The Transaction-Cost Rationale for Countertrade

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1. INTRODUCTION

One of the salient developments in international trade in the last ten years has been the increasing importance of countertrade. This generic term is used to describe unconventional trade practices that impose some sort of reciprocity. Although there is disagreement on how much of world trade is subject to countertrade requirements, most experts agree that countertrade accounts for at least 15 percent of world trade and that the percentage is growing rapidly (UNCTAD, 1986a:79).

This development has puzzled economists because they have equated countertrade with barter, and trade for goods is much inferior to trade for money. Money, surely one of man's greatest inventions, allows trades to be multilateral and spread over time. Barter, on the other hand, requires them to be bilateral and instantaneous (Jevons). It has also worried officials of the U.S. government and of various multilateral bodies, such as the Organization

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for Economic Cooperation and Development, the General Agreement for Tariff and Trade, and the International Monetary Fund, because the spread of countertrade weakens the multilateral system of trade and payments that has worked so well since 1945 (de Miramon).

Much of the literature has ascribed the growth of countertrade to the heavy indebtedness of an increasingly large number of developing countries. Countertrade is seen as a way for these countries to solve their foreign exchange shortages. This article argues that saving on foreign exchange is not the only reason nor even perhaps the main reason for countertrade. The two most commonly used forms of countertrade can be explained instead as attempts to build reciprocity in order to reduce transaction costs in the international market for intermediate products, technology, and distribution services.

Section 2 shows that the term *countertrade* includes contracts with very different characteristics. In section 3, the usual view that countertrade is an answer to foreign exchange shortages is shown to be only partially valid. Section 4 argues that countertrade can be seen as a device to reduce transaction costs in the international market for intermediate products, distribution services, and technology.

2. WHAT IS COUNTERTRADE?

The term *countertrade* is used to describe a variety of trade practices that can be categorized into four main types: classical barter (one contract, short-term orientation, no money used), commercial compensation (multiple contracts, short-term orientation, money used), industrial compensation (multiple contracts, long-term orientation, money used), and offset (multiple contracts, long-term orientation, money used, involves sometimes investment). All these transactions have one characteristic in common: in each a seller provides a buyer with goods and services and promises in return to purchase goods and services from the buyer (Banks, 1983:160).[1] Because countertrade usually results in a two-way flow of commodities, it is often likened to barter. In fact, there are important differences between barter and the three other categories of countertrade.

The *classical barter* category includes transactions that are short term, are effected by a single contract, and consist of the direct exchange of goods and services between two parties without the use of money. *Barter* is a one-shot transaction that involves the swap of one product for another. A large number of barter exchanges can be consolidated into a *clearing arrangement*. In this form of barter, each party agrees, in a single contract, to purchase a specified, and usually equal, value of goods and services. The contract value is expressed in nonconvertible, clearing account units (usually

1. In the case of offset, the buyer may also promise to make investments in the country.

called clearing dollars). Each country sets up an account which is debited whenever one country imports from the other. At the end of the trading period, imbalances are cleared through hard currency payments, transfer of goods, or payment of a penalty. The inflexibility inherent in clearing arrangements can be alleviated by *switch trading*, which consists in buying a country's position in exchange for hard currency and selling it to another customer.

In contrast to barter, the other forms of countertrade—commercial compensation, industrial compensation, and offset—involve the use of money or credit. When governments make large purchases from foreign companies, they increasingly insist that the purchase price be offset in some way by the seller. The seller has to agree to subcontract some of the production to local producers, to increase its imports from the purchasing country or to transfer technology. Such a quid pro quo is called *offset*. Political factors are important in explaining this type of countertrade and are sufficiently complex that a discussion of offsets is better left to another time.

Industrial compensation includes trade arrangements that are long term in nature and consist of separate but linked money-for-goods contracts. The most common type of countertrade is *buy-back*, or *compensation*. In a typical buy-back transaction, the exporter transfers technology (either embodied in plant and equipment or disembodied), and agrees to purchase in return a certain percentage of the plant's output over a given number of years. For example, two British firms, ICI and Davy Powergas, sold a methanol plant in 1977 to the Soviets for $250 million and agreed to take back 20 percent of the production of the plant over the 1981–90 period for an estimated $350 million. A variant of buy-back is called *loan-and-import*. Under this scheme, a user of an input provides financing, and sometimes equipment, to develop a new source of supply. The borrower then signs a long-term supply contract with the lender, the loan being repaid from the proceeds of these deliveries (Walsh).

Commercial compensation includes a variety of trade practices that involve, like buy-back, two parallel hard currency contracts, but they differ from buy-back insofar as the goods that are taken back by the seller of goods or equipment are not those produced with the equipment sold. Another difference is that the reciprocal obligations are fulfilled within a much shorter period of time, usually three to five years. In *counterpurchase* transactions, an exporter agrees to buy, within a few months to a few years, unrelated goods from a shopping list set up by the importer. The list may change from time to time, but the commitment is to buy from the list as it stands at a later date and at prices posted at that time. The list often contains light manufactures and consumer items that do not have a ready market. For example, in 1977 Volkswagen sold ten thousand cars to East Germany and agreed to purchase goods from a list set up by the East Germans over the next two years, up to the value of the cars sold to East Germany (Shuster).

A variant of this is *advance purchase*, in which the order of the transactions is reversed.

The term *countertrade* thus covers contracts with two main purposes. On one hand, barter contracts are undertaken to avoid using money or setting a price. The other three types make use of money, and their main feature is reciprocity.

Likening countertrade to barter is unfortunate, for barter makes up a relatively small proportion of the countertrade of Western firms. A survey of 122 U.S. firms by the National Foreign Trade Council shows counterpurchase, with 55 percent of all transactions, to be the most common form of countertrade, followed by offset, 24 percent; barter and switch trading, 12 percent; and buy-back, 9 percent (Bussard, 1983). My survey of all countertrade transactions reported in *Countertrade Outlook* over the mid-1983 through 1986 period shows counterpurchases to be the most common practice, with 51 percent of all transactions, followed by barter (29 percent), buybacks (13 percent), and offset (7 percent). (See Appendix 1 for details.)

3. COUNTERTRADE AS A WAY TO SAVE ON FOREIGN EXCHANGE

Why would a country engage in such complicated forms of transactions when much more efficient alternatives would seem to be available? A view commonly held by both academics and practitioners is that a shortage of hard currency is the main cause of these heterodox trade practices (Elderkin and Norquist, 1987:11; Haendel, 1984:1; McVey, 1980:197).[2] The recent development of countertrade would be directly linked to the heavy indebtedness of Soviet bloc and developing countries.

