

ESSAYS IN INTERNATIONAL FINANCE

No. 143, July 1981

---

INTERNATIONAL TRADE AND INVESTMENT:  
TWO PERSPECTIVES

---

MARINA v. N. WHITMAN



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

*This is the one hundred and forty-third number in the series ESSAYS IN INTERNATIONAL FINANCE, published from time to time by the International Finance Section of the Department of Economics of Princeton University.*

*The author, Marina v. N. Whitman, is Vice-President and Chief Economist of the General Motors Corporation. She has served as a member of the Price Commission and the Council of Economic Advisers and was for many years Distinguished Public Service Professor of Economics at the University of Pittsburgh. In addition to articles in various professional journals, she is the author of REFLECTIONS OF INTERDEPENDENCE: ISSUES FOR ECONOMIC THEORY AND U.S. POLICY (1979). This is her fifth contribution to the various series published by the International Finance Section. It was presented as the Frank D. Graham Memorial Lecture at Princeton University on March 5, 1981.*

*The Section sponsors the essays in this series but takes no further responsibility for the opinions expressed in them. The writers are free to develop their topics as they wish.*

**PETER B. KENEN, Director**  
*International Finance Section*

ESSAYS IN INTERNATIONAL FINANCE

No. 143, July 1981

---

INTERNATIONAL TRADE AND INVESTMENT:  
TWO PERSPECTIVES

---

MARINA v. N. WHITMAN



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

INTERNATIONAL FINANCE SECTION  
EDITORIAL STAFF

Peter B. Kenen, *Director*  
Ellen Seiler, *Editor*  
Linda Wells, *Editorial Aide*  
Kaeti Isaila, *Subscriptions and Orders*

*Library of Congress Cataloging in Publication Data*

Whitman, Marina von Neumann.

International trade and investment, two perspectives.

(Essays in international finance, ISSN 0071-142X; no. 143) (Frank D. Graham memorial lecture; 1981 Mar. 5)

Bibliography: p.

1. Commerce—Addresses, essays, lectures. 2. International economic relations—Addresses, essays, lectures. 3. Investments, Foreign—Addresses, essays, lectures. 4. Automobile industry and trade—Addresses, essays, lectures. I. Title. II. Series: Essays in international finance; no. 142. III. Series: Frank D. Graham memorial lecture; 1981 Mar. 5.

Frank D. Graham memorial lecture; 1981 Mar. 5.

HG136.P7 no. 143 [HF1008] 332'.042s 81-6326

[337'.09'048] AACR2

*Copyright © 1981 by International Finance Section, Department of Economics, Princeton University.*

All rights reserved. Except for brief quotations embodied in critical articles and reviews, no part of this publication may be reproduced in any form or by any means, including photocopy, without written permission from the publisher.

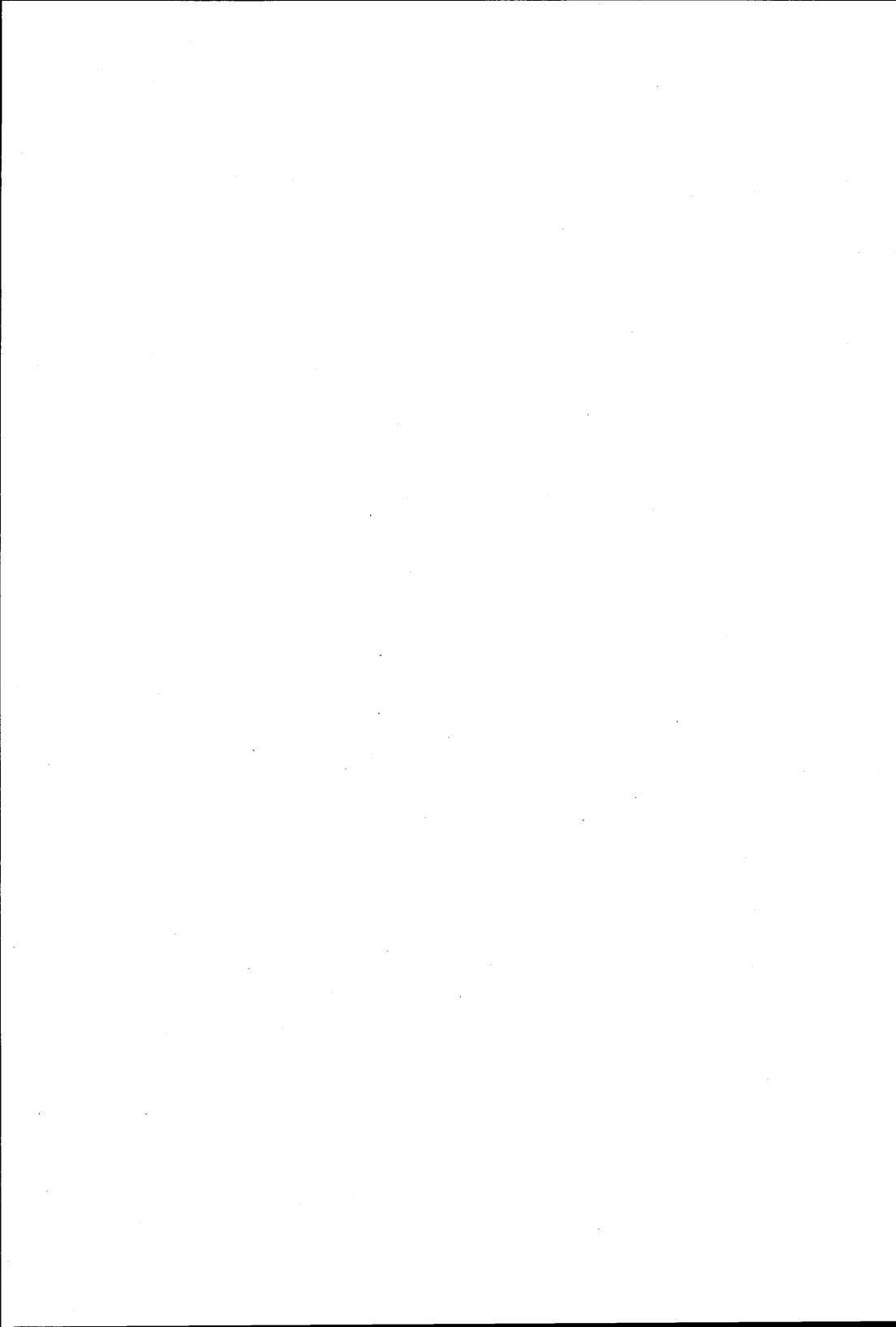
Printed in the United States of America by Princeton University Press at Princeton, New Jersey.

International Standard Serial number: 0071-142X

Library of Congress Catalog Card Number: 81-6326

# CONTENTS

INTRODUCTION	1
THEORIES OF INTERNATIONAL TRADE	3
THEORIES OF INTERNATIONAL INVESTMENT	5
CHANGING PATTERNS OF AUTOMOTIVE TRADE AND PRODUCTION	6
THE NATURE OF COST DIFFERENTIALS	9
WORLD CARS AND WORLDWIDE SOURCING	10
INVESTMENT DECISIONS: PRODUCT CYCLE, DIVERSIFICATION, AND POLITICAL RISK	12
THE MANAGEMENT OF EXCHANGE RISK	15
NATIONAL REQUIREMENTS AND INVESTMENT AND SOURCING DECISIONS	17
THE TRADE-POLICY DEBATE	20
FIRMS, GOVERNMENTS, AND ECONOMIC THEORY: EXPLAINING THE INTERACTIONS	23
REFERENCES	25



# International Trade and Investment: Two Perspectives

## Introduction

Peter Kenen and I first discussed the possibility of my giving the Graham Memorial Lecture just as I was about to make the shift from academe to the corporate world. It seemed simple enough to suggest then that we wait a year or so, by which time I would presumably have been at General Motors long enough to make some knowledgeable comments on the relationship between the "textbook" perspective on the motivations and processes of international trade and investment and how a large multinational corporation views these same issues from the perspective of its own decision-making and operations.

I look back somewhat wryly now on the innocent presumptuousness that allowed me to believe that a newcomer to the executive suite could bring coherence and insight to bear on so vast a topic within the confines of a single lecture. But I can at least draw comfort from the fact that the terrain I have chosen to explore is one opened up by Frank Graham, whose achievements this lecture series honors. Graham is unequivocal in describing the heart of his quarrel with the classical trade theorists, the central assumption from which his anti-classical conclusions spring:

The pre-eminent, the fatal defect of the classical theory lies in the failure of its authors to recognize the crucial importance, or for the most part even the existence, of commodities produced in common either in each of two internationally trading countries or in some two or more of many such trading countries. . . . It is impossible to exaggerate the significance of the common commodity . . . (Graham, 1948, p. 253).

