Part V Spaces of Circulation

Chapter 25

The Economic Geography of Global Trade

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Trade is one of humankind's oldest activities. The earliest long-distance trade can be documented in the third millennium BC, when ships and caravans carried pottery, cloth, tools, precious metals, and other commodities that were traded by the Greeks, Egyptians, Mesopotamians, Romans, and Chinese with other peoples of the world.

Patterns of trade and specialization are most often understood in the framework of comparative advantage, which itself is based on neoclassical assumptions of free trade and perfect markets. A country has a comparative advantage in the production of a good when the opportunity cost of that good is lower than the trading partner's cost. When trade is possible, each country specializes in the export of a good in which they perform relatively better than others, according to differences between the countries in technology, labor productivity, and factor endowments (capital, land, labor, and natural resources).

The theory of comparative advantage argues that differences between places should be exploited to the maximum through specialization and trade to achieve economic development. Patterns of trade and specialization are linked in comparative advantage at all geographical scales, and in turn connect places together economically. Layers of trade geographies are thus created at a variety of spatial scales; global, world regional, national, and sub-national.

Although the theory of comparative advantage has provided the framework for understanding trade patterns and specialization, it has its limitations. It typically incorporates a geographic component by including considerations of transport costs as well as of a distance decay principle (whereby the intensity of trade increases with propinquity). Yet the low priority given to the geographical component in comparative advantage theory means that in practice it is an aspatial approach, emphasizing static notions of location and distance. In order to explain contemporary trade patterns, economic geographers attempt also to analyze the connections among government–business relationships, trade policy, and changes in the organization of production.

Most trade researchers accept that free trade and perfect market assumptions, the bases of comparative advantage, are inadequate for understanding contemporary

global trade (Yarbrough and Yarbrough, 1997). Although there are many practical reasons for trade theorists and governments to continue their adherence to free trade theory, practical reasons do not validate the theory. It is widely accepted that in practice the system of global trade bears little resemblance to the presumed neoclassical ideal. Even free trade proponents (e.g. Bergsten, 1998, p. 3) state that as much as 40 percent of global trade is not free trade.

In the 1990s, we find that the literature on the geography of global trade is little more than an amalgam of specialist studies of portions of the trade system (e.g. country, commodity, and regional studies), and few researchers synthesize or integrate these findings. There are several challenges in accounting for trade patterns and specialization that conventional trade theory cannot explain. These can be grouped into three broad categories: sectoral composition and types of trade globally; trade barriers; and the roles of governments and firms and their interrelationships. These challenges are detailed in the sections of this chapter: here I summarize major points within each. After reviewing each of the challenges I assess the role of the state in trade at the millennium, and highlight the challenges and opportunities for economic geographers interested in undertaking trade research.

The first set of challenges involves the search for explanations of the sectoral composition of trade and the shifts in types of trade that predominate in the global system. Different types of trade and individual countries' particularities require different explanations. For instance, trade in manufactured goods responds to influences different from those in primary or service goods. Furthermore, the spatial organization of global trade is no longer solely a horizontal country–country trade of finished commodities (whereby countries fully produce and trade final goods). Instead, vertical specialization (whereby countries specialize and trade in one stage of the production process) is spatially (re)organizing trade, and accounting for 20–25 percent of total trade (Hummels et al., 1998).

The second set of challenges for trade theory is to account for the various barriers to trade. At the establishment of the General Agreement on Tariffs and Trade (GATT; the organization that sets rules for trade between nations) in 1947, free trade primarily referred to exports and imports of goods unrestricted by barriers at the border (tariff barriers), a conception of trade that no longer suffices. Trade barriers are expanding to include many that are more difficult to measure and quantify, such as non-tariff barriers (NTBs), competition policies, and economic corruption. The salience of these impediments to trade supports the argument that free trade assumptions need to be greatly modified.

The third set of challenges for trade theory is to account for the roles of government and firms, and their interrelationships. There are some researchers who now attempt to go beyond the simple economic-geographical relationships and basic decisionmaking processes assumed in comparative advantage based on free markets. Governments actively intervene in the trade policy arena, shaping comparative advantage and modifying the "inherited" factors of production. Patterns of comparative advantage are also products of the world economic structure (the hierarchical core, periphery, and semi-periphery structure), which are, in effect, human creations reflecting economic and trade policy emphases. Trade across firms (intra-industry trade) and trade within firms (intra-corporate trade) is estimated to be between 30 and 50 percent of the total trade of OECD (Organization for Economic

Cooperation and Development) states (Grant et al., 1993), and is determined less by market forces than by the decisions of multinational companies in conjunction with government policies.

It is clear that comparative advantage can no longer be understood with static notions or with simple profiles of national or industrial patterns. The globalization of production has resulted in the emergence of distinct trade orientations – regional, intracorporate, intraindustry, high-technology, and electronic commerce (e-commerce) – that are shaping new geographies. These trade orientations now intersect to create a complex global trade mosaic. The contemporary macroeconomic geography of trade involves a kaleidoscope of individual dynamic geographies of commodities. Thus trade theory, and in particular the geography of trade, needs to take on the three sets of challenges presented here.

The Changing Sectoral Composition of Global Trade

Both qualitatively and quantitatively, trade has undergone fundamental changes over time. Economic value and the dominant types of trade accounting for most of the value-added in cross-border trade have proceeded through distinctive eras over time (table 25.1), with technology as a constant driving force. In the first phase, primary commodities (i.e. raw materials, minerals, and food products) dominated. In the second phase, beginning with the Industrial Revolution, manufacturing goods accounted for the largest share of international trade and was the most lucrative sector. Trade in primary commodities during this phase still took place but the technological upgrading of products made manufacturing trade of standardized products more attractive. In the third phase, services became global commodities accounting for a growing share of cross-border trade.

