eight industries; and provide information about productivity (value added per person engaged), energy consumption per person engaged, and employment.

1980; second printing, 1982. 211 pages.
ISBN 0-8213-0126-8. Stock No. BK 0126.
\$20.

Policies for Industrial Progress in Developing Countries

John Cody, Helen Hughes, and David Wall, editors

Analysis of the principal policy issues that influence the course and pace of industrialization in the developing countries. The text, organized along lines of governmental administrative responsibility for various industrial policies, includes chapters on trade, finance, labor-technology relations, taxation, licensing and other direct production controls, public enterprises, infrastructure and location, industry-agriculture linkage, and the international environment.

Oxford University Press, 1980; 2nd printing, 1982. 325 pages (including bibliography, index).

LC 79-24786. ISBN 0-19-520176-0, Stock No. OX 520176, \$24.95 hardcover; ISBN 0-19-520177-9, Stock No. OX 520177, \$9.95 paperback.

Pollution Control in Sao Paulo, Brazil: Costs, Benefits, and Effects on Industrial Location

Vinod Thomas

Staff Working Paper No. 501. 1981. 127 pages (including annex, references).
Stock No. WP 0501. \$5.

The Process of Industrial Development and Alternative Development Strategies

Bela Balassa

Staff Working Paper No. 438. 1980. 42 pages (including appendix).

Stock No. WP 0438. \$3.

Public Subsidies to Industry: The Case of Sweden and Its Shipbuilding Industry

Carl Hamilton

Examines the reasons for the high government subsidies given to the Swedish shipbuilding industry during the recession period of the 1970s. Sweden's approach to the shipbuilding problem is compared with the adjustment made by Japan when it faced a similar situation. Concludes that a stabilization policy is important in achieving the objective of full employment.

Staff Working Paper No. 566. 1983. 52 pages.

ISBN 0-8213-0196-9. Stock no. WP 0566. \$3.

Restructuring of Manufacturing Industry: The Experience of the Textile Industry in Pakistan, Philippines, Portugal, and Turkey

Barend A. de Vries and Willem Brakel

Views the restructuring and modernization of manufacturing from the perspective of World Bank assistance in the textile industry. Evaluates the roles of government, the financial system and the private sector in restructuring.

World Bank Working paper No. 558. 1983. 59 pages.

ISBN 0-8213-0151-9. Stock No. WP 0558. \$3.

The Planning of Investment Programs

Alexander Meeraus and Ardy J. Stoutjesdijk, editors

Series comprising three volumes (to date) that describe a systematic approach to investment planning, relying primarily on mathematical programming techniques. Includes both general methodological volumes and studies dealing with specific industrial subsectors.

Volume 1: The Planning of Industrial Investment Programs: A Methodology

David A. Kendrick and Ardy J. Stoutjesdijk

The analytical approach with special emphasis on the complications arising from economies of scale; a helpful introduction to linear and mixed-integer programming, facilitating understanding of subsequent volumes in the series.

The Johns Hopkins University Press, 1979. 144 pages (including index).

LC 78-8428. ISBN 0-8018-2139-8, Stock No. JH 2139, \$18.50 hardcover; ISBN 0-8018-2152-5, Stock No. JH 2152, \$12 paperback.

French: *La programmation des investissements industriels: methode et etude de cas. Economica*, 1981. (Combines translation of this book with that of the case study of the fertilizer industry in Volume 2, below.) ISBN 2-7178-0328-9, Stock No. IB 0544, \$12.

Volume 2: The Planning of Investment Programs in the Fertilizer Industry

Armeane M. Choksi, Alexander Meeraus, and Ardy J. Stoutjesdijk

Discusses the main products and pro-

cesses of relevance to fertilizer production and a systematic description of the planning problems that need to be addressed during the project identification phase.

The Johns Hopkins University Press, 1980. 320 pages.

LC 78-8436. ISBN 0-8018-2138-X, Stock No. JH 2138, \$25 hardcover; ISBN 0-8018-2153-3, Stock No. JH 2153, \$15 paperback.

NEW

Volume 3: The Planning of Investment Programs in the Steel Industry

David A. Kendrick, Alexander Meeraus, and Jaime Alatorre

As a supplier of both capital equipment and materials for further processing, the steel industry has a substantial effect on the cost structure and competitiveness of other economic activities. Its own cost structure, however, depends to a large extent on the efficiency of past investments.

Provides an overview of the technology of steel production, and the problems of investment analysis in this industry, and contains an application of investment analysis to the Mexican steel industry. Introduces a new economic modeling language, GAMS, which decreases the time and effort required to construct and use industrial sector models.

