Distributional Consequences of Direct Foreign Investment

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ECONOMIC THEORY, ECONOMETRICS, AND MATHEMATICAL ECONOMICS

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Preface

Rapid expansion of U.S. overseas investment through multinational corporations has been one of the most significant economic and political developments of the past twenty years. During that time one of the most controversial aspects of multinational operations has been the effect of overseas investment on the U.S. labor market. Allegations of runaway firms, estimates of extensive job loss, and attempts to restrict or further control the overseas activities of U.S. firms have been a regular feature of the debate over U.S. international economic policy in the 1960s and 1970s. In light of the higher levels of unemployment experienced in recent years, there is no reason to expect that the controversy will wane. Despite the intensity of the debate—or perhaps because of it—no clear resolution of the basic economic issues in this area has yet emerged.

Clearly, decisions on whether or not foreign investment merits more extensive control must turn on political judgments, as well as strictly economic considerations. Our focus in this study is on economic issues alone; we seek only to evaluate, to the extent that data permit, the merits of several of the fundamental economic questions that have been raised in this debate. A basic theme is that much of the current disagreement over such matters as the size of the job loss from foreign investment stems from the use of incorrect or inappropriate methods of analysis. Accordingly, we have tried to demonstrate here how this and related issues can be analyzed by building from basic

economic principles. Inadequate data—access to much of which is controlled by the multinationals themselves—have hindered most previous research in this area. In this regard our study, with its very tentative quantitative findings, is subject to similar limitations. With these constraints in mind we stress that the results of this study are primarily illustrative. However, the methods developed here, we feel, can be usefully applied as the data base continues to expand.

A number of colleagues have been kind enough to review and offer comments on parts of this study as the work progressed. Special thanks are due to Ned Gramlich, Harry Grubert, Arnold Harberger, Tom Horst, Charles Kindleberger, Robert Lipsey, Peggy Musgrave, Anthony Scaperlanda, Guy Stevens, and various members of the Federal Reserve and Cornell University staffs who have alerted us to a number of pitfalls. We grant them, of course, the customary exemption from responsibility for any errors that may remain. We also wish to express our thanks to Chris Delgado, Amihai Glazer, Joel Greer, Robert Kalish, Mateen Thobani, Jaime Willars, and Shirley Graham for their invaluable assistance in researching and preparing earlier manuscripts.

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Contents

Chapter I

Introduction

In the current discussion of the tax treatment of multinational firms' overseas activities, a central issue has been the question of what effect these activities have on domestic employment and income. Management's claim that overseas activities help create U.S. jobs is greeted by labor's counterclaim that such activities result in the wholesale export of U.S. jobs.[1] Although the public debate on this question has been intense, highly partisan arguments have tended to obscure the underlying economic issues. In this study we have developed an analytical framework that clarifies these issues and that can be used to evaluate the net effect of overseas investment on both U.S. employment demand in the short run and on the level and distribution of domestic income in

[1] Numerical estimates of the effect of direct foreign investment range from the U.S. Tariff Commission finding that American investment abroad may have wiped out as many as 1.3 million U.S. jobs (U.S. Tariff Commission, 1973) to the calculation of a Harvard Business School study that the same investments were responsible for the creation of 600,000 jobs (Stobaugh *et al.*, 1972).

the long run. To illustrate how this methodology can be applied, we also provide some sample estimates for recent years using the limited data that are currently available.

From a conceptual point of view, short-run job loss estimates are net figures in the sense that they represent differences between positive and negative contributions of multinational corporations (MNCs) to domestic production employment. The principal negative contribution can be expressed as the fraction of foreign subsidiary employment that could have been retained in the United States had the MNC attempted to serve foreign markets by exporting from domestic production sites. In our study we term this the "export displacement" effect.

Other authors have mentioned several possible sources of positive effects of direct foreign investment (DFI) on domestic employment that work to offset this export displacement. Foremost among these is the effect of subsidiary demands for U.S. exports of intermediate products,[2] which we designate as the "export stimulus" effect. In this study we shall focus on these two main production related effects.

In general, subsidiary imports from U.S. parents and other U.S. firms account for only a small fraction of subsidiary net sales (4% for all industries in 1970).[3] Accordingly, the conventional procedure of calculating the export stimulus effect as the employment required to produce these exports has generated relatively little controversy.

