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Author(s): John O'Loughlin and Luc Anselin

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Geo-Economic Competition and Trade Bloc Formation: United States, German, and Japanese Exports, 1968–1992*

John O'Loughlin

*Institute of Behavioral Science and Department of Geography,
University of Colorado, Boulder, CO 80309-0487*

Luc Anselin

Regional Research Institute, West Virginia University, Morgantown, WV 26506

Abstract: In the post-cold war world, geo-economic competition is thought to be replacing geopolitical competition as the focus of great power relations. The cold war years corresponded to the period of U.S. hegemony in world trade and relations in the Western bloc. With the shrinking of the power gap between the United States and the other two great trading states, Japan and West Germany, as well as increased competition for trade shares, a division of the world economy into trade blocs has been anticipated. An examination of export shares for the three great powers with 114 partners in the past quarter century, 1968 to 1992, indicates there is not much evidence for the hypothesis of a world devolving into trade blocs. While regional links have intensified somewhat between the United States and its neighbors in the Americas and between West Germany and its European Union partners, Japan is broadening and deepening its export linkages with extraregional partners. Fears of the formation of blocs in the world trading system are greatly exaggerated.

Key words: trade blocs, panregions, geo-economics, spatial analysis, geopolitical order.

Two parallel developments have changed the world as we knew it. The post-World War II geopolitical order was shattered with the collapse of the Soviet

Union in 1991, though it had been tottering for about five years. The geo-economic order, built on a foundation of United States hegemony, a liberal international trade regime, and a Fordist mode of production, is also challenged, not with the finality of a military coup but through the actions of multinational corporations and the policies of governments. The world of the GATT (General Agreement on Tariffs and Trade), promoted and dominated by the United States as a way of linking the capitalist economies and promoting international growth, is no longer unquestioned by America's partners, or even within the United States itself.

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In the past decade, a sharp reversal of earlier trends toward tariff reductions has occurred and many nontariff barriers have been instituted to protect industries perceived to be under threat from the free

trade provisions of GATT (Meltzer 1991; Grant 1993). One strategy to protect vital trade interests is to delimit a trade zone and attempt to exclude global competitors from it. Whether the GATT world of global commerce is gradually being replaced by a tripartite division into trade blocs, each dominated by the respective superpowers, is the focus of this paper. Economic geography, in the form of regionalism in world trade, is said to be reasserted as ideological, and nation-state conflicts in the world's regions are mending ("Trade Winds Shift" 1993). While many commentators have speculated on this important development, empirical examination of the evidence to date has been sparse. We present evidence from the past 25 years of trade developments that indicate that the "end" of the GATT is exaggerated because regional trade blocs are still poorly developed.

Our method in this paper is exploratory spatial data analysis (ESDA). We posit no hypotheses on the development or lack of development of trade blocs, since the processes that would underlie any developments are poorly understood. We determine the accuracy of claims that the global economic system is devolving into geographically defined blocs. Our working definition of the existence of a trade bloc is statistical evidence that exports are disproportionately sent to countries in a specific region and that the pattern is intensifying over time. As we review the scattered literature on geo-economic developments in the past 20 years, we characterize it as poorly theorized and unconvincing in its empirical details. We prefer an inductive or data-driven approach to the topic. By these means, we gain insights into a question for which theoretical and empirical insights are currently underdeveloped. This approach, of course, reflects the most common geographic information system (GIS) style, and it represents a phase in which spatial patterns and structures are revealed, hypotheses proposed, and models suggested (Anselin and Getis 1992). In ESDA, the emphasis is placed on struc-

ture and association, an appropriate approach for the analysis of trade patterns.

From Stable Geopolitics to Mobile Geo-economics

The United States symbolizes all that has changed in the past two decades. From being an unabashed advocate of free trade, Washington now sends a muted or jumbled message, with various segments of the state apparatus promoting different agendas. "Managed trade" or "fair trade" have become the slogans of the Clinton administration as it pursues domestic and international policies to try to reduce America's chronic trade deficit and protect vulnerable (textiles) or strategic (microchips) industries from foreign imports (Low 1993). International agencies, instituted by the United States to manage the integrated world economy, now decry the retreat from an open global economy to one in which individual state interests take precedence over the fortunes of the trade system (World Bank 1992). As trade liberalization slows, the loudest complaints have come from believers in neoclassical trade theory, who hold that all countries eventually benefit from producing and exporting the products of their comparative advantage (Crook 1990). For Bhagwati (1991), the situation is nothing short of a "world trading system at risk."

