Chapter Title: East-West Trade, Embargoes, and Expectations

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6 East-West Trade, Embargoes, and Expectations

Alasdair Smith

6.1 Introduction

The subject of this paper is the divergence between the policies towards East-West trade of the United States on the one hand and its Western European allies on the other. The most striking differences are in their willingness to use the trade embargo as a means of exerting political pressure, and in the extent to which they believe it is possible or sensible to limit the export of high-technology goods to the East, but even a casual study of the history of East-West trade since 1945 shows that the differences go rather deep. Both the Eastern bloc and Western Europe have recognised the existence of linkages between trade and political relations but have been resistant to direct or explicit use of trade policy as a political tool; while the United States has, generally, maintained a more skeptical stance about the positive linkages and has exhibited a greater willingness to use trade embargoes as a political weapon.

In the first part of this paper I sketch the main features of East-West trade in the past 35 years and the differences in Western attitudes to it. I draw a distinction between two related views of the connection between trade and political relations, which I label the "linkage" and the "leverage" views. The relevance to East-West trade of the received wisdom on the effectiveness of trade embargoes is reviewed. The need to take explicit account of expectations of future policy is the key theme

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of the paper, and I argue that the United States may have attained the worst of all possible worlds by acquiring a reputation for imposing ineffective embargoes.

The second part of the paper is devoted to a formal model that focuses on the role of expectations in shaping the investment behavior of multinational corporations and therefore on their exposure to embargo threats.

6.2   East-West Trade: Linkage, Leverage, and Expectations

6.2.1   Western Conflicts on East-West Trade

It is beyond the scope of this paper to give a systematic historical account of 40 years of East-West trade. The sketch below is based on Becker (1983), Cooper (1987), Rode and Jacobsen (1985), and Stent (1981).

The divergence in the views of the United States and most Western European countries on East-West trade goes back to the early 1950s when trade relations between the United States and the Soviet Union were minimal, the basis of trade policy being that trading with an enemy should be minimized. The Export Control Act of 1949 and the later Export Administration Acts regulated trade in strategically important goods; and on the principle that all trade strengthens the economy, the presumption in the early years seems to have been that all potential exports were strategically important unless demonstrated not to be. The U.S. Mutual Defense Assistance Control Act of 1951 provided the basis for harmonized actions by the NATO nations and Japan on export controls, and the Paris-based "Coordinating Committee" (COCOM) drew up the lists of restricted exports.

There is a distinction in principle to be made between trade restrictions imposed for reasons of strategic defense policy, and those imposed from broader motives of foreign policy. There has been a greater concordance of views between the United States and the Europeans on the former than on the latter, but in practice, as the previous paragraph indicates, the distinction between the two motives becomes fuzzy, and from the earliest years there were conflicts between the U.S. and its allies on the stringency with which COCOM restrictions should be applied.

One important case was the 1962–63 pipeline embargo, described in some detail by Stent (1981), which in fact was imposed under the auspices of NATO rather than COCOM. This embargo was rendered ineffective by the refusal of Britain and Italy to participate, a refusal which may have been partly influenced by the suspicion that the embargo was motivated more by the desire to protect U.S. oil companies

against the alleged dumping of Soviet oil on world markets than by strategic defense considerations. West Germany initially backed the embargo but later withdrew its support. The fate of this embargo is symptomatic of a general tendency for American embargoes on strategic materials to be gradually slackened in the light of the availability to the Soviet bloc of alternative sources of supply in Western Europe, as European nations have been more permissive than the United States.

The differences between the NATO allies on East-West trade seemed to be eliminated in the early 1970s with the Nixon-Kissinger pursuit of détente in the United States and Willy Brandt's Ostpolitik in West Germany. The economic effects of trade were now not seen as a dangerous strengthening of an adversary, but as the incentives to coexistence and political liberalization. Agreements between the United States and the Soviet Union granted the latter most-favored-nation status as well as trade credits. The process quickly ran into difficulties with the U.S legislature, as the Jackson-Vanik amendment tied the granting of most-favored-nation status to the liberalization of Soviet policy towards Jewish emigration, and the Stevenson amendment restricted ExIm bank credits.

The Soviet Union withdrew from the agreement, complaining of improper interference in its internal affairs. The Soviet invasion of Afghanistan in 1979 brought the process of détente to an end: the Carter administration reacting by imposing an embargo on trade in grain and in fertilizer. (An interesting feature of the fertilizer embargo was that the Soviet Union maintained the deliveries of materials that they had agreed to supply in exchange for super-phosphate fertilizer even though the Occidental corporation was legally barred from delivering the fertilizer.) Meanwhile, the process of détente seemed much smoother for the Western Europeans and an agreement had been reached for the supply of pipes and compressors, mainly by West Germany, for the new Urengoi gas pipeline in exchange for natural gas.