Twin technological revolutions in information and transportation have fueled the growth and upgrading of commodities in trade. Transport costs have continued to

Table 25.1 Trade eras

	1450–present	1840–present	1970–present	2000+
Economic units	Primary commodities	Manufacturing goods	Services	Experiences
Economy	Agrarian	Industrial	Service	Experience
Spatial organization	Local	Regional/ international	International/global	Global
Economic function	Extract	Make	Deliver	Stage
Nature of offering	Fungible	Tangible	Intangible	Memorable
Key attribute	Natural	Standardized	Customized	Personal
Method of supply	Stored in bulk	Inventoried after production	Delivered on demand	Revealed over a duration
Seller	Trader	Manufacturer	Provider	Stager
Buyer	Market	User	Client	Guest
Factors of demand	Characteristics	Features	Benefits	Sensations

Source: Based on Pine and Gilmore (1998)

fall throughout the twentieth century. Advances in communications technology (telephone, facsimile, electronic mail, and video conferencing) have facilitated the coordination and monitoring of production in diverse locations. Improvements in trans-Atlantic cable capacity and the corresponding increasing capabilities of global communications have also facilitated more interactions among firms in different countries.

The contemporary sectoral composition of trade, profiled in table 25.2, shows strong growth for capital goods, especially machinery and transportation and commercial services. By contrast, trade in primary commodities continues to fall, and its relative share of trade has been declining, especially over the last 30 years, because of the cyclical decline of commodity prices relative to manufacture and services trade. Manufacturing trade still predominates, but this market is becoming more differentiated due to the customized delivery of products.

The strong growth registered for services is a recent phenomenon. Services accounted for 25 percent of global exports by 1996. Service trade is qualitatively different from manufacturing trade in that services are infinitely expansible and potentially weightless; many people can use them at the same time, and once the goods are produced, they can be replicated at a low cost. For some companies (such

Table 25.2 Composition of world trade, 1965–96

GATT/WTO breakdown[1] (shares of total world trade)	1970	1980	1990	1996
Merchandise				
Agriculture	16.5	12.5	10.0	11.4
Mining	12.0	22.0	11.5	11.2
Manufactures	50.0	45.5	57.0	73.3
(Not specified)	2.5	3.0	2.5	3.0
Capital goods	29.5	26.5	37.0	39.0
Services[2]	19.0	17.0	19.0	24.6
World Bank breakdown (shares of total world merchandise imports)	**1965[3]**	**1979[4]**	**1990[5]**	**1995**
Food	18.0	12.0	9.0	12.2
Fuels	10.0	20.0	11.0	9.0
Other primary commodities	17.0	9.0	8.0	7.7
Manufactures	55.0	58.0	73.0	72.0
Machinery, transport	23.0	25.0	34.0	30.9

[1] GATT, 1992: table 1; 1990; table 8; 1989: 9; WTO, 1997: table 11.2, p. 9.
[2] Services include shipping and other passenger, port, and transportation services; travel goods and services other than passenger services acquired by persons staying for a year or less in an economy where they are not resident; and other private services (communications, advertising, brokerage, management, professional, and technical services). Services do not include investment income on unrequited transfers, whether official or private (e.g. migrants' transfers, workers' remittances). See GATT, 1989, box 2.
[3] World Bank, 1992: table 15.
[4] Total-import weighted average of averages for industrial market economies (weight = 0.758), middle-income economies (weight = 0.209), and low-income economies (weight = 0.034) (World Bank, 1982, table 10, pp. 128–9).
[5] Total-import weighted average of averages for industrial market economies (weight = 0.735) and developing economies (weight = 0.265) (World Bank, 1987, table 12).
Sources: WTO (1998), World Bank (1997, table 14, p. 188)

as IBM), more profits are generated from providing services than from producing goods in the traditional sense.

Some analysts have suggested that the highest rewards in twenty-first-century trade, and the next competitive battleground beyond services trade, will lie in staging and trading experiences (Pine and Gilmore, 1998). They predict that commodity trade will be further upgraded and that the highest rewards from trade will involve the selling of lifelike interactive or virtual reality experiences globally (table 25.1). Presently, cross-border experience trade is negligible, and its expansion will be contingent on the development of new technologies to facilitate and deliver its transfer. It is anticipated that the key attribute will be personalization, rather than customized services or standardization. It is also expected that experience trade will spread beyond theaters and theme parks to many aspects of global business. Like other commodities that result from R&D, experiences derive from an iterative process of exploration, scripting, and staging – capabilities that aspiring experience merchants will need to master (Pine and Gilmore, 1998, p. 99).

The recent globalization of production also has altered the types of commodities that are traded. For instance, a significant proportion of trade is now constituted as component parts rather than finished goods. Vertical specialization takes place when countries acquire expertise in particular stages of the production process: a country may import a good from another country to use for the production of its own good and then export its good to the next country. The sequence only ends when the final good reaches its destination. Vertical trade involves, for example, the skill-intensive design and manufacturing of a microchip in one country and its labor-intensive assembly onto a memory board in another, whereas horizontal trade entails completing all stages of computer manufacturing in a single country.

Vertical trade has not been widely studied, but available data suggest that smaller economies are most involved. For instance, it accounted for 35 percent of total trade in the Netherlands and more than 25 percent of total trade in Ireland, Denmark, South Korea, Spain, Malaysia, and the Philippines (Hummels et al., 1998, p. 88). Large economies (such as the USA, Germany, and Japan) are least involved in vertical trade because they generally find it easier to achieve scale economies and retain every production stage of a good. Vertical specialization also varies widely across industries: those with the highest levels of vertical trade are motor vehicles, shipbuilding, aircraft, chemicals, and nonferrous metals. Vertical trade is a growing sector of global trade but still accounts for less overall growth than horizontal trade, suggesting diversification in trade patterns rather than the replacement of one by the other (table 25.3).