It is with precisely such "common commodities" that I will be concerned here. A relatively insignificant—and shrinking—portion of world automotive trade involves exports to countries with no automotive production of their own. Rather, we will be concerned here with the intricacies of intra-industry and intra-firm trade—phenomena which began to receive systematic attention in the literature of international trade only recently, and whose rationale and ramifications have still been relatively little explored. Indeed, one of the

major themes of my discussion will be to try to set forth the many strands that link exports, imports, domestic production, and worldwide investment in the global automotive industry. Quite unlike the well-ordered world of the classical economists, they form a Gordian knot of relationships into whose complexities Graham's "radical reformulation" of trade theory yielded a bare first glimpse.

In the introduction to *The Theory of International Values*, Graham (1948, p. 22) taxes the classical and neoclassical writers with lapsing from a strictly cosmopolitan into a nationalistic point of view, that is, failing "to bring themselves to a whole-hearted treatment of their subject as trade between individuals (undifferentiated except that they belonged to different national groups between which the flow of factors of production was inhibited) rather than as trade between nations, each of which was to be regarded as a single business unit." This stern dichotomy serves as a useful foil against which to cast into sharp relief the characteristics of worldwide automotive trade and production. Automotive trade and investment patterns in the 1980s represent neither trade "between individuals buying and selling, as traders nationally indistinguished" nor, certainly, "the collectivist trading of national monopolies" (Graham, 1948, p. 26). Rather, they reflect increasingly the interplay between multinational (but by no means stateless) firms seeking to achieve the allocative efficiencies and scale economies of worldwide specialization of production and the ever more complicated and sophisticated constraints imposed by sovereign governments, with their own developmental agendas and economic and welfare goals. This interplay, the ways in which it has changed and evolved over the past decade or so, and the directions in which it appears to be moving will occupy much of my attention.

In trying to relate decision-making in the "real world" to "textbook" descriptions of international trade and investment patterns, the question inevitably arises: which real world and which textbook am I referring to? The real world is the one in which I have been participating for the past eighteen months. I shall try to be careful, in what follows, to distinguish among points that may be specific to General Motors, points that seem to apply to the U.S. or global automotive industry as a whole, and, rarely, points that seem to have general applicability beyond the automotive sector, to manufacturing trade or investment in general.



The question of which textbook is more complicated. This is not the place for an exhaustive review of the theories of international trade and investment nor for a reaffirmation of the point, demonstrated so meticulously by Graham's colleague Jacob Viner in his *Studies in the Theory of International Trade*, that virtually every "new" idea can be found to have antecedents somewhere in the literature of international trade theory, if only one probes exhaustively enough. Rather, I am referring to that body of theory that is widely and uncontroversially regarded as representing the present state of academic thinking on the subject, concepts that have percolated down from the specialized journals into the better advanced-undergraduate or introductory graduate surveys of the field.

### Theories of International Trade

It may be useful to summarize under three headings the various theories that purport to explain observed patterns of international trade. The first category is what has been termed the "neo-factor proportions" approach (Hufbauer, 1970, p. 195). These explanations are all essentially elaborations of the Heckscher-Ohlin two-factor model, enriched to take account of the heterogeneity of "labor" of different skills and characteristics and of capital embodied in various forms. Whatever their specific elaborations, however, these are essentially neoclassical models, in which trade based on differences in *national* characteristics (factor endowments) takes place in a basically competitive and cosmopolitan world economy. The concept of comparative advantage is relatively unambiguous in such models, as are the implications of trade for economic welfare and for the distribution of that welfare (income) both within and among nations. The configurations of factor endowments that give rise to trade are by and large regarded as exogenous. Rigidities that might constrain movements along the production-possibilities curve, as well as transitional costs of adjustment associated with the reallocation of factors of production, are ignored in favor of a focus on the long-run equilibrium (optimality) properties of these models.

A second group of theories can be subsumed under what Hufbauer (1970, p. 195) has termed the "neotechnology" approach. These theories, of which the "technological gap" and the "product cycle" ver-

sions are the most prominent, can be viewed as dynamic offspring of the Ricardian explanation of trade based on intercountry differences in production functions. But they are essentially anticlassical, or at least nonclassical, in nature: partial rather than general, based on dynamics rather than comparative statics, and set in a framework of imperfectly rather than perfectly competitive markets. Indeed, it is precisely the advantages accruing from such phenomena as innovation and product differentiation that give rise to trade, and it is endogenously generated shifts in the capacity to appropriate the benefits flowing from these sources that give rise to changing patterns of international trade and direct investment over time.

Both the Ricardian and the Heckscher-Ohlin versions of trade theory are essentially explanations of interindustry trade. In recent years, however, analytical attention has increasingly focused on the growing phenomenon of intra-industry trade, particularly in manufactured goods. A number of efforts have been made to invoke the technology-gap and product-cycle theories as explanations of such trade, but the analytical "fit" is not entirely satisfactory (Corden, 1979, pp. 8-9). Current attention in this area is focusing most intensively on a series of explanations growing out of the theory of the firm. These formulations stress, even more heavily than do the neotechnology approaches, the phenomena of imperfect competition, economies of scale, and product differentiation (Krugman, 1980; Lancaster, 1980). Burenstam Linder's (1961) hypothesis that exports of manufactures are an outgrowth of home production and market characteristics implies that trade between countries will increase rather than decrease as the countries grow more similar in industrial structure and levels of per capita income. His antiorthodox conclusions find a comfortable home in this body of thought.

As in the case of the neotechnology approach, with which it substantially overlaps, this last category of explanations is dynamic in character and purports to encompass both manufactured-goods trade, particularly of the intra-industry variety, and direct foreign investment. It treats them as different stages of firms' efforts to extract the maximum flow of benefits from their particular constellation of advantages as conditions change over time. Furthermore, both groups of theories stress characteristics not of *countries* but of *products* or *industries*. The comparative-advantage characteristics that underlie

trade patterns are viewed as dynamic and often endogenous, rather than as static and exogenous. As a result, the welfare implications of trade considered in this framework, and of intra-industry trade in particular, are fraught with an ambiguity and a fragility unknown to the classical and neoclassical paradigms.<sup>1</sup>

### Theories of International Investment

Summarizing textbook theories of international investment could prove to be a far more formidable task than summarizing theories of international trade, since there exists no comprehensive theory of this phenomenon with the scope and generality of the classical and neoclassical trade paradigms. Rather, we must distinguish at the outset between portfolio and direct investment, between investment in extractive and in manufacturing industries, between decisions regarding the location of production and those determining sources of financing.

Fortunately, this specificity turns out to be a help rather than a hindrance in our case. For, in the case of the automotive industry, it is clear that we are concerned with direct (controlling) investments in manufacturing facilities at home and abroad and that the primary decisions relate to the location of production facilities. Decisions regarding sources of financing play a secondary and derivative role. The category of direct foreign investment is today generally subsumed under the same theories of the firm operating under conditions of imperfectly competitive markets that comprised the second and third categories of trade theories described above. Indeed, as I have already mentioned, such investment is seen as arising from the same market imperfections that give rise to trade in manufactured goods, and particularly intra-industry trade. It occurs, however, under conditions or in the particular stage of a product cycle where the rewards can most effectively be reaped through managerial control, rather than through such arms-length transactions as trade, licensing, or management contracts. This is true whether the rewards arise from technological or managerial knowledge, product differentiation, internal or external scale economies, or some combination of these.

<sup>1</sup> Hufbauer (1970, p. 210) questions "whether an exchange based on 'ephemeral' characteristics contributes much to welfare," and several authors (e.g. Martin, 1979, p. 43) have questioned the net welfare effects of intra-industry trade. For a contrary view, see e.g. Caves (1979, p. 23).

This is not to say that the older classical theories play no role in "state of the art" explanations of the phenomenon of direct foreign investment. There is a significant role, for example, for differences in national factor endowments—most obviously in the case of so-called "border factories." These plants utilize abundant low-wage, low-skill labor to produce or assemble relatively simple standardized components for shipment back to and reintegration with a production process characterized by higher-wage labor embodying larger amounts of human capital. The risk-return considerations basic to explaining international flows of portfolio capital are relevant to direct investment as well. Multinational corporations certainly do take account of country risk and recognize the advantages of diversification, although both their criteria for evaluating these concepts and their mechanisms for implementing them differ substantially from those of portfolio investors.

