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# International Trade, Foreign Direct Investment, and Security

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## Abstract

The main focus of this review is on international trade and foreign direct investment when the institutions that provide the security of property rights and enforcement of contracts are imperfect. Some issues of national security related to poor governance of international transactions are also considered. The discussion organizes a selective overview of the literature and offers some suggestions for future research.

## 1. INTRODUCTION

Almost all economic activity requires supporting institutions of governance to protect property rights and enforce contracts.<sup>1</sup> These institutions, whether formal ones provided by the state (laws and regulations, and courts and agencies that enforce them) or informal social ones (networks with their norms of behavior and sanctions for violations), never function perfectly. Therefore, economic activity must be carried out under varying degrees of insecurity. This is true even when the economic activity or transaction is confined to the borders of one country (Dixit 2009). But insecurity is greater, and has new dimensions, when activity and transactions cross national borders. Nation-states' interests—geopolitical, domestic political, and economic—influence their trade and investment policies and outcomes; conversely, trade and investment opportunities feed back on interests. Governments may violate the rights of foreigners with less fear of political consequences than they would if the victims were their own citizens, lobbyists, and contributors. Courts may have open or hidden biases favoring their own nationals. Therefore, traders and investors have greater concerns about the security of their property and contracts when enforcement is in the hands of foreign governments and courts than they would within their own countries. The added insecurity when trading with, or investing in, another country creates a concomitant need for added ex ante precautionary actions to mitigate some of its effects, as well as attempts to devise new institutions for ex post remedial or enforcement measures.

This selective review offers an organizing framework for analyzing these issues and examples of the research literature that has studied various aspects of them. My main focus is on the security of property and contract, and the institutions that attempt to mitigate this aspect of insecurity in international trade and investment. But I begin in Section 2 with a brief discussion of more general issues of national security that affect international economic transactions and vice versa. The rest of the article discusses the effects of the insecurity of property rights and of contracts. Many issues are common to the two aspects, but there are also issues specific to each. Section 3 presents general issues, and Sections 4 and 5 discuss property rights and contracts, respectively. But the boundaries are fuzzy, and occasionally my discussion of some specific issue may seem mislocated.

Threats to security in both respects may arise not only from foreign private actors, but also from foreign governments, and may be caused by deliberate strategic choices to violate the rights as well as imperfections of governance. Moreover, traders and investors respond to the existence of insecurity by taking ex ante actions, or establishing or joining institutions, to mitigate its effect and also attempt to put in place methods of ex post enforcement, with varying degrees of effectiveness. I examine some research on all these aspects.

My topic concerns institutions that govern firm-firm and firm-government interactions across countries. An earlier survey in this journal (Antràs & Rossi-Hansberg 2009) deals with the internal organization of firms engaged in international activities. The two are connected because the boundary of a firm is itself endogenous: It changes in response to shifts in the technology of internal organization and the institutions of external governance. The connection is especially important in matters of foreign direct investment (FDI). Therefore, there is some overlap between this survey and section 4 of Antràs & Rossi-Hansberg (2009). But otherwise the two are mutually complementary.

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<sup>1</sup>Institutions to organize various kinds of collective action are also often needed, but they are less relevant to the theme of this review.



## 2. NATIONAL SECURITY

### 2.1. Trade and Peace

Perhaps the best-known hypothesis linking trade and conflict among nation-states says that, holding other things equal, countries that trade more with each other are less likely to go to war with each other. The argument is a simple application of the theory of self-enforcing cooperation in repeated games. Both countries enjoy aggregate economic gains from their mutual trade, and the volume of trade between them may be a measure of how much each would lose if this trade were disrupted, as it would be in the event of a war between them. Therefore, their mutual dependence makes conflict more costly to them. Empirical work to test this hypothesis must control for other effects and consider reverse causation; even after doing this, many researchers have claimed a significant causal effect of trade on peace. One such study (Polachek 1980) finds that “on average, a doubling of trade between two countries leads to a 20% diminution of hostility between them.”

However, others argue that country A’s cost of conflict with country B is smaller if it can replace the lost trade with country B by increasing its trade with other countries. Therefore, other things equal, a country that is more open to global or multilateral trade should have a higher probability of conflict with one specific neighbor. Martin et al. (2008) find a strong and significant effect of this kind.

Of course, war is costly, period. Therefore, all countries stand to gain from ex ante arrangements that reduce its probability. The link with trade can be exploited for this purpose: A free trade agreement with neighboring countries creates mutual economic dependence, which increases over time as specific investments are made in response to the favorable trade treatment. Prevention of another war was offered as a strong argument justifying the creation and expansion of the European Union in the six decades following World War II. More generally, Long (2003) and Long & Leeds (2006) find a complementarity between mutual defense pacts and trade agreements. Bilateral trade is higher between countries in alliances that include commitments of mutual defense, but no higher in weaker alliances that promise only neutrality, nonaggression, or consultation, than between nonallies. Conversely, trade is higher when a security alliance specifically includes economic cooperation than when it does not; trade in the latter situation is insignificantly different than trade between nonallies. Similarly, Martin et al. (2010) find “complementarity between economic and political gains.” Of course, preferential trade agreements can lead to trade diversion; comparing possible gains from a reduced risk of war and economic losses from trade diversion remains problematic.

The reverse implication—more war, less trade—is perhaps too obvious to need detailed evidence. But it is interesting to note that not only formal wars, but also civil wars have a substantial trade-reducing effect (Bayer & Rupert 2004). So does a country’s response to security threats from foreign terrorists, such as the U.S. response after 9/11 (Walkenhorst & Dihel 2006).

Mansfield & Pollins (2003, pp. 1–4) give a brief history of thought on the subject. This book also contains a collection of research papers by political scientists.

### 2.2. Trade and War

A different hypothesis linking trade and conflict states that countries deploy military power to promote their economic interests. Most directly, armed force can be used to capture land



and natural resources and to enslave labor, and these inputs can produce more output for the benefit of the imperial country. “Thus both War and Trade . . . are but alternative options to convert one’s own scarce resources into those of the other” (Findlay & O’Rourke 2010). Of course, trade benefits both countries, whereas war hurts the conquered. Findlay & O’Rourke construct a simple formal model of the economic use of war. The key concept is a function  $r(A)$  showing the radius  $r$  from the center of the empire that an army of size  $A$  can conquer and control. Setting  $A = 0$  gives no empire; setting  $A = N$ , the total population of the imperial country, generally leaves too little labor to produce much output. Therefore, there is an interior optimum, but there may be multiple local optima, especially if conquered people can be coerced to supply labor. Findlay & O’Rourke use this model to shed light on some popular concepts used by historians, such as the “military range” and “administrative range” of an empire, and “imperial overstretch.” They also use the model to offer interesting insights about Roman, Mongol, and European empires. Their book (Findlay & O’Rourke 2007) gives a thorough, instructive, and enjoyable historical account.

