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Private foreign investment in its relationship to development

Balance-of-payments effects of private foreign investment in developing countries: summary of case studies of India, Iran, Jamaica and Kenya

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^{*/} This report summarizes the findings of four case studies issued as documents TD/B/C.3/79/Add.2 and TD/B/C.3(V)/Misc.1. The studies were prepared at the request of the UNCTAD secretariat in pursuance of paragraph 3 of Conference decision 33 (II) by a team of economists from the Queen Elizabeth House and the Institute of Economics and Statistics at Oxford University and from the Institute of Development Studies at the University of Sussex. The views expressed in this report do not necessarily reflect those of the UNCTAD secretariat.

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in developing countries: summary of case studies of
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Introduction

1. This paper sums up the findings of the first four country studies undertaken at the request of the UNCTAD secretariat into the balance-of-payments effects of private foreign investment in manufacturing. The first phase of the research began in 1969 with case studies of Jamaica and Kenya and the report on these countries was presented to the Committee on Invisibles and Financing related to Trade in July 1970.^{1/} The second phase began in 1970 with studies of India and Iran, the results of these studies being presented to the Committee in December 1971.^{2/} The third phase started in 1971 with field trips to Malaysia and Colombia, and the report on these countries will be presented at the next meeting of the Committee.

2. These studies have attempted to quantify the effect of individual acts of private foreign manufacturing investment on the balance-of-payments and incomes of selected developing countries. For this purpose, information has been collected in these countries on the operations of a cross-section of manufacturing firms, the greater number of them with foreign equity participation, over a number of years, and the net impact on the host economies of investments, purchases, sales and remittances of each firm has been analysed separately. This net impact has been defined by comparison with "alternative positions" in which foreign investment is assumed absent.

3. While it is possible to conceive of any number of such hypothetical "alternative positions", we may distinguish four general alternatives to having a particular foreign investment in a country: to import the product made by the foreign investor; to produce it domestically in a locally-owned (public or private) firm; to produce it domestically in another foreign-owned firm; or to do without a part or whole of the foreign firm's output. In our analysis we have considered only the first two alternatives, separately and in combination, so that the output of a foreign manufacturing firm is assumed to be replaced wholly by imports, or wholly by a local firm or partly by a local firm and the remainder by imports.

^{1/} Balance-of-payments effects of private foreign investment: case studies of Jamaica and Kenya, UNCTAD, TD/B/C.3/79/Add.2, May 1970.

^{2/} Balance-of-payments and income effects of private foreign investment in manufacturing: case studies of India and Iran, UNCTAD, TD/B/C.3(V)/Misc.1, November 1971.

4. We have in these studies been unable to quantify two sorts of effects of foreign investment because of both the lack of information and the limitations on our resources. The first sort are the "external" benefits and costs associated with foreign investment, such as its effect on domestic skills, tastes, income distribution, prices, entrepreneurship, government policy, and the like. Clearly these effects may be very important: in some cases they may even constitute the most significant effects of private foreign investment. However, "externalities" are a subject for separate investigation, and we have assumed them away partly in order to proceed with the exercise in quantification, and partly because individual foreign investments (unless they were very large in relation to the host country's economy) may be expected not to have large "external" effects when considered in isolation.

5. The second set of effects which have proved impossible to quantify are those which arise from differences in the structure, organization, attitudes and skills of foreign investing firms as compared to their potential local replacements. These may cause foreign firms to be more or less efficient, use different techniques of production, export a larger or smaller proportion of their output, or compete with greater or lesser success in domestic markets. In view of the difficulties of comparing an actual situation with a hypothetical one, we have simply assumed that in the alternative case the domestic firm would have exactly the same technical characteristics as those of the foreign firm. However, the degree to which a domestic firm may replace foreign investment has been allowed to vary depending on the specific circumstances prevailing in each case. It was further assumed that the difference between the actual level of production and that of local replacement would be covered by imports (see below para. 39).

6. There are a number of balance-of-payments effects of the operations of foreign firms which can be calculated directly from the firms' accounts (e.g. imports, exports, equity inflows, dividend and royalty outflows, etc.). These do not, however, exhaust the balance-of-payments impact of foreign investments: local sales, the purchase of local inputs and the use of local labour and domestic capital may all have effects on the host country's balance-of-payments. To calculate the "full" impact, rather than merely the "direct" impact, of foreign investment, it is necessary to make assumptions about the economy as a whole, the host government's policy, the competitiveness of domestic factors and outputs with those in international

markets, and the productiveness of domestic investment. While we have tried to choose assumptions which are meaningful and realistic, it must be noted that a number of alternative hypotheses would have been possible. As the results produced by our methods depend heavily on the particular assumptions made, the actual figures have to be properly interpreted and cannot simply be taken at face value. The analysis could not have proceeded unless some such assumptions were made: it is best to be explicit about them and (by sensitivity and other statistical tests, see paragraph 30 below) to illustrate their importance and limitations.