The Reagan administration removed the grain and fertilizer embargo, but the worsening political situation in Poland led the Americans to seek a tightening of trade in strategic goods, and in particular an end to the pipeline deal. (The possibility of forcing Poland into default on its huge foreign debts was evidently seriously considered and argued over within the American administration, but rejected primarily because of the dangerous implications for the Western banking system.) Since direct American participation in the pipeline had been eliminated in 1979, and since the Western European countries were opposed to the abrogation of the pipeline agreement, the Americans attempted to enforce the embargo by exerting extraterritorial pressure on the foreign subsidiaries of U.S. corporations such as Dresser-France and the foreign licensees of American technology such as John Brown Engineering

of the U.K. Both the British and the French had laws aimed at pre-
venting the exercise of such authority by a foreign government. The
resulting conflict was eventually resolved in late 1982 with an agreement
by which the Western Europeans continued with the pipeline deal but
agreed to tighten up COCOM restrictions on strategic goods. Subse-
quent remarks by the French president, however, suggested that the
agreement represented a unilateral climbdown by the United States.

The persistent divergence in attitudes to East-West trade has to be
seen in the light of the differing economic importance of trade to the
different parties. Table 6.1 shows that quantitatively East-West trade
is more significant to Western Europe than to the United States (and
of more significance to the East than to the West). Thus the Europeans
have more to lose from trade disruption than do the Americans. It
would be futile to attempt to disentangle cause from effect in the in-
teractions between the politics and economics of trade. It would cer-
tainly be a gross oversimplification to say that Western European
policymaking has been dominated by considerations of economic self-
interest, while the Americans have, by reason of lack of direct economic
involvement, been free to pursue purely political objectives, for it is
clear from even the abbreviated narrative above that considerations of
economic self-interest have entered into American decision making,
while Western European policy has been influenced by political as well
as economic considerations.

Table 6.1   **East-West Trade in 1980**

	East-West Trade in 1980			
	U.S.	EEC	FRG	France
Volume ($b)	5.28	56.8	23.8	10.21
Share of trade	1.14	4.14	6.2	4.2
Share of GNP	0.2	2.0	2.9	1.58
	Eastern Trade with OECD			
	USSR	CMEA-6	CMEA-Europe	
Volume ($b)	46.4	39.1	85.5	
Share of GNP	3.4	6.2	4.2	

Source: Guillaume (1983).

Note: CMEA-6 refers to the six Eastern European countries excluding the USSR; CMEA-
Europe are the CMEA-6 plus the USSR; OECD is the Organization for Economic
Cooperation and Development.

6.2.2 Linkage and Leverage

The concept of "linkage" between international economic and political relations was at the heart of the American détente policy of the 1970s as of the West German Ostpolitik. It also seems to provide an underpinning of Soviet trade policy.

Linkage can mean several different things. One general sense in which there can be linkage is that global trade liberalization can reduce the scope for conflicts over access to markets or to raw materials. Of more relevance to East-West trade is the idea that as trade is mutually beneficial, the building of trade relations gives each party a stronger incentive to avoid conflict.

More specifically, some have argued that East-West trade will bring concrete political gains for the West: citizens of Eastern bloc countries are exposed to Western influences as consumers of Western goods or users of Western technology; the Eastern élite is exposed more to Western contacts and ideas; and communist planners, faced by the incentives arising from foreign prices, are led to liberalize their methods of economic management. Further, it seems that the Soviet Union has seen trading links with the West as an important component of "peaceful coexistence," and as a step toward one of their major foreign policy aims—Western acceptance of the post-war status quo in Europe and of the Soviet position as a super-power equal to the United States.

A still more specific form of linkage is when trade seems to be made conditional on political progress, as with the relaxation of restrictions on the emigration of Jews from the Soviet Union in the early 1970s and of Germans from East to West Germany in the same period. The Soviet Union was evidently content that such liberalization was seen as intimately linked with progress on other aspects of détente, but most decidedly was not willing to have the linkage made explicit and explicitly conditional by the Jackson-Vanik amendment.

This serves to make the point that the line between linkage and leverage is not easily drawn, especially where the latter concept is taken to refer to the use of economic pressures to achieve specific political goals, a trade embargo being the prime example of leverage.

Bayard, Pelzman, and Perez-Lopez (1983) provide a good survey of the general questions which arise in the analysis of trade embargoes. The attractiveness of an embargo depends on the relative costs which it imposes on the parties involved. The costs will be greater, the greater the share of a country's income derives from the embargoed trade. Table 6.1 above therefore can be taken as providing an explanation for the apparent attractiveness to the United States of trade restrictions as a political lever. Perhaps more important than trade shares, however, is the question of whether it is easy to find substitutes for the embargoed

trade, for the gains from trade are greater the smaller is the price-elasticity of trade. In this sense the Soviet Union may well seem vulnerable to embargo threats, for it cannot easily find an alternative market for natural gas to Western Europe, nor alternative suppliers for pipeline equipment or other technologically advanced goods.