The Johns Hopkins University Press. 1984. 328 pages.

LC 83-18722. ISBN 0-8018-3197-0, Stock No. JH 3197, \$30 hardcover; ISBN 0-8018-3198-9, Stock No. JH 3198, \$15 paperback.

Small Enterprises and Development Policy in the Philippines: A Case Study
Dennis Anderson and Farida Khambata

Staff Working Paper No. 468. 1981. 239 pages (including bibliography, annex). Stock No. WP 0468. \$10.

Small Industry in Developing Countries: Some Issues
Dennis Anderson

Staff Working Paper No. 518. 1982. 77 pages (including references). ISBN 0-8213-0006-7. Stock No. WP 0518. \$3.

Small-Scale Enterprises in Korea and Taiwan
Sam P.S. Ho

Staff Working Paper No. 384. 1980. 157 pages (including 4 appendixes). Stock No. WP 0384. \$5.

NEW

Sources of Industrial Growth and Structural Change: The Case of Turkey
Merih Celasun

Considers the role of Turkey's public and private sectors in the industrial transition since the 1950s. Compares Turkey's trade prospects in the 1980s with growth in earlier periods of development as well as growth in other semi-industrial countries.

Staff Working Paper No. 614. 1983. 188 pages. ISBN 0-8213-0283-2. Stock No. WP 0614. \$5.



State Manufacturing Enterprise in a Mixed Economy: The Turkish Case
Bertil Wälstedt

Traces the historic roots of "etatism" and reviews the performance of six major state industries in Turkey.

The Johns Hopkins University Press, 1980. 354 pages (including appendixes, index).

LC 78-21398. ISBN 0-8018-2226-2, Stock No. JH 2226, \$30 hardcover; ISBN 0-8018-2227-0, Stock No. JH 2227, \$13.50 paperback.

NEW

Technological Change and Industrial Development: Issues and Opportunities
Frederick T. Moore

Identifies principal issues relating technological change to growth in industrial development. Draws upon the theoretical and empirical literature for an economic analysis of effective program designs. Projects underway in the engineering and capital goods industries suggests methods for revising policies and promoting new technological information in industry.

Staff Working Paper No. 613. 1983. 96 pages.

ISBN 0-8213-0257-4. Stock No. WP 0613. \$3.

Transition toward More Rapid and Labor-Intensive Industrial Development: The Case of the Philippines

Barend A. de Vries

Staff Working Paper No. 424. 1980. 32 pages (including references, 12 tables).

Stock No. WP 0424. \$3.

Prices subject to change without notice and may vary by country.

Distributors of World Bank Publications

ARGENTINA

Carlos Hirsch, SRL,
Attn: Ms. Monica Bustos
Florida 165 4° piso
Galeria Guemes
Buenos Aires 1307

AUSTRALIA, PAPUA NEW GUINEA, FIJI, SOLOMON ISLANDS, WESTERN SAMOA, AND VANUATU

The Australian Financial Review
Information Service (AFRIS)
Attn: Mr. David Jamieson
235-243 Jones Street
Broadway
Sydney, NSW 20001

BELGIUM

Publications des Nations Unies
Attn: Mr. Jean de Lannoy
av. du Roi 202
1060 Brussels

CANADA

Le Diffuseur
Attn: Mrs. Suzanne Vermette
C.P. 85, Boucherville J4B 5E6
Quebec

COSTA RICA

Libreria Trejos
Attn: Mr. Hugo Chamberlain
Calle 11-13, Av. Fernandez Guell
San Jose

DENMARK

Sanfundslitteratur
Attn: Mr. Wilfried Roloff
Rosenderns Alle 11
DK-1970 Copenhagen V.

EGYPT, Arab Republic of

Al Ahram
Attn: Mr. Sayed El-Gabri
Al Galaa Street
Cairo

FINLAND

Akateeminen Kirjakauppa
Attn: Mr. Kari Litmanen
Keskuskatu 1, SF-00100
Helsinki 10

FRANCE

World Bank Publications
66, avenue d'Iéna
75116 Paris

GERMANY, Federal Republic of

UNO-Verlag
Attn: Mr. Joachim Krause
Simrockstrasse 23
D-5300 Bonn 1

HONG KONG, MACAU

Asia 2000 Ltd.
Attn: Ms. Gretchen Wearing Smith
6 Fl., 146 Prince Edward Road
Kowloon