7. The study of Kenya and Jamaica used a different methodology and a different set of general assumptions from the study of India and Iran. To render the results of the four case studies comparable, we have re-processed the Kenya-Jamaica data according to the new methodology. These are the results which are discussed below (and shown in Appendices 1 - 4 to the summary). It would be inappropriate and difficult to discuss the two methodologies in detail and to compare them here; interested readers are referred to the original reports for the complete theoretical frameworks. In this summary we have kept methodological descriptions to the bare minimum, though clearly some have been necessary to explain the results at all.

The sample

8. On our trips to the four countries we were not able to correct information on a sample of foreign investments which we were sure would be representative of the total population of foreign manufacturing firms there. This was due partly to the lack of background published information which would have enabled a proper sampling framework to be constructed and partly to the variability in response of the firms approached. We got data on the operations of 20 firms in Jamaica, 9 in Kenya, 53 in India and 16 in Iran. 1/ Of these, all the firms in Kenya and Jamaica, 12 in Iran and 28 in India were foreign controlled. It must be noted that foreign majority equity participation is not necessary to obtain foreign control. The following table shows the distribution of the sample firms by the percentage of total equity held by foreigners.

1/ Of the original sample of 20 firms in Jamaica and 9 in Kenya, we were able to reprocess only 11 firms in the former and 8 in the latter by the new methodology. The following discussion refers to this reduced sample only.

Table 1

Extent of foreign equity participation in sample firms
(By number)

Country	100%	50-99%	1-49%	Nil	Total
Jamaica	5	6	-	-	11
Kenya	5	2	1	-	8
India	-	21	24	8	53
Iran	-	9	6	1	16
Total	10	38	31	9	88

9. Of the 11 Jamaican firms, 3 were manufacturing food products, 2 metal products, 2 chemical and 4 miscellaneous goods. Of the 8 Kenyan firms, 5 were manufacturing intermediate and 3 consumer goods. Of the 53 Indian firms, 19 were engaged in the production of transport equipment, 10 electrical equipment, 9 machinery and metal products, 4 rubber products and 11 chemicals. Of the 16 Iranian firms, 3 were making transport equipment, 2 electrical goods, 8 chemicals and 3 miscellaneous products.

10. The main reports describe various characteristics of the sample in greater detail. The India-Iran study, in particular, gives figures and ratios for sales, value added, capital employed, profitability, reinvestment, and employment by sample firms, with individual firms grouped according to industry and the degree of foreign participation. We do not propose to go into this sort of detailed description of sample firms here, but it may be worthwhile to note a few points about the sample data.

11. First, any results produced for the sample of foreign firms in a country may not, for reasons given above in paragraph 7, be representative of foreign investment in that country as a whole. Second, statistical tests have shown that groupings of sample firms in India and Iran by such characteristics as industry, extent of foreign equity participation, age and size, are not significant; in other words, the variation in results

between groups is smaller than the variation within groups, so that the average results for the groups are not representative of characteristics of the group.

12. Third, the basic data used in the studies were obtained from published balance-sheets and interviews with the firms. These data were adjusted so that the commodity prices would reflect those prevailing in international trade. For the adjustment of actual prices to international prices, we relied mainly on estimates given in interviews by the firms themselves. We had no independent check on the validity or accuracy of these estimates and, in particular it was difficult to judge the extent to which the valuation of imports and the cost of imported technology may have reflected imperfect market conditions.

13. Fourth, the period over which information was available differed from firm to firm (a minimum of 3 years and a maximum of 11, with most firms bunched around 5-7 years). To render them comparable, we averaged the results for each firm, usually expressed as a percentage of the nominal value of sales, over the years for which data were given for each. Firms with a longer span of data were not attached any greater weight than others. Since the performances of firms depend partly on which period of their lives are covered, special care is required when comparing different firms. The largest differences caused by different time coverage arise from inflows of capital and purchases of equipment. We have tried to compensate for these by "adjusting" capital inflows and outflows so that firms of different ages are reduced to the same time scale (see paragraph 24).

14. Let us now consider the main results of the country studies. The detailed figures which are given in the India-Iran study are not repeated here, but the results of the reworked Kenya-Jamaica data are not shown elsewhere and are therefore attached as appendices.