How we arrived at a "new world order" that seems increasingly disorderly is the culmination of interacting economic and political developments in the United States and its relations to the other world powers, as well as structural economic forces that have shifted the locus of global manufacturing and reduced the undisputed U.S. lead in global production, trade, and finance. The U.S. reaction to this new world has been confused: it seems uncertain whether the strategies that sustained U.S. policy throughout the cold war years should be abandoned, modified, or maintained. What is undisputed is that a new sphere has been

added to the traditional political-military competition (Corbridge and Agnew 1991). No longer can the United States be perceived as one side of a unidimensional geopolitical contest with a Soviet adversary; its geopolitical allies are now its economic competitors. The catch-word of the 1990s summarizes the global shift: "from geopolitics to geoeconomics" (Luttwak 1993). In a useful antidote to the fixation on international competitiveness and global market shares, however, Krugman (1994) has blamed stagnant wage levels and standards of living on domestic causes, chiefly a failure to speed up growth in domestic productivity and a national spending spree that reduces capital formation. Manufacturing losses to imports account for only a small proportion (0.07 percent) of national income; a general demand shift to services accounts for most deindustrialization in the United States (Krugman and Lawrence 1994).

In the geo-economic world, trade is a zero-sum contest. This perspective is opposed to the economic view of Adam Smith and David Ricardo, which holds that gains from protected trade and shifting investments are temporary and that the world economy as a whole prospers from free trade. The images, models, language, and proposed policies to examine and treat the competition from both large established and new industrial economies have been borrowed from the geopolitical almanac (Ó Tuathail 1993). While Japan is clearly the object of most attention in the United States, it has recently been joined by the European Community in a perceived (from the U.S. perspective) triangular contest for world leadership. From the perspective of the United States, all has changed since the hey-day of U.S. power in the 25 years after World War II. Former enemies are friends, while the motivations of allies are questioned. As Taylor (1993) notes, Americans have an inordinate respect for rankings; evidence that the United States is falling behind its competitors generates further demands for action, though the evidence for U.S. relative decline is quite

mixed (O'Loughlin 1993a). In the United States, it is in the trade sphere that the lines are clearest, the rhetoric is loudest, and the clamor for action is strongest.

In the neoclassical view, trade is seen as an engine of economic growth. Demands for products overseas will generate more jobs at home. In a time of deindustrialization, the export of manufactured products is seen as an essential part of global competitiveness. For example, Duesterberg (1993) notes that the boom in U.S. exports since 1987, triggered by the 1985 Plaza agreement driving down the value of the dollar to make U.S. exports more competitive, has accounted for about 50 percent of U.S. growth and produced 2 million new jobs in manufacturing. World trade grew faster than global economic output between 1950 and 1990 (Summers 1991). The share of U.S. Gross Domestic Product represented by exports was 7.5 percent in 1993, up from 5 percent just five years earlier.

The close linkage of exports to economic growth is questioned by critics of neoclassical economics, such as the regulationist school, and by empirical evidence that booming exports do not always reduce unemployment. (The Republic of Ireland is a case in point.) Marxists have traditionally noted the use of the state apparatus to promote the interests of domestic capitalists, and Drache and Gertler (1991) believe that this advocacy is strengthened in the new global policy environment that pushes states to adopt market-based and trade-centered policies. Additionally, most capitalist states now try to act as a buffer between their populations and the negative effects of global economic changes, whose impacts have differential effects by industrial sector and region. Instead of export-led growth, a national industrial strategy that relies to a large extent on domestic sources can be an alternative to the dominant export-oriented mode of development.

While belief in the merits of free trade still generally holds sway in the major world capitals, fears increase among free trade supporters that basic principles,

such as “rising trade benefiting all,” are no longer unquestioned. Whether directly or inadvertently, GATT supporters believe that the major exporters are targeting regional export partners while working actively to build free trade areas that insulate exports from other competitors and tie the partner countries into long-term economic relationships. Trade blocs are viewed as the first steps to deeper economic linkages, following the example of the European Community, and eventually to political blocs (Lawrence 1991). Bloc building is anathema to GATT supporters, since it violates the spirit and purpose of Article XXIV of the treaty (Jackson 1993). Already, the European Community is deepening its internal relationships and building barriers to imports (Japan is the perceived main target of these provisions), the North American Free Trade Agreement has extended south to Mexico, with expected expansion to Latin America as a whole, and Japan is reputed to be building a yen bloc in East and Southeast Asia (Maidment 1989). In the worst fears of the free traders, these blocs will eventually broaden to encompass all countries in three economically competitive and politically coherent blocs. The trade-diverting effects of bloc building are potentially enormous, and clear answers to the important question of whether blocs are developing are important for the future appearance of both the geo-economic and geopolitical worlds. Economic relations will undoubtedly affect political relations.

Trade Theory and Panregional Visions

The trade alarmists worry that the 1990s will become increasingly like the 1930s. In that decade, the world trade system, which had been gradually liberalizing and opening, retreated into protectionism. Five blocs became identifiable (British empire, French empire, United States and Latin America, Germany and Eastern Europe, and Japan’s “East Asian

Co-prosperity Sphere”), and each tried to distance itself from the rest of the world. In a decade of economic crisis, with increased competition for shrinking markets, a division of the spoils seemed like a reasonable tactic to guard market share against extraregional exporters.