If countertrade results from foreign exchange shortages or from the difficulties that indebted countries experience in obtaining trade credits, then it must be because countertrade can save on foreign exchange. But a careful analysis shows that this is not generally true. Of all four types of countertrade, only barter can be shown to have this property, and only under very specific conditions (Banks, 1983). It is difficult to see, on the other hand, how counterpurchase and buy-back could help solve a country's shortage of hard currency.

Buy-backs, like counterpurchases, consist of separate but linked money-for-goods contracts. The ICI-Davy buy-back mentioned earlier involved three separate contracts. The first was for the sale of the methanol plants for hard currency. A second contract extended credit to the Russians for the purchase of the equipment and set the terms of repayment. A third contract specified the terms and conditions of the purchase by ICI and Davy of the methanol to be produced in the plant. Note that, contrary to popular impres-

2. See, however, Banks (1983), Mirus and Yeung (1987), and Kostecki for criticisms of this view.

sions, buy-back arrangements do not usually involve the barter of plant for resultant output but consist of two parallel money transactions. At the completion of the project the plant seller is paid in full by the buyer from credits obtained from Eastern or Western sources. The plant buyer then repays the lender with the proceeds of the sale of the output to the plant seller (Verzariu, 1980:93; Loeber and Friedland; McVey, 1980:202; United Nations Economic Commission . . . , 1984:10).

As in this example, buy-backs usually require hard currency outlays or credit, since exporters of plant and equipment usually do not agree to wait the number of years it would take for the plant to come on-line before being paid in the resulting product. One could argue that the assurance of a ready market for the goods produced with the project would improve its credit rating in the eyes of a Western bank. In practice, lenders do not take the buy-back contract as security. They require that no mention of the Western firm's commitment to purchase the plant's output appear in the export contract and consider the borrower solely liable for repayment of the loan (Verzariu, 1980:27). Buy-backs cannot therefore reduce either outlays of foreign exchange or the need for credit, and they do not improve the borrower's creditworthiness.[3]

Counterpurchase also involves two separate contracts, each paid in hard currency. A counterpurchasing country must pay (or borrow) hard currency for its imports and gets hard currency back when the return transaction is completed. Because imports are usually delivered first, and because counterpurchase obligations often cover only a part of import value, the exports from the counterpurchasing country cannot be used to finance the import (Jones, 1984:15; Welt, 1984:59).

While a superficial view of countertrade arrangements has led most observers to equate them with barter, an examination of their stipulations reveals that two major types of countertrade—counterpurchase and buy-backs (and their variants)—are not barter transactions and cannot help countries reduce their outlay of hard currency or improve their ability to borrow foreign exchange. Since we have seen above that these two types make up more than half of all countertrade transactions, explanations in terms of foreign currency shortages are bound to have only limited explanatory power.

Table 1 tabulates the extent to which countries used countertrade and their debt-service ratio in 1983. The table does not show a clear relationship between the variables, and a chi-square test confirms the absence of a relationship between indebtedness and countertrade.[4] This suggests that the

3. One reason for the banks' reluctance to take buy-back commitment as security is because buy-backs are usually entered into by governments, and there is no guarantee that the cash flow generated by the project will be used to repay the debt. Therefore the lending bank will consider the country's overall creditworthiness. Buy-back will not allow such countries to exceed their credit limits (Banks, 1983:166).

4. Columns 2 and 3 and rows 2 and 3 were aggregated because of small sample size.

Table 1. Countertrade and Debt, 1983

Countertrade Frequency	Number of LDCs and Eastern European Countries with a Debt Service Ratio	
	over 25%	25% or less
Above average	7	8
Average	7	9
Below average	4	5
Average countertrade frequency is 2 to 4%.		

Source: Kostecki, 1987.

Rows 2 and 3 were added to calculate chi-square, which is close to zero (chi-square critical, 1, .05 = 3.84). The null hypothesis that countries with high debt service ratio are no more likely to countertrade than countries with low debt service ratios is supported.

reasons for the development of buy-back and counterpurchase must be sought elsewhere.

4. COUNTERTRADE AS A DEVICE TO REDUCE TRANSACTION COSTS

Whereas the main characteristic of barter is the fact that it effects trade without the use of currency, the distinguishing mark of all other types of countertrade is their reciprocal nature. Of the three, offset is the most complex, arising from the interaction of political and economic factors. In this section we concentrate on industrial (buy-back and loan-and-import) and commercial compensation (counterpurchase) and argue that they constitute attempts at reducing transaction costs.

As Williamson has shown, market exchange suffers from high transaction costs whenever small-number conditions prevail, uncertainty is high, and there is high information asymmetry between the parties. In that case, one party can be "held up" by the other. Hierarchical coordination is an efficient solution in such cases because it reduces the incentives that the parties have to exploit each other by replacing price with behavior constraints.

Assume, however, that international hierarchical coordination is not possible, because host governments will not allow incoming foreign direct investment and home firms are unable or unwilling to expand overseas. One way to reduce transaction costs, and thus to motivate parties to make transaction-specific investments, is to transform a unilateral supply relation into a bilateral one, in which A's sale to B will be contingent on B's selling to A. Reciprocity can be used to equalize the exposure of the parties (Williamson, 1985:191). This line of argument suggests that buy-back, loan-and-import,

and counterpurchase contracts will be used in situations where high transaction costs would otherwise prevent international trade from taking place.[5]

There are two main circumstances in which transaction costs are likely to be high: (1) when there is significant information asymmetry between the parties, or (2) when the market is narrow because of scale economies, transportation costs, or a need to make transaction-specific investments. Let us examine these two cases in greater detail.

4.1. Technology

Knowledge has one main attribute that makes its market exchange costly: its characteristics are, by definition, unknown to the buyer. The seller, on the other hand, is reluctant to provide this information because, if he did so, he would be transferring his knowledge free of charge. There are two basic solutions to this problem of "buyer's uncertainty": they consist in embedding knowledge in (1) physical goods and (2) patents. Embedding knowledge in physical goods facilitates its sale, since physical goods are tangible. Embedding knowledge in a patent allows the innovator to divulge the characteristics of the knowledge he has for sale by granting him a monopoly on its use. The efficiency of the patent system thus depends crucially on the degree to which the know-how can be put on paper (on its nontacitness), as well as on the strength of the legal protection given to patents. The higher the tacit component in the technology package, and the weaker the legal protection afforded patentors, the less efficient markets will be in transferring knowledge.