Finally, there is the role of national governments as creators of market imperfections and thus as a factor in the determination of patterns of direct international investment. The concept of "tariff factories" is an old one, of course, as is the utilization of tax incentives and other subsidies to influence the location of production between (as well as within) nations. Beyond such relatively simple and transparent measures, however, a government today may utilize a wide variety of regulations to alter the nation's current pattern of comparative advantage in the direction of some particular developmental goal, be it industrialization, import substitution, or export promotion (Agmon, 1979, pp. 51 and 57-58). These can include complex and interrelated requirements regarding exports, imports, and domestic production by foreign-owned firms. As we shall see, such government policies, predicated on the notion of dynamic and endogenous patterns of comparative advantage, have played and will continue to play a crucial role in shaping global patterns of production, trade, and investment in the automotive industry.

### **Changing Patterns of Automotive Trade and Production**

In trying to describe international trade, investment, and production in the motor vehicle industry in terms of the analytical frameworks just surveyed, we are shooting at a rapidly moving target. The industry has undergone dramatic changes over the past two decades

in the share of world production that is exported and in the nature and direction of those trade flows. The world automotive industry of the 1960s was characterized by substantially differentiated products (vehicles) adapted to particular home markets with different demand characteristics, in the Burenstam Linder mode. The relatively modest export flows of finished vehicles, averaging about 20 per cent of world-wide production over the decade (MVMA, 1980), posed no significant challenge to domestic-based industries, and there was very little movement of parts and components across international boundaries. Western European firms were the major exporters, serving primarily the United States and countries within the European Economic Community. Exports from the United States were discouraged by substantial differences in product characteristics desired by American and overseas consumers, an overvalued dollar, and the absence of spare capacity not utilized for domestic sales. No one else had a significant production base. Automobile production in developing countries, where it existed at all, was represented by low-volume, high-cost operations that owed their existence to rigid import-substitution policies and were generally confined to serving a domestic market of suboptimal size. The world auto industry, in other words, was operating in relatively isolated cells, with a market organization that prevented very large international differences in factor costs from stimulating competition.

The picture at the beginning of the 1980s is a very different one indeed. The share of exports in world production has doubled since 1960, reaching nearly 36 per cent in 1979. Gone are the highly segmented markets of the 1960s; with some exceptions, vehicles are today interchangeable around the world. Although there is an array of differentiated products, most are adaptable, with some modifications, to many geographical markets. Increasingly, therefore, vehicles are competitive across national boundaries in terms of price and quality. The rapidly growing flow of parts and components across these boundaries, however, is fostered not just by competitive pressures but by more and more complex requirements imposed by sovereign governments. Producers in the industrialized countries, furthermore, have operated under an escalating network of government regulations affecting both the work place and production processes and the characteristics of the finished product. While there has been a good deal of discussion about the need for international harmonization of reg-

ulations concerning vehicle characteristics, actual progress in that direction is proving to be slow.

The direction of international trade has also shifted substantially during the period under review. The rapid rise in European labor costs and appreciating currencies made European exports more expensive. Meanwhile, Japan emerged as an internationally competitive vehicle-manufacturing center with a cost basis significantly lower than those of the United States or Europe. Japanese producers have supplanted the Europeans as major exporters, particularly to the United States, and have made important gains within Europe. Although initially nurtured by explicit government support, including a significant level of protection against imports, the Japanese industry was in a position to stand on its own by the early 1970s. The industry rapidly achieved high volume at the time when its products' signature characteristics, smallness and fuel economy, suddenly catapulted into high worldwide demand. By 1979, Japanese-produced vehicles accounted for 31 per cent of all vehicles exported worldwide, while those of France and Germany, the two major European exporters, accounted for about 16 and 15 per cent respectively.

Japanese passenger cars began to make inroads in the United States in the early 1970s; by 1974, their share of total U.S. passenger-car sales had reached nearly 7 per cent. Under the combined impact of the oil embargo, OPEC's subsequent quadrupling of oil prices, and the erosion of real income during the 1974-75 recession, the Japanese share of U.S. car sales rose to over 9 per cent in 1975, and then to 11-12 per cent in 1977-78, as both dealer networks and new product offerings expanded. The upheaval in world petroleum markets brought on by the 1979 Iranian revolution signaled to consumers that high and rising gasoline prices and the possibility of future supply interruptions were now permanent features of the landscape. The signal had not been perceived clearly after the first oil shock, partly because of the U.S. government's policy of holding petroleum prices below world levels during most of the 1970s. The shift in demand toward smaller, more fuel-efficient cars was rapid, and by 1980 Japanese vehicles accounted for some 21 per cent of the passenger cars sold in the United States. Clearly, the automobile characteristics demanded by American consumers had shifted away from those that heretofore set this country apart (such as comfort, performance, and styling) and toward those (such as fuel efficiency and workmanship)

that already characterized most other countries, where taxes had long since made high gasoline prices an accepted fact of life. Thus, with a twist of Burenstam Linder's framework, the Japanese home market had become a more appropriate base from which to supply new American demands than was the "pre-shock" U.S. market itself.

### **The Nature of Cost Differentials**

Although shifting demand patterns enhanced the impact of cost differentials on patterns of world trade, cost differentials are themselves a significant factor affecting those patterns. Estimates of the exact figure vary widely, but Japanese producers apparently have a significant production-cost advantage over their American (and European) counterparts. Close to 40 per cent of the Japanese cost advantage vis-à-vis American producers, according to one estimate, is due to differences in labor compensation in the motor vehicle and parts industry, estimated at \$7.16 per hour in Japan at current exchange rates as against \$15.02 in the United States (Bureau of Labor Statistics, 1980).

To the extent that this differential reflects a difference in average wage levels between the two countries, one would expect that exchange-rate changes would tend to narrow if not eliminate it over the long run. Indeed, the Japanese yen has undergone substantial appreciation against the dollar in recent years and is still believed to be somewhat undervalued in purchasing-power-parity terms. But exchange-rate changes cannot be expected to eliminate significant differences in wage structure between the two countries. In both, automotive workers' wages and total compensation are substantially above the manufacturing average. But the earnings premium is both higher and rising faster in the United States than in Japan. In mid-1980, auto workers' average hourly compensation (including all benefits) was 52 per cent above the all-manufacturing average in this country, as contrasted with 25 per cent in Japan (Bureau of Labor Statistics, 1980). To the extent that this difference in the earnings premium reflects more effective unionization in the United States, it represents a distortion of relative costs, and therefore of trade patterns, arising from labor-market imperfections. (For an attempt to allocate the relative importance of human-capital and unionization variables in determining U.S. wage differentials, see Johnson, 1981.)

Much of the remaining cost differential is attributable to higher Japanese productivity, stemming from newer—and therefore more mechanized and automated—plants, the geographical concentration of suppliers, and the excellence of labor-management relations. The rest arises from lower material costs, stemming from the same combination of lower labor costs and high productivity in the supplier industries. One estimate is that labor costs per ton of steel in Japan in the late 1970s were 30 to 35 per cent below U.S. and European levels (Crandall, 1980, p. 144). A part is also played by differences in technology and, ironically, the protection of the U.S. steel industry by the trigger-price mechanism, creating a negative effective tariff rate on U.S. automobile production. This negative effective rate is compounded by tariffs on other materials and components ranging up to 15 per cent, as compared with a tariff on finished automobiles of 2.9 per cent.

### **World Cars and Worldwide Sourcing**

The response of U.S.-based producers in general, and of GM in particular, to this changed competitive environment is taking the form of rapid changes in vehicle design and characteristics and substantial modification and modernization of production facilities and processes, underpinned by “defensive” capital investments of unprecedented magnitudes, both in the United States and abroad. (GM alone plans investments totaling \$40 billion over 1980-84, of which roughly 75 per cent will be allocated in the United States and Canada and 25 per cent overseas.) For purposes of this discussion, however, the most relevant strategies of adaptation to competition are the development of the “world car” concept and the creation of a production base for worldwide sourcing of components. Under the “world car” concept, automobiles little differentiated in size and design among different geographic areas are assembled from parts and components that are to a large extent standardized and interchangeable. The expanded production takes advantage of economies of scale and the allocative efficiencies generated by differences in factor endowments and therefore in production costs. For example, for certain hand-assembly processes poorly suited to U.S. conditions, the major U.S. manufacturers have Mexican border plant operations and offshore electronics-production facilities that feed light parts to U.S. facilities. Overseas



sources are also sometimes utilized for small-volume parts that are expensive to make in the United States because mechanized processes are not justified. They are also used when available capacity in one country can be utilized to compensate for shortages of capacity elsewhere.

One of the implications of these developments for the automotive trade is that the strategy of direct exports of finished vehicles will be replaced gradually by more complex trading relationships involving vehicles and parts. This trend is likely to make the automobile industry, which even in the 1970s had probably the highest proportion of intra-industry trade (Gray, 1979, p. 101), even more notable in this respect in the future.<sup>2</sup> From negligible amounts in the 1960s, the value of worldwide automotive trade in parts and components reached \$25 billion in 1978, the latest year for which world data are available (United Nations, 1978, p. 459). In current dollars, the average annual increase from 1971 to 1978 was 21 per cent, marginally greater than the 20 per cent average annual increase in the value of trade in finished vehicles (*ibid.*, pp. 456-457).