In the context of the 1930s global recession, various geo-economic strategies were suggested to cope with the crisis. One of the most debated and famous of these strategies was the German panregional model. In the view of the German school of Geopolitik, dominated by Karl Haushofer, a stable equilibrium could be produced and maintained by the division of the globe into three zones—Pan-America (North and South America), Pan-Europe (Europe, the Middle East, and Africa), and Pan-Asia (Asia and Australasia). Each would be comprised of a core and periphery, and this complementary trade relationship would reduce the necessity to trade outside the blocs. Obviously, in this world, the British and French empires would be carved up, and the United States, Germany, and Japan would dominate their respective blocs (O’Loughlin and van der Wusten 1990). The German geopolitical writers argued that, by the Monroe Doctrine, the United States had effectively created an American bloc, and in 1941, Japan actually declared the establishment of the “Greater East Asia Co-prosperity Sphere” after its military successes on the Asian mainland and on the offshore islands.

There is little evidence that the putative panregions developed along the expected “natural lines.” After World War II, the United States extended its core trading area to encompass Western Europe and Japan more firmly (Nierop and de Vos 1989). Africa would have been an obvious case to remain closely attached to Europe in a panregional world, but the evidence shows that the links weakened after African independence in the early 1960s (O’Loughlin and van der Wusten 1990). Cohen (1991, 566) calls the panregional concept “outdated” because the Third World is marginal to the central

economic pursuits of the rich core powers. Certainly, this dismissal of Third World trade importance cannot be true of East Asia or parts of Latin America and the Middle East.

The post-World War II reappearance of the panregional concept indicates that it retains appeal beyond the narrow German geopolitical writings. Taylor (1992) identifies its presence in British left-wing writings of the 1930s and 1940s, and the strategy of the "three Monroes" was widely circulated in the immediate postwar debates about Britain's role in world affairs (Taylor 1990). In the British view, the three remaining global powers in 1945 (the United States, the United Kingdom, and the USSR) each had specific regions of dominance (akin to the claimed United States dominance over Latin America in the Monroe Doctrine) and the postwar geopolitical order would be determined by the alliance of two of them against the other. Modern versions of the theory rarely recognize its historical antecedents, but the proposed contemporary "natural" trading blocs closely follow the lines of the German maps of the 1930s.

The highly debated view of the "end of history" thesis (Fukuyama 1992), producing a borderless and highly interdependent world economy, is paralleled by economists envisioning "the end of geography" in the close integration of the world trade and financial systems (O'Brien 1992). In this view, state control will ebb, and international companies will be the main actors in the world economic arenas. The "end-of-geography" thesis also challenges the GATT concept, which is based on nation-states bargaining for their national interests. The thesis also challenges the "reassertion of economic geography," the integration of national economies in regional blocs. The appearance of a borderless world economy has produced a backlash: "the end-of-geography challenge presented by the liberalization of trade was met by a strong geographical counter-action (non tariff barriers), ensuring that each old barrier

was replaced by a new one" (O'Brien 1992, 90). Further, the shift from nation-state to trade bloc control is generated, in part, by global structural forces pushing from regional to more global arrangements (O'Brien 1992). The end-of-geography is really about the end-of-sovereignty of nation-states.

The geo-economic world of the 1990s is similar to that of the 1930s in another respect. After a generation of U.S. economic hegemony, the world economy has acquired more balance. U.S. power and influence over the other global economic powers, Japan and the European Community, is waning, while the set of rapidly industrializing states in East Asia continues to gain global economic prominence. Economic power is more dispersed; any discussion of the evolution of the world trading system should be placed in the context of the relative decline of the United States. Except for a cadre of "Cold Warriors," who anticipate the rise of Russia to global status, there seems little challenge to the notion that international economic competition will become more important for national security and welfare (Gilpin 1992). The popularity of books by Reich (1991), Garton (1992), and Thurow (1992) pay testimony to the belief that the United States has passed to a different world stage, one of trading states (Rosecrance 1986), in which U.S. leadership is more questioned and its military dominance counts for less. One strategy to extend U.S. influence is to build a partnership with one of the potential challengers, Japan being the most obvious choice. There, U.S. military power would be wedded to Japanese economic power to build a trans-Pacific alliance to counter a European Community-Eastern Europe bloc (Inoguchi 1988; Wallerstein 1991).