INDIA

UBS Publishers' Distributors Ltd.
Attn: Mr. D.P. Veer
5 Ansari Road, Post Box 7015
New Delhi 110002
(Branch offices in Bombay, Bangalore,
Kanpur, Calcutta, and Madras)

INDONESIA

Pt. Indira Limited
Attn: Mr. Bambang Wahyudi
Jl. Dr. Sam Ratulangi No. 37
Jakarta Pusat

IRELAND

TDC Publishers
Attn: Mr. James Booth
12 North Frederick Street
Dublin 1

JAPAN

Eastern Book Service
Attn: Mr. Terumasa Hirano
37-3, Hongo 3-Chome, Bunkyo-ku 113
Tokyo

KENYA

Africa Book Services (E.A.) Ltd.
Attn: Mr. M.B. Dar
P.O. Box 45245
Nairobi

KOREA, REPUBLIC OF

Pan Korea Book Corporation
Attn: Mr. Yoon-Sun Kim
P.O. Box 101, Kwanghwamun
Seoul

MALAYSIA

University of Malaya Cooperative
Bookshop Ltd.
Attn: Mr. Mohammed Fahim Htj
Yacob
P.O. Box 1127, Jalan Pantai Baru
Kuala Lumpur

MEXICO

INFOTEC
Attn: Mr. Jorge Cepeda
San Lorenzo 153-11, Col. del Valle,
Deleg. Benito Juarez
03100 Mexico, D.F.

NETHERLANDS

MBE BV
Attn: Mr. Gerhard van Bussell
Noorderwal 38,
7241 BL Lochem

NORWAY

Johan Grundt Tanum A.S.
Attn: Ms. Randi Mikkelborg
P.O. Box 1177 Sentrum
Oslo 1

PANAMA

Ediciones Libreria Cultural Panamena
Attn: Mr. Luis Fernandez Fraguera R.
Av. 7, Espana 16
Panama Zone 1

PHILIPPINES

National Book Store
Attn: Mrs. Socorro C. Ramos
701 Rizal Avenue
Manila

SAUDI ARABIA

Jarir Book Store
Attn: Mr. Akram Al-Agil
P.O. Box 3196
Riyadh

SINGAPORE, TAIWAN, BURMA

Information Publications Private, Ltd.
Attn: Ms. Janet David
02-06 1st Floor, Pei-Fu Industrial
Building
24 New Industrial Road
Singapore

SPAIN

Mundi-Prensa Libros, S.A.

Attn: Mr. J.M. Hernandez
Castello 37
Madrid

SRI LANKA AND THE MALDIVES

Lake House Bookshop
Attn: Mr. Victor Walatara
41 Wad Ramanayake Mawatha
Colombo 2

SWEDEN

ABCE Fritzes Kungl, Hovbokhandel
Attn: Mr. Eide Segerback
Regeringsgatan 12, Box 16356
S-103 27 Stockholm

SWITZERLAND

Librairie Payot
Attn: Mr. Henri de Perrot
6, rue Grenus
1211 Geneva

TANZANIA

Oxford University Press
Attn: Mr. Anthony Theobald
Maktaba Road, P.O. Box 5299
Dar es Salaam

THAILAND

Central Department Store, Head Office
Attn: Mrs. Ratana
306 Silom Road
Bangkok

Thailand Management Association
Attn: Mrs. Sunan
308 Silom Road
Bangkok

UNITED KINGDOM AND NORTHERN IRELAND

Microinfo Ltd.
Attn: Mr. Roy Selwyn
Newman Lane, P.O. Box 3
Alton, Hampshire GU34 2PG
England

UNITED STATES

The World Bank Book Store
600 19th Street, N.W.
Washington, D.C. 20433
(Postal address: P.O. Box 37525
Washington, D.C. 20013, U.S.A.)

Baker and Taylor Company
501 South Gladiola Avenue
Mokence, Illinois, 60954

380 Edison Way
Reno, Nevada, 89564
50 Kirby Avenue
Somerville, New Jersey, 08876
Commerce, Georgia 30599

Bernan Associates
9730-E George Palmer Highway
Lanham, Maryland, 20761

Blackwell North America, Inc.
1001 Fries Mill Road
Blackwood, New Jersey 08012

Sidney Kramer Books
1722 H Street, N.W.
Washington, D.C. 20006

United Nations Bookshop
United Nations Plaza
New York, N.Y. 10017

VENEZUELA

Libreria del Este
Attn: Mr. Juan Pericas
Avda Francisco de Miranda, no. 52
Edificio Galipan, Aptdo. 60.337
Caracas 1060-A