In their formal model, Findlay & O’Rourke do comparative statics for changes in the technology of war, that is, shifts of the  $r(A)$  function. But the idea that war and trade are mutual substitutes also lends itself to comparative statics with respect to trading possibilities. If trade becomes less costly, countries will substitute toward it and away from war. Thus the theory also links with the idea discussed in the previous subsection, namely trade as a promoter of peace.

In a less extreme form of imperialism, a country may use its military power, or threaten to use it, to exercise monopoly power in trade against other countries. Marxist critics of capitalism emphasized this. Specifically, the British empire was alleged to have reduced its colonies to producing raw materials and importing British manufacturers, and to do so at unfavorable terms of trade. However, that pattern of trade would have probably arisen in the nineteenth century because of ordinary comparative advantage without any use of military power. Gallagher & Robinson (1953) redirected the debate by emphasizing the use of military as well as political power to ensure the security of Britain’s trade and investment: “In any particular region, if economic opportunity seems large but political security small, then full absorption into the extending economy tends to be frustrated until power is exerted upon the state in question.” Their interpretation of security is largely a guarantee of the freedom of trade: Britain persuaded other countries to admit imports of British goods without barriers. Whether this was done using diplomacy and concluding treaties “of free trade and friendship” (what Gallagher & Robinson call informal imperialism), or by force of arms leading to annexation into the British empire (formal imperialism), depended on the exigencies of the place and time. Diplomatic methods were preferred, but force of arms was resorted to if necessary. Similar action was presumably also taken to guarantee the security of British investments, although Gallagher & Robinson suggest this only in passing.

The basic argument of Gallagher & Robinson is that, whenever British traders’ economic interests were at political risk from weakness or protectionism of rulers abroad, soft or hard British power was employed to secure free trade; flag followed trade. Conversely, a general policy of protecting British interests would encourage traders to explore economic opportunities; trade would follow flag. Most famously, British Prime Minister Lord Palmerston in 1850 defended his gunboat diplomacy in parliament thus: “As the Roman, in days of old, held himself free from indignity when he could say *Civis Romanus*



*sum*, so also a British subject, in whatever land he may be, shall feel confident that the watchful eye and strong arm of England will protect him against injustice and wrong” (Brendon 2008, p. 99).

The Gallagher-Robinson thesis proved controversial and generated much debate among historians and political theorists; an account and several articles are provided in Louis (1976). But it makes good sense when viewed through the lens of new institutional economics.<sup>2</sup>

Findlay & O’Rourke consider one given imperial power and examine its strategies. Fully two-sided analyses of war and its relation to trade also exist. For example, Garfinkel et al. (2009) augment the Heckscher-Ohlin model of production and trade by making one of the factors (land) disputable, and introducing a third good (guns) that the countries deploy to acquire a share of the disputed land. Two consumption goods are produced using two factors, labor and land. Each country has its own secure endowment of the two factors. In addition, there is a disputed quantity of land, and its shares between the two countries depend on the quantities of guns they choose to produce using some of their secure factors. For example, if the quantities of guns are  $G_1$  and  $G_2$ , a logistic contest success will award a share  $G_1/(G_1 + G_2)$  to country 1.

In autarky, the country that has a smaller relative endowment of land will have a higher relative price of the land-intensive good and therefore will have a larger marginal benefit from acquiring more land. It will produce more guns unless the production of guns is even more land intensive. International trade equalizes product prices and, under usual conditions, also equalizes factor prices. This equalizes the incentive to acquire more land, and in an equilibrium in which war will be followed by free trade in goods, the two countries produce equal quantities of guns.<sup>3</sup> So long as the conditions for factor price equalization are met, this result is unaffected by their absolute endowments of the secure factors; thus a larger or more affluent country need not be militarily more powerful. Of course, the production of guns leaves less of the factors for producing consumer goods; therefore, the additional security costs of the conflict can outweigh the gains from trade.

### 2.3. Security and Protectionism

Opponents of trade liberalization often argue that more open trade creates greater risks to the country’s security. If the country relies on an imported weapon system, or an imported material that is a crucial ingredient of its military equipment, then an enemy could cut off the supplies of these imports and make the country vulnerable to invasion. Trade may also create economic vulnerability. Consider a country that imports goods essential for the economic life of the country, such as food and fuel. If these imports are cut off, accidentally because of a negative shock either to foreign supply or to international transportation systems, or deliberately by a militarily or economically rival power, then the country’s

<sup>2</sup>Examples of the issues debated include the following: Do the differences between British actions in the mid-Victorian and late Victorian periods constitute a discontinuity, or can they be regarded as a continuous evolution of tactics with constant broad aims? Was Britain exceptional, or can the history of British imperialism generalize to other European countries? Is the Gallagher-Robinson thesis a critique of and an alternative to the Marxist theories of imperialism, or can the two be mutually consistent? For the new institutional economics perspective adopted here, these controversies are of relatively minor importance.

<sup>3</sup>In the strict logic of the two-country model, it is difficult to think of the countries fighting a war over land and then trading goods amicably in a competitive equilibrium. But stretching the interpretation of the model somewhat, we can think of the two countries as existing in a large multicountry world.



economic welfare can plummet. Reliance on exports can also increase economic vulnerability. If country A makes a sunk investment for the specific purpose of trading with country B, then country B can engage in opportunistic holdup strategies to country A's detriment (McLaren 1997).

Such disruptions, while logically conceivable, are often unrealistic or highly unlikely. But the arguments appeal to the citizenry's fears and are therefore made and exploited by special interests that want protection for other reasons. For example, national and economic security arguments are often offered to justify agricultural price-support policies in many countries.

Actual or perceived fear of losing access to some imported resource vital for a nation's security or economy may lead the nation to take preemptive military action. For example, this was one element in the thinking of Japan's military-political elite that led to their attack on the United States in 1941. "Japan, a country of nearly 60 million people, had by then ceased to be self-sufficient in food; it had never been, and could never be, self-sufficient in raw materials, least of all those materials on which an industrial revolution, in the throes of which Japan still laboured, most urgently depended—non-ferrous metals, rubber, and above all, oil. The solution that recommended itself to Japanese nationalists was a simple one: Japan would acquire the resources it needed from its neighbours and assure its supply by the most direct of all methods, imperial conquest" (Keegan 1990, p. 242).

From an economic normative point of view, even if security risks from trade are real, they rarely justify import barriers per se. Standard theory of policy targeting (Bhagwati 1971) offers other ways to improve security more efficiently. If greater domestic production of food or other goods is desired, the optimal policy is a production subsidy.<sup>4</sup> If the imported good is available now but may suffer supply disruptions in the future, stockpiling would be better than domestic production. This point is especially important to remember in the context of an exhaustible resource. If domestic production is increased, the domestic stock of it falls, thereby increasing future vulnerability and decreasing future security. Thus the often-advocated policy of increasing U.S. crude petroleum output for national self-sufficiency is actually a "drain America first" policy. It would be better to import while one can, leaving one's own stock safely in the ground.