Direct balance-of-payments effects

15. The "direct" balance-of-payments effects of private foreign firms is defined as the difference between the firm's net inflows of equity capital loans and export earnings on the one hand and its imports of machinery and raw materials and remittances of royalties, interests, dividends and salaries of foreign personnel on the other hand. Thus the direct effect measures the balance of the transactions of the firm in foreign exchange and consequently does not reflect the total effect of private foreign investment on the balance-of-payments of the host country. For example, domestic sales by the firm may replace imports and in that case allowance

should be made for the import-saving effect of the foreign firm. On the other hand, locally purchased products may, and normally do, incorporate materials that are imported. It is only after the indirect effects of the firm's operation are taken into account that we may arrive at an estimate of the overall impact of private foreign investment on the balance-of-payments. This is discussed below in paragraphs 22-43.

16. In spite of the limitations discussed above, the direct balance-of-payments effect is a useful concept in so far as it provides a basis for examining certain broad characteristics of foreign firms. Figures for direct effects are given in appendices to Chapter III of the main report for India and Iran, and in Appendix 1 for Kenya and Jamaica. This effect was negative in 75 of the 88 firms examined. By country, 8 out of 11 firms in Jamaica, 3 out of 8 in Kenya, 48 out of 53 in India and all of the 16 firms in Iran, have negative direct effects. There is enormous variation among the sample firms with regard to the ratio of the direct balance-of-payments effect to the firm's sales and it is difficult to generalise on the basis of our results. Nevertheless, the following points may be of interest.

17. First, the preponderance of negative net direct effects is not surprising in view of the fact that the bulk of foreign manufacturing investment in these countries was intended to substitute for imports. With some notable exceptions, especially in Kenya and Jamaica, exports are an insignificant proportion of sales for most sample firms. Of the 88 firms, 69 have in the sample period exported less than 5 per cent of sales, and 30 have exported nothing at all. In most cases this has been caused by the uncompetitiveness of the product, sheltered behind protective barriers and produced on small scales, usually with relatively costly inputs. In some cases, however, it may also have been caused by export restrictions imposed formally (by clauses written into technology contracts) or informally (by control of subsidiaries) by foreign investors and technology suppliers. If developing countries wish to expand their exports of manufactured goods, policies will have to aim not only at making their products more competitive and better known internationally but also, where appropriate, at reducing restrictions imposed from abroad by investors and suppliers of technology. In fact, some of the exceptional sample firms that do export substantially show how foreign investment may serve as a stimulant to exports, by using cheap local labour (as with the Export Industry Encouragement Law firms in Jamaica), or local resources (as with some food processing firms in Kenya), or by providing the requisite technology and contacts abroad (as with some firms in India).

18. Second, a comparison of capital inflows with outflows of interest, dividends and royalties (retained earnings enter both sides and thus cancel out) shows that the balance was negative for 37 firms (18 in India, 9 in Iran, 5 in Kenya and 5 in Jamaica) out of a total of 79 with foreign capital. This is not, however, a fact to which much importance should be attached, since, with some exceptions, the relative pattern of capital inflows and repatriation is largely a matter of the age of the investment, and it would be very surprising if long-established firms did not take out more than they brought in each year.

19. Third, a question related to the one above of capital inflows and profit outflows which is of far more interest is that of the real returns on the real value of capital invested by the foreign firm. The real return to a foreign investor comprises not only declared profits after tax and interest but also, in relevant cases, royalties and technical fees, as well as the net return to the parent company on intra-company transactions. The real value of an investment, similarly, comprises not only the value of cash inflows and retained earnings, but also, where appropriate, some "proper" valuation of capitalised know-how and machinery sold by the parent. We have mentioned above that it is nearly impossible to obtain figures on such items; this is partly because of business secrecy but partly also because of the problems in defining the "correct" prices and costs for intra-company transfers. It is precisely because of these problems, however, that it may be difficult for a host government to regulate the profit remittances of foreign firms. Profits may be remitted via the transfer-pricing mechanism rather than declared in a number of circumstances, for instance, where taxes on profits in the host country are high compared to taxes elsewhere and to tariff rates on imports of intermediate products, or where there are legal limits on profit remittance, or where high declared profits may cause the government to lower the price of the final product.

20. These circumstances have not been present to any great extent in Kenya or Jamaica, which have had liberal taxation and foreign exchange policies; a number of sample firms in these countries have, however, remitted comparatively high declared profits abroad. In India, the incentives for undeclared transfers (such as high tax rates and price controls) seem to have been present, but the strict regulation of imports and the low degree of import dependence seem to have effectively blocked the possibility

of using transfer-pricing to remit profits to any great extent.^{1/} In Iran, price control is exercised in some sectors (e.g. pharmaceuticals) and import dependence is very high, and, according to some interviews there, foreign firms have used the transfer-pricing channel to remit undeclared profits. We cannot, unfortunately, present any figures for the extent or effect of this practice.