The change in the U.S. position relative to the world economy can be clearly seen in the rhetoric of trade. From being the prime mover behind the GATT world (the institutions that controlled the world economy after 1945, such as the International Monetary Fund, the Bretton Woods agreements on currencies, the

World Bank for development, and the United Nations for world order), the United States increasingly has turned to the unilateralist notions of "managed trade." Its enormous and consistent trade deficits (\$118 billion in 1993) have eroded public confidence in notions of free trade. Bhagwati (1991, 1993) has been the most vocal critic of the changing U.S. policies in GATT, arguing that unilateral American policies such as sanctions in the Omnibus Trade Bill of 1988 ("Super 301") against perceived trade violators run fundamentally counter to the GATT agreement, which has the force of treaty for the United States. Suffering from "diminished giant syndrome," the United States, in his view, is demonstrating "trade panic and attendant petulance" (Bhagwati 1993, 155). Dhar (1992) and Grant (1993) discuss the dramatic shift in U.S. trade policies and Washington's special attraction to nontariff barriers. Calculations by Huffbauer, Berliner, and Elliot (1986) show that special protection on imports to the United States rose from 5 percent in 1955 to 21 percent in 1984. In 1984, \$44.4 billion of imports were not allowed into the United States, equal to 13 percent of total imports. The equivalent tariff percentage of the nontariff barriers on steel, car, and textiles imports is equal to a tariff of 24 percent (de Melo and Panagariya 1992).

U.S. policy is increasingly challenging the central principles of GATT. A perception of trade based in power and politics is taking hold, as recent U.S. administrations have increasingly viewed the international economy as a political mine field that must be negotiated carefully and a place where enemies and allies can be identified. Authors such as Reich (1991), Thurow (1992), and Garton (1992) support this view and call for national industrial and trade policies as part of an overall restructuring of the U.S. political economy in the post-cold war world. GATT is not incompatible, in principle, with a world of regional free-trading areas (Bhagwati 1993; Preeg 1993; Jackson 1993), but free trade advocates believe that trade

blocs are bad in practice. If the level of import restrictions is not higher to non-members than before bloc formation, GATT can tolerate such trade blocs. Since 50 percent of world trade is now contained within the three global regions (up from 40 percent in 1980), Preeg (1992, 1993) believes that future trade talks should recognize these realities and use them to make a base for more open multilateral trade. The United States initiated the Uruguay Round of GATT trade negotiations in 1986 and pushed hard (successfully, in the end) for liberalization in services, intellectual property, and agriculture, areas in which the United States has a comparative advantage. Despite a drop in the average tariff from 20 percent in 1950 to 4 percent in 1992 and predicted gains of \$80 billion for the European Union, \$25 billion for Japan, and \$20 billion for the United States with the implementation of the Uruguay Round ("GATT" 1993), continued trade disputes between the big three (the United States, Japan, and the European Union) will likely promote even more bloc formation. Gilpin (1992) thinks that the processes of both trade liberalization and bloc formation will occur simultaneously, in a complementary manner.

The two biggest economies, the United States and Japan, have joint and parallel interests in promoting free trade and an open world economy. They both trade widely beyond their home regions, and their recent economic growth has been a result of booming exports. The U.S.-organized unipolar world of the immediate postwar period has shifted to a world of approximately three equal great powers. The "spatial fix" for the negative impacts of their competition, a geographic division of the spoils along panregional lines, indicates that "less competition from outsiders will be traded off against more competition from insiders" (Thurow 1990, 38). The rhetoric of free trade has been replaced in the United States by that of managed trade, including trade rules negotiated for the free trade areas.

Blocs and Politics

The debates about bloc formation must be seen within the context of the new trade theory. Traditional models of trade emphasized factors of endowment in a Heckscher-Ohlin framework in which a country's exports incorporated its relatively abundant factors and its imports were composed of scarce goods. Leontief (1956) found this model to be questionable because, in contrast to expected patterns, the United States exported labor-intensive goods and imported capital-intensive products. A Linder (1961) model, where similarity in demand preferences between two countries is the basis for trade in manufactures, with per capita income serving as an indicator of domestic market preferences, offers a better explanation of trade between large rich countries, as well as for the (ex) Soviet Union (Hanink 1988, 1994; Hanink and Kier 1993).

As the economic predictors of trade weaken, political relations between states offer a significant additional explanation for the patterns of international trade in the postwar period. Though there is strong evidence that trade and politics are related, debate continues about the direction of the relationship. In Pollins's (1989) view, trade follows the flag, but Gasiorowski (1986) finds that political relations precede the development of trade flows. The imports and exports of the United States seem much more responsive to its political relations than is the case for Japan (Anselin and O'Loughlin 1990; O'Loughlin 1993b). In the geo-economic world of the late twentieth century, political relations may not be as apparent as they were in the days of the cold war, but the extent of trade relations between states is modified by politics, in addition to the usual predictors of distance and economic size.