### 3. EFFECT OF POOR GOVERNANCE ON TRADE AND INVESTMENT

For the rest of this article, I consider only the insecurity in international commerce that arises when governance institutions are imperfect—the risk that property rights may be violated and contracts dishonored. As discussed in Section 1, such risks exist even within one country, but they are magnified when the activity—trade or investment—has an international dimension. These risks are, in a generalized sense, the costs of trading and investing, and like any other cost, we expect them to lead to a reduction in the scale of the activity. We also expect participants to take actions to reduce or avoid the costs: seek alternative forms of organization or transportation, write contracts so that they are less

<sup>4</sup>It is sometimes argued that a production subsidy costs a government revenue, whereas a tariff would raise revenue. In fact a tariff is an equal-rate combination of a production subsidy and a consumption tax on the good in question. So it is raising revenue for the subsidy by taxing this good alone. Standard theory of public finance tells us that the revenue can be raised with lower deadweight loss using taxes at lower rates on a broader base of all commodities.



susceptible to opportunistic nonperformance, and so on. In this section, I outline some of these issues and their implications for trade and investment and review some related empirical work.

### 3.1. Precautions and Institutions for Coping with Insecurity

Traders and investors recognize the risks caused by poor governance of international transactions and take various precautionary measures to safeguard their property and ensure contractual performance to some extent. Some of these measures are simple avoidance—redirect or reroute trade to less insecure channels; obtain upfront payments for goods, services, and capital equipment; and so on. Other measures use alternative existing organizational forms and institutions that may provide better governance or set up new ones. A firm that buys inputs from foreign firms or sells inputs to them may vertically integrate to replace defective governance of arm's length contracts by relational internal corporate governance that has agency costs but does not require external enforcement. Institutions other than the legal apparatus of either state may provide a better ability to detect and punish violators of property rights and contracts and achieve some deterrence of such violations because of the effective threat of punishment. These institutions include various international forums of arbitration and networks of traders based on ethnic or industry ties. The sections that follow discuss both types of actions—ex ante precautions and ex post enforcement.

### 3.2. Some Empirical Research

The hypothesis that poor contract enforcement by the state's legal system raises the cost of trade and therefore lowers the volume of trade finds support in Anderson & Marcouiller (2002) and Leeson (2008), but the two have different views about the magnitude of this effect. Anderson & Marcouiller (2002) find that “corruption and imperfect contract enforcement dramatically reduce international trade . . . [I]nadequate institutions constrain trade as much as tariffs do.” For example, if Latin American countries were to have the same quality of governance as the European Union, import volumes of Latin America would rise by 30%, whereas if their tariffs were lowered to the levels in the United States, their imports would increase by 35%. Leeson (2008) finds that the effect is “significant but modest compared to intuition.” He estimates the effect of the New York Convention (under which signatory countries undertake to enforce the awards of international arbitration tribunals without rehearing the whole case) and finds that state enforcement would increase trade by “about 15 to 38%.” The estimates in the two papers are actually not far apart, but the authors' interpretations are far apart: dramatic versus modest. Researchers seem to bring very different priors or intuitions about the importance of formal governance, but the facts seem to exert some converging influence!

The effect of poor contract enforcement should be higher for some types of goods than for others. Not only that, good contract enforcement should contribute to a country's comparative advantage in those goods for which this is an important consideration. Several hypotheses of this kind have been tested and supported. Goods or services requiring specific investments offer greater scope for opportunism (Williamson 1985); the significance of this for comparative advantage and trade has been demonstrated by Nunn (2007) and Levchenko (2007). Goods or services that are more complex in the sense of requiring



complementary combinations of more tasks are more vulnerable to poor governance; Costinot (2009) studies this aspect. Differentiated products require better-quality contract enforcement because they lack an easily observable reference price that homogeneous products have. Therefore, trade in differentiated goods should suffer more as a result of poor contract enforcement; Linders et al. (2005) and Ranjan & Lee (2007) find such effects.

Some of this work also has implications for basic questions such as gains from trade. For example, Levchenko (2007) raises the possibility that countries with good institutions may secure extra gains from trade, and those with poor institutions may lose from trade. The reason is that contracting imperfections are differentially important in different sectors and lead to factor market distortions in which factors in the sectors that depend on good governance earn rents. Trade may aggravate these distortions; specifically, countries with good institutions may specialize in sectors that offer these good jobs, and countries with weak institutions may lose good jobs.

Firms respond to poor external contract governance by vertical integration (Williamson 1985). In the international context, this changes the nature, although not necessarily the volume, of trade—more of it becomes intrafirm. Bernard et al. (2010) show that the intrafirm fraction of U.S. imports is especially high for products for which contractibility is more difficult, coming from countries with weak governance.

Acquisition of a foreign trading partner leading to intrafirm trade is an act of FDI. Weak governance of property rights in the host country can be expected to affect FDI even more than it affects trade. When a multinational firm (MNC) establishes a subsidiary and opens a plant in a foreign country, the whole capital stock is at risk from violations of property rights and contracts, whereas for trade flows, only one consignment is at risk at one time, and escape from a bad relationship can be made more quickly. The effect of weak enforcement of contracts is less clear. If contract governance in a country is very poor, foreign firms may simply stay away from it. But if they do transact, they would find it less bad to establish a subsidiary than to deal with an independent local firm, thereby replacing the weak external governance by an internal principal-agent-type internal governance. Alternatively, MNCs may respond to weak contract enforcement in the destination country by producing the more nonroutine services at home and exporting them instead of making an investment to produce them abroad; Oldenski (2009) finds such an effect.

Much empirical work using data on FDI as a whole (rather than aspects of it such as intrafirm trade) also exists. This work confronts several problems of data and their interpretation. (a) FDI is distinguished from portfolio investment by the fact that the former involves control over the operations of the foreign subsidiary, whereas the latter, whether equity, bond, or other kind of investment, is more passive. But it is not easy to separate the two. The statistics are usually compiled by assuming that an ownership fraction exceeding 10% confers sufficient control right to count as FDI, but this is arbitrary, and some data use different criteria (e.g., >50%). (b) Most of the data lump together FDI made by merger or acquisition and the construction of a new or greenfield plant, but the two can have different economic effects. (c) Significant amounts of FDI are channeled through offshore financial centers, concealing the true origin or destination. They are also used for devices like round-tripping and trans-shipping of investment to get around various regulations and restrictions imposed by countries' policies. (d) The source of FDI is the country where the investing firm is listed, but this may be misleading and can change without having any real





effects if a firm moves its listing from one country's financial center to another. (e) A single deal can have a large effect on one year's FDI statistics. (f) The statistics are especially problematic for less developed countries (LDCs), where many issues of governance are most pertinent. Measures of the quality of governance are also problematic; many have ambiguous interpretations, some are measures of outcomes rather than causes, and many are subjectively obtained or calculated. These are issues about data; issues of estimation and interpretation are discussed below.