This discussion of the composition of global trade is based on limited data, and three cautionary notes should be added. First, there is much more trade information available for OECD economies. Second, global production of foreign firms is now estimated to be more than $3 trillion, greater than the value of global trade. This is important because a US firm operating in South Korea and exporting components to its US affiliate is counted as a South Korean export and not a US export. Trade statistics seldom distinguish trade in intermediate goods and finished goods, so we can only estimate how commodity chains affect the structure of global trade. Third, global service companies have been shown to serve the markets that they locate in to a greater extent than manufacturing firms, which are more likely to

Table 25.3 Growth in trade (%)

Country[1]	Vertical trade	Horizontal trade
Australia	13	87
Canada	44	56
Denmark	27	73
France	28	72
Germany	19	81
Japan	3	97
Netherlands	47	53
United Kingdom	30	70
United States	12	88

[1] Most data series run from early 1970 to early 1990.
Source: Adapted from Hummels et al. (1998, p. 92)

export (Fieleke, 1995), because for a number of services (e.g. banking and consulting) proximity of suppliers to consumers is required.

Barriers to Global Trade

Traditionally, trade analysis has dealt with the overall "openness" of countries, especially how tariff barriers limit the free flow of trade and why some sectors are more open than others. More recent perspectives in global trade have amplified these concerns in addition to focusing on newer avenues of government intervention in trade, especially NTBs, competition policies, and corruption practices, all of which are a function more of unique national political economic histories than any global convergence in trade practices (see subsections). Our concept of trade barriers needs to be expanded to accommodate several counter-liberalizing trends in the global economy.

Trade openness is often measured by the ratio of goods and services exports to GDP, revealing a strong global trend toward openness for major trading economies (except Japan; table 25.4). The small export-oriented economies of Singapore, Hong Kong, Malaysia, and Ireland stand out from the rest in their openness. In addition, there has been a strong opening up of fairly closed economies, such as China and South Korea, and trade liberalization policies, adopted as part of structural adjustment policies (SAPs), are also opening up developing economies like Ghana and India. These trends indicate that insulation is declining: global trade is becoming an ever more important influence on domestic prosperity.

Trade liberalization has been consistently promoted under the GATT, and since 1995 the GATT has been updated under the umbrella of the World Trade Organization (WTO). Average tariff rates on industrial producers in 1947 were 40 percent: by 1997 they had been lowered to 6.3 percent (WTO, 1998). Average tariffs will fall to 3.8 percent by 2003, once the commitments made under the Uruguay Round are fully implemented (Daly and Kuwahara, 1998, p. 207). Reductions in tariff barriers have fostered growth in all types of trade, especially vertical trade since it involves multiple border crossings.

Importantly, barriers to trade are not limited to international border measures. Governments can also target specific states for retaliatory purposes (political or

Table 25.4 Openness ratios, 1965, 1980, and 1997 (ratio of exports of goods and nonfactor services to GDP, multiplied by 100)

By income level and country	1965	1980	1997
Low-income economies	8	13	19
Middle-income economies	17	22	26
High-income economies	12	19	20
Argentina	8	5	9
Canada	19	28	38
China	4	6	20
Ghana	17	8	25
Hong Kong	71	90	132
India	4	7	12
Ireland	35	48	75
Japan	11	14	9
Korea, Rep. of	9	34	38
Malaysia	42	58	90
Singapore	123	215	187
United States	5	10	11

Source: World Bank (1992, table 9, pp. 234–5; 1998, table 13, pp. 214–15)

economic). Two specific means by which this occurs are unilateral retaliatory policies and trade sanctions. For example, Super 301 is a unilateral trade policy that is targeted specifically and politically toward recalcitrant states named by the US Government as hindering American exports. Economic sanctions range from aid cutbacks and trade bans to trade embargoes. The US Government, for example, targeted 26 countries for sanctions (including China, Cuba, India, Iraq, and Nigeria) in 1997, indirectly affecting half of the world's population (Hufbauer, 1998, p. 1).

Nontariff barriers (NTBs)

The proliferation of NTBs since the 1970s represents a counter-liberalizing trend from which few countries have been exempt and few sectors spared. NTBs are discretionary barriers applied to specific commodities, often in the form of quantitative restrictions, packaging and labeling requirements, health standards, etc. In 1986, 50 percent of all products traded were subject to some type of NTB, with the food category especially highly protected (Grant et al., 1993, p. 21). The completion of the Uruguay Round of the GATT resulted in a marked decline in NTBs, partly due to the elimination of "voluntary" export restraints, the phasing out of Multifiber Agreement (MFA) quotas on textiles, and "tariffication" of agricultural NTBs (the conversion of EU agricultural NTBs into tariff rates).

NTBs vary widely among countries (table 25.5). According to the measures currently employed, anti-dumping and countervailing duties are the predominant types of NTBs in the USA. In Japan non-automatic licensing arrangements are most common, and price controls and variable charges are most widely used in the European Union (EU). NTBs also vary with specific commodities. For instance, high NTBs are employed on live animals and textiles in Japan, on vegetable products and prepared food in the EU, on leather, textile, footwear, and base metals in the USA, and footwear and machinery in Canada (Daly and Kuwahara, 1998, p. 228).