Trade blocs are not expected to develop *ex nihilo*. According to Krugman (1991a), trade blocs in the Americas, Europe, and East Asia follow "natural trade zones." These natural regions are areas of inten-

sive intrazonal interaction resulting from small political and geographic distances between trading partners and similar levels of economic development. A traditional notion of "neighborhood" prevails in building free trade areas (Weintraub 1991). If free trade zones follow these "natural trade" lines, there will be little appreciable trade-diverting effects (Krugman 1991b, 1991c). Natural and legal trade zones will mostly overlap. This view is challenged by Bergsten (1991), who worries that trade blocs would be deepened to encompass monetary and other economic linkages and would eventually be transformed to exclusionary regions. This development would have important implications for the world economy, and in Bergsten's scenario the end result would be a world of exclusionary and competitive regions among which little interaction would take place. Bergsten also dismisses the idea of "natural trade zones" in a world in which distance is less and less a useful predictor of trade as the world's regions become increasingly diversified.

There is broad agreement that fear of Japanese imports has generated some of the impetus for free trade areas. Japan has prospered in the GATT-world of the past 30 years, and it is clearly in Japan's interests that the current regime should change little. By contrast, Western Europe and, to a lesser extent, the United States are in fear of losing local and regional markets to Japanese exporters. By tightening regional bonds while raising barriers to outside exporters, it is hoped that Japanese market penetration can be halted. In contrast to the formal steps of building free trade zones in Europe and North America, no such effort has yet occurred in Japan's home area of East and Southeast Asia, though Maidment (1989) believes that a "yen bloc" may eventually result from Japanese trade, aid, financial, industrial, and development linkages. Suggestions of an "Asian-Pacific economic" region are also premature, even though the region has 50 percent of the world's trade, up from 40 percent in the

1960s. The region is unlikely to form a free trade area because of fear of Japanese domination of the smaller Asian economies, domestic pressure in the United States to exclude Japanese imports, East Asian reluctance to remove barriers to U.S. exports, especially farm products, and the continued presence of Communist regimes in the Asian half of the proposed free trade area (Anderson 1991).

Japan resists the notion of an East Asian trading bloc, though its influence is growing in the region (Gilpin 1992, 33). Because of the export orientation of the Japanese economy, Japan's trade relations are intimately linked to its domestic economic and regional geopolitical position. Japan is regionally isolated, is strongly dependent on imports of raw materials, remains strategically and militarily dependent on the United States, and carries a historical legacy of imperialism that makes putative partners leery of Japanese foreign economic policy (Grant 1993). Japan's role is quite specialized, as a source of capital goods (75 percent of total exports) and as intermediary between the United States and the East Asian Newly Industrializing Countries (NIEs) (Muraoka 1991). Japanese export growth slowed dramatically between 1990 and 1994, its economy entered recession, and its trade surplus was strongly related to the high value of the yen rather than to export volume. The NIEs are chipping away at Japan's traditional trade leadership in capital goods (Corker 1991).

Debate about the evidence for the formation of a "yen bloc," an American bloc, and a European bloc has been hindered by sparse data, contrasting research methods, and inconsistent political goals. Frankel (1991) has argued that, after controlling for the rapid growth of the East Asian economies, the impression of Japanese regional orientation vanishes. Schott (1991) and Lloyd (1992) maintain that, while Europe is becoming a coherent trade bloc and the Americas also show tendencies in that direction, given the weight of evidence, East Asia will not meet the four conditions that Frankel

detects in successful free trade areas (similar levels of GDP, geographic proximity, similar or compatible trading regimes, and political commitments to regional organizations). Fieleke (1992) finds that most of the preferential trading arrangements that have appeared recently account for about two-thirds of world trade. Over time, this preferential trade has come to resemble trading blocs because trade is becoming more "inward" among members of the agreement and less "outward" with the rest of the world. Anderson (1991) and Anderson and Norheim (1993a, 1993b) seem to draw similar conclusions, namely that the case for bloc building is premature and that the evidence for the existence of free trade areas is currently mixed.

One clear agreement among the "unholy trinity" (Western Europe, the United States, and Japan) (Van Agt 1991) is that they will not deliberately undermine the GATT world, as the frenzied final negotiations of the Uruguay Round in late 1993 showed. However, their protectionism and decreasing reluctance to use political means to pursue economic ends jeopardizes the world trading system, in the eyes of free traders (Crook 1990). Three options are possible in a world of three great powers (O'Loughlin 1992): the United States against an antihegemonic alliance of Japan and Europe; Japan against Europe and the United States in a trade protectionist alliance; and Europe against a Pacific bigemony of Japan and the United States (Inoguchi 1988; Aho 1993). The bargaining and posturing in the Uruguay Round of the GATT talks, 1986 to 1994, provide some initial indications of possible future conflicts. One thing remains clear: none of the three great economic powers (Germany, Japan, or the United States) will be able to organize its home region without considering the opposition emanating from regional traditions and historical memories. Regional partners are understandably suspicious of plans for the integration of their economies with their large neighbors.