Globerman & Shapiro (2002) use United Nations Conference on Trade and Development data on FDI and the World Bank's governance indicators. They find that, controlling for some other determinants (GDP and some human development and environmental quality indices, but not any gravity-type measures of distance between the countries, whether geographic, legal, ethnic, or linguistic), better governance leads to significantly more FDI inflows and that LDCs stand to benefit more at the margin from governance improvements than do richer countries. Better governance in a country also increases the outflows of FDI from it, especially for large countries. The intuition is that better governance in the home country allows stronger and larger firms to emerge there, and then they become multinational and invest abroad. But the inflow and outflow equations must be estimated separately because they do not have data on bilateral flows.

Globerman & Shapiro (2003) consider FDI from the United States. They use a two-stage procedure: In the first, the dependent variable is the probability that a country receives any FDI from the United States; in the second, it is the amount of FDI conditional on receiving any. The variables for which they control this time do include some proximity measures: the legal tradition (common law, civil law, or socialist), language (English or other), exchange-rate regime, and membership of NAFTA. They find significant positive effects of governance quality on both the probability of nonzero FDI (which conforms with intuition about the role of property rights) and the amount of FDI conditional on receiving any (which may be a net balance of two considerations about contract enforcement as mentioned above).

Henisz (2000) obtains separate estimates for two forms of FDI: joint ventures and majority-owned subsidiaries. He also makes a distinction between hazards of contract enforcement and other political hazards. The former arise from poor contract governance and offer a local partner opportunities for holdup, technology stealing, and free-riding on the foreign company's reputation; therefore, poor contract governance will tip the MNC's decision in the direction of establishing a majority-owned subsidiary. Political hazards include various forms of expropriation by the government of the host country and its agents; these can be mitigated by using a local partner who has more influence with the host-country government and can better navigate the regulatory system and handle bribery. But the two hazards interact in the context of a joint venture: The local partner firm can use its influence with its government and with local officials to further erode the foreign firm's position in any contractual dispute. Therefore, the effect that contractual hazards have on the choice of a majority-owned plant should be magnified in the presence of political hazards. Henisz uses a sample of U.S. manufacturing firms. The measures of political hazards are constructed based on factors such as the number of veto players in the political process and the heterogeneity of party positions. Contractual hazards are measured by proxies for asset specificity such as capital and research and development (R&D) intensity. Other controls include



population and per-capita income. He argues that the predicted probabilities from his probit estimation provide overall support for the hypotheses. However, several of his coefficients are statistically insignificantly different from zero, or statistically significant but economically small.

Javorcik & Wei (2009) use a firm-level data set from 22 transition economies to study the effect of governance on FDI. They estimate equations for the binary entry decision and, conditional on entry, for the mode (wholly owned subsidiary versus joint venture). The main determinants considered are the level of corruption in the host country and the R&D intensity of the industry. Corruption tilts the decision away from entry but, conditional on entry, toward a joint venture. High R&D intensity increases the risk of technology leakage and therefore favors a wholly owned subsidiary. The effects are substantial: They also find some evidence for interaction between the two: The effect of R&D intensity favoring the wholly owned mode is stronger in more corrupt countries.

Some of the above work can be criticized because institutions tend to improve with GDP per capita, and the estimated effect of institutions may actually be that of income. Benassy-Quere et al. (2007) use a data set on institutional quality compiled by the French ministry of finance and another one from the Fraser Institute. Their data on FDI come from the Organization for Economic Co-operation and Development (OECD) data set of bilateral FDI stock for the 30 OECD source countries and a larger number of other host countries. They use a gravity-type model, with the two countries' GDPs, per-capita GDPs, and distance variables: geographic distance between main cities in the two countries, and dummies for common boundary and common language. They attempt to control for the endogeneity of institutions using instruments such as the country's latitude and longitude, and the nature of its main religion. They find that not only governance institutions (bureaucracy, corruption, legal system), but also banking, labor and industrial laws, and regulations in a country significantly affect its FDI inflows. But a source country's institutions have little impact on FDI outflows. The difference between two countries' institutions—their institutional distance—negatively affects their bilateral FDI flow.

These studies, and others that exist, are a good beginning, but have several limitations and deficiencies (of which the authors are well aware). The variables of interest must be proxied by available or constructed measures of questionable validity. The choice of methods and instruments used for identification is almost never rigorously justified or explained. Different studies use different controls, sometimes leaving out intuitively relevant variables. The results are sometimes weak, ambiguous, or even counterintuitive. There is a scope for the collection and organization of better data, and for much more empirical research.

The empirical research also suggests lines for theoretical research. The protection of property rights and enforcement of contracts are distinct but overlapping aspects of economic governance, and they affect international trade and FDI differently. Theoretical models usually focus on one aspect at a time, but there is a scope for richer models that include the different dimensions at the same time and that study their interactions and the net balance of their effects.

### 3.3. Governance and Southern Multinationals

Until the 1970s, most MNCs were from the advanced industrial world, and they invested in other advanced countries as well as in LDCs. Since then, the presence of MNCs based in



LDCs and former or even current socialist countries has grown rapidly.<sup>5</sup> For sake of brevity, I label this group of FDI source countries as southern. In 2005, southern FDI outflows were \$133 billion, which was 17% of the world total of \$779 billion. The stock was \$1.4 trillion, or 13% of the world total. Of the outflow in 2005, \$68 billion was from an arc of east, southeast, and south Asian countries, and \$15 billion was from Eastern Europe, of which 87% was from Russia. Much of this FDI was also destined for other southern countries: Of the FDI from the Asian arc countries, 64.8% went to other southern countries and only 32.9% went to developed countries, whereas almost all of FDI from developed countries (92.8%) went to other developed countries. (All data are from UNCTAD 2006.)

The earliest writers on the phenomenon of southern FDI observed some key differences between southern and developed-country MNCs: Southern MNCs (*a*) are smaller, (*b*) use technologies and management better adapted to local conditions and factor prices, (*c*) have better-developed managerial skills to deal with low-skilled workers, (*d*) are more likely to engage in joint ventures with firms or businesspeople in the host country, and (*e*) are more likely to engage in bribery of local officials (Lall 1983, Wells 1983).

Southern MNCs are clearly an important and accelerating part of the FDI scene, and they differ in significant ways from MNCs based in developed countries. These observations are important enough (and are expected to become even more important in the next decade or two) to require explanation.