Table 25.5 Pervasiveness of different types of NTBs (%)

	USA			EU			Japan			Canada		
NTB categories	1989	1993	UR[1]	1989	1993	UR	1989	1993	UR	1989	1993	UR
All NTBs	24.1	23.7	8.6	27.3	27.7	8.2	14.14	13.4	11.9	12.5	12.2	4.6
Core NTBs[2]	24.1	23.6	8.5	25.9	25.2	4.3	13.7	12.6	11.1	10.3	9.5	1.6
A. Quant. restrictions	18.3	18.7	0.6	20.4	20.1	1.7	12.9	11.7	10.5	7.6	7.4	0.1
Export restraints[3]	17.3	13.5	0.0	15.9	15.0	0.0	0.3	0.1	0.0	5.8	6.0	0.0
Nonautomatic licensing[4]	0.0	0.0	0.0	5.1	5.6	1.5	10.1	10.1	9.8	2.7	0.2	0.0
Other QRs	6.1	5.8	0.6	0.2	0.2	0.2	2.8	1.6	0.6	0.8	1.2	0.0
B. Price controls	15.4	9.6	7.6	13.2	10.6	3.2	0.8	0.9	0.7	2.8	2.1	1.6
Variable charges[5]	0.1	0.0	0.1	9.2	9.5	2.4	0.8	0.9	0.6	0.0	0.0	0.0
AD/CVS[6]	15.3	9.5	7.6	1.1	1.1	0.9	0.0	0.0	0.0	2.8	2.1	1.6
Other price controls	0.1	0.1	0.1	3.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

[1] Levels to be achieved on the basis of the Uruguay Round agreement.
[2] Core NTBs consist of two broad measures: quantitative restrictions and price control measures.
[3] Export restraints are arrangements between importers and exporters, whereby the latter agree to limit exports to avoid the imposition of mandatory restrictions by importing countries.
[4] Nonautomatic licensing is the practice of requiring, as a condition for importation, a license which is not granted automatically and which may be used on a discretionary basis or specific criteria.
[5] Variable charges bring the market prices of imported products close to those of corresponding domestic products.
[6] Anti-dumping and countervailing actions involve investigations by anti-dumping authorities, usually in response to domestic producers' complaints, the purposes of which are to determine whether dumping or subsidies exist and, if so, whether the practice causes ''material injury'' to domestic producers. When the complaint is upheld, a duty is levied on imports from the country named.
Source: Daly and Kuwahara (1998, pp. 226–7)

NTBs will require careful monitoring in the future to ensure that measures phased out or prohibited under WTO agreements do not surface in a different form. Given the fungibility of NTBs, more data are needed on health, safety, and environmental regulations and standards that impede trade.

Competition policies

Barriers that operate behind national borders and fall into the domain of competition policy have grown more significant. In the broadest sense, competition policy determines the institutional mix of competition and cooperation that gives rise to the market system. Surprisingly, it is not competition that is the objective of competition policy, but efficiency (market functioning) and fairness (market entry), sought after in unique blends worldwide. For instance, the USA de-emphasizes fairness while the UK and France give it more prominence (Graham and Richardson, 1997, p. 7). In some instances domestic firms are sheltered, exert monopoly power, and earn above-normal profits because foreign firms are hindered from competing in the market. In areas like airlines, telecommunications, financial services, insurance, and intellectual property, international differences in regulatory regimes and rules create highly varied competition structures.

A formal codified competition policy is not found for all countries, but all have informal competition conventions. As markets have globalized, differing competition policies and conventions have come into contact and have led to conflict. For instance, the US Government has prosecuted cases against the governments of China and Japan to the WTO, for impeding US companies' access to their markets (e.g. Kodak's case against Fuji of Japan).

The debate over competition policies in global trade is still at the conceptual stage. No study has succeeded in mapping out their vast heterogeneity, and criteria for assessing how competition polices affect trade have not yet been developed. As a result cross-national data are limited to high-profile competition disputes.

Corruption

Corruption is a third barrier impeding the free movement of goods and services. Former US Commerce Secretary Mickey Kantor called corruption "a virus threatening the health of the international trading system" (quoted in Elliott, 1997, p. 153). It is now viewed as a global problem, and researchers are moving beyond categorizing regimes as "corrupt" or "free" to frame corruption in the context of marketization.

Corruption is difficult to measure because it can surface in two ways: by government inaction and by government action. For instance, the Ghanaian Government in the 1980s was criticized for not doing enough to eliminate corruption, whereas the Kenyan Government in the 1990s has been an active co-conspirator in manipulating the trade environment for personal and political gains (Grant, 2000). To indicate levels of corruption, Transparency International (TI) conducts surveys on business people's experiences in doing business in a particular country to solicit opinions about the degree to which improper practices (such as illegal payments) are necessary to facilitate business transactions. Results show that wealthier countries, especially those in Western Europe, are perceived to be less corrupt, whereas poorer

Table 25.6 A partial ranking of corruption around the world,[1] 1998 (descending order)

Least corrupt	Most corrupt
Denmark	Cameroon
Finland	Paraguay
Sweden	Honduras
New Zealand	Tanzania
Iceland	Nigeria
Canada	Indonesia
Singapore	Colombia
The Netherlands	Venezuela
Norway	Ecuador

[1] Transparency International surveyed 85 countries. Numerous countries were excluded from the survey because of insufficient reliable data.
Source: Transparency International (1998)

countries, especially those in Sub-Saharan Africa and Latin America, are perceived to be most corrupt (table 25.6).

The net impact of corruption on trade has not been determined. Depending on the circumstances, corruption may either increase (by adding another restriction) or decrease impediments to trade (by allowing exporters to bypass tariff barriers), affecting the volume as well as the composition of trade. Barriers to trade are raised if corruption is out of control, too costly, or primarily in the form of distortion. Trade is reduced, for example, when a customs official retaliates for nonpayment of a bribe and allows a perishable commodity shipment like bananas to rot in storage. On balance, corruption might increase trade at the margins (Elliott, 1997).

Anecdotal evidence suggests that tax evasion is the most common motive of corruption. Other determinants include political culture, government type (nondemocratic governments can be more tolerant of corruption), postcolonial syndromes (where staying in power is more important than governing) and inadequate wages for customs officials.