21. Fourth, there is a great variation in the rates of royalties and technical fees paid abroad, and there is little connexion with either the extent of foreign equity participation or the complexity of the technology transferred. We have sometimes found the same investor selling the same technology at widely differing prices and on widely differing terms in different cases. Given the fragmented and oligopolistic nature of the technology market, there seems to exist considerable scope for governments of host countries to alter the terms at which technology is purchased, though there is also a danger that too strict a regulation would inhibit its inflow.

Full Balance-of-payments effects

22. The "direct" balance-of-payments effects of foreign investment account only for part of its impact on a country's foreign exchanges. There are a number of other effects: for instance, if the output of a firm substitutes for imports, the value of imports saved counts as a balance-of-payments benefit; on the other hand, if it buys local resources which then causes imports to rise, or if it creates new incomes which lead to higher consumption, and consequently higher imports, it worsens the balance-of-payments. If all the direct and indirect effects are traced, every sale and purchase by a manufacturing firm may have an effect on the country's balance-of-payments, the extent of the impact depending upon various factors, such as the existence of local spare capacity, government policy and the cost structure of domestic industry.

23. The net impact of a firm's operations on the balance-of-payments can then be derived by taking into account all its benefits (exports, import substitutes, plus capital inflows) and subtracting all its costs (direct imports and other direct outflows as in the previous section, plus imports caused indirectly by adding to domestic incomes and purchasing local resources). On certain assumptions these balance-of-payments benefits and costs may also be taken to represent "social"

^{1/} See, however, Michael Kidron, Foreign Investment in India, Oxford University Press (1965), for a discussion of problems in the valuation of capital goods imported as foreign investors' contribution to equity capital in India.

benefits and costs, and if a "shadow wage rate" were included, may be used as "shadow prices" to evaluate the desirability of an investment from the national, as opposed to private, point of view. ^{1/} There are drawbacks to applying this kind of benefit cost analysis mechanically in the complex situations in which investments actually have to be evaluated; as we have not been able to use more than a very simple version, excluding the complex calculation of "shadow wages", we must stress the tentative nature of the figures derived.

24. In this simple version, the method has consisted of working out "balance-of-payments values" (i.e. benefits or costs to the balance-of-payments, depending on whether the item is an output or an input) in all "traded" goods by calculating the c.i.f. values of competing imports, of "non-traded" goods by using the inverse of a shadow exchange rate, and of domestic capital (foreign capital having a cost given by its post-tax profits) by assigning a value to capital "used" in production each year plus the value of production lost elsewhere in the economy. This bare statement glosses over a number of theoretical and practical problems, but it would not be appropriate to discuss them in this summary. In order to solve some of these problems we have advanced different models and used varying assumptions, but we shall consider the results of only one model, using our "most likely" assumptions, here.

25. This model (which we have called the "adjusted long-run balance model") yields both income effects and balance-of-payments effects, the slight difference between the two being accounted for by the effect of increased consumption out of new incomes. What we say below about balance-of-payments effects also applies more or less wholly to income effects measured from a social point of view. This model has been used to evaluate the net impact of foreign investment in comparison with the following three alternative positions:

^{1/} For an exposition of this method, see I.M.D. Little and J.A. Mirrlees, Manual of Industrial Project Analysis in Developing Countries, Volume II, OECD (Paris), 1969. For critiques, see forthcoming issue of Bulletin of the Oxford University Institute of Economics and Statistics, and A.K. Sen, Methods of evaluating the economic effects of private foreign investment, UNCTAD, TD/B/C.3/94/Add.1. For an alternative theory of "shadow pricing", see Guidelines for Project Evaluation, UNIDO (Vienna), forthcoming. A comparison of the two theories is made by P. Dasgupta, "An Analysis of Two Approaches to Project Evaluation in Developing Countries", Industrialization and Productivity, United Nations, Bulletin No.15.

- (a) Replacement of a foreign firm by imports (Alternative I).
- (b) Replacement of a foreign firm by an identical local firm, to isolate the effects of foreign financing (Alternative II).
- (c) Replacement of a foreign firm by a local firm, taking into account the entrepreneurial, technological and other advantages of the foreign investor (Alternative III).

26. Alternative I - A country always has the alternative open to it of importing the output of a foreign manufacturing firm, and a comparison with this alternative is particularly interesting when the firm has been set up with the intention of replacing imports. The value of imports it does replace depends on the extent to which its output is competitive with imports; the less competitive the output, and the higher the protection it enjoys, the smaller the value of imports saved. Moreover, since the inputs required to produce the output are also usually protected, and since expenditure on consumables may also take place on protected goods, the firm's own contribution to the balance-of-payments can be judged only by some measure which takes the whole structure of protection and price differentials into account.