Several factors are likely to widen this gap in favor of parts and components trade. First, there is competitive pressure for worldwide sourcing. Second, an increasing number of countries apparently regard a viable automotive industry as essential to their economic well-being or development. The result is a growing resistance to increased imports of finished vehicles in the major industrialized nations (although such trade between the United States and Canada and within the EEC represents a major exception) and an increasingly complex network of local-production-cum-export requirements in the developing ones. Third, there is some evidence that the postwar trade-liberalization process has been biased toward the encouragement of intra-industry trade in general, because (a) the nature of the GATT negotiating process tended to generate pressure to narrow the range over which the "reciprocity" concept was extended; (b) liberalization of intra-industry trade tended to preserve a nation's basic industrial structure and might be thought to minimize the costs of adjustment

<sup>2</sup> This association of trade in parts and components with intra-industry trade is in part an artifact of aggregation, since parts and components, passenger cars, trucks, and buses represent different four-digit components of the three-digit "automotive" SITC category. It is not entirely such an artifact, however, because such trade inevitably involves two-way flows across international borders of different parts and components that are included within the same four-digit category.

(although there is no conclusive evidence of this); and (c) the process of intercountry rationalization of production may be easier where transnational ownership is involved (Pomfret, 1979, pp. 124-125). In the latest round of GATT negotiations, for example, parts and components tariffs were reduced substantially more than those on finished vehicles.

Despite widespread expectations in the mid-1970s of an imminent major shift of the automotive industry to low-wage developing countries, automotive production and trade remain highly concentrated in the industrialized regions of the world. A few exports of finished vehicles from Brazil have resulted from production shifts by European manufacturers, and India and Korea are showing some export potential of trucks and cars, respectively, manufactured by indigenously owned firms. But, so far, low volume and high material costs fostered by import-substitution policies appear to offset any wage advantage. Similarly, as regards trade in components, truly worldwide sourcing still lies in the future. While some electronics components from Mexico and engines from Brazil are found in U.S. cars, and Taiwanese components will soon be exported to Japanese end users, components trade is by no means globally dispersed. As of 1978, the EEC nations accounted for 49 per cent of the value of trade in parts and components, and the combined share of the United States and Canada was 38 per cent (United Nations, 1978, p. 459). In both cases, a large part of the total is intra-firm trade; the motor vehicle industry has one of the highest proportions of such trade to be found in the manufacturing spectrum (Helleiner, 1979, p. 169). It is, of course, no accident that these two regional groupings should dominate trade in vehicle parts, in view of the opportunities for rationalization afforded by the EEC's internal trading arrangements and the existence since 1965 of the U.S.-Canadian Automotive Trade Agreement.

### **Investment Decisions: Product Cycle, Diversification, and Political Risk**

Obviously, the future pattern of world trade in automotive products will depend heavily on future direct investment flows. Historically, the industry has roughly followed the standard product cycle. The manufactured product is first exported, and production facilities are established later in the local market either for competitive reasons

or, as in the case of U.S. auto firms, to leapfrog tariff barriers in Western Europe that discriminated against fully built-up vehicles. The American firms passed through the export stage in the teens and twenties of this century and began establishing assembly facilities in Canada and Western Europe, the major export markets, at nearly the same time. The major European firms, now in a mature stage of development, are expanding their international production facilities, with Volkswagen, Renault, Fiat, and Daimler Benz among the most active.

Japan, the youngest of the "mature" producers, has become as of 1980 the world's largest producer of motor vehicles, without having made significant investments in production facilities in its major export markets, the United States and Western Europe. Japanese manufacturers are investing heavily in Australia and have established production or assembly facilities throughout Southeast Asia. Nonetheless, one measure of the Japanese reliance on a direct export strategy and of its impact on world trade patterns can be derived from the world export/production figures cited earlier. If Japanese exports are removed, the export share of world production (which in the aggregate increased from 29 to 36 per cent between 1970 and 1979) held steady at 25 per cent over the decade (MVMA, 1980).

Whether the Japanese can continue such heavy reliance on an export strategy is problematical. As noted earlier, there is an increasing tendency on the part of many nations, industrialized and developing alike, to stress the importance of an indigenous motor vehicle industry, to resist increased imports of finished vehicles, and to demand that increased sales penetration by overseas firms be accompanied by the establishment of domestic production facilities. These developments are tending to convert the product-cycle hypothesis from an empirically testable descriptive proposition into a normative criterion of behavior. What this implies, more generally, is a continuation of the worldwide trend toward locating production facilities in markets previously served by exports from parent-company plants. It is estimated that in 1979 nearly 22 per cent of total world vehicle output was produced by the overseas subsidiaries of major manufacturers (excluding Canadian production), as compared with 16.5 per cent in 1970 (MVMA, 1971, 1980). It is virtually certain that this trend will continue. Disincentives for exports of finished vehicles enhance pressures to move away from traditional export strategies

toward more complex worldwide sourcing strategies based on a greater geographical diffusion of production.

A concern for diversification of investment exists also at the corporate level. While the advantages of diversification in improving risk-return possibilities are more straightforward in the case of portfolio investors, they are relevant to decisions regarding direct investment as well. At present, for example, GM's fixed assets are highly concentrated; almost half of its overseas investment is in Germany, while an additional 35 per cent is located in Brazil, the United Kingdom, and Australia. There are, of course, some good reasons for this distribution—large markets, economies of scale, relative stability. At the same time, such concentration inevitably increases vulnerability to possible economic, political, or social difficulties; gaining diversity by locating new operations in attractive countries other than these four could help reduce that vulnerability. Such diversification is, in fact, already underway. New production facilities are currently under construction or on the drawing boards not only in Austria but also in Spain, Egypt, Mexico, and Taiwan—countries that offer important opportunities, as well as risks that must be clearly understood.

Accordingly, GM and other multinational corporations have recently begun to address seriously the necessity for country-risk assessment that incorporates political, social, and regulatory dimensions in addition to the standard economic and market variables. Of course, corporate managers have always worried about political stability, military coups, civil violence, and other noneconomic phenomena in connection with first-time investment decisions or expansion plans. Government insurance against political risks has been available to American firms operating abroad since 1948. What is new is the attempt by nonfinancial corporations to create an institutional framework for the collection and analysis of such information in order to utilize the resulting assessments systematically in corporate planning.

Trends and events in the late 1970s have been largely responsible for efforts to produce more systematic analysis of explicitly political information. For many firms, the abrupt collapse of the Shah's regime in Iran was a consciousness-raising event, while an almost equally unexpected turn of events in the Peoples' Republic of China appeared to promise substantial business opportunities from the Chinese "opening." But, in general, it is probably not the cataclysmic changes that are most significant for corporate planners. Our work at GM suggests

that what occurs beneath the surface in the day-to-day political and administrative policies and practices of national governments may have greater impact on current operations. In our effort to group countries in terms of degree of risk, it is significant that we have adopted a weighted scale in which 60 per cent of a country's score reflects developments in the area of microeconomic policy and regulation. These include such considerations as local-content requirements, import/export incentives, and restrictions on ownership or use of cars and trucks.

Clearly, the elements of the external business environment that are considered important will be determined by the characteristics of particular industries. For the banking industry, which pioneered in the assessment of country risk, the focus is on the financial risk of not being repaid, and, in the case of loans to governments or guaranteed by governments, on the stability of the government and the availability of foreign exchange. The time horizon is normally short, about two years. For a manufacturer such as GM, the considerations are naturally longer-term, and the focus is more heavily on the risks that might arise from sudden changes in the regulatory environment.

### **The Management of Exchange Risk**

There is one more risk associated with overseas as opposed to domestic investment: the possibility of future changes in the exchange rate between the home country's currency and that of the country in which the investment is made (as well as the currencies of those countries in which the resulting products are sold). The concern of major multinational manufacturers like GM with this category of risk has increased since the era of pegged exchange rates gave way to one of managed floating in the early 1970s. This concern was both reflected in and reinforced by the issuance in 1976 of FASB No. 8, a statement of the Financial Accounting Standards Board that made the reported earnings of multinational corporations more vulnerable to short-term fluctuations in exchange rates.<sup>3</sup>

As is apparently true for most multinational corporations, GM's attitude toward the foreign-exchange market is essentially defensive

<sup>3</sup> FASB No. 8 required the abolition of foreign-exchange-valuation reserve accounts and the reporting of gains and losses on outstanding forward contracts. For a survey of its impact on the management practices and stock-market assessment of large multinational corporations, see Shank *et al.* (1979).

rather than speculative. The goal of the corporation's foreign-exchange strategy is not to maximize—nor even to generate—profits from such activities but rather to reduce to an acceptable level the exchange risks associated with the corporation's underlying business, within certain cost constraints (Rodriguez, 1980, p. 11). But the definition of risk implied by the corporation's behavior is not simply the standard deviation of the expected results. For example, GM manages the short-term exchange risks associated with commercial transactions or dividend flows with a time horizon of one year or so by selective (as opposed to universal) hedging in forward markets. This behavior, which is apparently characteristic of a majority of large multinationals (Shank *et al.*, 1979, p. 33), suggests some risk asymmetry on the part of the firm. As Rodriguez (1980, p. 53) puts it, "more weight is placed on reporting one dollar of exchange losses than on reporting one dollar of exchange gains, given the same costs to close the position." It implies also a belief that forward premiums are not efficient predictors of future changes in exchange rate, a hypothesis that is receiving some support from current research (Levich, 1980; Rodriguez, 1980, Chap. 3).