A WTO binding agreement is needed to eliminate all forms of corruption. Difficulties arise, however, because corruption varies by means (smuggling, rent-seeking behavior, tax evasion, and illegal payments), country, commodity and even by individual agents (customs officials, bureaucrats, and exporters). Yet the net impact of corruption on global trade patterns is significant. Overall, the incorporation of national economies into global trade is neither routinized, nor as open or free as trade proponents would have us believe.

The Role of Governments

Nation-states

Besides diverting trade via barriers, governments in the 1990s became active in creating trade over and beyond what is typically considered in comparative advantage. Governments influence the geography and organization of production by joining in regional trade arrangements and by emphasizing strategic trade policies. Economic globalization has facilitated more trade and foreign direct investment, and

in the process has redefined the role of the state as an effective manager of the national economy.

Governmental intervention (and ultimate influence on comparative advantage) ranges from specific export promotion and import prohibition to broadly drawn infrastructural policies, R&D, and targeting of particular industries for special treatment (e.g. the aircraft industries in the USA and the EU). In Asian newly industrialized countries (NICs), for example, the role of policymakers is essential for explaining the inconsistencies between their domestic factor endowments and the relatively sophisticated behavior of their firms in global markets. Each NIC has found a powerful engine to drive its economy: specifically, immigrant entrepreneurs in Hong Kong, multinational corporations (MNCs) in Singapore, small labor-intensive firms in Taiwan, and giant subsidized conglomerates in Korea. By contrast, Japan gives the highest priority to R&D and small and medium-sized enterprises; France focuses more on export promotion; Germany emphasizes regional development and sectoral aid; and the USA spends half of its industrial support on investment incentives (Malkin, 1993).

The interrelationship between governments and global trade patterns moves us away from such unrealistic assumptions as "fair" and "free" trade, to highlight policy environments and imperfect markets. Firms, especially MNCs, operate within the frameworks of differential state regulatory (and deregulatory) policies in trade and industry as well as in foreign investment, and of the global regulatory policies adopted by the WTO. MNCs take advantage of national differences in regulatory regimes to pursue global competitive advantage. A symbiotic relationship is evident, as the changing nature of the regulatory surface is, in part, a government response to the strategies of MNCs.

Regional emphases in trade policy

A special scale of government intervention is the trend toward regionalism. Already the WTO has been notified of 180 regional trading arrangements (WTO, 1998). All but 3 of the 132 WTO members (Japan, Hong Kong, and South Korea) belong to at least one regional bloc. The WTO is supposed to vet regional blocs for conformity with multilateral rules, but regional groupings consider it in their best interest to keep bloc criteria and procedures vague.

Any inability of the WTO to solve new issues in global trade may encourage countries to look for regional solutions. The general objective of regional trading blocs is to increase efficiency and gain for members by creating more trade. They are erected by policies that liberalize and harmonize trade among members and in some cases by the creation of a supranational organization that regulates and mediates the bloc. The most well-developed regional trading bloc is the European Union, with its fifteen members trading more within the bloc than outside of it. Part of the impetus toward regional integration is a reaction to the positive news emerging from the EU experiment. Other trading blocs are in earlier phases of development (e.g. NAFTA), and the internal ties are not as tight. The majority of regional economic groupings fall into the categories of free trade areas (whereby tariffs are liberalized) or customs unions (tariffs are liberalized, and member countries agree to have a common external tariff with nonmembers).

Only the EU comes close to full economic union and harmonization of economic policies.

Geographical proximity, if not contiguity, appears to be one of the most important factors motivating bloc formation. Doing business at a distance involves three types of costs. Transport costs and time elapsed in transporting (important with perishable commodities and with just-in-time production) are clearly related to distance. The other cost correlated with distance lies with human and physical capital investments (knowledge about a partner's language, culture, markets, and business practices) among geographically and culturally proximate states. Some of these investments may be in public goods (e.g. the information generated by a regional trade promotion agency), and others may be in regional linkages (e.g. investments in a port). Petri (1992) concludes that the full impact of human and physical capital investments may be highly cumulative: regional linkages may increase exponentially as each investment stimulates subsequent investments and additional trade, increasing the likely profitability of further investments.

A similar level of economic development (facilitating intra-industry trade), compatible trade polices, and the presence of a leading trading state may also be important determinants of bloc formation. Other motivational factors toward regionalism appear different in various regions. For instance, political and historical factors seem to be the most important driving forces in the EU, foreign direct investment factors appear most significant in East Asia, and fears of both exclusion from globalization and contagion from global financial crises drive bloc formation in the developing world.

Regional trading blocs are discriminatory by nature and, as such, go against the general principle of nondiscrimination established by the GATT. Most regional blocs have a strongly defensive character: they represent an attempt to gain size advantage in trade by creating large markets for their producers and protecting them, at least in part, from outside competition. Consequently, the largest regional trading blocs have considerable influence on global trade. Regional trading blocs affect the geography of trade by trade diversion (member countries import goods from each other rather than from nonmember countries, as done previously) and by increasing the level of intra-regional trade. Frankel (1997, p. 113) estimates that regional trade blocs boost intra-regional trade by at least half (e.g. the EU) and by fivefold at the maximum (e.g. ASEAN). In the process they reduce trade with the rest of the world.

Because members of each group trade more with each other than they do with nonmember countries, trade is becoming more geographically concentrated in many parts of the world. Concentration in trade has steadily increased among EU members, and the Latin American Mercosur and the Andean Pact groupings have the highest trade concentration rates of any regional blocs in the global economy. Asian concentrations are high but have been declining in recent years, showing the fears of a Yen bloc forming in Asia to be unfounded. The lowest levels of intra-regional trade occur in African and Caribbean regional trade groupings (Frankel, 1997).