Calculation of the export displacement effect, however, is an altogether different matter. A very simple version of the export displacement effect may be written as

$$\Delta L = \sigma \times \Delta Q_F \times l, \tag{1}$$

[2] Other employment stimulating effects which have been noted include increased (white-collar) employment in domestic MNC headquarters, increased employment associated with export of complementary MNC products, and additional domestic employment stimulated indirectly by increased incomes and export demand abroad—all of which are likely to be of second-order significance when compared to the direct, production-related effects on which we focus in this study. For more detail on these and related issues, see U.S. Tariff Commission, (1973), Hawkins (1972b), and Horst (1974).

[3] Based on firms sampled in the Department of Commerce *Special Survey of U.S. Multinational Companies for 1970*.

where

ΔL is the number of jobs lost,
ΔQ_F is the increase in subsidiary output that results from a direct foreign investment,
l is the labor–output ratio in the firm's production process, and
σ is the fraction of subsidiary sales that could have been served by exporting from the domestic production site.

Written in this fashion, the export displacement effect ranges from a low of zero to a high value equal to the total increase in subsidiary employment as the substitution parameter, sigma, ranges in value between 0 and 1. The controversy about whether DFI stimulates or retards domestic employment thus turns on differences in judgment about the value of this key substitution parameter.[4]

For this reason, our study begins in Chapter II with a survey of existing studies of the DFI phenomenon that critically evaluates any evidence that bears on the question of what firms would or could have done in the absence of a direct foreign investment alternative. Much has been written on this issue and a variety of analytical approaches has been employed in its study. We examine closely several survey investigations, individual firm case studies, and formal econometric models and conclude that existing studies provide very little useful information on the crucial question of what would have happened in the absence of a direct investment option.

In Chapter III we develop an alternative framework within which to estimate the degree of substitutability of home for foreign production. This framework consists of a microeconomic model of the multinational firm as it operates under two alternative policy regimes. The first regime places no restrictions on the firm's activities while the

[4] Precisely this point was made in a recent study by Musgrave, which asserted that "The effects of direct foreign investment made abroad on the U.S. economy will very largely depend on whether or not such investment is apt to be a substitute for investment in the home economy. It was also noted that to the best of the author's knowledge little if any empirical research has been directed to this specific question." (Musgrave, 1975, p. 124.)

second denies it the option of establishing a foreign production subsidiary. The home–foreign production substitution parameter is taken as the ratio of the firm's domestic production level under the constrained regime to its foreign production level in the unconstrained regime. Viewed in this fashion, the substitution parameter is seen to depend on foreign and domestic cost conditions, foreign market demand conditions, taxes, and transport and tariff costs. For the most empirically relevant case of constant marginal costs in manufacturing industries, we show that the calculation of the substitution parameter requires only that the ratio of marginal costs in the two production sites, foreign market demand elasticity, and tariff and transport costs be known. Procedures for using existing data sources to generate these magnitudes are described. Sample estimates of the substitution parameters are presented for the major manufacturing industries in our study.

In Chapter IV we show how the highly simplified model of Chapter III can be extended to deal with more complex cases.

In Chapter V we use input–output techniques, together with information on substitutability from Chapter III, to obtain estimates of the net employment impact of direct foreign investment. One of the useful features of this approach is that it allows us to consider separately both the export displacement and export stimulus contributions to employment in each industry, taking into account both primary and secondary effects through the I–O matrix. Since the reliability of our estimates is uncertain, we also calculate values for a "break-even" sigma—i.e., the sigma value for which the net employment effect is exactly zero. By comparing our estimated values for sigma with this break-even value, it appears that the net employment impact of DFI is likely to be a substantial short-run job loss.

In Chapter VI we present estimates in which the employment-demand effects of DFI are broken down by occupational category. We employ these estimates to examine the question of what effect foreign investments have on the problem of structural bottlenecks in the composition of the domestic demand for labor. We conclude that DFI exacerbates such bottlenecks slightly by causing much larger reductions in blue collar than in white collar employment demands.

Our calculations of the net job displacement effects present only part of the picture of the impact of DFI on unemployment in the

industries and occupations considered in our study. Policymakers concerned with the effects of overseas investments on domestic labor markets must consider not only the extent of the initial dislocations, i.e., our net job displacement figures, but also the speed with which these dislocations tend to equilibrate over time. Displacements which occur in an industry in which job seekers are quickly relocated will generate less policy concern, for example, than those occurring in industries in which job seekers secure placement only with great difficulty and delay.