Except for the case of older, patented knowledge, where the patent provides full information on the technology for sale, the seller of technology (embodied in a plant or disembodied, as in a license or a technical assistance agreement) usually knows better than his customer the value of the technology that is for sale. He knows the characteristics of the equipment he is selling, the quantity, quality, and cost of the prospective output, and new technological developments that could make the plant or license obsolete.

Given this information asymmetry, a simple sale contract would encourage the seller to behave opportunistically. The reason is that the seller of the plant (or the licensor) is paid a lump sum at the conclusion of the transfer. He has consequently strong incentives to minimize the cost of providing the knowledge and no continuing interest in the operation. The problem does not arise in the case of a traditional foreign direct investment (FDI) because the return to the investor then comes from the difference between the plant's revenues and its costs. The investor is therefore motivated to make the most efficient technology transfer.

A country that bans incoming FDI cannot use this device and must protect

5. The point that East-West contracts serve to increase enforceability was first made by Bruce Kogut (1986). See also Mirus and Yeung (1986) and Parsons.

itself by drawing detailed specifications and performance guarantees. There are, however, problems with this approach. First, the quantity and quality of the plant's output depends on the joint performance of both the equipment seller and the plant's operator. Failure to produce output of a given quality at the predicted cost and up to the plant's designed capacity can be caused by inadequate performance by either the plant seller or the buyer, or both. Often it is difficult to apportion responsibility, making it possible for equipment sellers to avoid damage to their reputation when their performance is defective. The buyer could alleviate this problem by specifying in detail the seller's obligations. The buyer could, for example, carefully describe the specifications of the equipment he wants to buy. But since in most cases the seller has better knowledge than the buyer of the technical choices to be made, the equipment specifications drawn by the buyer may not result in the cheapest solution. Consultants can be employed, but their advice is not always unbiased.

A second potential problem is that the economic value of the plant often depends on continued after-sale service. In a straight sale of equipment, the seller, once paid, has few incentives to provide this service free of charge. Indeed, the seller is often in a position to ask excessive compensation for such service because, though there may be a number of competitors ex ante, the successful bidder is often, ex post, the only one with detailed knowledge of the technology in place.

In theory, a contract could be written that (1) would stipulate that no payment be made until the facility (or the license) works as intended, (2) would provide for completion guarantees to be forfeited should the plant not perform as expected, and (3) would obligate the technology seller to provide continuous after-sales assistance.

In practice, contracts provide only limited protection. Consider, for example, the usual stipulations found in turnkey contracts, which were developed in the 1960s to sell complete plants to Eastern Europe. Turnkey contracts have been extensively used since by other countries, such as Algeria, that have discouraged incoming foreign direct investment. Under such contracts the contractor is paid to set up a complete production unit. He is responsible for feasibility studies, technology and know-how, design and engineering, equipment, and the construction of the plant. His obligations are normally fulfilled when the plant is fully operational (Oman).

An examination of turnkey contracts, however, shows that they provide only limited protection. Although they specify that the contractor will be paid the remaining sums due upon the satisfactory completion of trial runs, those runs are usually made by the contractor's personnel and last only twenty-four hours. This provides little guarantee that the plant will operate as planned in normal circumstances—when run by the buyer on a day-to-day basis. Completion guarantees are also typically low, on average 5 to 10 percent of the contract value (Salem and Sanson-Hermitte).

As a result, turnkey contracts do not seem to have effectively protected technology buyers against opportunism by the seller. This is evident in a piece by Kemal Abdallah-Kodja, who was Algeria's minister of planning and one of the main forces behind Algeria's reliance on turnkey contracts. According to Abdallah-Kodja, the purchase of plants through these contracts had a number of drawbacks. First, they proved to be very expensive because contractors covered themselves against all possible contingencies. Because they lacked technological information, Algerians were unable to check on the reasonableness of the quoted price. The bidding process failed to disclose the required information because the number of potential suppliers was usually small. Second, the local operator often found himself unable to run the plant after delivery had taken place because he lacked the necessary managerial and technical skills. Third, the buyers were ill equipped to verify that they were getting what they wanted. Trials showed that the plant worked, not that the fundamental design and technical choices were correct. The validity of these choices became apparent only after many years (Abdallah-Khodja, 1984:33–34).

Algeria's answer to these problems was to extend the scope of the contract to include responsibility for the effective transfer of tacit production and management skills. A new contract, called "product-in-hand," made the plant seller also responsible for running the project with the buyer's personnel during the first two to three years of operation, thus requiring him to train successfully local management and workers. These contracts stipulated that the contractor would be paid in full (except for a bank guarantee) sixty days after completion of successful tests by the buyer's staff under the contractor's supervision. Two years later, a joint commission would evaluate how well the plant was running under local control. If performance was satisfactory, the contractor would be refunded the bank guarantee he had posted (United Nations Centre . . . , 1983:38, 48). These clauses protected the buyer against the risk of not being able to run the plant after taking delivery and against any hidden flaws that could not be detected at the trials stage.

The difficulties experienced with product-in-hand contracts show the limits of a straight contractual solution to technology transfer. Because they shift considerable risk to the plant seller, these contracts are considerably more expensive (30 to 50 percent more costly than turnkey contracts in Algeria's case). There are fewer bidders, often only one or two, which makes price comparisons difficult. And last, the contracts are difficult to enforce because sellers have consistently refused to post guarantees of more than 5 to 10 percent of the value of the contract. This sum is much smaller than the cost to the buyer of inadequate performance or delay. Furthermore, when such incidents arise, the contractor is the only one able to set the plant right. He is in a strong bargaining position and can shift to the buyer much of the cost of completing the project (Abdallah-Khodja, 1984:34–35).

There seems, therefore, to be clear limits on the ability of a technology

buyer to protect himself from opportunism by writing contracts that specify in detail all the seller's obligations. This conclusion was also reached in a United Nations technical paper on turnkey and product-in-hand contracts (United Nations Centre . . . , 1983:48).

How then can the buyer obtain effective assurances that the equipment seller will provide a well-functioning plant, effective training of the buyer's work force, and after-sales service? One way is to write a buy-back contract—that is, make the purchase of the plant contingent on the seller buying the plant's output. Forcing the seller of equipment to purchase its output provides a number of effective guarantees.