One can think of many reasons why firms from southern countries may find it desirable to invest abroad. Some of these reasons, not mutually exclusive, include the following. (*a*) Poor quality of governance in their home countries makes FDI in host countries with better governance more attractive. (*b*) They may be responding to an approach by a firm or the government in the host country, which wishes to increase investment in a specific sector of its economy and finds a firm from another LDC that is active in that sector in its home country more appealing than one from a western country, especially a former colonial power. (*c*) Southern firms use FDI to acquire modern technology; this would explain some southern FDI going to advanced host countries. (*d*) The purpose of the FDI is to acquire natural resources or land rights in the host country; China is said to have done this in many African countries. (*e*) Their home governments encourage or subsidize FDI, for the reasons (*c*) and (*d*) listed above.

But there is an additional explanation (again not exclusive to any of the others): Firms with experience with working in conditions of poor governance have an advantage when working in other countries that also have poor governance. Even though they do not know the details of the conditions in the host country, they know the general importance of cultivating relationships involving local partners who know how to navigate regulatory obstacles and know whom and how to bribe.<sup>6</sup> They may have better access to ethnic and linguistic networks that span their own country and the host country. They are less constrained by their own country's laws in matters of bribery. Their technology is better adapted for poor governance; this includes managerial skill developed for supervising low-skilled workers. Such advantages may offset any advantages of northern MNCs based on modern technologies and the availability of capital. We see below that this

<sup>5</sup>In some prominent cases, the socialism is only in name.

<sup>6</sup>This is more subtle than one would think. Blundering into a wrong approach or offering the wrong bribe to the wrong person may have dire consequences; at best it would be fruitless.



explanation fits with many of the facts stated above about southern FDI: Much of it goes to other southern countries, it uses techniques better adapted to local conditions, it is more likely to involve joint ventures with host-country firms, and it is more likely to involve bribery.

Cuervo-Cazurra & Genc (2008) advance the hypothesis that the disadvantage of dealing with poor governance at home can turn into an advantage when making FDI and offer some empirical support for it. They find that southern MNCs are more prevalent among the largest foreign firms in LDCs that have weaker regulatory quality and more corruption. Other recent research provides related empirical evidence. Darby et al. (2010) find that across host countries, worse governance leads to less FDI, but this is mitigated—the magnitude of the effect is much weaker or insignificant—for investments coming from countries with similarly poor institutional quality. Hwang (2010) finds that among MNCs investing in east and southeast Asia, those with home countries outside the region are more sensitive to country risk, whereas those from within the region are less sensitive to country risk and more sensitive to economic fundamentals, presumably because they know how to better cope with the risk. The role of ethnic networks and the role of Hong Kong as an intermediary for investment in China are well known, for example (Fan 1998, Li & Lian 2001, Rauch 2001). These networks serve many functions, one of which is to use ongoing relationships to replace poor state governance. With regard to outward FDI from China, Chen & Lin (2008) find that Chinese firms such as Huawei and TCL looked for cultural affinity (in southeast Asian countries) as well as former political affinity (Russia and Vietnam), the latter presumably because of their experience in coping with similar governance systems.

Here I briefly develop a model of southern FDI, constructed by extending the model of Javorcik & Wei (2009). Consider a firm  $F$  from country  $O$  (for origin or source) contemplating a direct investment in country  $H$  (for host). Denote by  $t$  the excess of the level of technology used by the firm  $F$  in its home country  $O$  over that appropriate for the economic conditions in country  $H$ . Denote by  $r$  the level of corruption (or, more generally, the defectiveness of governance) in country  $H$ ; thus higher  $r$  means worse governance.

Firm  $F$  has three choices: staying away (labeled  $Z$ ), entering into a joint venture ( $J$ ), or establishing a wholly owned subsidiary or full vertical integration ( $V$ ). The revenue from the FDI project (plant or subsidiary) depends on the mode. Denote the revenues under  $V$  and  $J$  by  $R_V$  and  $R_J$ , respectively, with  $R_V > R_J$  because the partner firm in  $J$  will have to be given a bigger cut in exchange for its help in dealing with local officials and in adapting the technology to suit local conditions. The production costs of the two modes are assumed to be

$$C_J = C_0 + cr + at, \quad C_V = C_0 + (c + \theta)r + (a + \mu)t,$$

where the parameters  $C_0$ ,  $c$ ,  $a$ ,  $\theta$ , and  $\mu$  are all positive.  $C_0$  denotes the basic cost in the host country using the technology appropriate for its economy (when the technology excess  $t$  equals 0) and operating in a hypothetical regime of perfect governance ( $r = 0$ ); the other terms are costs added because of inappropriate technology and poor governance. The parameter  $a$  is positive because, by assumption, country  $O$ 's technology is already too capital and skill intensive for country  $H$ 's conditions, so a higher  $t$  increases costs.  $\theta$  and  $\mu$  are positive because it is costly for country  $O$ 's firm to cope with bad governance in country  $H$ , and to adopt technology to country  $H$ 's conditions, on its own. Thus taking on



a partner saves production costs. But it increases the risk and cost of technology leakage; this cost is specified as

$$L_J = (\gamma + \phi r)t.$$

Thus the cost is higher the more advanced the technology is from country S's firm. And for each given level of technology, the cost is higher the worse the governance is in country H because there is less contractual remedy if the local partner steals the technology. The special functional forms of the costs are chosen purely to keep the calculations simple; the qualitative results remain valid for more general functions that are increasing and interactive in qualitatively similar ways.

The profits of the two modes of investment are therefore given by

$$\begin{aligned}\Pi_V &= R_V - C_0 - (c + \theta)r - (a + \mu)t, \\ \Pi_J &= R_J - C_0 - cr - (a + \gamma)t - \phi tr.\end{aligned}$$

Of course,  $\Pi_Z = 0$ . The mode with the highest profit is chosen.

**Figure 1** (see color insert) shows the  $(r, t)$  space divided into three regions defined by the optimal choice. The region to the northeast has  $Z$  as the optimal choice: Country H's governance is so poor and the cost of technology leakage is so high that it is best not to invest at all. The region to the left has  $V$  as the optimum: The governance is good enough that country O's firm should invest directly without having to enlist the help of a local partner in country H. In the third region marked  $J$ , a partner helps with governance issues and the technology is not so advanced that the cost of losing it would be decisive.

We can use this figure to explore the implication of the two differences between southern and northern firms: Southern firms' technology is closer to being appropriate for the host country, and these firms are better able to cope with bad governance.

Generally, northern firms come with the experience of a more advanced technology (have higher  $t$ ) than southern firms. This implies differences in their FDI choices. They are shown by three vertical lines, each corresponding to a different level of country H's governance (different given  $r$  values), with a northern firm at the top and a southern firm at the bottom. In the leftmost line, country H's governance is quite good. Then it is possible that the northern firm uses the  $V$  mode while the southern firm uses  $J$ : The southern firm is more likely to use a local partner because it has less to lose from technology leakage. In the central case, with mediocre governance in country H, the line shows the northern firm staying out while the southern firm uses  $V$ ; its technology is more suitable to country H's environment, so it can be profitable because of a lower cost of production. In the rightmost case with really bad governance from country H, the northern firm stays out while the southern firm enters using  $J$ : The low technology enables it to use a local partner with a lower risk of leakage, and the resulting lower cost of coping with the poor governance.