With respect to balance-sheet exposures, GM has generally tried to minimize the exchange risk associated with overseas direct investments by matching financial assets denominated in a particular currency with liabilities denominated in the same currency—or at least by holding down the discrepancy between the two sides of the balance sheet. In some instances, however, unbalanced positions are created by constraints on local borrowing that make offshore borrowing necessary. In others, the local-currency financing of expanded operations can create a temporarily unbalanced position until new financial assets are generated to match the increased liabilities. These liability positions can, of course, result in volatility in reported earnings under current accounting conventions. While it would be possible to hedge such balance-sheet positions through forward contracts, the significant cash exposure involved generally makes this an impractical alternative.

Financing and forward-cover strategies can reduce the effects on the balance sheet of changes in *nominal* exchange rates, but they cannot affect the risk of changes in the competitive relationships between alternative locations arising from changes in *real* exchange rates. The latter are risks associated with the location of *production*

that cannot be reduced by strategies regarding the source of *financing*. For this reason, GM tries to focus on forecasts of real rather than nominal exchange rates when making decisions regarding the location of overseas facilities.

### **National Requirements and Investment and Sourcing Decisions**

One aspect of the regulatory environment has particular significance for foreign production, investment, and trade in the automotive industry. It concerns the detailed and increasingly complex requirements that many industrializing nations impose on foreign automobile manufacturers as a prerequisite for selling into their markets. Initially, these requirements took the form of rigid "local content" requirements—that is, requirements that a given percentage of the total value of any vehicle sold in the domestic market be locally produced. More recently, as these nations have broadened their industrialization schemes away from a strict import-substitution model toward greater emphasis on export promotion, many regulatory schemes have been modified. Producers are permitted to trade off reduced local-content requirements for promises to export part of the domestic automotive output—an arrangement that is providing considerable stimulus to the worldwide sourcing strategy.

Under such schemes, of which Brazil's Befiex program and Mexico's Automotive Decree are two significant examples, the manufacturer can retain its foothold in the local market. At the same time, by expanding the market for its required local production via exports (generally of components and parts rather than finished vehicles) it can reap economies of scale and spread its cost over a larger volume. The host country, in turn, can earn essential foreign exchange, often more efficiently than it can "save" an equivalent amount via import substitution, and can reduce the risk of becoming a high-cost, low-volume producer in the process of industrialization. The development of such schemes obviously increases the pressure on a company to make "defensive" investments, accepting relatively low rates of return on investment, at least initially, and long pay-out periods in order to avoid being closed out of a market entirely by not being among those chosen to become a domestic manufacturer.

An extreme version of policy-constrained trade in automotive prod-

ucts is the barter arrangements required by some centrally planned economies. Under such arrangements, a company wishing to sell into the local market must usually agree to make direct counterpurchases for export. Often such purchases are goods whose manufacture is assisted by the multinational, or raw materials or intermediate goods that can be used in its own production processes somewhere else in the world. But sometimes they take the form of goods sold to third parties, requiring the establishment of "evidence accounts," through which all countertrade transactions are directed. Although these transactions are relatively small in the aggregate, GM has recently established a marketing subsidiary, the Motors Trading Corporation, to find outside buyers for countertrade purchases that the company cannot utilize itself.

Local-content-cum-export requirements are by no means the exclusive province of less-developed nations. The program under which General Motors Holden, GM's Australian subsidiary, operates, for example, was originally an extremely rigid one, requiring high local content for each individual car. After persistent efforts, the requirements have been modified to a "company average local content plan," under which GM can increase the permissible import proportion by manufacturing a single component, in this case engines, two-thirds of whose output is destined for export. Nevertheless, the basic concern underlying such requirements remains essentially unchanged: to achieve "sectoral trade balance" (or at least substantially reduce a sectoral trade deficit) in automobiles or automotive products. However irrelevant the concept of sectoral balance may seem in the general-equilibrium world of trade and payments analysis, it is of high and persistent concern to many nations at widely different levels of income and development. In some cases, this concern with sectoral balance comes primarily from the desire to create or preserve jobs in the automobile and related industries. Whatever its source, it reinforces the trend toward greater intra-industry trade in automotive products.

Finally, of course, there are the trade and trade-related policies of the United States itself. Extremely low tariffs and the virtual absence of other barriers to imports have long made the world's largest national market for automobiles freely accessible to all producers.<sup>4</sup> It is true

<sup>4</sup> The U.S. tariff rate on imported automobiles is to be reduced from 3 to 2.5 per cent as a result of the latest round of GATT negotiations, while the EEC will lower its rate from 11 to



that the fuel-economy legislation of 1975 specified that only vehicles with at least 75 per cent U.S.-produced content by value could be counted in the calculation of a domestic manufacturer's corporate average fuel economy (CAFE). Although this provision was intended to favor U.S. production, from the domestic manufacturers' point of view it appeared to be a competitive handicap, forcing them to produce their entire vehicle lines in North America rather than having the flexibility to produce some smaller vehicles abroad for sale in the United States. Obviously, the requirement does not apply to imported vehicles, and Volkswagen received an exemption when it began to assemble vehicles in the United States.

Sourcing decisions have also on occasion been constrained by U.S. trade regulations. For example, foreign-car imports, including "captive" imports from the subsidiaries of U.S. firms, were the subject of a 1974 dumping investigation that resulted in some changes in the location of production for both U.S. and foreign companies selling overseas products in the United States. Planning for the production of components by subsidiaries in developing countries must take account of the possibility of U.S. countervailing duties if export incentives provided by the host government are deemed illegal under U.S. trade law. But these are minor qualifications indeed. An environment uniquely conducive to free trade in automotive products prevailed in the United States through the 1970's, even though the country moved into a deficit position as regards trade in this sector as early as 1968 and the deficit has been expanding substantially ever since.

Within this open trade environment, GM, despite its multinational status, has not been indifferent to the choice between domestic and offshore sourcing for products to be sold in the United States. Its general *modus operandi* is to import only under certain conditions: (1) when raw materials are unavailable in the United States or there are no competitive domestic sources for parts or materials; (2) when scale-economy or product-characteristic considerations create a substantial competitive margin in favor of overseas production; or (3)

---

10 per cent. The Japanese eliminated their auto tariff completely in 1978, but the market remains difficult to penetrate because of the commodity-tax structure, a complicated distribution network, and the right-hand-drive requirement. European tariffs on commercial vehicles range from 20 to 22 per cent. The U.S. recently closed a long-standing loophole that permitted a major class of such vehicles to come in under a 4 per cent rate, thus establishing a 25 per cent rate on all small commercial vehicles.

when foreign local-content or export requirements make it necessary to preserve the viability of certain overseas operations (which generally also involve substantial exports of parts and components from the United States). Clearly, the increased competitive pressures and need to overcome cost disadvantages that face the firm in the 1980s will create additional incentives to seek out economies of worldwide sourcing. Such arrangements can be expected to increase exports of components from the United States as well as imports into it. More broadly, they are likely to be implemented in accordance with GM's long-standing principle that substantial production, investment, and employment commitments be made in the major markets in which it has a significant volume of sales.<sup>5</sup>

The slow growth rates, high unemployment, and balance-of-payments pressures that plagued oil-consuming countries during the 1970s have, not surprisingly, increased pressures for both export promotion and import protection. In the United States, the steep drop in automobile sales produced by 1980's sluggish economy and tight credit conditions exacerbated the problems already created for domestic producers by large fuel-price increases that enhanced the competitive position and market penetration of Japanese imports. The sharply reduced output, high unemployment, and sea of red ink that these difficulties produced for the U.S. automobile industry in 1980 put particularly intense pressures on the traditionally open trade stance of the United States. They have also posed some difficult policy issues for both the U.S. government and the U.S. producers.