First, it ensures that the technology for sale is capable of producing a competitive product. If a plant supplier intends to sell obsolete equipment, or if he plans to cut corners and thus knows the plant will yield substandard output, he will be unwilling to contract for the product except for a very low price; this will send a signal to the buyer (Mirus and Yeung, 1986; Parsons, 1985:32).[6]

This was confirmed in John Holt's survey of U.S. agricultural and construction equipment companies involved in selling technology to Eastern Europe. He found that four of the eight firms he interviewed protected themselves from competition from their Eastern European customers by withholding their latest technology. Three of the four companies that were subject to buy-back obligations, however, pointed out that such a strategy is self-defeating: "If the U.S. company has become dependent upon the Western country's production for itself or its subsidiaries or is responsible for marketing the Eastern product outside the CMEA area, the latest technology must be incorporated in the product to make it as competitive as possible" (Holt, 1977:86).

Second, forcing the seller to buy back part of the plant's output at contracted prices also ensures that the plant seller will make realistic estimates of the level of future demand for the product. If he misleads the equipment buyer about the sales prospects for the output and makes overly optimistic predictions, the world market price will fall, and he will be stuck with overpriced goods. By agreeing to take some of the plant's output at a price fixed ex ante, the supplier of the plant and equipment demonstrates his confidence in his forecasts of future demand (Parsons, 1985:33).

Last, buy-back contracts may ensure that the plant seller will provide continuous assistance until the plant functions as planned under local control. This is the case if the plant seller is repaid in the resulting product, but we

6. One additional feature of buy-back contracts seems to support my hypothesis that they serve to decrease the costs of transferring technology: when a plant involves subcontractors, each is made responsible for taking a share of the resultant product corresponding to his share of the total project (United Nations Economic Commission . . . , 1985:6). This suggests that buy-backs are used to enforce good performance.

have seen that this is not the norm, as the sale of the equipment is usually financed by a bank from either the seller's or the buyer's home country.

Why then does a plant seller feel obliged to provide assistance if he has been paid in full? The first reason is that the plant seller may have made transaction-specific investments to dispose of the buy-back goods—for example, in arrangements called "co-production" whereby the Eastern deliveries consist of components of a particular Western product (Kogut, 1986). Mirus and Yeung (1986:33) cite an agreement between Volkswagen and East Germany, by which Volkswagen agreed to deliver a complete production line capable of producing 286,000 engines per year. The line, in operation in West Germany, was dismantled and moved to East Germany. In return for the production line and a licensing agreement, East Germany delivers to Volkswagen 100,000 motors per year. The tie created a commitment on the part of VW to maintain a supply of spare parts and machine standards and to communicate to East Germany any improvements it might make in engine production (Parsons, 1986:36). In our previous example, the methanol obtained from the plant sold by ICI to the USSR was to be used in a new $65 million ICI plant to produce animal feedstuffs (United Nations Economic Commission . . . , 1984:28). Failure to obtain the resulting product in requisite quantity and quality would have imposed substantial costs on ICI, as world demand for methanol was increasing rapidly and shortages were forecast (Business Eastern Europe, May 27, 1977, p. 163; Chemical Market Review, May 14, 1979:7).

The enforceability of buy-back contracts is weaker if the plant seller disposes of alternate sources of supply, but it is nevertheless stronger than in the case of a turnkey contract. First, the plant seller usually purchases the takebacks at a discount (United Nations Economic Commission . . . , 1982:288). This provides him with an interest in purchasing the plant's output and hence in transferring state-of-the-art technology and providing after-sale assistance.

We have seen that under a turnkey contract it is difficult for a plant buyer to prove that the seller has not fulfilled his obligations and that he is fully responsible for the plant's substandard performance. In contrast, a plant seller's failure to take back agreed quantities at an agreed-upon price represents a clear breach of contract, so that the burden of proof is reversed. The plant seller must now prove that his failure to take back the output is the fault of the plant buyer.

Because buy-backs do not give the plant seller a direct stake in the profits resulting from the investment, they provide technology sellers with weaker incentives to transfer technology efficiently than under FDI. For example, they do not protect the plant buyer against false promises concerning the plant's operating cost (Parsons, 1985:30). Because equity links (wholly owned subsidiaries or joint ventures) provide better guarantees of efficient technology transfer, they are likely in many cases to be the preferred institutional

form. Thus the use of buy-backs should be concentrated in countries that severely restrict FDI.

To test this proposition, I established a list of buy-back contracts signed between mid-1983 and the end of 1986, as reported in *Countertrade Outlook* (see Appendix 1 for details). Sixty-one of the seventy-five buy-back agreements on the list, or 81 percent, were initiated by fifteen countries that impose very high barriers on incoming FDI (for definitions and the list of countries in this category, see Appendix 2). By comparison, these countries accounted for only 25 percent of the world's GNP. Similarly, there is some rough evidence that buy-backs make up a larger proportion of contracts for the transfer of technology to countries that ban equity investments than to those that allow them. A survey of East-West contracts in operation as of September 1978 found that buy-backs made up 90 percent of the contracts in the seven Soviet bloc countries which had at that time strong restrictions on FDI; this was in contrast to 9 percent for joint venture arrangements. In Yugoslavia, which allows joint ventures, the proportions were 30 percent buy-backs and 70 percent joint ventures (United Nations Economic Commission . . . , 1979).[7]

4.2. Loan and Import

The second situation in which contracts may not provide effective protection is when the market for an intermediate product is narrow, whether because of high transportation costs, scale economies, or the need to make transaction-specific investments.

Consider the position of an owner of a resource—for example, a particular type of mineral deposit—who has only a single potential customer. This can happen if the ore is of a specific grade and composition, for processing plants incur lower costs if they are tailored to the characteristics of the ore (as in the case of bauxite; Stuckey, 1983:47). Alternatively, transportation costs and the need for dedicated infrastructure may make a mine dependent on a single buyer, as is often the case for oil or low-grade minerals. The owner of the resource could invest in a mine and then sell the output to the sole customer. But since the seller's investment is sunk, the buyer would then be able to negotiate a very low price, expropriating the seller's quasi-rent. The most efficient solution is for the mine and the downstream facilities to be vertically integrated. If the host government outlaws incoming FDI, and the mining firm is unable to integrate downstream into foreign processing of its ores,

7. Based on a survey by the United Nations Economic Commission for Europe (1979) of 444 contracts in operation in Bulgaria, Hungary, Poland, the GDR, Romania, Czechoslovakia, the USSR, and Yugoslavia. The figures differ from those quoted by Kogut (1986) because 77 contracts involving undertakings outside these countries were excluded and because all contracts for which payment was in resultant product were categorized as buy-backs.

the next best strategy would be for the seller to enter into a long-term contract with the buyer.