27. The results for Alternative I for the Indian and Iranian samples are shown in appendices to Chapter IV of the main report, and for Jamaica and Kenya in Appendix 2 of the summary. The net balance-of-payments effect of a firm is derived by subtracting from its positive contribution (the value of sales at international prices) the balance-of-payments costs of the various inputs (domestic capital, raw materials, scarce labour, royalties, dividends, interest and other costs) and the balance-of-payments cost of additional consumption out of new income. On the assumptions made, 38 firms of the total 38 have negative net balance-of-payments effects; of these, 26 are in the Indian sample, 6 in the Iranian sample, 4 in the Jamaican sample and 2 in the Kenyan sample. The remainder, 57 per cent of the number of sample firms, have positive balance-of-payments effects as compared to importing their product.

28. As with direct effects, the variation in results of individual firms is so large that it is not possible to group them meaningfully by industry, extent of foreign participation, age or size. The effect of each firm must be calculated only on the basis of its performance, and not inferred from such external features as these groupings may show. We have, therefore, to go beyond these features to see what causes a firm to have a positive or negative balance-of-payments effects and what accounts for the variation of results between the sample firms.

29. There are a number of factors that determine whether a firm benefits or worsens the balance-of-payments in comparison to the alternative of importing: the "effective protection" given to the firm (i.e. the real protection afforded to it by the structure of protection on all the relevant inputs and outputs), the capital-output ratio, the opportunity cost of domestic capital, and the extent of foreign participation (which determines both the relative burden of financing to be borne domestically and the cost of profits remitted abroad). The greatest single cause of poor results in our methodology is a high rate of effective protection,^{1/} and it is important to know what is responsible for its existence. In a sense the government of the host country is "responsible" because it is always free to reduce protection; indeed, in our study we have used the convenient simplifying assumption that the government bears the "cost" of producing something expensively at home when it could be imported more cheaply from abroad. However, this may be misleading if taken too literally.^{2/} Even if a government is responsible for a general policy of promoting protected import substitution, the exact level of protection utilized by a firm may be determined largely by the firm itself, either through the prices at which it sells in the domestic market (when imports are banned), or through the level of tariffs that it has negotiated with the government (when competition from abroad is permitted). This is a matter on which a priori generalizations are not possible; each case must be judged separately, and policy prescriptions for improving balance-of-payments effects must vary according to who is responsible and why protection was granted.

30. We have tried various statistical tests to discover, for the Indian and Iranian sample firms, the factors which account for the largest variation in balance-of-payments results. These factors may be divided into three sets in diminishing order of importance; the first set consists of the balance-of-payments contribution of output, the balance-of-payments cost of raw materials and the real cost of local capital; the second consists of

^{1/} This is in no way to deny that protection may yield national benefits in other ways (for instance, by "learning by doing", by external benefits, by creating employment, and so on) but these benefits must be weighed against the costs. We have not been able, because of numerous problems in quantifying these benefits, to include them in our calculations.

"other" costs and profits and interest paid abroad; the third, causing the least variance, consists of the cost of scarce labour and royalties paid abroad. While all these items have to be evaluated in assessing a firm's performance, and while some (e.g. royalties) may for the purposes of bargaining on the terms of entry be carefully scrutinized, it is the first set of factors which have to be given special attention when comparing the performance of different firms and alternatives.

31. Since all such calculations will in practice require a fair amount of more-or-less informed guesswork, it is essential to run sensitivity tests to show the weight of each assumption in the total result. Such tests for the Indian sample showed that a 10 per cent change in the assumed competitiveness of the final products produced a 6 per cent change in the final result, while a similar change in the assumed competitiveness of raw materials produced a 3 per cent change. Raising the opportunity cost of local capital from 10 to 20 per cent worsened the result by 4 per cent. In the range of different assumptions tested, the other variables (such as the balance-of-payments impact of "other" costs, the "use" of local capital, and the proportion of total personnel payments going to "scarce" labour) each produced changes of 1 per cent or less in the final result (see Chapter IV of the report).

32. Alternative II - This alternative is intended to isolate the purely financial contribution of foreign investment. We have tried to discover, given the actual cost of servicing foreign capital and an assumed cost of diverting local capital from other uses, what difference it would make if the sample firms were wholly locally owned and did not borrow abroad. This exercise has, incidentally, also enabled us to compare the costs of direct foreign investment with that of borrowing abroad.