## **The Trade-Policy Debate**

The standard arguments against import restriction, in terms of static allocative efficiency, consumer choice, and maximization of competition are too well known to require reiteration here. And the long-term interests of the major U.S. producers are themselves served by an open trade environment. Retaliation could restrict their access to markets abroad, and a proliferation of protectionist legislation at home

<sup>5</sup> Furthermore, GM is concerned about the additional risk involved whenever any of its operations, domestic or overseas, is dependent on trans-border sources for parts and components. In most such cases, dual sourcing is required to insure against disruption of supply. GM's steel-sourcing strategies for its U.S. plants, for example, have clearly been constrained by concerns about the long-run dependability of foreign sources.

might threaten their freedom to rationalize their production on a global basis.

Arrayed on the other side of the issue are three basic concerns. One is the sheer magnitude of the dislocation within a short time span. At the worst point in 1980, nearly a million unemployed workers, or close to 1 full percentage point of all those unemployed, could attribute the loss of their jobs to the depressed state of the U.S. automobile and supplier industries. Despite the failure of classical analysis to recognize the existence of frictional or transitional costs of adjustment, there may well be an economic argument, as Graham (1942, p. 125) himself noted, for cushioning an adjustment process that will otherwise entail substantial transitional costs because it is far too rapid to be accomplished primarily through natural employee attrition and demographic shifts (see *Economic Report of the President*, 1981, p. 209). The President's Report goes on to note (pp. 123-124) that intensified pressures for substantial adaptation are being exerted on the U.S. economy at a time when a number of factors, including slow growth and the changing composition of the labor force, may be reducing mobility. In addition to macroeconomic developments tending to increase rigidity at the aggregate level, market imperfections that have raised automotive wages can be expected to produce increased rigidities specific to the automotive industry.

These difficulties are likely to be aggravated by the fact that virtually every major European country except West Germany has by now imposed either explicit or informal restrictions on imports of Japanese vehicles. This situation could put the United States in the position of becoming a residual market for Japanese automobiles. The United States would absorb the bulk of the difference between Japan's expanding productive capacity and the fluctuating demands of her home market, with all the potential instability such a situation entails. At the moment, furthermore, an unstable—and uneasy—equilibrium prevails with respect to the trade policies of the EEC on the one hand and the United States on the other. No restrictions on imports of Japanese vehicles are currently imposed by the EEC itself, although individual member nations do impose them. But each side has made it clear that, if the other imposes such restrictions, it almost certainly will do so too, presumably out of concern that it will otherwise become a residual market for an expanding supply of Japanese cars seeking export outlets.

The most controversial question, however, is whether the U.S. automobile industry, because of the discontinuous shift in consumer preferences described at the beginning of this paper—a discontinuity created or at least intensified by the U.S. government's policy of holding down domestic petroleum prices and subsidizing petroleum imports during much of the 1970s—finds itself in a process of change and adaptation so profound as to put it in a position akin to that of an infant industry. The process of remaking itself in the new image required by sharply changed circumstances and consumer preferences will require massive investments in both product and process change. These investments will certainly be jeopardized if current circumstances do not improve, but, if made, they stand a good chance of restoring U.S. producers to competitive strength after the transitional period is completed.<sup>6</sup>

Responses to this dilemma differ, of course, even within the industry. GM has taken the position that voluntary restraint of exports by the Japanese for a transition period could avert the threat of legislated quotas, providing a form of temporary restraint less likely to damage the fragile structure of international trade and more likely to have built-in flexibility and a self-destruct or phase-out mechanism.<sup>7</sup> There are risks in such an approach, of course. There is no way of being certain, *ex ante*, that the problems of the U.S. industry are indeed closer to those of infancy than to those of age. As Graham (1941, pp. 75-78) stressed, infant-industry protection is necessarily experimental; only after the fact can one distinguish the successful from the unsuccessful infant-industry candidates. Furthermore, what is required is to provide sufficient relief to the industry to permit it to complete the self-renewal process but not so much relief as to lift the pressure on management, labor, and government alike to take the steps essential to such a process (including rationalization of the regulatory environment, reduction of institutional rigidities, increased productivity, cost

<sup>6</sup> The externality involved in this situation is probably associated with capital-market imperfections. In the increasingly segmented capital markets of the United States, it seems highly likely that borrowing is not a perfect substitute for internally generated funds.

<sup>7</sup> Against these advantages, of course, must be set the welfare costs of the fact that, under such an arrangement, any quota profits will inevitably accrue to the exporting country. For a discussion of the pros and cons of "voluntary" export restraint, see Whitman (1979, p. 291). I note there that "If they are indeed temporary, such actions may even be justified (as second-best policies) on efficiency grounds; in the face of congestion in labor markets . . . an external diseconomy [is created] that may justify government intervention to slow down the market-determined adjustment process" (see Lapan, 1976, and Cassing and Ochs, 1978).

reduction, and plant modernization and product improvement). Any actual program may err on either side. These risks can be reduced, but not eliminated of course, by assuring the temporariness of the relief measures, building in phase-out provisions from the beginning and making them credible. But if the risks are real, so too are the potential gains if the turnaround time is effectively utilized to restore competitiveness: the avoidance of substantial unemployment of resources during a transition period of unknown duration and the continued competitiveness of a sector which, with its supplier industries, constitutes even today a significant proportion of the U.S. industrial base.<sup>8</sup>

### **Firms, Governments, and Economic Theory: Explaining the Interactions**

An observer of the automotive industry of the 1980s is confronted with an apparent paradox. On the one hand, there is a tendency toward greater concentration. Rising cost pressures, intensified political constraints, and accelerating capital requirements have resulted in a trend toward pooling of resources among firms in the form of mergers (e.g. Chrysler and Peugeot, Renault and American Motors), joint ventures (e.g. Nissan and Alfa Romeo, British Leyland and Honda), and cooperative research or production agreements, in which virtually all European manufacturers are engaged. At the same time, there has been and continues to be a significantly increasing degree of competition in the industry as the highly differentiated, segmented national markets of the 1950s and 1960s have been replaced by the far more overlapping and interdependent markets of the 1970s and 1980s. The resolution of this paradox lies, of course, in the growing importance of intra-industry trade and of overseas production and investment in automotive products. These developments represent phenomena based less on the classical determinants of international trade—differences between nations in factor endowments or production functions—than on the characteristics of firms operating in an environment of imperfect competition and attempting to maximize the flow of benefits from their particular constellation of advantages as conditions change over time.

<sup>8</sup> In his letter of Jan. 19, 1981, transmitting to the President the Department of Transportation's study, *The U.S. Automobile Industry, 1980*, Secretary of Transportation Neil Goldschmidt noted that "roughly one of every six jobs in America is related to the auto industry."

The internationalization of the automotive industry by no means signals the advent of Graham's ideal world, in which individual profit-maximizing firms make decisions and interact with one another in a cosmopolitan world where national boundaries are of little consequence. Rather, as one of my distinguished predecessors on this platform has noted, "Whatever the role of national government, it exists, and its existence and that of national governmental policies undermine Graham's contention that firms within a given state should not be aggregated into a national offer curve . . ." (Kindleberger, 1978, p. 14). Indeed, it is clear that in this industry, "Government intervention in various forms is playing an increasing role in influencing the pattern of international competition" (Pearce, 1980, p. 268). I have noted the tendency of automotive trade to shift away from the international exchange of finished vehicles toward a greater emphasis on cross-border flows of parts and components, as well as the tendency of firms to speed up the product cycle by investing in production or assembly facilities in their major overseas markets. Both tendencies result from the interplay between the efforts of governments to use national policies to achieve national goals and the efforts of firms to reap the advantages of scale economies and efficient global allocation of resources. Furthermore, most observers believe that patterns of automotive production, trade, and investment will in the future be determined at least as much by government policies—including so-called "industrial policy" and the regulatory environment as well as explicit trade policy—as by trends in comparative advantage *per se*.<sup>9</sup>

This increase in government intervention in the marketplace in the name of attaining certain public or collective goods has at least two causes (see Whitman, 1977, p. 3). One is a concern with jobs and exports, a concern just as perennially dismissed in the economists' world of long-run equilibrium as it is perennially pursued by politicians living in a world of short-run disequilibrium. Jobs and exports have taken on new urgency in the face of slow growth, increased

<sup>9</sup> Although there is some controversy, most observers appear to agree that "At least in the short run, United States regulations on safety, emissions control, and miles per gallon seem easier for importers to meet than for American producers" (Wilkins, 1980, pp. 252-253). It would be ironic if the handicaps imposed on domestic producers by U.S. energy policy and the regulatory environment were to provoke some form of "industrial policy"—tax benefits, subsidies, or import restriction—to assist those same producers.

rigidities, and oil-induced pressure on payments balances. A second is the belief—although not generally stated in those terms—that comparative advantage is dynamic and largely endogenous, not only in less-developed countries but in industrialized ones as well.