As the historical evidence shows, long-term contracts cannot provide full protection, because the environment often changes in ways that cannot be anticipated when the contract is written. The long-term bauxite supply contracts signed in the late 1960s between Japan and Australian, Malaysian, and Indonesian bauxite producers are a good example. Their length was ten to twenty years, and the price was denominated in dollars. The collapse of the Bretton Woods system of fixed exchange rates and the doubling a few years later of the price of energy resulted in the sellers having to accept both lower prices and lesser quantities (Stuckey, 1983:121–23). This is not an isolated case. Most steel companies, for example, have reneged on earlier long-term supply contracts for iron ore, and today these contracts provide "little, if any, assurance that the annual tonnages will be lifted" (Franz et al., 1986:30). D'Cruz (1979:139) also documents that when the price of coal shot up in 1974 U.S. producers diverted shipments they had contracted to sell to Japan to the more remunerative spot market. This led one observer to conclude that "long-term contracts have been observed only in their breach" (Rogers, 1986:28).

Transaction costs can be reduced, however, by having the buyer post a bond to be forfeited in case of breach. This is the solution adopted in the case of loan-and-import contracts. Under this scheme, firms based in Western countries, but also Japan, have extended loans at concessionary terms to foreign entrepreneurs to finance the development of mines and smelters in exchange for long-term supply contracts (Walsh). Repayment of the loan is typically made by deducting an agreed-upon amount from the price of the mine output sold to the lender (D'Cruz, 1979:185). Because resource owners will be reluctant to make investments geared to a single customer, and because they believe that long-term sales contracts may be opportunistically renegotiated once the investment is made, the buyer must post a bond to signify his willingness to abide by the contract. By offering financing, the buyer binds himself to take the contracted quantities, for if he fails to do so he can expect the mine owner not to repay the loan. This type of countertrade can be seen as a device to induce independent entrepreneurs to make transaction-specific investments when foreign direct investment is not possible.

Although contracts under which the buyer provides financing to induce the seller to make transaction-specific investments have been described as loan-and-import contracts in the mining literature, this rationale also accounts for some contracts in manufacturing that are sometimes called buybacks. For example, IKEA, a Swedish furniture company, recently granted a loan to a Polish company to finance the purchase of equipment for the firm's furniture factory. In return, the firm will supply furniture components to IKEA, some of which will repay the loan. Since the components are designed to IKEA's specifications and are bundled with other IKEA com-

ponents, the Polish firm is dependent on IKEA for marketing its output (*Countertrade Outlook*, 8/10/1987, p. 3).

We would expect loan-and-import schemes to be used when the FDI alternative is relatively expensive. Such is the case when vertical integration abroad is prevented by host-country regulations or when it is subject to high risk of confiscation. Firms based in some countries, principally communist countries and LDCs, also find it difficult to expand abroad because of lack of managerial skills, foreign exchange regulations, or ideological preference for nonequity relationships.

What we know of loan-and-import contracts supports these predictions. Most such contracts have been used to procure inputs (1) from countries that severely restrict FDI, (2) in sectors where FDI is particularly discouraged and subject to strict restrictions, (3) for firms unable or unwilling to invest abroad, and (4) from new projects with no alternative customers.

1. Many contracts in which the lender's primary motivation is the procurement of reliable sources of inputs and the borrower's is protection against ex post renegotiation have been signed by Western firms with Eastern European countries. Probably the most famous involved the sale of Russian gas to Western Europe (Loeber and Friedland), and similar contracts have been signed for delivery of Polish copper and coal to Western markets (United Nations Economic Commission . . . , 1984).

2. Most loan-and-import contracts involve mineral industries, a sector in which FDI has been particularly discouraged by host countries and in which the danger of expropriation is highest (Walsh). Data on the relative use of loan-and-import schemes by Japanese firms in their international operations show that this technique was disproportionately used for the extraction of oil and minerals (Ozawa, 1984, table 3-a).[8]

3. Loan-and-import schemes often are used by firms for which the FDI alternative is relatively expensive. Firms based in East European countries, which have an ideological preference for nonequity modes, have extensively used loan-and-import schemes to procure national resources. For example, the Soviet Union extended loans to Iran to build a gas pipeline serving the USSR, with repayment to be made in gas deliveries. Such contracts have been signed, too, by Eastern European nations with Turkey, Greece, and other developing countries (Dobozi, 1983:27–29). LDCs do not usually possess the capital and managerial resources to integrate vertically abroad, and they have also used this device.[9] In addition, Japanese companies have experienced greater difficulties in expanding abroad than have their Western counterparts. The problems arise from Japan's long isolation from the rest of

8. Ozawa shows that interest on loans made up 93.5 percent and dividends 0.5 percent of the overseas revenues of large Japanese companies involved in mineral and oil extraction; the comparable figures for Japanese manufacturing firms were 18.7 and 37.2 percent.

9. For example, Iran had agreed to provide credits to India for the development of the Krudemuth iron ore deposits, to be repaid in iron ore.

the world, its poor reputation because of its actions before and during World War II in potential host countries in Southeast Asia, and, until the 1980s, domestic restrictions on capital exports and a shortage of capital at home. McKern (1976:76) has shown that, in contrast to American and European firms which undertook FDI in Australia in the 1960s and early 1970s to secure sources of raw materials, the Japanese used loan-and-import for that purpose. As capital controls were relaxed and Japanese ore buyers gained experience in foreign operations, they shifted toward greater use of equity investments.

4. Last, the view of loan-and-import contracts as bonds posted by the buyer suggests that buyers will use them to stimulate investments in new plants which, for technical or geographical reasons, are dedicated to them. D'Cruz's study of the Japanese procurement of cooking coal confirms this prediction. The Japanese relied on loan-and-import contracts to develop coal mines (and the necessary transport infrastructure) in new production areas (Australia and Western Canada). Because of transportation costs, these mines could serve only Japan, and loans had to be extended to convince producers to undertake production for which there was no other realistic market (D'Cruz, 1979:190–93, 281–82).

4.3. Distribution

Countertrade can also be seen as a device to reduce the costs of arranging for the international marketing of products. There is clear evidence that countries that impose counterpurchase requirements do so in order to increase and diversify their exports. Eastern bloc countries, which have experienced difficulties in selling manufactured goods to the West, have used counterpurchase to push these exports: their counterpurchase lists usually feature manufactures, whereas readily marketable products, such as raw materials, are sold through normal channels. Many counterpurchase contracts also require the Western firm to provide the name of the final customers of goods taken back. Goods for which Western traders find a reliable market are subsequently taken off counterpurchase lists and sold directly to the ultimate buyer ("Locating . . . Goods," 1979; Business International, 1977:81).