33. Clearly the cost of replacing foreign by local capital depends on what local capital produces elsewhere (its opportunity cost). The general assumption which we have used for the four countries is that local capital has an opportunity cost of 10 per cent; for India and Iran we have also shown the results for this alternative assuming rates of 5 per cent and 20 per cent. The results for this alternative are given in the first part of Chapter V of the India-Iran report and in Appendix 3 of the summary.

34. The difference between the net balance-of-payments effects of Alternatives I and II gives the net financial contribution of foreign firms. A positive figure indicates that the balance-of-payments and income effect of having foreign financing is better for a given firm than that of having local financing, while a negative figure indicates that it

would be cheaper to have local financing. Of the 79 sample firms with foreign capital, 51 have positive and 28 negative net financial effects on their host economies, with the opportunity cost of local capital set at 10 per cent. For most of the sample firms, foreign borrowing at interest rates of 7-9 per cent, without taking into account the repayment of principal, would have been cheaper than having foreign investment.

35. A purely financial evaluation of this sort is based simply on a comparison of the returns earned by the foreign investor on his capital and the cost to the host economy of providing the same amount of capital. Consequently a foreign investor makes a positive financial contribution when the rate of return on his investment is lower than the comparable social cost of an equal amount of domestic investment.

36. The crucial assumption here is about the cost of domestic capital. The "shadow price" of capital is notoriously difficult to determine, and a true value can be attached only if all investment opportunities in an economy were correctly evaluated in social terms. The 10 per cent opportunity cost assigned in our study is hypothetical, and a change in this rate produces significant changes in the final result. It may also be worth repeating that the return earned by the foreign investor has been calculated only on the basis of reported post-tax profits, and this may not be the same as the real return on his capital.

37. Even if these problems could be successfully resolved, two things must be borne in mind when considering financial replacement. First, that though financing is an important aspect of foreign investment, it is only one aspect among others. The overall contribution of such investment must be judged from the whole "package", in which financing plays a greater or lesser role depending on the contributions made by other factors such as technology, management, skills, etc. It is when these latter factors are of negligible importance that the role of financial considerations becomes predominant. Second, questions concerning the financing of a firm become relevant only when the investment is proved desirable as compared to importing (unless, of course, importing were not feasible at all as an alternative). In other words, a project must be judged desirable as such before financial considerations are introduced.

38. Alternative III -- The most ;important, though perhaps also the most difficult, alternative to consider is that of local replacement which is in fact likely to occur in the absence of foreign investment. It seems reasonable to start with the premise that foreign investors in many (but not all) cases have some advantage over comparable local investors, especially in developing countries. These advantages may be spurious to the national welfare of the host country (such as heavier advertising, famous brand names or easier access to the domestic capital market), they may arise purely from the oligopolistic structure of the international technology market (such as a hold over patented or proprietary technology), or they may be of genuine benefit to it (such as greater efficiency, higher capacity to export, new skills and attitudes, or access to know-how which cannot easily be purchased on its own). They may also possess disadvantages as compared to local investors (such as a lack of familiarity with local markets, or less knowledge of local suppliers), or may cause relative harm to the country (by restricting exports, creating undesirable patterns of consumption and income distribution, importing inappropriate techniques). In all these cases, an attempt at quantification must remain, at best, impressionistic, not only because there are little useful data on the relative effects and performances of local and foreign firms, but also because we are comparing a real situation with a hypothetical one, to which any characteristics can be attributed.

39. It would have been easy for us to generate any number of local replacement alternatives with differing characteristics, but this would have multiplied the number of results and added little to knowledge. We, therefore, used the simple device of assuming that the actual and replacement firms would be identical in all respects except that:

(a) the replacement firm would be locally financed, and thus possess the characteristics of Alternative II above;

(b) it would pay different (usually higher, but sometimes lower) fees for its technology; and

(c) all the advantages of the foreign investor would show up in the "degree of local replacement", which would vary from zero (i.e. the entire output imported, as in Alternative I) to 100 per cent (i.e. the local firm producing exactly the same output, and its effects being the same as for Alternative II, except for the change in technical fees), depending on the sophistication and availability of technology and the existence and skills of local entrepreneurs.

40. This stylized representation of local replacement takes account of some of the differences between the actual and alternative positions, but it does not take into account such factors as economies of scale, time lags, different export propensities, marketing techniques, possibility of

using intermediate technology, or organizational differences. It is not, in principle, difficult to include any or all such differences in the simulation model; the problem is that we do not as yet know what parameters to enter into it. The version of Alternative III used has the virtue of simplicity, and is in a sense neutral between different views of what local replacement would be like.