Southern firms' advantage in coping with bad governance will be reflected in lower values of  $c$  and/or  $\theta$ . Lowering these parameters shifts all three separating curves in the figure rightward. Compare two firms, one southern and one northern, with a common level of technology  $t$ . If this common  $t$  is high, the northern firm may be in region  $Z$  (stay out), while the southern, with its dividing curve between  $V$  and  $Z$  further to the right, may be in region  $V$  (enter with vertical integration). Similarly, for a lower common value of  $t$ , a southern firm may enter with a joint venture while a northern firm stays out, or a



southern firm may enter with vertical integration while a northern firm must use a joint venture.

### 3.4. Reverse Effect of Trade on Governance

The above literature studies the effect of institutions on trade and investment, but a reverse causation is also conceivable. If economic opportunities for trade and investment are stifled because of poor governance, and if those who stand to benefit from these opportunities have sufficient influence on the political process in their country, they may be able to achieve improvements in the country's institutions. Anderson (2009) and Levchenko (2009) construct political economy models that show this possibility. Levchenko also provides empirical evidence that countries with a natural comparative advantage in institution-dependent sectors, and which therefore have exporting interests favoring better governance, have significantly higher-quality institutions.

In discussing Gallagher & Robinson (1953) in Section 2.2 above, I mention a different possibility: Traders and investors whose opportunities are stifled by poor governance in another country may mobilize the diplomatic and military power of their own country to secure improvements in governance in the foreign country. This was more common in the days of empires, but even now the property and contracts of agents from major powers are probably better respected in the third world than those from less powerful countries.

## 4. PROPERTY RIGHTS

International traders' and investors' property faces many threats from many sources. Goods in transit may be stolen or hijacked by pirates. Goods at the destination may be stolen or misappropriated by agents—reported as missing or damaged in transit or unsalable, and then sold for private profit. Foreign governments may confiscate goods or may impose sudden unexpected tariff and tax increases. Agents of the governments may demand bribes or other payments under the threat of delaying the release of goods or delaying or denying permits for investments. Investments may be subjected to higher taxes or may be expropriated outright. Repatriation of profits from investments may be subjected to surprise taxes or outright prohibition. All these situations have occurred in the past and will undoubtedly happen again. Here are some examples and accounts of how traders and investors have attempted to cope with the insecurities.

### 4.1. Expropriation by Foreign Governments

Much long-distance trade in medieval Europe was conducted at markets or fairs in cities. Rulers of these cities or regions benefited from the economic activity thus generated and encouraged merchants to travel to their centers by guaranteeing protection for them and their property. But once the center was established, the rulers would be tempted to renege on their promises and opportunistically let their local subjects steal from the merchants, or do some direct (confiscation) or indirect (raising tax rates) stealing themselves. Anticipating this possibility, the merchants would refrain from traveling to the foreign market. The reduction or cessation of trade would hurt everyone. Greif (2006, chapter 4) discusses how the institution of the merchant guild solved this problem.



Trade was an ongoing activity. Could a repeated game involving a merchant and a ruler have a self-enforcing equilibrium in which the ruler's promise was credible because of the merchant's threat to cease trading in that ruler's city? No. The ruler could discriminate among merchants, respecting the rights of some but not others. So long as they went on trading, one merchant's threat to cease trading entailed minimal or no cost to the ruler. A sufficiently large group of merchants would have to retaliate collectively in response to a ruler's violation of the rights of any one of them. But cessation of trading was costly to each merchant, so each had the usual temptation to shirk when providing this collective good for the benefit of someone else in the group. The problem was made worse by the fact that, when a ruler is boycotted by a subset of the merchants, the business of the remaining ones becomes more valuable to him, so they see less of a risk that the ruler would abuse their rights in turn, and the ruler's attempts to break the embargo become more likely to succeed. A guild solved the collective-action problem for the merchants. The rules of the guild required each to participate in a retaliatory embargo against a ruler who abused the rights of any one of them. Any member who violated this rule and dealt with an embargoed ruler faced sanctions from the guild, including loss of access to the guild's other services for its members. Of course, it was essential that the guild be independent of control of the ruler whose good behavior they were attempting to enforce. Greif constructs a theoretical model of such an equilibrium and gives many examples of the institution in action.

A government often has even bigger temptations to extort from foreign firms making capital investments in its country than it does from foreign merchants bringing in goods to trade. The size of an investment is usually much bigger than that of any one year's trade; most firms do not have enough multiple rounds of investments to make; sovereign immunity often prevents the investing firm from obtaining any judgment against the offending government; unlike the medieval European guilds, today's MNCs from different countries usually find it difficult to coordinate retaliation (although the general fear of investing in a country or a region generated by an act of expropriation may sometimes suffice).

Expropriation does not have to be direct or complete. A surprise increase in the tax on foreign firms' profits, the imposition of exchange controls that prevent their repatriation to the firm's home country, and nationalization with inadequate compensation serve the same purpose, and such surprise policy shifts are even harder for a firm to counter. Expropriation may occur for noneconomic reasons: A government may come to power with a nationalistic or socialist ideology and seize foreign capitalists' assets. But some governments may take such actions from a cold economic cost-benefit calculation. The economics literature naturally focuses on this aspect, and Eaton & Gersovitz (1983) offer a comprehensive overview. Here I give a brief account of their analysis and mention some related points.

The problem is often most acute in LDCs and transition economies, in which traditions of a respect for property rights are less well established. MNCs can do some things to make their investments less attractive targets of expropriation for governments in these countries. One such device is to make the investment artificially more capital intensive or skill intensive; then its operation, maintenance, and management may be beyond the capabilities of nationals of the offending country. Perhaps for the same reason, MNCs often resist (or procrastinate in responding to) the demands of the host countries for technology transfer and training of the local personnel. Another device is for the MNC to control a



vertically related industry, for example, the supply of an essential input to the plant it invests in, or the distribution channels for the outputs if they are exported.

The host government has the *ex ante* incentive to put in place devices that will enable it to make a credible promise not to expropriate, so it can attract investment. Even if an investment is a one-off event and not repeated, the parties may be able to break it into several stages, thus turning it into an ongoing interaction in which credibility may be easier to achieve. The firm increases its investment in the project gradually, and the returns also accrue gradually. In the beginning, the government wants the later stages of the investment sufficiently strongly that it does not expropriate. This check gradually weakens, and eventually expropriation will happen. But by then the firm will have obtained and repatriated enough profit that the investment is worthwhile. In the jargon of FDI this is called an obsolescing bargain. A related device with similar effect is to give the firm an upfront reward, perhaps in the form of a tax holiday for a number of years, to compensate it for the expected expropriation later. Formal models of this can be constructed along the lines of Kreps & Wilson (1982) and Watson (1999).