LDCs have also used counterpurchase to push nontraditional exports. In Ecuador, India, and Indonesia, firms that sell to government authorities must take back nontraditional exports or, if they counterpurchase traditional exports, must sell them in new markets (Goldstein, 1984:10). In India, one of the main countertraders, the Minerals and Metals Trading Corporation (MMTC), provides selective incentives to take back nontraditional exports. According to MMTC's director, "the endeavour is to create markets for new goods or services, and to provide traditional exports with new markets" ("In-

dia . . . ," 1988:50).[10] Furthermore, many countries stipulate that counterpurchased goods must not be resold in third markets and that the end user must be made known (Banks, 1983:161; Graubart and Sachs, 1984:32). Additionality—adding exports that do not replace existing exports—is also typically required.

Many observers have argued that counterpurchase is not a particularly efficient method of expanding exports (de Miramon). Western firms that take back counterpurchase goods do not always market them themselves, but sometimes sell them at a discount to trading companies. These companies may dispose of the goods by selling to traditional customers at cut-rate prices, thus displacing existing markets. Additionality is difficult to enforce, as "new markets" may be nothing more than transshipment points (Graubart and Sachs, 1984:30).

Commentators have noted that the use of counterpurchase as a marketing tool has other drawbacks. The seller (especially if it is a trading company) has no commitment to the product, and the goods will typically be sold on an as-is basis, with no promise of after-sales service or any quality guarantee. Shifting the marketing function to a Western exporter does not give the countertrading country the opportunity to develop its marketing skills and does not provide the feedback needed to adapt its exports to its customers' requirements (Banks, 1983:168).

Why then use counterpurchase? If most such products are eventually marketed by trading companies, could not countries contract directly with these intermediaries for the international marketing of their exports? Why should countries enter complex countertrade transactions when, as Roger (1986:14) says, "the services of clever international traders are directly available to developing countries' exporters"?

The answer is that there are many cases where the purchase of distribution services is subject to high transaction costs. Effective distribution often requires the distributor to make transaction-specific investments. The successful introduction of a new differentiated product or that of an existing differentiated product to a new market requires substantial, up-front investments to find customers and to learn how to price, demonstrate, and service the product. Often these investments are specific to a particular producer. The trader may find, after making significant up-front investments in the expectation of a long-lived relationship, that he is bypassed by the exporter once sales start to pick up. As a result, traders are usually reluctant to make

10. MMTC has classified products into four categories. Traditional exports (for example, ready-made garments within quota restrictions) are not offered for export under countertrade. A second list includes products (e.g., raw cotton) that earn countertrade credits for 50 percent only of their export value. Products more difficult to sell (such as handicrafts) earn credits for 100 percent of their export value. Last, some items (including tourism packages, electronic components, and computer software) earn credits at 150 percent of their export value ("India . . . ," 1988:51).

supplier-specific investments to market products from sources they do not control through equity stakes. Consequently, exporters to new markets and manufacturers of new products requiring substantial demonstration and service or specialized distribution facilities (for example, refrigeration) have found it difficult to motivate traders to provide the requisite level of investment (Anderson and Coughlan; see also Keegan, 1984:391).

Some support for this view comes from a study done for General Electric Trading Company on the cost and availability of traders to handle the firm's countertrade obligations. The study found that subcontractors were available "at reasonable cost for countries offering commodity products with an established product history" but that help was "virtually nonexistent or highly expensive in differentiated products and in countries offering products not traditionally exported" (General Electric Trading Co., n.d.:39).

Historically, the solution to this problem has been vertical integration between manufacturing and trading (Hennart, 1982). By the turn of this century, British and American manufacturers of new machines and durable consumer goods, dissatisfied by the performance of their agents, had integrated vertically into foreign sales subsidiaries (Nicholas; Porter and Livesay). Similarly, Japanese manufacturers are now edging out the trading companies that initially marketed their exports and are replacing them with company sales subsidiaries (Yoshino). Eastern European countries have also found that traders were often less than diligent in pushing difficult-to-market goods and have started to establish marketing subsidiaries in the West (MacMillan).

There are two ways by which manufacturing and overseas distribution can be integrated. Manufacturers in the home market can establish sales subsidiaries overseas—the pattern described in Nicholas and Porter and Livesay. Alternatively, firms with developed distribution systems in the home market can establish production facilities in foreign countries. This was the motive behind the international expansion of banana firms such as United Fruit.

Assume, however, that the home country restricts incoming FDI and is either unable or unwilling to set up marketing networks abroad. Counterpurchase can then serve as the next best way to market effectively in the West. By telling suppliers that they will import only if the supplier takes back and markets their products, countertrading countries can force them to make marketing investments they otherwise would not undertake. The Western exporter forced to take back the countertrading country's products can be expected to make a greater commitment to market the goods because failure to do so would jeopardize future sales.

Traders are well aware of this fact. For example, David Swanson, senior vice president of Continental Grain, argues that the foreign country exporter may often obtain greater benefits by contracting with the captive countertrade unit of a major corporation than with a trader: "The point is that there often are longer-term commitments underpinning countertrade transactions. These longer-term commitments are more likely to be undertaken by the

captive countertrade organization . . . than by a more purely trade-oriented company which, almost by definition, is not interested in long-term investment" (Swanson, 1985:46).

Note that the case of counterpurchase differs from those analyzed previously. Buy-back and loan-and-import arrangements involve symmetrical exposure: in buy-back, for example, the technology buyer, exposed to contractual hazards, balances his exposure by making his purchase of technology conditional on another trade where the technology seller is similarly exposed. Counterpurchase contracts, on the other hand, do not result in mutual exposure. A distributor who has invested in transaction-specific assets is exposed to renegotiation by the counterpurchasing country, but the country that has imposed counterpurchase is not. Instead, counterpurchase can be seen as the use by importers of their monopsonistic power to persuade exporters to make transaction-specific investments.[11]

Admittedly a country could use its monopsonistic power to obtain from exporters lower prices on imports. But if, as is often the case for Eastern European countries or LDCs, Western exporters enjoy a substantial cost advantage over indigenous firms in making marketing investments, then imposing counterpurchase obligations may constitute an efficient use of monopsonistic power, especially if countries believe that the development of exports entails significant positive externalities.