City governments

At the sub-national level, metropolitan governments have become active in implementing policies to promote their position in the global economy (Noponen et al.,

1997). Local governments typically link investment and trade policies in an attempt to shape the trade profile of cities. They also play important roles in enticing MNCs (through trade missions, incentive packages, export-processing zones, infrastructural provisions, etc.) and in fact target particular types of MNCs to locate within the city. In some instances, cities' promotion policies complement national and regional trade policies (e.g. Miami's promotion as a command city for the Caribbean and Latin America); but in many cases they do not.

Metropolitan governments have come to realize that cities have different stakes in national trade policy as a result of their unique position within the national and global economies. National export promotion policies disproportionately aid those cities relatively well positioned with high-technology complexes, major research universities, or an oligopolistic position in global trade (e.g. Boston, Anaheim-Santa Ana) (Noponen et al., 1997, pp. 83–5). The economic revitalization of Dublin, Ireland, acclaimed as "the best business location in Europe" (Grant and White, 1998), can only be explained by a synergy of national and local government policies that have promoted technology and new industries (business software in particular). By contrast, for many older manufacturing cities (e.g. Cincinnati, OH, and Syracuse, NY) and for goods with a high-input content (e.g. wood, cement) the pursuit of domestic markets is more rewarding than a focus abroad, because the friction of distance and costs of doing business overseas constitute significant transaction costs (Wolf, 1997).

The role of city policies and sub-national regional governments (provinces/states) in promoting trade is virgin territory for research. Why some cities are more active and how city size, location, historical conditions, and technology interact to shape cities' geography of trade needs to be explored. The city level of analysis in trade suffers from obstacles in obtaining local trade data, but many city governments, ports, and airports are now beginning to collect these.

The Role of Firms

Firms influence the economic geography of trade through both intra-industry and intra-corporate trade. They have complex interconnections, often operate under conditions of imperfect competition, and shape trade patterns. In addition to these complexities, there are serious data problems in the study of firm activities in global trade. Not only is much of the pertinent information concealed in companies' annual reports, but data are usually limited to OECD states.

Intra-industry trade

Intra-industry trade occurs among firms in the same industry. Wide variations are evident in the scale and scope of firm operations, and in the organization, technology, and geography of commodity chains. Unfortunately, because of a large bias toward OECD firms in the literature, we know nothing about firms in the periphery of the global economy or about the spatial organization of small and medium-sized firms.

Intra-industry trade occurs primarily in intermediate goods rather than in finished consumer goods. A distinguishing feature of intra-industry trade is that the buyers are often other firms rather than individuals; thus, items must meet firms' needs of quality, durability, and serviceability rather than individual consumer taste or

fashion. Another characteristic of intra-industry trade is its allegedly low adjustment costs in the face of trade liberalization. It is well documented, for example, that the EU registered early liberalization successes because of intra-industry trade. Few industries disappeared and many firms rationalized production by reducing the number of their product varieties and by lengthening the production runs of those varieties that were retained (Grant et al., 1993).

The strength of intra-industry trade varies by industry, country, and with adjustment processes like regional integration. Although the evidence of across-industries-across-countries trade is fragmentary at best, Grant, Papadakis, and Richardson (1993) find higher levels of intra-industry trade among high-technology firms and developed economies, such as France and the USA, and lower levels for Indonesia, the Philippines, and Thailand. Ray (1991) finds differences in intra-industry trade between the USA and its trading partners. For example, intra-industry trade between the USA and Japan primarily involves intermediate goods produced in small plants using labor-intensive techniques, whereas US trade with Mexico involves similar goods but produced at large plants. Intra-industry trade within the EU mostly pertains to labor-intensive industries, intermediate goods produced in small plants, and science-based industries (Brulhart, 1998). It has been growing fastest in the peripheral areas of the EU (e.g. Ireland and Spain), suggesting economic convergence and regional integration of Europe's poorest states with its wealthiest regions in the center (Brulhart, 1998, p. 347).

Important determinants of intra-industry trade are scale economies (share in marketing, planning and support cost for each industry) and geographical concentration. For high-technology industries, intra-industry trade is heavily localized (Brulhart, 1998). While the behavior of firms best explains intra-industry trade, governments' local content legislation, affecting what is defined as a national product, also impacts intra-industry trade levels. In addition, patterns of national specialization in intra-industry trade have emerged, especially in the EU since the 1980s (e.g. office data products in Ireland, leather goods in Italy; Brülhart, 1998, p. 336). More research on the determinants of intra-industry trade is necessary. Indeed Krugman (1994) reports that little progress has been made with empirical work on intra-industry trade in general.

Intra-corporate trade

It is estimated that an increasing proportion of global trade is intra-corporate trade (within MNCs) rather then interstate. MNCs and multiproduct firms, which have expanded in both number and scope of activities since the 1960s, have encouraged the development of intra-corporate trade as a means to overcome geographical, financial, and technological limitations. MNC behavior varies cross-nationally. For example, Urata (1993) notes that affiliates of US firms have a higher propensity to export than do Japanese affiliates. Significantly, in this category of global trade, intra-corporate transactions are less controlled by conventional, "arm's length" price/cost determinants of regular trade; transactions between affiliates are least likely to be market determined; and they are sensitive to international decisions of MNCs. Intra-corporate trade also responds differently to changes in economic conditions than does trade between unrelated parties (Zeile, 1997, p. 23).