All this concerns a government's credibility with individual traders and investors. There are also issues of the credibility of governments' adherence to more general commitments of trade liberalization made in negotiation with other governments. Supranational bodies like the World Trade Organization, and its predecessor the General Agreement on Tariffs and Trade, have jurisdiction in these matters, but their powers of enforcement are often weak. Despite this, the General Agreement on Tariffs and Trade worked relatively well to ensure self-policing of trade agreements based on repeated interactions among member countries (see Bagwell & Staiger 2003). Smaller groups of countries that interact even more closely and regularly with one another in economic and noneconomic matters may have even better success, using the better-monitoring and more effective sanctions that exist in their close relationships. This is argued by Yarbrough & Yarbrough (1994). Their ideas may also apply to government-firm and firm-firm interactions, but their focus is on government-government aspects, and all their applications are of this kind (see the discussion in Alt & Martin 1994).

#### 4.2. Private Predation

Most traders, whether individuals or firms, cannot personally supervise their goods at all times and must use agents to guard them and organize their sale abroad. These agents have opportunities and temptations to profit by cheating the principal: stealing the goods outright, reporting them lost or damaged in transit and selling them on the side, underreporting the proceeds of the sale, and so on. This can happen even when the enforcement of contracts by courts in either country is not deficient because the agent's actions may not be observable and verifiable to meet the standard of evidence in a court of law, but weak governance aggravates the problem. Of course, advance recognition of the problem will reduce or eliminate trade, to everyone's loss including the potential agent.

Traders attempt to guard against these risks in various ways, well illustrated by the history of trade in the Mediterranean area in late medieval times. In his well-known study of Maghribi traders, Greif (2006) shows how they employed threats of collective punishments, backed up by a good system of communication that informed all other traders in the community when any agent misbehaved, to sustain honest behavior. But that was not their





sole recourse. They also used more formal methods, for example, requiring that consignments be sealed with the sender's seal and opened only in the presence of designated official witnesses (*wakīl al tujjār*) (see Goldberg 2005). Which method was more effective could depend on the characteristics of the good being shipped, the location, the period, the relationship between the merchant sending it and the merchant-agent receiving it, and so on; therefore, the various methods coexisted.

Goods in transit are at risk of theft. The risk persists even in the twenty-first century, most notably from pirates off the coast of Somalia and in the Straits of Malacca, but it was far more widespread in historical times (Bernstein 2008). Various rulers at various times might offer better protection for goods in transit through their territories and benefit by collecting taxes from the traders. When the state's protection was not available, the traders might be able to buy protection from the would-be thieves themselves. They would also face extortion and demands for bribes from officials along the transit routes. To the extent that their information and the nature of the cargo permitted, the traders might be able to choose routes that offered the most protection or least expected cost. Bernstein describes four or five alternative routes that were used to transport silk from China to Greece in antiquity. But even the best-available route may take a long time and have a high cost; the route through the South China Sea and the Indian Ocean, for example, required 18 months to utilize two different seasons of monsoon winds.

The time, and the risk of theft and other kinds of losses in transit, meant that overall transport costs were very high. Bernstein says that the relative price of silk at the destination in Greece was about 100 times that at the origin in China. In other words, 99% of the delivered cost was transport cost. Therefore, only very-high-value items could be traded, and only the very rich could benefit from trade. This explains the nature of cargoes in ancient times romanticized by Masefield (1944 [1902]) in his famous poem *Cargoes*:

Quinquireme of Nineveh from distant Ophir,  
Rowing home to haven in sunny Palestine,  
With a cargo of ivory,  
And apes and peacocks,  
Sandalwood, cedarwood, and sweet white wine.

Transport costs have fallen dramatically, not only because of technological improvements but also because of better governance—protection of property and enforcement of contracts. Nowadays for most goods, transport costs in international trade are only a single-digit percentage of their cost of production. Therefore, even cheap goods can be traded, at a loss of much of the romance of trade but to the benefit of even poor consumers. Already in the first decade of the twentieth century, Masefield (1944 [1902]) spoke of the

Dirty British coaster with a salt-caked smoke stack,  
Butting through the Channel in the mad March days,  
With a cargo of Tyne coal,  
Road-rails, pig-lead,  
Firewood, iron-ware, and cheap tin trays.



Since then, containerization and airfreight have been further dramatic improvements in transport technology and have also reduced the risk of theft in transit. Fresh cut flowers can now be exported across the world the same day; this may bring back some of the romance of trade that Masfield mourned.

## 5. CONTRACTS

### 5.1. Private Arbitration and Enforcement

Most commercial contracts specify each party to do something for the other, but each has the temptation to cheat the other. For example, a contract between party A and party B may specify that party A will supply a good of specified quality to party B, and party B will pay party A according to a specified schedule. If quality is not immediately observable and verifiable—this is often the case, for example, when durability is the relevant dimension of quality—party A has the temptation to supply a lower-quality good that costs less and pocket the difference. And party B has the temptation to delay or renege on the payment. The institutions that enforce the contract must be strong enough to deter the parties from succumbing to these temptations. If the state's legal system is not adequate, other institutions based on social or business networks may attempt to provide the needed contract governance. This problem exists in any transaction but is made more severe in international ones. Which country's laws and courts should rule in the event of a dispute? The contract can specify this. But in the above example, if this is to be party A's country, will party B trust the foreign court to render an unbiased verdict, or will she fear that the court has some bias in favor of its own national? Or she may fear that party A has friends in the court or knows officials who can be bribed. And even if the court renders a judgment in party B's favor, and requires party A to pay party B some compensation, will party B trust the police or other responsible authority to enforce the award without bias or corruption?

This is where international forums for arbitration of commercial disputes can help. There are several of these, for example, based in London, New York, Paris, Stockholm, and Hong Kong, using different legal traditions and different procedures, charging different fees, having different delays in their decision making, etc. The parties to an international transaction decide which of the forums to use in the case of a dispute, and this is specified in their contract. If a dispute does arise and the chosen forum hears it and renders a judgment, the New York Convention (explained above in Section 3.2) ensures that the losing party's country will enforce it (see Casella 1996, Dezalay & Garth 1996, and Mattli 2001 for details and analyses of the performance of these forums). These are not speedy or cheap ways to settle commercial disputes in international trade. Nor are they industry-based tribunals of experts who can use their experience and knowledge of the industry's norms and customs to interpret the facts in a case accurately. But they have two compensating advantages. First, they are not biased in favor of the nationals of one country or the other. Second, they keep confidential the details about the parties and the transaction that are revealed to them in the course of their work; this is often especially important for participants in international commerce.