If counterpurchase is motivated by these factors, we would expect importing countries to insist that only goods that require extensive, supplier-specific marketing support be taken back in counterpurchase. Conversely, exporters can be expected to attempt to minimize their obligations by taking back commodities that require only general-purpose assets in their marketing. We have seen that to prevent this, counterpurchasing countries have required sellers to take back nontraditional exports and goods destined for new markets. Counterpurchase contracts often contain clauses prohibiting reexport to third countries (UNCTAD, 1986b:9). Most Eastern European countries prohibit the transfer of counterpurchased goods to traders or will reduce the counterpurchase ratio if the Western exporter takes the goods in-house or distributes them through its own sales network (Business International, 1984:90; *Countertrade Outlook*, 9/21/1986:2).[12]

Through stipulations like these, counterpurchase is often successful in forcing firms either to use the take-backs in-house or to induce their clients to buy them. The National Foreign Trade Council survey mentioned above found that 45 percent of all countertrade goods were used in-house and an additional 8 percent were sold to suppliers. In many cases take-backs are used as inputs in the firm's production process, creating a new market for

11. I thank the editors for bringing this point to my attention.

12. Albania, Bulgaria, Czechoslovakia, Hungary, and the USSR generally bar third-party involvement (see ACECO, 1985:85–92).

the country imposing counterpurchase, as Western firms switch suppliers to accommodate the take-backs. For example, when Pfizer found its sales of poultry vaccines to Brazil subject to counterpurchase requirements, it searched that country for take-backs, and "found that the country was producing glass vials that were competitive in quality and price. The company switched from sourcing these from its traditional supplier in France to the Brazilian manufacturer. It now not only takes the product to meet its own in-house needs, but also supplies Brazilian glass vials to other countries in Central America" (Business International, 1984:83).

Countries that do not succeed in having their products taken as inputs may still be able to tap the extensive marketing network of Western multinational firms and to benefit from their marketing experience. Witness Coca-Cola's efforts to market the wine of Slovin, its Yugoslav bottler. Slovin made its syrup purchases contingent on Coke's exporting its wine, but the wine was poorly made and unattractively presented. Coca-Cola called in experts who completely changed Slovin's wine production methods, chose a new name, and had a new label designed and printed in Italy. It then was able to successfully sell the wine in the United States (Martin and Ricks). Coca-Cola was motivated to make such a long-term investment because it knew its continued syrup sales depended on it.

Similarly, counterpurchase has helped Eastern European countries sell car accessories in the West. The accessories are made to Daimler Benz's specifications and sold under the company brand name through its dealer network (Business International, 1977:159). Some companies will even go so far as to create new industries in counterpurchasing countries. Unable to find goods to take against the vehicles it wanted to sell to Jamaica, General Motors established the first data processing plant in that country to handle data for U.S. firms (Elderkin and Norquist, 1987:120–21). A similar commitment would not have been obtained without countertrade.[13]

If counterpurchase is used to approximate the benefits of an equity tie between manufacturers and distributors in the absence of FDI, then we should observe the following: (1) countries that practice counterpurchase should be those that hinder incoming FDI and that have no home-based multinational firms, and (2) the products offered for counterpurchase should be those that require a strong marketing input.

The survey of countertrade transactions described in Appendix 1 provides

13. Another possible reason counterpurchase might be preferable to the outright purchase of marketing services is its ability to shift some of the marketing cost to the Western exporter (Graubart and Sachs, 1984:25). There is some evidence that this has been the case. the NFTC survey of U.S. countertraders found that 18 percent of the respondents had to absorb all disposition costs, and another 34 percent shouldered a part of such costs. As a result, 18 percent experienced a loss on the overall transaction (Bussard, 1983). There are reasons to believe that this is likely to be a temporary phenomenon, as Western firms learn from their mistakes. Indeed, a 1986 survey of major U.S. exporters found that only 7 percent reported a loss on their countertrade transaction (Bussard, 1986).

some support: Forty-seven percent of the total number of recorded counterpurchase transactions were imposed by countries that had very high barriers to incoming investment.[14] The list includes East European countries and LDCs. Moreover, manufacturers in these countries have embryonic international marketing networks (MacMillan). Their marketing effort is handicapped by the fact that international marketing is performed not by the exporter itself but by foreign trade organizations. The LDCs on the list, such as Indonesia, China, India, and Colombia, do not possess the management skills necessary to expand internationally and to scale the "formidable barriers to entry into exports markets abroad" (de la Torre). Restricting incoming FDI cuts them off from the international marketing networks of Western multinationals, and we would therefore expect them to turn to counterpurchase as the next best solution.

Our analysis suggests also that goods that are offered in counterpurchase should be primarily manufactures, which require more marketing support than commodities. We saw in the beginning of this section that manufactures are featured prominently in counterpurchase lists. Have counterpurchasing countries been successful in persuading Western firms to take back these manufactured goods? There is some evidence that the answer is yes. A study of the products taken back in countertrade shows that the relative importance of manufactured goods increased between 1980 and 1987 (Montagnon). The data base of countertrade transactions described in Appendix 1 shows that 43 percent of the products imported from centrally planned economies (CPEs) and LDCs in fulfillment of counterpurchase obligations were manufactures. This percentage was higher than the share of manufactures in their overall exports (34 percent). This is an admittedly crude comparison because we are comparing value data to a product count, but value data on counterpurchases by product type are not available.[15]

In conclusion, there is evidence that CPEs and LDCs have attempted to leverage their bargaining power as buyers to obtain marketing support from their suppliers and that they have been partially successful. By linking imports to exports, countries that do not have their own international marketing networks and object to foreign control of their manufacturing sector have found it possible to persuade multinational manufacturing firms to develop markets for their goods. The latter used the products as inputs or sold them to their industrial suppliers, customers, or final consumers through their marketing network. Although negotiation costs of counterpurchase are often high, such contracts may provide, in the absence of equity links, a second-

14. By comparison, the countertrading countries that had high barriers to incoming investment accounted for 31 percent of the world's GNP. They had therefore a higher propensity to counterpurchase than we would expect from their size.

15. For details, see Appendix 1. The percentage of manufactures in the total value of exports of LDCs and CPEs was calculated from country figures in UNCTAD, 1988, table 4.1. The weights used were 1985 exports.

best answer to the problem faced by LDCs and CPEs in penetrating Western markets.