The question of substitutability is central to the evaluation of COCOM restrictions. If the Soviet Union can easily shift resources from non-military to military uses, then only a general embargo aimed at damaging the entire economy would provide an effective restraint on Soviet military capacity, and such a policy now has few supporters. The greater are the restrictions on the ability of the economy to shift resources from one sector to another the more one can justify an embargo limited to particular strategic goods. Thus, although the use in Afghanistan of trucks from the Kama River plant, built with American assistance, was politically embarrassing to the United States, it is arguable that the real military situation would have been no different if there had been no Western involvement in Kama River. By contrast, export restrictions on "supermini" computers, imperfect though the restrictions are in practice, probably do have significant effects on the Soviet Union.

The importance of substitution elasticities to the cost of an embargo implies that an embargo is less likely to be successful the longer the time period under consideration, for in the long run, substitution possibilities are enhanced and elasticities increased.

Bayard et al. identify cartel problems as a critical factor in the success of embargoes. The more countries join in an embargo the greater will be the share of the embargoed country's trade affected and the harder it will be to find substitute markets and suppliers. However, the more successful an embargo, the greater will be the profits to breaking the embargo. The policing of an embargo may therefore be critical to its success, and embargoes of trade in widely traded "anonymous" goods such as grain and oil are less likely to be successful than, say, an embargo on the export of supercomputers. On this basis one can justify the Reagan administration's removal of the grain embargo and attempted imposition of a pipeline embargo; though from the point of view of gathering political support in Western Europe, the policy combination may have been less than ideal.

These arguments are based on a view of markets as being sufficiently competitive for prices to be close to marginal cost. In imperfectly competitive markets, price may often be significantly above marginal cost. This raises the possibility that an embargo will have the extra cost for the embargoing nation of eliminating trade on which abnormal profits were being made, and in the case of high-technology trade this may be a significant consideration. Such considerations certainly in-

fluence the behavior of individual firms, including their lobbying behavior.

All of the analysis above confirms the view expressed in the 1983 report made by the U.S. Congress's Office of Technology Assessment, which observes that

> *there are severe constraints on the power of U.S. licensing to deny the Soviet Union access to the Western technology it most wants.* These constraints include the extent to which the Soviets use illegal means to acquire Western technology, lack of allied agreement on a more strenuous multilateral export control policy, the difficulties inherent in identifying in advance which technologies will have important military payoffs, and the increasing worldwide diffusion of technology. *While existing export criteria could certainly be tightened, it is most improbable that even drastic changes in U.S. export control policy could alter the fact that the USSR benefits militarily from Western technology.* Moreover, it is rare to find examples of technologies obtained from the West which the USSR could not have produced itself, albeit with delays. (Pp. 11–12, emphasis in original.)

Finally, the difficulties of making an empirical assessment of the effectiveness of embargoes should be noted. There was clearly no prospect whatsoever that the 1979 grain embargo would induce the Soviet Union to withdraw its military forces from Afghanistan, but that leaves open the possibility that its future behavior in Afghanistan or elsewhere could be affected. Also, an embargo may be the most effective means available of making a strong moral statement (though an embargo that was known to be both wholly costless and wholly ineffective presumably could have no value as a moral statement).

6.2.3   Reputations and Expectations

The Office of Technology Assessment report goes on to observe (in the context of extraterritorial and retroactive sanctions) that "sanctions may well have a long-term adverse effect on the U.S. reputation as a dependable business partner in countries other than the USSR" (59), but there is another sense in which the reputation of the United States matters. In the long run, as we saw above, a country has better opportunities to avoid the effects of an embargo. It can do even better if it can anticipate the imposition of an embargo. Perfect anticipation is an unattainable objective, but any trading nation must make assessments of the likelihood of future trade disruption by an embargo.

Thus when Hanson (1983) reports that the Soviet trade statistics in the 1970s seem to show a deliberate attempt to reduce reliance on Western technology but no attempt to restrain grain imports, one interpretation that can be offered (in addition to the reasons offered by

Hanson) is that Soviet policymakers may have been concerned about future attempts by the United States to use trade as a political lever and felt that their exposure to leverage was greater in the case of technology imports than in the case of grain.