Methodology and Data

In his challenge to Krugman (1991b), Bergsten (1991, 48) states that Krugman's assertion that blocs will follow "natural trading lines" is "an empirical question on which Krugman offers little supportive evidence." The same conclusion could be made for the wider issue of the development of trade blocs. Previous attempts to measure either the trade-diverting effects of blocs or the movement toward blocs have relied on simple proportions. Typically, the ratio of trade to countries within the (pre-defined) bloc to trade outside the bloc is used, and there is a tendency, criticized by Frankel (1991) and Anderson and Norheim (1993a, 1993b), to accept these proportions at face value. These ratios take no account of the overall trends in trade, so that recently more attention has been given to standardized proportions—that is, controlling for the increasing size of trade volumes in the respective regions. Based on such controls, Frankel (1991) and Anderson and Norheim (1993a, 1993b) find little support for the hypothesis that the world is evolving into regional blocs.

While recent studies have clarified the debate on the nature of the empirical base of blocs to some extent, they have not examined the position and role of individual states in the putative blocs. Rather, economists have taken the blocs as given and calculated trade ratios on the basis of predetermined geographic bloc-lines. This approach hides intrabloc country differences and involvement with regional partners as well as possibly hiding extra-bloc attachments. In this study, in addition to replicating traditional aspatial analyses based on indices of intensity of trade and of the propensity to trade extraregionally, we offer a local perspective to the study of bloc formation by evaluating the spatial relations of 114 countries to the big three exporters—the United States, Germany, and Japan—over the period 1968 to 1992. As well as calculating export trade shares by pan-region (our geographic delimitation of a bloc), we offer a more nuanced and

geographically specific view of how the trade of the three great trading states has developed in the past quarter century. We use an exploratory spatial data analysis (ESDA) approach, which allows us to determine whether the concern about the development of blocs is warranted. The ESDA perspective is well suited to our purposes in this paper, given its inductive or data-driven approach to gain insights into a question for which theoretical and empirical insights are currently underdeveloped. The revelation of patterns, proposition of hypotheses, and suggestion of models is effectively carried out in combination with spatial data manipulation, storage, and display in a geographic information system (Anselin and Getis 1992; Anselin 1993a).

After reexamining the trade proportions evidence, using the two growth/proportions indices suggested in Anderson and Norheim (1993a, 1993b), we shift to a spatial analysis perspective and carry out an investigation of both global and local measures of spatial association. Our summary global measure is Moran's I (e.g., Cliff and Ord 1973), which indicates the extent of significant spatial clustering of export and import shares for each of the three main trading nations with the 114 countries in the sample and examines its temporal trends in the period considered. This measure is illustrated by means of a Moran scatterplot (Anselin 1993b, 1994) to show the decomposition of the association into spatial clusters of similar high or low values and clusters of dissimilar values and to assess the existence of outliers. This focus on local indicators of spatial association (Anselin 1995) is further explored by means of maps of significant G_i^* statistics (Getis and Ord 1992), which illustrate the existence of separate spatial clusters and show which countries deviate from the regional patterns. Consideration of these special cases offers insights into the reasons for the anomalies and provides further details on the trade bloc-building process.

All of our analyses are conducted at five-year intervals (1968, 1973, 1978,

1983, 1988, and 1992). Since we are primarily interested in the longer-term developments over the quarter century, these temporal intervals were deemed sufficient. Furthermore, year-to-year changes in trade proportions are minuscule. The data are taken from the International Monetary Fund's yearly report *Direction of Trade Statistics* (1968–88), with some additional data from United Nations and Organization for Economic Cooperation and Development sources. The 114 countries in the study include all states with a population over 1 million who were members of the United Nations during the entire time interval. The country set, therefore, excludes states such as Switzerland, North and South Korea, Hong Kong, Taiwan, and former East Germany. Furthermore, Lesotho and Swaziland (two enclaves) were not considered because their sole neighbor, South Africa, was not included (and thus contiguity analysis is meaningless). For consistency's sake and to reduce bias introduced by trade between the three great powers in the study, they were not included as trading partners of each other. A total of 114 countries, classified by panregion, were included in the study.¹

¹The regions and their members are (1) **Pan-Europe**—United Kingdom, Austria, Belgium-Luxembourg, Denmark, France, Italy, Netherlands, Norway, Sweden, Canada, Finland, Greece, Ireland, Portugal, Spain, Turkey, Yugoslavia, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Saudi Arabia, South Yemen, Syria, United Arab Emirates, Egypt, North Yemen, Algeria, Botswana, Burundi, Cameroon, Central African Republic, Chad, Congo, Zaire, Benin, Ethiopia, Gabon, Gambia, Ghana, Guinea, Ivory Coast, Kenya, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, Tanzania, Togo, Tunisia, Uganda, Burkina Faso, Zambia; (2) **Pan-America**—Canada, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay,

Spatial contiguity between countries was defined as simple contiguity—that is, having a land border in common and/or having a border within 200 miles over water. Two “islands,” Canada and New Zealand, were defined as contiguous to Mexico and Australia, respectively. Since our concern was only with trade blocs, we did not include other indicators of bloc building, such as development aid and foreign direct investments.