5. CONCLUSION

This article has argued that the most common reason advanced to explain countertrade—the need to solve hard currency shortages—has only limited explanatory power. Some forms of countertrade, such as buy-back and counterpurchase, can be seen instead as devices to reduce the high transaction costs that affect three types of international transactions: the purchase of poorly protected technology, the sale of intermediate products in small-number conditions, and the purchase of marketing services when the distributor needs to make up-front, transaction-specific investments. In these circumstances buy-back and counterpurchase can be seen as attempts to reduce transaction costs by providing what amounts to a bond or hostage. They substitute for hierarchical coordination when the political desire for national sovereignty pushes a country to ban both inflows and outflows of foreign direct investment.[16]

The empirical evidence generally confirms these observations. Since buy-back and counterpurchase probably make up more than half of all countertrade transactions, a country's countertrade intensity should be correlated with the degree to which it restricts incoming FDI. Table 2 relates estimates of a country's total countertrade intensity to the level of its restrictions on incoming FDI. The table shows that countries that practice countertrade heavily are also those that severely restrict incoming FDI. Of the fifteen countries that were heavily involved in countertrade in 1983, nine had a full or partial ban on incoming FDI, and six had strong restrictions on the per-

Table 2. Countertrade and Restrictions on Incoming FDI, 1983

	Number of LDCs and Eastern European Countries in which restrictions to incoming FDI are		
Countertrade Frequency	very high	high	moderate
Above average	9	6	0
Average	5	10	1
Below average	2	4	2

Average countertrade frequency is 2 to 4%.

Sources: Countertrade frequency: Kostecki, 1987; barriers to incoming FDI: see Appendix 1.

Columns 2 and 3 and rows 2 and 3 were added to calculate chi-square, equal to 3.93. Since chi-square critical (1, .05) = 3.84, the null hypothesis that countries that restrict incoming FDI have the same propensity to countertrade as countries that do not is rejected at the 5% level.

16. Because of its complexity, countertrade imposes heavy negotiation costs on the parties. As such it is clearly a second-best solution to the problems described above.

centage of equity allowed foreign investors. Conversely, of the sixteen countries with strong restrictions, nine had above average countertrade activity.[17] A chi-square test shows that the hypothesis that countertrade intensity is independent of restrictions on incoming FDI is rejected at the 5 percent confidence level.[18]

My analysis has two important implications. First, as a significant percentage of countertrade transactions has little to do with foreign exchange shortages, changes in the debt situation of LDCs should have only a moderate impact on the development of countertrade. Second, the future of buy-back and counterpurchase depends on restrictions by host countries on foreign direct investments. Should the trend in LDCs toward a generally more favorable attitude toward incoming FDI continue, these forms of countertrade may experience a relative decline. This last point seems supported by recent developments in China, where the relative importance of buy-back agreements has been declining with the enactment of joint venture legislation (Chen, 1986:27).

This article does not claim to present a general theory of countertrade; it deals only with two of its forms, albeit the most common. As shown by Banks (1983, 1985), barter arises for quite different reasons. Furthermore, the factors that have led to the development of buy-backs and counterpurchase are complex. The institutional context of centrally planned economies, such as administrative trade and exchange controls and incentives systems that privilege exports, is clearly relevant (Parsons; Kostecki, 1987:10–11). No unicausal theory can satisfactorily account for all the features of buy-backs and counterpurchase. Nevertheless, I hope I have shown that transaction-cost economizing can throw light on a number of features of this ill-understood phenomenon.

APPENDIX 1. DATA BASE ON COUNTERTRADE TRANSACTIONS

Information on countertrade transactions was obtained from weekly issues of *Countertrade Outlook*. This publication, which reports on countertrade and nontraditional trade throughout the world, is generally considered to be the most complete and reliable of all publications in the field. All issues from the first, April 1983, to December 31, 1986, were consulted. Only transactions that were reported as signed were entered in the data base. For each trans-

17. Note that these countertrade estimates include barters and offsets as well as counterpurchases and buy-backs.

18. To verify the robustness of the present results, a separate test was run using data on barriers to incoming FDI obtained from Business International. The resulting chi-square (3.95) confirmed our previous findings.

action, the date, the type of countertrade, the name and country of both seller and buyer, the goods sold, and those taken by the seller as take-backs were recorded. The compilation yielded 304 counterpurchases, 171 barters, 75 buy-backs, and 42 offsets.

APPENDIX 2. BARRIERS TO INCOMING INVESTMENT

The data on country barriers to incoming FDI describe the situation as of the end of 1983 and were obtained from a compilation of the following sources:

Annual Report on Exchange Arrangements and Exchange Restrictions. Washington, D.C.: International Monetary Fund, various years.

National Legislation and Regulations Relating to Transnational Corporations. New York: United Nations Center for Transnational Corporations, vol. 4 (1985) and vol. 5 (1986).

R. Hammer, G. Simonetti, and C. Crawford. *Investment Regulations around the World.* New York: John Wiley, 1983, and *Supplement,* 1984.

Investment Laws of the World. Dobbs Ferry, N.Y.: Oceana Publications.

Countries for which information was available were classified in three categories. Those in category 1, "very high barriers," are countries that ban outright FDI in all or a majority of activities and, if they allow any investment in some sectors, do not allow majority-owned foreign investments.

Category 2, "high barriers," include countries that forbid FDI in a significant number of sectors and require joint ventures in a significant number of sectors left open to foreign investors.

Category 3, "moderate barriers," include countries that do not ban investment in any sectors which most Western countries leave open to foreign investment (see note below) and that do not put any restrictions on foreign equity share.

The following is the list of countries for which data on both countertrade frequency and barriers to foreign direct investment were available. Countries starred are those for which Kostecki did not provide countertrade frequency.

Very high barriers:

Albania	India
Algeria	Indonesia
Bulgaria	Iraq
China	Poland
Colombia	Romania
Czechoslovakia	USSR
East Germany	Venezuela
Hungary	Yugoslavia
*Cuba	*Libya
*Mozambique	*Vietnam
*Iran	*North Korea

High barriers to investment:

Bangladesh	Nigeria
Brazil	Pakistan
Costa Rica	Peru
Ecuador	Philippines
Egypt	Saudi Arabia
Honduras	Thailand
South Korea	Tunisia
Malaysia	Turkey
Mexico	Uruguay
Morocco	Zambia

Moderate barriers:

Argentina
Chile
Dominican Republic

Since the majority of even the most liberal countries ban foreign investments in selected sectors considered sensitive, such as the press, radio and television, utilities, and armaments, a ban on investment in those sectors was not considered a ban on investment for the purpose of this study. Thus no country, even those in category 3, can be said to be fully open to incoming FDI.

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