At first sight there is a contradiction in what one can oversimplify as the Western European position of being enthusiastic about linkage and unenthusiastic about leverage, for apparently these are two sides of the same coin. The gains from trade will be greater when trade shares are greater, when elasticities are larger, and when there are no alternative trading partners, so the circumstances in which economic relations create a strong interest in the maintenance of good political relations between the trading parties seem to be precisely the circumstances in which a trade embargo will be effective. But this is to miss an essential difference between the two cases: linkage will be more successful, the greater the extent to which the trading partners' expectations are fulfilled; leverage will be more successful the greater the extent to which expectations are disappointed.

On this interpretation, the difference between the United States on the one hand and the Europeans, both Western and Eastern, on the other, is not that one gives priority to political over economic considerations, but that the political and economic priorities of the Europeans call for settled and growing economic relations between East and West, while the Americans see dangers in this policy and attractions to the use of economic pressure for the attainment of specific political ends.

The obvious conflict between linkage and leverage makes for difficulties for both positions. The American concern that West Germany may be making itself too dependent on Soviet energy would be taken more seriously if it had been more consistently expressed, but there is scope for genuine concern that West Germany would be vulnerable to a shift in Soviet policy in which the Soviet Union embraced a policy of leverage towards the Western nations, it having shown no reluctance to use leverage towards its allies and former allies (see Daoudi and Dajani 1983, chap. 4). American concern that investment by U.S. multinationals in the Soviet Union would give a hostage to future Soviet pressure is less credible: it is hard to envisage circumstances in which an American administration would make serious political concessions to the Soviet Union because of a threat to expropriate American assets in the Soviet Union.

The Soviet reaction to the Jackson-Vanik amendment and to the superphosphate embargo can be interpreted as a clear statement of the Soviet Union's desire (and interest) that trade relations should involve linkage and not leverage, and in the superphosphate case, an indicator of its belief that the embargo would be ineffective and short-lived. But one must also be aware that increasing confidence in the stability of

trade relations strengthens the Soviet Union's position should it reverse its policy.

It is, however, for the American position that the conflicting needs of linkage and leverage pose the severest difficulties. For the embargo weapon to be most effective, it should be a weapon deployed by a country with a reputation for not deploying it. For linkage to be effective, a country might want to bind itself to a policy of eschewing the embargo weapon even when it was tempted to use it—a "time-inconsistent" policy, in the current jargon. It is hard to escape the conclusion that the United States has contrived to attain the worst of all possible worlds by its apparent willingness to try to use economic leverage frequently, in circumstances when it did not have the support of its allies, and when for other reasons the leverage seemed unlikely to be effective.

6.2.4   The Role of Multinational Corporations

The issue of the extraterritorial reach of American law over the foreign subsidiaries of American multinationals was at the center of the 1981–82 pipeline dispute with Western Europe. There is also the more general issue of how the activities of multinational corporations may be influenced by expectations of government behavior. Vernon (1971, chap. 7) reports that the desire to avoid government control over foreign activities is an important incentive for the multinationalization of economic activity.

The prevalent theory of the multinational corporation (see Dunning 1979, or Ethier 1983, for example) is based on the ownership-location-internalization paradigm, and sees multinationality as the outcome of a decision by a firm to establish a foreign subsidiary rather than to supply a foreign market from exported home-country production or to license the firm's technological knowledge to independent foreign producers. The decision not to export implies the balance of advantage lies in overseas location of production; the fact that overseas firms have not already taken over the market implies that the foreign firm has some ownership advantages such as superior technological knowledge; and the decision not to exploit the ownership advantage by licensing implies an advantage to internal as opposed to market transactions.

Multinationality may therefore provide a most important channel through which expectations of future policy and reputations of governments change the effectiveness of economic leverage. The establishment of a foreign subsidiary, or even the licensing of technology to an independent foreign firm, may not wholly remove a firm's foreign transactions from the extraterritorial reach of its home government, but it certainly greatly reduces the power of the home government over the firm's activities. A potential multinational, faced by choices of how

to conduct activities that might be the subject of future embargoes and by a government with a reputation for frequent use of economic policy as a political lever may well find that these factors influence it to change its behavior in ways that have the effect of reducing the power of the government to exercise leverage.

The rest of this paper is devoted to a formal model of a multinational's investment decisions, which emphasises the fact that, in more than one respect, investment is a strategic forward-looking decision, and identifies the policy implications of this fact.

6.3   A Model of Multinational Investment

6.3.1   The Model

In the model of the multinational corporation presented here, the principal focus is on how a foreign firm operating in a host market might choose to become a multinational rather than export its product, and how this choice might be influenced by government policy. The same model is used in Smith (1987) to discuss the role of foreign direct investment as a strategic entry deterrent, and to analyze the effects of tariffs on foreign direct investment.