41. Estimates for the degree of replacement were made for each individual firm in the sample, and two versions, termed "most likely" and "maximum possible", were used. On average, the most likely degree of replacement assumed came to 44 per cent of sales for India, 25 per cent for Iran, 32 per cent for Jamaica and 31 per cent for Kenya. Increases in technical payments, as compared to what they would be if they declined in proportion to the sales assumed replaced, came to less than 1 per cent of the value of sales of the original foreign firms for the "most likely" alternative.

42. The latter part of Chapter V of the India-Iran study describes the results of the alternative position: the results for Kenya and Jamaica are given in Appendix 4 below for the "most likely" replacement alternative. Our results show that of the 88 sample firms, 16 firms for India, five for Iran, two for Kenya and three for Jamaica, 26 in all, have negative net effects as compared to local investment. This accounts, in terms of numbers, for 30 per cent of the sample: the remaining 70 per cent have beneficial net effects. A sensitivity test for "overcharging" for imports for the Iranian sample showed that if all the sample firms there were locally owned and paid 20 per cent less for their imports in free markets as compared to what these imports cost in the actual situation, the balance-of-payments effects of the sample as a whole improved by about 10 per cent of the value of sales. Clearly this practice, if it exists to a significant extent, can have important consequences.

43. While the actual figures derived in the country studies depend very much on the particular assumptions made, it is clear that we cannot give an unequivocal answer to the questions regarding the net effects of foreign manufacturing investment in the samples obtained. Each case is different, and the net impact on income and balance-of-payments varies from firm to firm, from extremely beneficial to extremely damaging. Any attempt to improve the effects of foreign investment must aim at the following: first, to improve its effects as compared to the alternative of importing, in other words, to make it more competitive and less protected; second, to ensure, by appropriate measures of taxation and regulation of inter-firm transfers, that its financial burden is not too heavy as compared to the cost of capital in the country as a whole; third, to direct it to sectors where local replacement is weakest, and the advantages in terms of efficiency, technology and management of the foreign firm strongest; and, finally, to reduce as much as possible the direct cost of technology by the use of bargaining and official surveillance. A whole variety of measures is called for, which is beyond our competence to discuss in a study of this sort.

Appendix Table 1

Direct balance-of-payments effects of Kenyan and Jamaican sample firms
(percentage of sales)

Firms	Exports	Capital inflows	Imports of equipment	Imports of raw materials	Other imports	Royalties, technical fees	Interest, profits abroad	Net effect
Kenya								
1	3.8	2.5	12.2	8.4	-	-	35.0	- 49.3
2	57.9	7.3	12.3	2.3	5.0	1.8	13.5	30.2
3	-	0.9	0.7	1.9	-	-	13.3	- 15.0
4	8.5	5.1	7.1	34.3	2.1	-	9.8	- 39.8
5	67.1	37.2	41.9	5.5	-	2.1	33.1	21.7
6	67.8	25.5	19.7	20.1	-	3.7	-2.2	52.0
7	40.0	7.7	2.9	27.8	-	0.2	12.8	4.0
8	28.8	0.6	4.8	11.0	-	-	3.6	10.0
Average Total	42.9	12.5	14.5	18.3	1.6	1.0	17.2	2.7

Appendix Table 1 (contd.)

Firms	Exports	Capital inflows	Imports of equipment	Imports of raw materials	Other imports	Royalties, technical fees	Interest, profits abroad	Net effect
Jamaica								
1	5.4	12.4	1.0	17.7	-	-	21.2	- 22.1
2	2.2	15.8	1.8	10.1	3.5	-	1.9	0.7
3	52.7	2.8	2.2	19.1	-	-	2.8	31.4
4	-	6.4	3.2	60.1	-	7.7	12.9	- 77.5
5	16.7	12.4	3.1	60.1	1.1	1.5	6.1	- 42.8
6	-	12.2	5.7	60.9	-	-	6.1	- 60.6
7	100.0	39.2	1.2	47.6	-	-	19.3	71.1
8	29.6	6.4	1.5	32.9	-	0.3	8.7	- 7.4
9	30.4	7.6	2.7	28.9	-	-	7.4	- 1.0
10	-	4.2	5.1	47.8	-	1.6	9.3	- 59.6
11	10.6	2.8	2.2	46.0	-	0.7	14.6	- 50.1
Average Total	24.9	11.1	2.7	46.6	0.8	0.8	10.7	- 25.5

Appendix Table 2

Full balance-of-payments effects on Kenyan and Jamaican
sample firms as compared to importing (Alternative 1)

(Percentage of nominal sales)