In reexamining the trade shares, we decided to use a priori regions, or regions determined by panregional theory and not by current trade patterns. This avoids tautology. We used the four regions identified by the geopolitikers of the interwar period as promoting a global equilibrium with each of the four great powers (Germany, Russia/Soviet Union, Japan, and the United States) with their own region of influence. In this quadripartite world, reciprocal trade relationships within each panregion between an industrial North and a resource-rich South would preclude the need to pursue trade beyond the boundaries of the panregion. The regions and their country members offer a useful starting point to the reexamination of bloc developments and make a more defensible starting point for regional divisions, since they include countries in all regions. In previous studies, countries beyond the immediate regions of the major powers were simply excluded from study.

Bloc Building? Evidence from Intensity and Propensity of Trade

Though central to the issue of bloc building and the correspondence of blocs and “natural trading areas,” the question

Peru, Uruguay, Venezuela, Jamaica, Cuba; (3) **Pan-Asia**—Australia, New Zealand, Bhutan, Myanmar, Kampuchea, Sri Lanka, India, Indonesia, Laos, Malaysia, Nepal, Pakistan, Philippines, Singapore, Thailand, Vietnam; (4) **Pan-Russia**—Iran, Albania, Bulgaria, P.R. China, Czechoslovakia, Hungary, Mongolia, Poland, Romania, USSR/Russia.

of whether the world trading system is becoming aligned along regional lines is still unresolved. In a longitudinal analysis of total European trade since 1928, Anderson and Norheim (1993b) conclude that extra-European trade has grown since the 1930s and that the perception of a "Fortress Europe" is inaccurate. Though intra-Europe trade has also been increasing, this trend is due more to the growth of the individual national economies than to a turning inward by Europe. In another paper, Anderson and Norheim (1993a) extend the series in time and reach similar conclusions: world trade is not regionalizing if one controls for economic growth in the respective world regions and uses two complementary concentration indices, intensity of trade and regional propensity to export. Because Anderson and Norheim consider only European trade, however, their studies and conclusions are limited. To offer a more globally complete picture of regionalization trends, we used the same two indices as Anderson and Norheim to examine the exports of Germany, the United States, and Japan in the past quarter century.

The first index, measuring intensity of trade, is computed as

$$I_{ij} = x_{ij}/m_j, \quad (1)$$

where x_{ij} = the share of country i 's exports going to region j , and m_j = the share of region j in world imports (net of country i 's exports, since i cannot export to itself) (Drysdale and Garnaut 1982). This index computes the extraregional trade share defined by the region's share with the rest of the world divided by the rest of the world share of global trade. This controls for overall importance in the world trade system, and over time the index takes account of interregional gains and losses. If trade is not geographically biased (whereby the ratio of i 's trade going to region j is equal to region j 's share of the global total), it will have a weighted value of 1.0 for all regions.

The changing trade intensities are

shown in Table 1. For all three exporters, the figures for Pan-Russia (the former Eastern Europe) are volatile, reflecting the ebb and flow of the cold war and the signing and abrogation of trade agreements. Since exports by all three Western powers to the region are so small, the indices cannot be regarded as reliable or consistent. For U.S. exports, trade intensifies over time in the home territory (Pan-America), especially since 1973 (after an initial drop from 1968), with a corresponding decrease after 1983 in Pan-Europe (Western Europe, the Middle East, and Africa) and in Pan-Asia. Table 1 can be read such that U.S. exports to Latin America are three and a half times as much as would be expected from Latin America's ratio of world imports, while U.S. exports to Pan-Europe are only half of the expected total.

German and Japanese exports also indicate a home region bias, but not to the extent of the United States. In contrast to what might be expected from popular opinion, Germany has only 30 percent more exports than expected to the importers of its home region, and this figure is stable for the past quarter century. German exporters have lost ground in Latin America while gaining a little in East Asia. Of the three exporters, Germany seems to follow global trends most closely. Japan's patterns show a decrease in Asian concentration over time, a significant contrast to the stability of Germany and the growth of the United States in their respective home regions. Small intensity ratio growth in the other two major importing regions balances this regional decline, but the overall picture for Japan is a matching of its exports to world import trends.