The model offers an extremely simple characterization of the technological advantage that a multinational firm may possess over a host-country rival: in order to make production possible, a new entrant must incur a firm-specific fixed cost in addition to the plant-specific fixed cost associated with the establishment of a plant in any particular location; while the multinational has already sunk the firm-specific cost. This characterisation of multinationality has its origins in the work of Hirsch (1976). A dynamic version is presented by Horstmann and Markusen (1987) whose central objective is the analysis of the strategic timing of investment in a growing market by a multinational faced by potential competition from host-country rivals. The model in this paper does not have this dynamic aspect, and as a result is somewhat simpler than that of Horstmann and Markusen.

In its home country the multinational has a plant where it has incurred a firm-specific sunk cost F and a plant-specific sunk cost G. It produces output at constant average variable cost c. If it exports its output to the host country, a constant transport cost of s per unit and a tariff of t per unit must also be paid. If it establishes a plant in the host country, it must incur the plant-specific fixed cost G, but not the firm-specific fixed cost F, and the marginal cost of output in this plant will also be constant and equal to c. The multinational chooses between exporting and foreign direct investment by comparing the cost of establishing a foreign plant with the transport and tariff costs of exporting.

A host-country firm may also enter production of the good. It must, however, incur both the plant-specific fixed cost G and the firm-specific fixed cost F before it can produce, but when these costs have been incurred, it can produce at the same constant marginal cost as the multinational. (In fact, it would make very little difference to allow cost differences between the firms.) One can think of the firm-specific fixed cost as the cost of R & D required to gain access to the technology for producing the good, and any firm that has incurred it is as efficient as any other firm. This is admittedly a very crude characterization of R & D.

The host country market for the good is described by a concave revenue function $P(X)X$, and it will be assumed that the properties of this function are such that the multinational always finds it profitable to supply the host market, whether or not it faces a rival firm.

Some limitations of the model should be noted. The possibilities that the host-country firm, if it enters production, will then export to the multinational's home market or even will itself become a multinational by establishing a plant in the multinational's home country are not considered here. Also, there is only one multinational and only one potential host-country rival in the market.

Perhaps the most serious limitation of the model is the fact that it does not address the internalization issue—the question of which transactions are undertaken within firms and which in the market. As a consequence, there is no consideration of the possibility of the multinational's licensing its technological know-how to independent foreign firms as an alternative to foreign direct investment. From the viewpoint of trade embargoes, however, licensing and foreign direct investment have rather similar effects, and the model could be reinterpreted as one of the choice between licensing and exporting. But if one wanted seriously to address the possibility of embargoes being extended extraterritorially to the behavior of subsidiaries of multinationals, it would be desirable to treat licensing separately, as a potential way of escaping the effects of such embargoes.

Finally, note that for the sake of simplicity of terminology, I refer throughout to the foreign firm as "the multinational" even though strictly speaking it is only a potential multinational.

6.3.2 The Multinational as Monopolist

If the multinational faced no threat of competition, it could export and would choose the export level X_E which maximizes $P(X)X - (c+s+t)X$. Alternatively, it could invest in the host country and it would then choose the output level X_H to maximize $P(X)X - cX - G$. These choices are illustrated in figure 6.1, from which it is immediately evident that, because of the concavity of $P(X)X$, $X_E < X_H$.
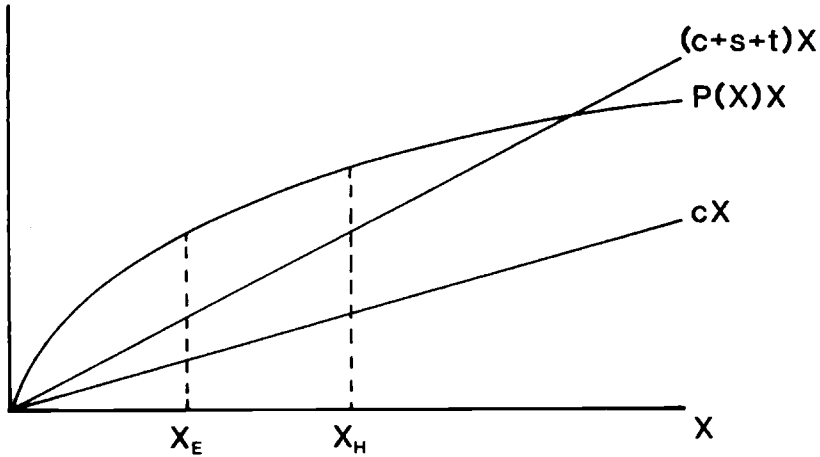
Fig. 6.1   The multinational monopolist

The firm will choose foreign direct investment rather than exporting if and only if

(1) $P(X_H)X_H - cX_H - G > P(X_E)X_E - (c+s+t)X_E$,

and the choice is influenced by the balance between G and $(s+t)X$. Specifically, as is clear from figure 6.1 or from the definitions of the two optimal output levels, a sufficient condition for exporting to be the preferred option is that $G \geq (s+t)X_H$, while a sufficient condition for direct investment to be superior is that $G \leq (s+t)X_E$.