MNCs "value" multinationality for a number of reasons, including tax avoidance (transfer pricing, tax havens), lower cost inputs, and managerial objectives that may differ from share-price maximization, organizational efficiency (operating offices in each of the world regions as opposed to a single global office), avoidance of NTBs, and consumer preference for domestic over foreign varieties of a good (Lundbäck and Torstensson, 1998). For example, Guinness Ghana is an MNC that produces specific Guinness products, such as "Guinness Malta," for the West African market. In addition, Morck and Yeung (1991) emphasize the role of intangible assets – marketing abilities, superior production skills, managerial skills, and consumer goodwill – in encouraging firms to go multinational. Firms increase their value by internalizing markets for these assets, the value of which is enhanced in direct proportion to the scale of the firms' markets. Because these intangibles are based predominately on proprietary information, they cannot be efficiently exchanged at arm's length with other firms. Firms, therefore, augment their value by expanding overseas, if the gain from applying these intangibles in a foreign market outweighs the additional costs of operating a subsidiary overseas (Morck and Yeung, 1991). MNCs are able to transfer and disseminate technology, to measure and compare costs, and to detect vagaries of how best to compete in price, quality and service across countries (Grant et al., 1993). The nature of the market may also be a factor. US intra-corporate trade is mainly connected with manufacturing, while foreign intra-corporate trade in the US market is mainly connected with marketing and distribution activities (Zeile, 1997).

MNCs have complex interconnections with governments, some adversarial and others increasingly nonadversarial. Over the last two decades, government–MNC relationships have evolved from conflict toward a "new partnership" (Dunning, 1993). Governments are now less concerned with the impact of MNCs on balance of payments and trade deficits, and more focused on the extent that MNC activity helps upgrade domestic resources, capabilities, and access to global markets. Governments interpret MNCs through the lens of global competition and politics. For example, European MNCs are actively participating in the EU institutional policy-making process. The European Commission and European MNCs' representatives now strive to build a consensus for their proposals, especially in high technology (Peterson and Sharp, 1998). In the developing world, since the introduction of SAPs, foreign companies, including those from the South, are also forging new linkages with governments and profoundly altering development goals (Wells, 1998).

The Nexus of Governments and Firms at the Turn of the Century

High-technology trade

High-technology industries are organizations in which knowledge is a prime source of competitive advantage, there is above-average spending on R&D, and high proportions of scientists and engineers in employment are the norm. Good examples are the aircraft, electronics, aeronautical, and pharmaceutical industries. The rise of new high-technology industries is a persistent feature in OECD states. Since the 1980s, it has grown faster than manufacturing trade as a whole and, in 1992, accounted for 31 percent of US exports, 17 percent of EU exports, and 27 percent of Japanese exports (Peterson and Sharp, 1998, p. 123).

Empirical evidence confirms that success in high technology bestows national benefits on productivity and high-wage job creation. As a consequence, high-technology industries are major determinants of national competitiveness, and trade in high-technology is not generally "free" in the traditional sense because trade outcomes are heavily manipulated by policy instruments such as industrial targeting. A country's competitive position in high-technology industries is less a function of its national factor endowments than of the strategic interactions between its firms and governments and the innovation networks of other countries. Between 1985 and 1997, firms across the EU collaborated on 668 projects which received 16.7 billion Euros in funding (Peterson and Sharp, 1998, p. 91). The EU's technology collaboration policies have had important political effects: they have created a technology community by routinely encouraging European firms to work with firms beyond their national borders. Airbus is a good example of a government-backed consortium of cross-national firms from France, UK, Germany, the Netherlands, and Spain.

Governments help determine high-technology trade by giving research and industrial subsidies to high-technology industries, targeting, procuring, patent protecting, setting rules that govern market access, and unilaterally defending high-technology interests with trade policies designed to manage global competition. At times, governments also emphasize geographical concentrations of production in distinct subnational regions of their host countries or "technology districts," such as Silicon Valley's command in semi-conductors and Dublin's command in European business software services (the "silicon bog"). Research in the EU has shown that high-technology trade is localized within intra-regional trade patterns, with a movement toward geographical concentration under way since the 1990s (Brulhart, 1998, p. 346).

In high-technology industries, firms influence comparative advantage by emphasizing a combination of factors, such as innovative capabilities, intellectual property rights, and product-based technological learning (PBTL), rather than by concentrating on the introduction of an innovation or imitation, the factors considered crucial in conventional trade theory. The aim in PBTL is to maintain advantages in the share of trade by preserving technological leads – in other words, by creating the world's "best practice" (Storper, 1992). By contrast, trade share advantages are shorter lived for imitators because the catch-up process is already in motion. Firms not only consider the supply side of comparative advantage (based on cost advantage and price competitiveness) but also focus on the demand-driven nature of competitiveness (e.g. price, quality, service, channels of distribution, consumer tastes) in high-technology trade.

E-commerce

E-commerce is the latest medium for trade, although presently its market is small and US-centered, accounting for $26 billion of global sales in 1997 (OECD, 1998). However, it is expected to expand by a factor of ten by the year 2000 and to grow exponentially thereafter (OECD, 1998). E-commerce has penetrated sectors unevenly. The media have hyped consumer goods, especially online merchants selling books (e.g. amazon.com), wine, and computers as well as travel and

financial services. However, the OECD (1998, p. 3) notes that the largest e-commerce market involves businesses supplying products to other businesses, where the transactions of just a few firms exceed all estimates of the business- to-consumer market.

E-commerce offers enormous spatial implications for the entire trade system, primarily because it shrinks the economic distances between producers and consumers. It is particularly revolutionary in three respects: level of participation, speed of change, and availability of information. First, participation in global commercial transactions is expanded beyond large corporations and banks to certain individuals (often in particular places) at the click of a mouse. Consumers in different countries can load "hypercards" with electronic cash, and engage in anonymous card-to-card transfers (Korbin, 1997, p. 66). In addition, new intermediaries are required (e.g. network access providers, electronic payment systems, and services for authentication and certification of transactions) that are footloose and far less labor-intensive than traditional intermediaries. Secondly, the speed of technological change within industries that facilitate e-commerce is rapid. For example, at IBM the technological advancement is so rapid that a "web-year" is equivalent to three months of conventional time. Third, e-space makes information available worldwide and facilitates the expansion of trade by making it infinitely easier for buyers and sellers to find each other, although the complexity of the web can make searching a very involved and unscientific process, with the same search yielding different results. E-commerce could result in trade approximating the ideal of perfect competition: low transaction costs, low barriers to entry, improved access to information for consumers, decentralization and no hierarchy, and no conditions for authoritarian or monopoly control. At the same time it offers the potential to improve quality and prices. Cyber-trade may also increase vertical specialization by allowing companies to disperse different phases of the industrial life cycle among different countries depending on local conditions.