These private forums only act as judges, leaving enforcement of the judgment to each country's state apparatus. But there are examples of private judges with enforcement power based on repeated interactions. The best-known example in the literature on governance is the system of private judges at medieval market fairs in France (Milgrom et al. 1990). These



judges used the custom-based legal doctrine known as *lex mercatoria* or the law merchant.<sup>7</sup> Each trader may come to the fair occasionally or regularly but does not have sufficient opportunities for bilateral ongoing transactions with any particular other trader to sustain honesty directly in their two-person repeated game. The judge is a permanent presence and keeps records on the behavior of traders coming to the fair. When contemplating a transaction, each trader pays a fee to the judge for revelation of the potential partner's history in past dealings. If the history is clean and the two decide to go ahead with their deal, but one of them cheats, the victim can bring a complaint before the judge, but only if he had previously paid the information fee. The judge hears the complaint (charging another fee for this service). If the complaint is upheld, the judge also determines the appropriate compensation or restitution the defendant should make to the plaintiff. If the losing defendant refuses to pay, this becomes another act of cheating and goes into the judge's record.

Milgrom et al. model this game-theoretically and show that, when the benefits of trading, the patience of the players, and the fees the judge charges satisfy certain conditions, the repeated game has an equilibrium that sustains honest behavior. They do not consider the judge's incentives for honesty; one of the traders may bribe him to hide a history of past cheating or to acquit him when he has cheated in the current instance. These issues are considered by Dixit (2003) (see also Dixit 2004, chapter 4). The idea is that the private judge's intermediation converts the nonrepeated game between a pair of traders into two repeated games of each trader with the judge. To sustain honesty in each of these games, each player must have sufficient rent in each period to make it nonoptimal to cheat. Therefore, the judge's fee must be low enough to leave the trader enough rent, but high enough to sustain the judge's honesty. The bounds of course depend on the payoffs in each transaction and the patience of the three parties.

## 5.2. Ethnic and Other Networks

Enforcement can be provided through an informal social network. In the context of international trade and investment, such networks are a double-edged sword. A network within a country can facilitate trade among its members and therefore act as an informal barrier to trade with other countries. But networks that link people across countries—based on common interests or features such as business connections, ethnic origin, religion, or language—can facilitate international trade and provide ways to overcome informational and governance barriers to trade. Rauch (2001) provides an excellent survey of the role of networks in international trade.

The network has its established norms of behavior for members when dealing with one another, a good information and communication system so that any misbehavior gets accurately and widely known, and sanctions for dealing with cheaters. The sanctions may consist of a simple exclusion from any further trading possibility (the usual trigger strategy in repeated games) but may be more severe. If the group provides other benefits or services for its members, being excluded from access to those can be severe punishment. Locating a good match, or getting information leading to a good match, with a trading partner can be

<sup>7</sup>Contrary to the belief of some economists working in this area, the law merchant is not a person selling adjudication services. Merchant law or mercantile law would have been better terminology, but the term the law merchant is now too well established.



a valuable service of this kind. Conversely, a within-group match is useful for keeping track of information about the behavior of individual traders. Therefore, the matching and contract governance functions of the group can be mutually complementary (Xu 2006).

### 5.3. Incomplete Contracts and Foreign Direct Investment

Nunn & Trefler (2008) find support for hypotheses concerning the effect of contractual incompleteness on intrafirm trade generated by the FDI model of Antràs & Helpman 2004, 2008). The idea is that a firm with headquarters in an advanced country (e.g., the United States) with good governance uses an intermediate component produced in an LDC with weak governance. The inputs of headquarters' services ( $h$ ) and those of the component ( $m$ ) are both customized, and their quality is what matters, but quality is not contractible because of weak governance. Output is proportional to

$$\theta h^\eta m^{1-\eta},$$

where  $\theta$  is a productivity parameter, and  $\eta$  measures the intensity of the headquarters' service. The firm can use either of two modes of organization: vertical integration ( $V$ ) or outsourcing to an arm's length component supplier ( $O$ ). These have fixed costs  $F_V$  and  $F_O$ , respectively, with  $F_V > F_O$ . Because of the weak governance of any explicit contracts, the division of output is determined by ex post bargaining. The share of the headquarters under the two modes is  $\beta_V$  and  $\beta_O$ , with  $\beta_V > \beta_O$ , or  $1 - \beta_O > 1 - \beta_V$ , because the U.S. firm's outside option is better under  $V$  as it can force the supplier to do work, albeit of worse quality. Therefore, the incentives of the two units conflict: Headquarters has a stronger incentive to supply good-quality  $h$  under  $V$ , whereas the component-making unit has the stronger incentive to supply good-quality  $m$  under  $O$ . The importance of incentivizing one or the other depends on  $\eta$ . For low values of  $\eta$ , it is more important to incentivize  $m$ , and also  $F_V > F_O$ . Therefore,  $O$  is preferred on both grounds. For high  $\eta$ , there is a trade-off between the two considerations (fixed costs and incentives), and the importance of the incentive aspect is greater for larger  $\theta$ . This leads to the following hypotheses, which are borne out by the empirical analysis. (a) The likelihood of vertical integration, as indicated by the share of intrafirm imports in total U.S. imports of the component, is higher in industries with higher skill intensity (which proxies for  $\eta$ ). (b) For high  $\eta$ , industries with a larger dispersion of  $\theta$  will have a higher share of intrafirm inputs. (c) The effect of a partial improvement in the quality of governance in the LDC has two effects. It increases the attractiveness of producing the component abroad instead of doing so at a higher cost but greater security of contract in the United States; this raises total imports of the intermediate. But comparing the modes of foreign operation makes  $V$  better than  $O$  for a larger range of values of  $\theta$ . Therefore, within the appropriate range of high  $\eta$ , the share of intrafirm imports can rise.

## 6. CONCLUDING COMMENTS

Institutions of economic governance are imperfect everywhere and are abysmal in many countries. When we see how traders and investors cope with these imperfections, by choosing organizational forms and alternative institutions that provide better internal and relational governance, we have to admire their resilience and ingenuity. However, these alternative institutions of governance have their own imperfections. Perhaps most



importantly, it is difficult to scale them up as the scope and the volume of trade expand. The groups and networks that organize alternative forms of governance rely on their information and communication links, and the strength and duration of social ties. All of these are hard to sustain for large group sizes (see Dixit 2004, chapter 3, for a more detailed discussion of this). Therefore, the improvement of formal state and intercountry governance institutions remains an important part of the task for continued trade and growth in the world economy.

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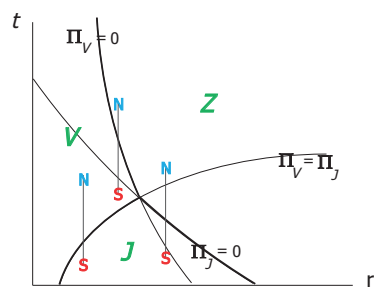
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**Figure 1**

Differences in foreign direct investment by northern (N) and southern (S) firms.