Firms	b.o.p. value of sales	Cost of local capital materials	b.o.p. cost of raw materials	Other b.o.p. costs	Cost of scarce labour	Royalties, profits	b.o.p. cost of consumption	Net b.o.p. effect
Kenya								
1	100.0	-	8.4	47.8	11.4	35.0	2.0	-4.6
2	86.3	0.5	8.7	48.3	6.6	15.3	1.2	5.7
3	67.5	25.9	19.1	30.5	7.7	13.3	1.3	-30.4
4	105.1	-	43.0	12.1	13.4	9.8	2.4	24.4
5	93.9	-	5.5	21.1	6.4	35.2	1.1	24.6
6	87.9	-	35.1	23.4	6.9	1.5	1.2	19.7
7	96.0	-	49.6	6.3	13.8	13.0	2.4	10.9
8	83.6	10.7	14.7	26.8	18.3	3.6	3.2	6.2
Average Total	91.6	2.6	27.5	20.7	9.9	18.2	1.7	11.0

Appendix Table 2 (continued)

Firms	b.o.p. value of sales	Cost of local capital	b.o.p. cost of raw materials	Other b.o.p. costs	Cost of scarce labour	Royalties, profits	b.o.p. cost of consumption	Net b.o.p. effect
Jamaica								
1	68.5	0.6	42.5	17.7	2.1	21.2	0.4	-16.0
2	74.6	4.1	59.4	3.5	3.0	1.9	0.5	2.2
3	100.0	6.3	45.8	22.9	1.6	2.8	0.3	20.2
4	87.0	-	60.1	0.3	8.1	20.6	1.4	-3.6
5	92.6	-	60.1	7.9	13.6	7.6	2.4	0.9
6	83.3	6.6	60.9	19.9	4.7	6.1	0.8	-15.8
7	100.0	-	47.6	17.8	6.0	19.3	1.0	8.4
8	88.3	0.3	32.9	13.5	1.6	9.0	0.3	30.6
9	88.4	-	28.9	24.6	39.0	7.4	6.9	-18.5
10	100.0	1.7	50.6	14.1	7.2	10.9	1.3	14.3
11	91.9	-	46.0	21.8	3.4	15.3	1.5	4.8
Average								
Total	93.1	1.1	49.7	16.3	7.5	11.5	1.3	5.7

Note: For explanation of the items in this table see Chapters III and IV of the main India-Iran report (TD/B/C.3(V)/Misc.1).

Appendix Table 3

Net financial balance-of-payments effects of Kenyan and
Jamaican sample firms (Alternative II)
(Percentage of nominal sales)

Firms	Increase in cost of local capital	Value of foreign interest and profits saved	Net financial effect of foreign capital
Kenya			
1	27.9	35.0	-7.1
2	18.4	13.5	4.9
3	20.6	13.3	7.3
4	10.5	9.8	0.7
5	30.7	33.1	-2.4
6	10.9	-2.2	13.1
7	13.3	12.8	0.5
8	5.1	3.6	1.5
Average Total	18.6	17.2	1.4
Jamaica			
1	10.1	21.2	-11.1
2	3.2	1.9	1.3
3	6.3	2.8	3.5
4	11.5	12.9	-1.4
5	9.4	6.1	3.3
6	6.7	6.1	0.6
7	5.0	19.3	-14.3
8	2.2	8.7	-6.5
9	7.3	7.4	-0.1
10	5.4	9.3	-3.9
11	4.7	14.6	-9.9
Average Total	6.1	10.7	-4.6

Appendix Table 4

Net balance-of-payments effects on Kenyan and Jamaican
sample firms as compared to most likely local
replacement (Alternative III)
(Percentage of nominal sales)

Firms	Percentage of local replacement assumed	Balance-of-payments effect of replacement firm	Balance-of-payments effects of actual foreign firm	Net b.o.p. effect of foreign firm
Kenya				
1	0	-	-4.6	-4.6
2	40	0.3	5.7	5.4
3	50	-18.8	-30.4	-11.6
4	0	-	24.4	24.4
5	25	6.7	24.6	17.9
6	10	0.8	19.7	18.9
7	40	4.0	10.9	6.9
8	100	4.6	6.2	1.6
Average Total	31.1	1.1	11.0	9.9
Jamaica				
1	100	-4.9	-16.0	-11.1
2	100	0.9	2.2	1.3
3	100	16.7	20.2	3.5
4	0	-	-3.6	-3.6
5	0	-	0.9	0.9
6	100	-16.3	-15.8	0.5
7	0	-	8.4	8.4
8	50	18.6	30.6	12.0
9	50	-9.8	-18.5	-8.7
10	0	-	14.3	14.3
11	20	2.9	4.8	1.9
Average Total	32.1	2.4	5.7	3.3