We approach this issue in Chapter VII within the framework of a probabilistic model of an industry labor market. For each of eight large manufacturing industries we use this model to simulate the labor market adjustment dynamics that occur in response to hypothetical job displacements equal in magnitude to those that we calculate in Chapter V using the 1970 DFI vector. One of the most striking outcomes of this simulation exercise is that, in each of the industries we examine, most workers who are displaced as a result of DFI are observed to have found new jobs within eight weeks of the onset of their unemployment. We conclude from this pattern that, at least when aggregate demand is at 1970 levels, widespread incidence of protracted unemployment spells is not one of the most important adjustment costs of DFI-related job displacements.

Our analysis through Chapter VII is primarily microeconomic in character. While this focus is appropriate for shorter-run issues, it is clearly less so when the time horizon is extended. Given time, the aggregate economy can adjust to job losses caused by DFI through either market forces or direct policy intervention. Accordingly, analysis of the long-term implications of DFI should focus on its effects on equilibrium wages, income shares, and output, rather than temporary job losses. In Chapter VIII we present a highly aggregated model that can be used to analyze the main features of an ongoing foreign investment program and its effect on the domestic economy. We conclude that, when account is taken of the leakage of tax revenues into the treasuries of host countries, foreign investment results in a slightly lower level of equilibrium U.S. national income. As far as the distribution of income is concerned, the principal long-run consequence of DFI appears to be a moderate shift favoring capital. These findings depend, however, on the assumption of a constant aggregate savings

propensity. When the propensity to save is affected by foreign investment, the outcome is less clear.

Licensing agreements are a principal alternative mechanism to DFI whereby U.S. technologies are transferred abroad. In Chapter VIII we also employ a modified version of the aggregate model to examine the effect of technology transfer through licensing on the size and composition of domestic income. Unlike DFI, licensing does not involve the export of U.S. capital to a foreign subsidiary. Accordingly, tax payments to host country governments are much smaller under licensing than under direct investment. As a result, we find that technology transfer yields a small increase in domestic income. As in the case of DFI, we find that technology transfer through licensing results in a slight shift toward capital in the distribution of domestic income.

In Chapter IX we highlight the principal findings of our study and note briefly some of its policy implications.

Chapter II

Literature Survey

The literature that deals with the effects of DFI on the level of employment demand in the United States is large and highly diverse, as much so in its methods of analysis as in its conclusions. Before exploring in detail specific studies that deal directly with the question of the substitutability of home for foreign investment, we present a very brief background discussion that conveys a broad outline of the nature of the phenomenon with which we are dealing.

Students of the multinational corporation are well aware that these organizations tend to be extremely large in size. A 1970 Department of Commerce survey revealed that 298 U.S. firms with 5237 foreign affiliates accounted for 55% of total foreign affiliate assets and employed an estimated 62% of all persons employed in U.S. foreign affiliates, some 3 million persons.

Though many discussions of the DFI phenomenon tend to emphasize cases in which firms have fled to low wage areas in order to escape high labor costs in the United States, the largest share of American

investments abroad is in fact concentrated in Europe and Canada, where unit labor costs do not differ substantially from those in the United States.[1]

The output of foreign affiliates is, with some exceptions—most notably in the electronic components industry and Canadian subsidiaries in general—sold almost entirely in foreign markets. Foreign affiliates outside of Canada exported only about 2% of their sales to the United States during the 1960s. In 1970 all imports from subsidiaries amounted to only 0.7% of total U.S. production.[2]

Though there are many obvious and important exceptions that should be borne in mind, there does appear to be sufficient evidence to warrant characterizing a typical multinational firm as a large, technology-intensive organization whose foreign affiliates produce and sell differentiated products in the large markets of highly industrialized economies.[3] This characterization of the multinational firm underlies much of our thinking as we turn now to the evaluation of specific studies.

Survey Studies

Typical of the survey research method is a 1972 study by the Business International Corporation.[4] B.I.C. approached highly placed executives with 35 firms having foreign affiliates and asked: "Do you believe your U.S. exports would have been higher, lower, or about the same in 1970 had you not invested abroad in the 1960s?" Of the 33 executives who responded, 30 answered that exports would have been lower, two estimated no change in exports, while only one had the opinion that his firm's exports would have been higher had they not invested abroad. Polk, Meister, and Veit, in their 1966 study,[5] examine survey data supplied by National Industrial Conference Board firms and find that these respondents also stress the defensive nature of overseas

[1] See, e.g., U.S. Tariff Commission (1973 pp. 97, 634).

[2] See Emergency Committee on American Trade (1973).

[3] See Hymer and Rowthorne (1970) and Vernon (1973).

[4] *The Effects of U.S. Corporate Foreign Investment, 1960–1970* (Business International Corporation, 1972).

[5] *U.S. Production Abroad and the Balance of Payments* (Polk *et al.*, 1966).