The multinational firms that comprise the global automotive industry must operate within this mixed environment, even as their own decisions and operations help to shape it. Theories of international trade and investment that can effectively explain the resulting patterns of production, trade, and investment in automotive products are still in a fairly embryonic stage of development, and their welfare implications remain largely unexplored. Economics as a discipline is by no means value-free; its role is to generate analytical constructs in terms of which the behavior of firms and governments can not only be described but judged. For that very reason, our profession is perennially confronted with the challenge posed by Graham in the closing sentence of his *Theory of International Values*:

There can be no useful purpose in developing a theory of market values which leaves out of account persistently operative forces which, in great degree, affect not only the values of today, but still more, those that will appear on the morrow (p. 308).

## References

- Agmon, Tamir, "Direct Investment and Intra-Industry Trade: Substitutes or Complements?" in Giersch, ed. (1979, pp. 49-61).
- Bureau of Labor Statistics, *Estimated Hourly Compensation of Production Workers in the Motor Vehicle and Equipment Industries: Fourteen Countries*, Washington, U. S. Department of Labor, November 1980.
- Burenstam Linder, Staffan, *An Essay on Trade and Transformation*, New York, Wiley, 1961.
- Cassing, James, and Jack Ochs, "International Trade, Factor-Market Distortions, and the Optimal Dynamic Subsidy: Comment," *American Economic Review*, 68 (December 1978), pp. 950-955.
- Caves, Richard E., "Intra-Industry Trade and Market Structure in Industrial Countries," Cambridge, Mass., 1979, mimeographed.
- Cordon, W. M., "Intra-Industry Trade and Factor Proportions Theory," in Giersch, ed. (1979, pp. 3-12).
- Crandall, Robert W., "The Economics of the Current Steel Crisis in OECD Member Countries," in *The Steel Industry in the 1980's*, Paris, Organization for Economic Cooperation and Development, 1980.
- Giersch, Herbert, ed., *On the Economics of Intra-Industry Trade*, Tübingen, W. Germany, Mohr (Siebeck), 1979.
- Ginsberg, Douglas H., and William J. Abernathy, eds., *Government, Technology, and the Future of the Automobile*, New York, McGraw-Hill, 1980.

- Graham, Frank D., *Protective Tariffs*, Princeton, N.J., Princeton University Press, 1942.
- , *The Theory of International Values*, Princeton, N.J., Princeton University Press, 1948.
- Gray, H. Peter, "Intra-Industry Trade: The Effects of Different Levels of Data Aggregation," in Giersch, ed. (1979, pp. 87-110).
- Helleiner, Gerald K., "Transnational Corporations and Trade Structure: The Role of Intra-Firm Trade," in Giersch, ed. (1979, pp. 159-181).
- Hufbauer, G. C., "The Impact of National Characteristics and Technology on the Commodity of Trade in Manufactured Goods," in Raymond Vernon, ed., *The Technology Factor in International Trade*, New York, Columbia University Press for the National Bureau of Economic Research, 1970, pp. 145-231.
- Johnson, George E., "Changes over Time in the Union/Nonunion Wage Differential in the United States," Ann Arbor, University of Michigan, 1981, mimeographed.
- Kindleberger, Charles P., *Government and International Trade*, Essays in International Finance No. 129, Princeton, N.J., Princeton University, International Finance Section, 1978.
- Krugman, Paul, "Scale Economies, Product Differentiation, and the Pattern of Trade," *American Economic Review*, 70 (December 1980), pp. 950-959.
- Lancaster, Kelvin J., "Intra-Industry Trade under Perfect Monopolistic Competition," *Journal of International Economics*, 10 (May 1980), pp. 151-175.
- Lapan, Harvey E., "International Trade, Factor Market Distortions, and the Optimal Dynamic Subsidy," *American Economic Review*, 66 (June 1976), pp. 335-346.
- Levich, Richard M., "Analyzing the Accuracy of Foreign Exchange Advisory Services: Theory and Evidence," in R. M. Levich and C. Wihlborg, eds., *Exchange Risk and Exposure Management*, Lexington, Mass., Heath, 1980.
- Martin, John P., "Comment," in Giersch, ed. (1979, pp. 42-47).
- MVMA, *World Motor Vehicle Data*, Detroit, Motor Vehicle Manufacturers Association, 1971 and 1980.
- Pearce, Michael C., "International Competition in the World Automotive Industry," in Ginsburg and Abernathy, eds. (1980, pp. 259-269).
- Pomfret, Richard W. T., "Intra-Industry Trade in Intraregional and International Trade," in Giersch, ed. (1979, pp. 115-131).
- Rodriguez, Rita M., *Foreign-Exchange Management in Multinationals*, Lexington, Mass., Lexington Books, 1980.
- Shank, John K., Jesse F. Dillard, and Richard J. Murdock, *Assessing the Economic Impact of FASB No. 8*, New York, Financial Executives Research Foundation, 1979.
- United Nations, *Yearbook of International Trade Statistics 1978*, New York.
- Viner, Jacob, *Studies in the Theory of International Trade*, New York, Harper, 1937.
- Whitman, Marina v. N., *Sustaining the International Economic System: Issues for U.S. Policy*, Essays in International Finance No. 121, Princeton, N.J., Princeton University, International Finance Section, 1977.
- , "Coordination and Management of the International Economy: A Search for Organizing Principles," in Marina v. N. Whitman, *Reflections of Interdependence: Issues for Economic Theory and U.S. Policy*, Pittsburgh, University of Pittsburgh Press, 1979.
- Wilkins, Mira, "Multinational Automobile Enterprises and Regulation: An Historical Overview," in Ginsburg and Abernathy, eds. (1980, pp. 221-258).



## PUBLICATIONS OF THE INTERNATIONAL FINANCE SECTION

### Notice to Contributors

The International Finance Section publishes at irregular intervals papers in four series: *ESSAYS IN INTERNATIONAL FINANCE*, *PRINCETON STUDIES IN INTERNATIONAL FINANCE*, *SPECIAL PAPERS IN INTERNATIONAL ECONOMICS*, and *REPRINTS IN INTERNATIONAL FINANCE*. *ESSAYS* and *STUDIES* are confined to subjects in international finance. *SPECIAL PAPERS* are surveys of the literature suitable for courses in colleges and universities.

An *ESSAY* should be a lucid exposition of a theme, accessible not only to the professional economist but to other interested readers. It should therefore avoid technical terms, should eschew mathematics and statistical tables (except when essential for an understanding of the text), and should rarely have footnotes.

A *STUDY* or *SPECIAL PAPER* may be more technical. It may include statistics and algebra and may have many footnotes. *STUDIES* and *SPECIAL PAPERS* may also be longer than *ESSAYS*; indeed, these two series are meant to accommodate manuscripts too long for journal articles and too short for books.

To facilitate prompt evaluation, please submit three copies of your manuscript. Retain one for your files. The manuscript should be typed on one side of 8½ by 11 strong white paper. All material should be double-spaced—text, excerpts, footnotes, tables, references, and figure legends. For more complete guidance, prospective contributors should send for the Section's style guide before preparing their manuscripts.

### How to Obtain Publications

A mailing list is maintained for free distribution of all new publications to college, university, and public libraries and nongovernmental, nonprofit research institutions.

Individuals and organizations not qualifying for free distribution can obtain *ESSAYS* and *REPRINTS* as issued and announcements of new *STUDIES* and *SPECIAL PAPERS* by paying a fee of \$8 (within U.S.) or \$10 (outside U.S.) to cover the period January 1 through December 31, 1981. Alternatively, for \$25 they can receive all publications automatically—*SPECIAL PAPERS* and *STUDIES* as well as *ESSAYS* and *REPRINTS*.

*ESSAYS* and *REPRINTS* can also be ordered from the Section at \$1.50 per copy, and *STUDIES* and *SPECIAL PAPERS* at \$2.50. Payment **MUST** be included with the order and **MUST** be made in U.S. dollars. **PLEASE INCLUDE \$.70 FOR POSTAGE AND HANDLING.** For airmail delivery outside U.S., Canada, and Mexico, there is an additional charge of \$1. (These charges are waived on orders from persons or organizations in countries whose foreign-exchange regulations prohibit such remittances.) In London, the Economists' Bookshop will usually have Section publications in stock but does not accept mail orders.

All manuscripts, correspondence, and orders should be addressed to:

International Finance Section  
Department of Economics, Dickinson Hall  
Princeton University  
Princeton, New Jersey 08544

Subscribers should notify the Section promptly of a change of address, giving the old address as well as the new one.

## List of Recent Publications

Some earlier issues are still available. Write the Section for information.