6.3.3   The Multinational as Duopolist

If there is potential entry from a single domestic producer, the model now takes the form of a multistage game. In the initial stages, the multinational decides whether to sell, and, if so, whether to export or to invest, while the domestic firm decides whether to enter. For the moment, let us not identify the order in which the different firms' entry decisions are made. At the final stage of the game the firms compete, if both have entered, and output levels get determined. I assume that the decisions at earlier stages of the game are made in the knowledge of the equilibria of later stages, so the equilibrium is perfect.

The equilibrium is solved by working backwards. In the event that the domestic firm does not enter, we know from the previous section what are the payoffs to the alternative actions open to the multinational.

If both firms enter the market, I assume that they act as Cournot duopolists, which is to say that each firm in equilibrium takes the output

of the other firm as given in choosing its own output level. It should be noted that an implication of the analysis of Fudenberg and Tirole (1984) is that the results will not be robust, at least in detail, to changes in this assumption about the nature of the competitive interaction at this stage of the game. If the multinational supplies the market by exporting, then, indicating the host country firm by the subscript 1 and the multinational by the subscript 2, the respective objectives of the firms are independent of the now-sunk costs and can be written

(2)
$$\max_{x_1} P(X_1 + X_2)X_1 - cX_1 ,$$

$$\max_{x_2} P(X_1 + X_2)X_2 - (c+s+t)X_2 ,$$

while, when the multinational has established a plant, the objectives are the same but with $s + t = 0$.

In figure 6.2, the interaction between the two firms in the post-entry game is represented by the two reaction curves which describe the optimal output of each firm as a function of its rival's output. If we suppose only that the demand function $P(X_1 + X_2)$ is sufficiently well behaved so that the reaction curves slope and cross in the way shown in figure 6.2, then it is easily shown that an increase in $s + t$ moves the
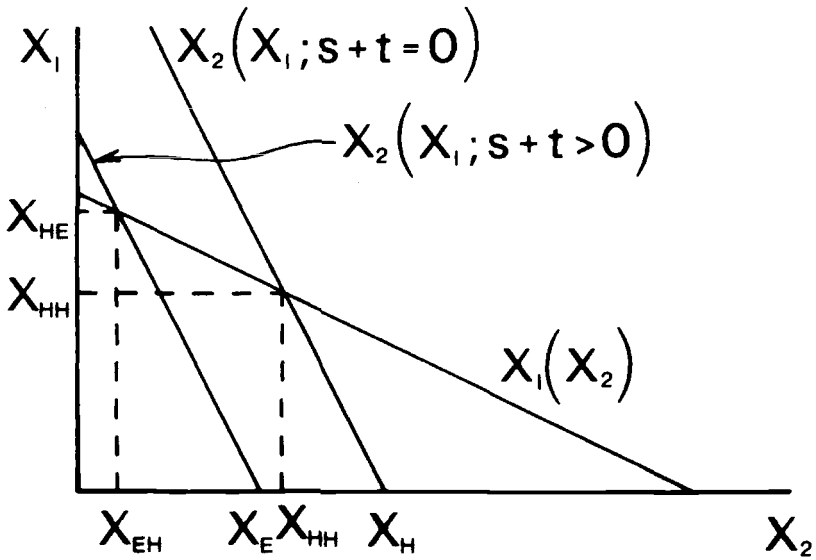

Fig. 6.2   Duopoly equilibria

multinational's reaction curve in to the left, and the equilibria in both situations are as illustrated in figure 6.2. The presence of transport costs and tariffs drives the equilibrium away from the symmetric duopoly solution (X_{HH}, X_{HH}), to a lower level of sales X_{EH} for the exporting firm, and a higher level of output X_{HE} for the host country firm. It is easily seen also that the *variable* profits of the host country firm are higher and of the multinational lower when the multinational is an exporter than when it is a direct investor. It is also obvious that a firm will make greater profits as a monopolist than as a duopolist.

Note how the choice between exporting and investing is different in duopoly from in monopoly. A monopolist simply compares the fixed cost of investment with the transport and tax costs of exporting. A duopolist, whose output level, other things equal, is less than that of a monopolist, might be expected to be more likely to choose the export option. But this is to ignore the strategic value of making the fixed investment which lowers variable unit cost by $s + t$, and thereby, with Cournot competition, expands the multinational's output and profit while contracting its rival's output.

