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No. 143, July 1981

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INTERNATIONAL TRADE AND INVESTMENT:  
TWO PERSPECTIVES

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MARINA v. N. WHITMAN



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

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

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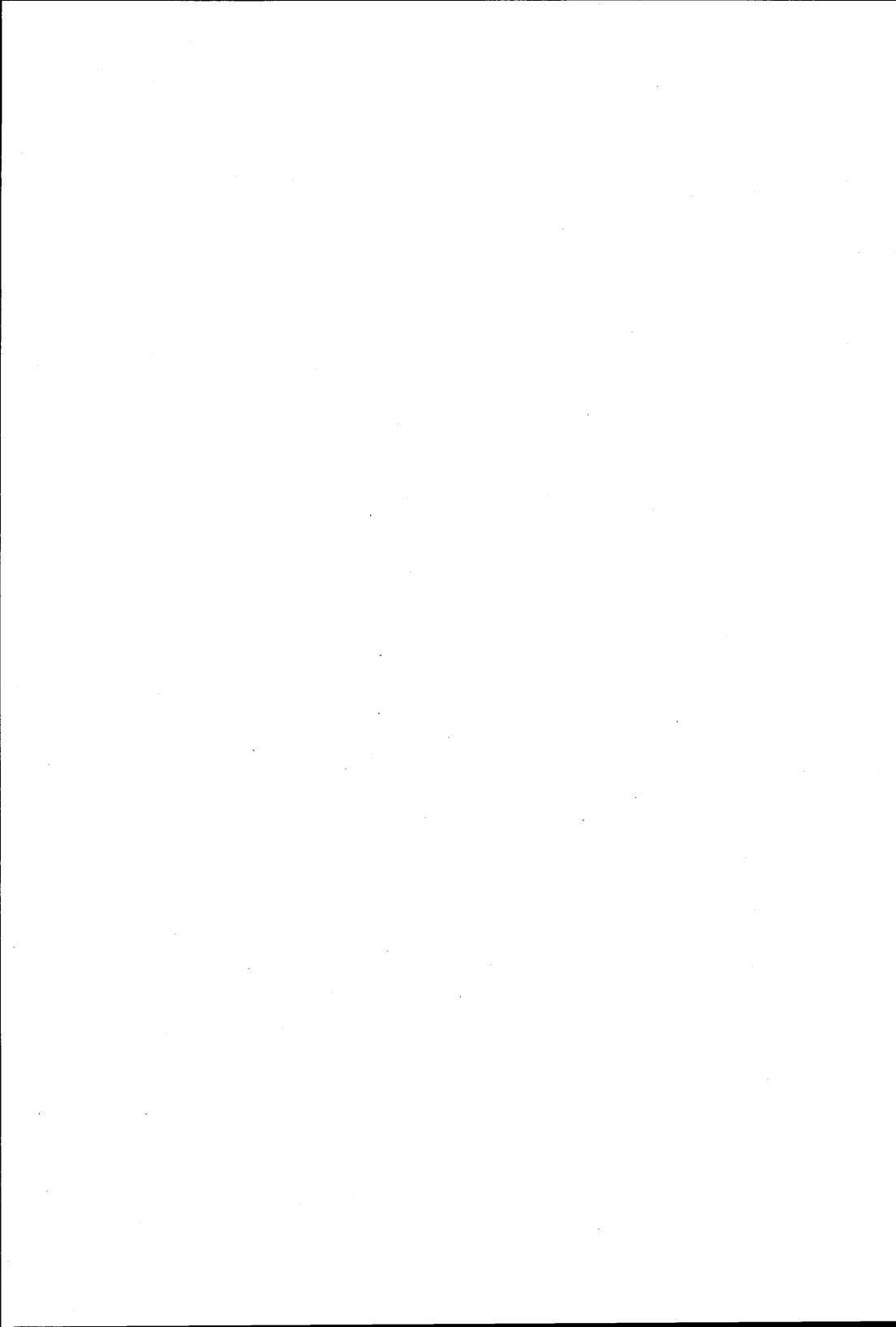
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# International Trade and Investment: Two Perspectives

## 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