E-trade will be regulated very differently from conventional country–country trade. It allows for its users to circumvent governments, which complicates identification of where sales taxes should be paid. States are active in shaping comparative advantage in e-commerce. Already the US and EU World Wide Web consortiums are leading by cooperating on e-space R&D (Sassen, 1997). In Ireland, for example, Telecom Eireann (the government-owned telecommunications company) has provided $23 million worth of Internet infrastructure (multimedia computers and high-speed connections) to businesses and homes in the "Information Age Town" of Ennis (population 17,000) (*The Irish Times*, 1997, p. 1). A growing consensus among international organizations, governments, businesses, and citizens supports a tariff-free zone for goods and services delivered electronically (e.g. software data), but maintains that physical goods ordered electronically and delivered through conventional means should be subject to generally applicable duties.

The main determinant of e-commerce is, obviously, technology, which goes beyond the narrow operations of computers to include the full range of technologies that allow e-space to function. The barriers to e-trade are related more to level of economic development than to national or international regulations. The geography of e-commerce is dependent on the number and location of hosts. Presently there are 16.1 million hosts globally, with the USA and Scandinavia standing out as the most

Internet-connected, averaging 40 hosts per 1,000 population (*The Economist*, 1997, p. 98). Yet 29 countries (e.g. Libya, Laos, Congo, North Korea) have no Internet connection (Matrix Information and Directory Services, 1998, p. 3).

Thus, despite the rhetoric of more evenly distributed power in e-space, the reality is far more likely to reflect a geography of centrality focused on information cities rather than on dispersed locations. Such cities are developing comparative advantages through heavy concentrations of infrastructure, information technology specialists, and buildings (Sassen, 1997). The sharpening of inequalities in the distribution of e-space infrastructure will result in developing countries becoming further marginalized in trade. Countries like Ghana have attempted to build up their transportation infrastructure for 40 years to compete better in conventional trade. If the history of infrastruture building is anything to go by, developing countries are "web-decades" from widespread participation in e-commerce. Foreign capital will be necessary for them to develop the information technology infrastructure, which may well be ruled and shaped by investors' goals. This is, of course, reminiscent of railroad development during colonialism, which facilitated imperial trade rather than the internal economic organization of societies.

Conclusions

Traditional notions of trade have been undermined by several recent trends in the trade, policy, and intellectual environments. In the trade environment, capital, intermediate, service, and high-technology goods now constitute a large and growing share of global trade. Firms, as opposed to traditional consumers, play a greater role in explaining trade relationships, and often firms forge strategic alliances or contracts (intra-industry or intra-corporate) that ensure that their actions are less influenced by market transactions. Combined, these different types of trade flows in the global economy produce labyrinthine trade geographies.

In the global policy environment, the WTO has been only moderately successful in keeping pace with the growth, changing structure, and complexity of trade. The challenge of the first 50 years of the GATT was to manage a world divided: the more difficult challenge for the next 50 years is to manage deepening integration. Freer markets have meant more rules, and the number of regulations that govern trade has mushroomed. This is leading to the universalization of many laws that govern cross-border commerce and to the harmonization of legal codes and international standards (e.g. accounting practices) that allow national economies to function. However, this convergence of national economic regimes has also meant a lower tolerance for system divergence, and more trade friction. It is clear that the WTO architecture needs to be strengthened to fit the economic reality of the twenty-first century.

In the intellectual environment, most researchers acknowledge that conventional trade theory is inadequate to explain contemporary global trade patterns. As the nature of trade has evolved and as trade globalization has proceeded, the playing field for states has not leveled out. Places that harness technology are much more likely to be command centers in trade. National and municipal governments, policymakers, and businesses have taken on important roles in creating and then maintaining the global competitiveness of places. Some more than others, however, have

the power to arbitrarily determine comparative advantage and to ensure that the right comparative advantages are created for the right industries (Porter and Sheppard, 1998). Geography still matters for governments and firms, even in the increasingly flexible and globally interdependent market.

Research on trade needs to be refocused in three areas. First, geographers can contribute to trade research in a number of important ways: by undertaking detailed case studies of trade regions, by elucidating the relationships among the different scales (global, regional, state, subregional, city, and local) of the global trade economy, and by examining in detail the nexus of government–firm relations, the processes of economic globalization, and the relationships between trade liberalization and globalization in the developing world.

Second, more trade evidence should be gathered across the global economy. Researchers have been particularly biased in their selection of case studies, concentrating on OECD economies because of data availability. Many more case studies need to be undertaken on developing countries. Typically macro-studies of regions like Africa have been used to make generalizations about individual country experiences in global trade (Grant and Agnew, 1996), but this is an example of the individualist fallacy in which the character of the whole is drawn from the one or other of its parts.

Third, trade researchers need to become data gatherers. For too long they have used secondary national data to analyze trends from their comfortable offices in the North. Trade data need to be collected at a variety of geographic scales, such as industry (e.g. intra-industry), the region (intra-regional), the city, and the web. Moreover, the categories for which commodity trade data have been assembled reflect the earlier commodity trade system, where resource and manufacturing trade dominated. These categories should be reformulated to more accurately reflect global, regional, and local realities. Data need to be gathered at the micro level to examine how globalization is affecting individual traders. Poor official data quality and availability should not preclude research on the developing world. Trade researchers have an obligation to play their part and collect primary local trade data in order to understand better how trade affects the majority of the world's population.

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