6.3.4   Embargo Threats and Entry Decisions

In applying this model to the analysis of U.S.-European trade, I make the apparently eccentric assumption that Europe, both East and West, is to be treated as one country, with the U.S. as the other country. The justification for this structure is that it is simple but also sufficient to illustrate the essential points about the effects of multinationality on the effectiveness of embargoes.

I assume that an embargo can only be effective if the multinational has chosen to export; that, in other words, the actions of foreign subsidiaries are beyond the reach of the multinational's home government. This is a very considerable narrowing of the focus of the model, and restricting of the potential effectiveness of an embargo, and this feature of the model is justified also precisely in order to focus attention on the way that multinationality may reduce the effectiveness of embargoes.

The assumption that the multinational can make positive profits as an exporter, so that it will never choose to stay out of the host-country market, means that, in the absence of an embargo, the multinational must choose between exporting and investing, while the host country chooses between entering and not entering. However, an embargo could exclude the multinational from the market. The payoffs to the various decisions derive from the Cournot equilibria of the post-entry games discussed in the previous section and are set out in table 6.2, where H is the host country firm, M the (potential) multinational, and in each payoff pair, M's payoff is given first.

Table 6.2 **The Entry Game**

| | | H | |
		Not Enter	Enter
	Export	A, O	$C_E, C_H - F - G$
M	Invest	B – G, O	D – G, D – F – G
	Excluded	O, O	O, B – F – G

The payoffs A, B, C_E, C_H, and D are given by

$$A = P(X_E)X_E - (c + s + t)X_E$$
$$B = P(X_H)X_H - cX_H$$
$$C_E = P(X_{EH} + X_{HE})X_{EH} - (c + s + t)X_{EH}$$
$$C_H = P(X_{EH} + X_{HE})X_{HE} - cX_{HE}$$
$$D = P(X_{HH} + X_{HH})X_{HH} - cX_{HH}$$

We have assumed that $C_E > 0$ and we know that $B > A > C_E$ and that $B > C_H > D > C_E$.

An embargo will, by assumption, have no effect if the multinational has chosen to invest. If, however, it has chosen to export, then an embargo will move it down to the "excluded" row in table 6.2. But insofar as an embargo is anticipated, it changes the payoffs to investment by the multinational, reducing the expected values of A and of C_E towards zero. It also raises the expected value of C_H towards D, but the host country firm can always enter after the imposition of an embargo, so it need only concern itself with the effect of the anticipation of an embargo on the behavior of the multinational.

The effect of an embargo will depend on which equilibrium is chosen and unfortunately the above inequalities are not sufficient to narrow down greatly the range of possible equilibria. I shall here consider only some of the possibilities.

It is natural to model firms' entry decisions as being sequential, and it is important, in doing this, to observe that only a decision to sink entry costs—investment by M, entry by H—is an irreversible commitment. A decision by M to export or by H not to enter is a decision which could be reversed after the rival firm has made its entry decision, and as we have noted above, a decision by H not to enter could be reversed after an embargo is imposed on exports by M. For more formal analysis of sequential decision making in this model, see Smith (1987).

Strategic Foreign Direct Investment

Suppose that M makes its entry decision first, and suppose that $(B>)C_H>F+G>D$ so that H will enter only if M is an exporter or is

excluded. Suppose also that $C_E > D - G$ and $A > B - G$, so that simple comparison of the costs of exporting with the costs of foreign direct investment would indicate that M should export, whatever action is taken by H. In this case, it is actually optimal for M to invest, because by doing so it will ensure that H chooses not to enter.

This example illustrates the potential strategic role of foreign direct investment as an entry-deterrent in this kind of model, to add to its role in strengthening oligopolistic power discussed at the end of section 6.3.3. Thus, a multinational may have strategic incentives to undertake foreign direct investment even when cost comparisons do not seem to justify such a policy, and in this event it puts itself beyond the reach of an embargo independently of the embargo threat itself.

Embargo-Induced Foreign Direct Investment

In the event that $F + G > C_H > D$, H will choose not to enter if M is not excluded, whether or not it makes its entry decision before M. If $B - G > A$, then M will undertake foreign direct investment, and the embargo has no effect. If, on the other hand, $A > B - G$ in the absence of embargo threats, M would choose to be an exporter. The threat of an embargo, however, may reduce the expected value of A below $B - G$, in which case M will be induced by the threat of embargo to invest, and thereby make the embargo ineffective.

Entry in Response to Embargo

Continuing with the previous case, suppose that the embargo threat is not perceived by M to be sufficiently strong to reduce A below $B - G$, so that M is a monopoly exporter. It does not follow that an embargo will be effective, for once M is excluded from the market, H faces returns of $B - F - G$ from entry, and it will enter if this is positive.