### ESSAYS IN INTERNATIONAL FINANCE

111. Gerald A. Pollack, *Are the Oil-Payments Deficits Manageable?* (June 1975)
112. Wilfred Ethier and Arthur I. Bloomfield, *Managing the Managed Float*. (Oct. 1975)
113. Thomas D. Willett, *The Oil-Transfer Problem and International Economic Stability*. (Dec. 1975)
114. Joseph Aschheim and Y. S. Park, *Artificial Currency Units: The Formation of Functional Currency Areas*. (April 1976)
- \*115. Edward M. Bernstein *et al.*, *Reflections on Jamaica*. (April 1976)
116. Weir M. Brown, *World Afloat: National Policies Ruling the Waves*. (May 1976)
117. Herbert G. Grubel, *Domestic Origins of the Monetary Approach to the Balance of Payments*. (June 1976)
118. Alexandre Kafka, *The International Monetary Fund: Reform without Reconstruction?* (Oct. 1976)
119. Stanley W. Black, *Exchange Policies for Less Developed Countries in a World of Floating Rates*. (Nov. 1976)
120. George N. Halm, *Jamaica and the Par-Value System*. (March 1977)
121. Marina v. N. Whitman, *Sustaining the International Economic System: Issues for U.S. Policy*. (June 1977)
122. Otmar Emminger, *The D-Mark in the Conflict between Internal and External Equilibrium, 1948-75*. (June 1977)
123. Robert M. Stern, Charles-F. Schwartz, Robert Triffin, Edward M. Bernstein, and Walther Lederer, *The Presentation of the Balance of Payments: A Symposium*. (Aug. 1977)
- \*124. Harry G. Johnson, *Money, Balance-of-Payments Theory, and the International Monetary Problem*. (Nov. 1977)
- \*125. Ronald I. McKinnon, *The Eurocurrency Market*. (Dec. 1977)
126. Paula A. Tosini, *Leaning Against the Wind: A Standard for Managed Floating*. (Dec. 1977)
127. Jacques R. Artus and Andrew D. Crockett, *Floating Exchange Rates and the Need for Surveillance*. (May 1978)
128. K. Alec Chrystal, *International Money and the Future of the SDR*. (June 1978)
129. Charles P. Kindleberger, *Government and International Trade*. (July 1978)
130. Franco Modigliani and Tommaso Padoa-Schioppa, *The Management of an Open Economy with "100% Plus" Wage Indexation*. (Dec. 1978)
131. H. Robert Heller and Malcolm Knight, *Reserve-Currency Preferences of Central Banks*. (Dec. 1978)
132. Robert Triffin, *Gold and the Dollar Crisis: Yesterday and Tomorrow*. (Dec. 1978)

\*Out of print. Available on demand in xerographic paperback or library-bound copies from University Microfilms International, Box 1467, Ann Arbor, Michigan 48106, United States, and 18 Bedford Row, London WC1R 4EJ, England. Paperback reprints are usually \$18. Microform of all Essays by year is also available from University Microfilms. Photocopied sheets of out-of-print titles are available on demand from the Section at \$6 per Essay and \$8 per Study or Special Paper.

133. Herbert G. Grubel, *A Proposal for the Establishment of an International Deposit Insurance Corporation*. (July 1979)
134. Bertil Ohlin, *Some Insufficiencies in the Theories of International Economic Relations*. (Sept. 1979)
135. Frank A. Southard, Jr., *The Evolution of the International Monetary Fund*. (Dec. 1979)
136. Niels Thygesen, *Exchange-Rate Experiences and Policies of Small Countries: Some European Examples in the 1970s*. (Dec. 1979)
137. Robert M. Dunn, Jr., *Exchange Rates, Payments Adjustments, and OPEC: Why Oil Deficits Persist*. (Dec. 1979)
138. Tom de Vries, *On the Meaning and Future of the European Monetary System*. (Sept. 1980)
139. Deepak Lal, *A Liberal International Economic Order: The International Monetary System and Economic Development*. (Oct. 1980)
140. Pieter Korteweg, *Exchange-Rate Policy, Monetary Policy, and Real Exchange-Rate Variability*. (Dec. 1980)
141. Bela Balassa, *The Process of Industrial Development and Alternative Development Strategies*. (Dec. 1980)
142. Benjamin J. Cohen, *The European Monetary System: An Outsider's View*. (June 1981)
143. Marina v. N. Whitman, *International Trade and Investment: Two Perspectives*. (July 1981)

PRINCETON STUDIES IN INTERNATIONAL FINANCE

- \*26. Klaus Friedrich, *A Quantitative Framework for the Euro-Dollar System*. (Oct. 1970)
27. M. June Flanders, *The Demand for International Reserves*. (April 1971)
- \*28. Arnold Colclery, *International Adjustment, Open Economies, and the Quantity Theory of Money*. (June 1971)
29. Robert W. Oliver, *Early Plans for a World Bank*. (Sept. 1971)
30. Thomas L. Hutcheson and Richard C. Porter, *The Cost of Tying Aid: A Method and Some Colombian Estimates*. (March 1972)
31. The German Council of Economic Experts, *Towards a New Basis for International Monetary Policy*. (Oct. 1972)
- \*32. Stanley W. Black, *International Money Markets and Flexible Exchange Rates*. (March 1973)
33. Stephen V. O. Clarke, *The Reconstruction of the International Monetary System: The Attempts of 1922 and 1933*. (Nov. 1973)
- \*34. Richard D. Marston, *American Monetary Policy and the Structure of the Euro-dollar Market*. (March 1974)
35. F. Steb Hipple, *The Disturbances Approach to the Demand for International Reserves*. (May 1974)
36. Charles P. Kindleberger, *The Formation of Financial Centers: A Study in Comparative Economic History*. (Nov. 1974)
37. Margaret L. Greene, *Waiting Time: A Factor in Export Demand for Manufactures*. (April 1975)
38. Polly Reynolds Allen, *Organization and Administration of a Monetary Union*. (June 1976)
- \*39. Peter B. Kenen, *Capital Mobility and Financial Integration: A Survey*. (Dec. 1976)

40. Anne O. Krueger, *Growth, Distortions, and Patterns of Trade among Many Countries*. (Feb. 1977)
41. Stephen V. O. Clarke, *Exchange-Rate Stabilization in the Mid-1930s: Negotiating the Tripartite Agreement*. (Sept. 1977)
42. Peter Isard, *Exchange-Rate Determination: A Survey of Popular Views and Recent Models*. (May 1978)
- \*43. Mordechai E. Kreinin and Lawrence H. Officer, *The Monetary Approach to the Balance of Payments: A Survey*. (Nov. 1978)
44. Clas Wihlborg, *Currency Risks in International Financial Markets*. (Dec. 1978)
45. Ian M. Drummond, *London, Washington, and the Management of the Franc, 1936-39*. (Nov. 1979)
46. Susan Howson, *Sterling's Managed Float: The Operations of the Exchange Equalisation Account, 1932-39*. (Nov. 1980)
47. Jonathan Eaton and Mark Gersovitz, *Poor-Country Borrowing in Private Financial Markets and the Repudiation Issue*. (June 1981)

#### SPECIAL PAPERS IN INTERNATIONAL ECONOMICS

8. Jagdish Bhagwati, *The Theory and Practice of Commercial Policy: Departures from Unified Exchange Rates*. (Jan. 1968)
9. Marina von Neumann Whitman, *Policies for Internal and External Balance*. (Dec. 1970)
10. Richard E. Caves, *International Trade, International Investment, and Imperfect Markets*. (Nov. 1974)
- \*11. Edward Tower and Thomas D. Willett, *The Theory of Optimum Currency Areas and Exchange-Rate Flexibility*. (May 1976)
12. Ronald W. Jones, "Two-ness" in Trade Theory: Costs and Benefits. (April 1977)
13. Louka T. Katseli-Papaefstratiou, *The Reemergence of the Purchasing Power Parity Doctrine in the 1970s*. (Dec. 1979)
14. Morris Goldstein, *Have Flexible Exchange Rates Handicapped Macroeconomic Policy?* (June 1980)

#### REPRINTS IN INTERNATIONAL FINANCE

18. Peter B. Kenen, *Floats, Glides and Indicators: A Comparison of Methods for Changing Exchange Rates*. [Reprinted from *Journal of International Economics*, 5 (May 1975).] (June 1975)
19. Polly R. Allen and Peter B. Kenen, *The Balance of Payments, Exchange Rates, and Economic Policy: A Survey and Synthesis of Recent Developments*. [Reprinted from Center of Planning and Economic Research, Occasional Paper 33, Athens, Greece, 1978.] (April 1979)
20. William H. Branson, *Asset Markets and Relative Prices in Exchange Rate Determination*. [Reprinted from *Sozialwissenschaftliche Annalen*, Vol. 1, 1977.] (June 1980)