An Effective Embargo

It follows, then, that an embargo will be effective only if the fixed costs $F + G$ of entry by H are higher than the profits B that it can make as a monopolist, if the fixed costs G of foreign direct investment by M are sufficiently high so that the returns A to exporting exceed the net profits $B - G$ of foreign direct investment, *and* if embargo threats are not perceived to be serious enough to reduce the expected value of A below $B - G$ and induce foreign direct investment.

6.4   Conclusions

The cases analyzed briefly in the previous section are not exhaustive, but they do illustrate various theoretical possibilities, and in particular illustrate in a formal model some of the issues which were raised earlier

in the paper. The requirements for a successful embargo, in the absence of effective extraterritorial control of subsidiaries and licensees are quite demanding. Embargoes seem unlikely to succeed if there has been diffusion of technological knowledge and independent production capability through multinationals either in response to market pressures or in response to perceived embargo threats; or if the nation contemplating the embargo has a reputation for the political use of trade restrictions; or, finally, if the acquisition of the requisite knowledge and capability by independent foreign firms is not prohibitively costly. The skepticism of the Western European countries and of the Office of Technology Assessment may be well founded.

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Comment   L. A. Winters

These papers* are interesting and informative attempts on a difficult subject. Each comprises a historical-cum-political analysis followed by a simple model of the sort with which economists are used to working. While there are many similarities between the historical sections of the papers, the models are nicely complementary: Kierzkowski deals with the potentially embargoed country, while Smith deals mainly with the embargoing country and its firms. It is no disrespect to either author to note that their models have a very long way to go to match the subtlety of their historical analyses. Nonetheless most of my comments concern the former rather than the latter.

In U.S.-European trade relations two aspects of embargoes are of interest: first the partners' different attitudes towards embargoes on third countries, and second the possibilities of embargoes between the two. The former revolves around the concepts of linkage and leverage discussed by Smith. The distinction between these concepts is undoubtedly interesting and fruitful, but I am not sure that it lies entirely in the realms of frustrated vs. fulfilled expectations. Both linkage and leverage involve the target country—the USSR—paying a price, i.e., doing something it would not otherwise do. Both require the initial expectation that the West continue to deliver on its side of the bargain. Both require that Western promises/threats to continue/curtail delivery are believed. Both are defined over the same pair of outcomes: either both the USSR and the West "deliver," or neither does. It seems to me that the crucial distinction lies not in expectations but more in the process by which the "price" is declared. Under linkage this is done quietly and implicitly, under leverage overtly and explicitly. At least in the Jackson-Vanik case, leverage entailed the USSR's paying a higher price—it added national humiliation to the price of Jewish emigration. Not only was this unpalatable to the highest Soviet authorities, but it may also have upset subtle coalitions within the Soviet hierarchy, bring-

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    *Chapters 5 and 6 in this volume.

ing into the game new players who were excluded while it was being played on purely commercial grounds.[1]

Turning to the possibilities of U.S.-European embargoes, Smith's conclusion that firms are likely to prefer foreign direct investment over exporting as a means of evading embargoes seems correct. It probably does not generalize to more extreme political situations, however. Both the possibility of retaliatory nationalization of foreign assets, and the possibility that the embargo or other pressure would bring the target country's economy to its knees reduces the relative attractiveness of foreign direct investment. Thus, for example, I suspect that firms considering supplying South Africa today would favor exporting, with its lower initial commitment, to direct investment.

Kierzkowski argues convincingly that the case for restrictive trade policy based on the threat of future embargo is rather slight. Even so, I believe his model tends to exaggerate it. First, the case for policy requires that the perceived private costs of embargo fall short of the social costs. With the exception that governments might have better information about future foreign policy shocks, this seems unlikely. Second, his example of airliner sales, in which purchase involves a necessary commitment to foreign servicing, provides precisely the sort of circumstances in which leasing is an attractive alternative to outright purchase. Under leasing arrangements the purchaser at least avoids losing his capital expenditure in the event of an embargo. Third, the nonstorability of the embargoed good is not completely generalizable. Storage may be a cheaper response to the threat of embargo than is autarchy; certainly strategic stocks of several goods do exist. Fourth, the utility function in which $U(0,y) = 0$ means that no insurance against embargo is worthwhile. If higher y-consumption did compensate for the loss of x, countries might try to insure themselves on foreign insurance markets, although it is not guaranteed that such contracts would be honoured. More to the point, however, if y were worth something during the embargo, there would be more incentive to maximize the level of y-capacity prior to any embargo; that is, less incentive to sacrifice y-output for x-output by a policy of autarchy.

1. See H. Raiffa, *The Art and Science of Negotiation* (Cambridge: Harvard University Press, 1982), on the negotiating penalties of trying to humiliate one's opponent.

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