Calculations of trade intensity indices support arguments that bloc building in exports is exaggerated. Only the United States shows signs of such behavior in its immediate area, and even there the change over 25 years is fairly small. All three exporters show growth in at least one region outside the home area, and an overall picture of balance and stability in

Table 1
Index of Trade Intensity

	Pan-America	Pan-Europe	Pan-Russia	Pan-Asia
United States				
1968	2.980	.598	.175	1.126
1973	2.014	.358	5.500	3.562
1978	2.563	.494	.630	.382
1983	2.260	.535	.356	1.894
1988	3.145	.542	2.126	1.329
1992	3.475	.493	3.386	1.323
West Germany				
1968	.409	1.296	.772	.267
1973	.357	1.074	14.500	.382
1978	.341	1.181	1.630	.250
1983	.241	1.238	1.333	.455
1988	.258	1.457	.586	.282
1992	.261	1.293	.589	.578
Japan				
1968	.745	.548	.596	3.407
1973	.992	.625	5.833	4.281
1978	.928	.625	1.021	3.455
1983	.956	.584	.911	3.242
1988	.719	.756	.310	2.226
1992	.846	.481	.323	2.922

Note: The index of trade intensity is calculated from Equation (1).

export intensities contrasts vividly with scenarios of a trading world breaking up into its component regional parts. This also reinforces earlier findings that trade ratios must be controlled by regional shares of global totals in order to reflect changing patterns properly.

A second index, promoted by Anderson and Norheim (1993a, 1993b), measures the propensity of countries to trade extraregionally by controlling for total regional output, measured by Gross Domestic Product (GDP). The index is computed as

$$P_{ij} = t_i * I_{ij}, \quad (2)$$

where t_i is the ratio of i 's total exports to i 's GDP, and I_{ij} is calculated in Equation (1) above as the trade intensity index. Unlike the ratios in Table 1, the values in Table 2 should not be compared directly between differently sized regions at a point in time because of widely varying GDPs. The index is strongly influenced by the size of the regional GDPs, and, other things being equal, t_i is dependent

on the size of the economy. Using this index, Anderson and Norheim (1993b) determined that, although Western Europe's propensity to trade intraregionally has risen consistently since the 1930s, its propensity to trade with the rest of the world has at least been maintained. The share of Europe's GDP traded with non-Europeans has been stable for the past 60 years.

Most of the indices in Table 2 increase over time, as might be expected from the general global trend of increasing ratios of trade to GDP. It is the differences in the increases that make the results interesting and noteworthy. Over the period as a whole (1968–92), both the United States and West Germany show sizable increases in the propensity to export to their home regions (Pan-America and Pan-Europe, respectively). In contrast, the home region orientation for Japan decreased over the 25-year period, though with some increases in the intervening years up to 1983. All three exporters show an upward trend in the propensity to export extraregionally.

Table 2
Index of Propensity to Export Extraregionally

	Pan-America	Pan-Europe	Pan-Russia	Pan-Asia
United States				
1968	.101	.019	.005	.037
1973	.102	.018	.028	.187
1978	.163	.032	.041	.165
1983	.136	.027	.017	.098
1988	.146	.025	.010	.062
1992	.216	.031	.020	.082
West Germany				
1968	.061	.195	.005	.037
1973	.063	.190	.435	.066
1978	.069	.241	.332	.051
1983	.052	.271	.291	.099
1988	.066	.372	.149	.072
1992	.054	.270	.123	.121
Japan				
1968	.044	.032	.015	.199
1973	.063	.040	.037	.271
1978	.067	.044	.072	.246
1983	.075	.046	.071	.256
1988	.044	.046	.019	.136
1992	.050	.029	.018	.175

Note: The index of propensity to export extraregionally is calculated from Equation (2).

Though the U.S. propensity to export to Latin America (a region with relatively low GDP and growth rates) has grown sizably in the past quarter century (with only a brief decrease between 1978 and 1983), it lost ground for an extended period in both Pan-Europe (1978–88) and Pan-Asia (1973–88). These regions are, respectively, the wealthiest and the fastest-growing economies in the world, and this decade-long reversal of earlier growth trends understandably was a cause of concern to U.S. policymakers. This reversal is partly due to the high value of the U.S. dollar toward the end of the period (1985 to 1988); after a fall in the dollar's value, the ratios increased for 1992. In contrast to the United States, West Germany saw an overall growth trend to 1988 in its propensity to export to all regions except East Asia. Over this quarter century of dramatic global economic change, evidence of the strength of German exporters is seen in the sizable increases in the propensity to export to the wealthiest areas of the world econ-

omy, except for Pan-America, where the ratios were stable.

The effect of currency fluctuations may be seen in the 1992 Japanese index for Pan-Europe as the yen reached its apogee: the Japanese propensity to export to this region declined after a quarter century of growth. The indices indicate stable Japanese export propensities for the other two areas, Pan-America and Pan-Russia, but indicate a sizable drop in East Asia in the past few years. Since the mid-1980s, Japanese propensity to export to its neighbors has dropped sharply, not in the total volume of exports, but in exports as a ratio of Japanese GDP, related to the share of the world's imports accounted for by East Asia. The result will appear somewhat surprising to those impressed by the ratios and raw numbers of Japanese exports. Based on the index of propensity to export extraregionally, it appears that, since 1968, the United States is a very successful intraregional exporter; it has managed to keep pace

with West Germany and Japan outside its small home region.

The overall impression from trends in the indices of intensity and propensity to trade extraregionally since 1968 is the relative stability of the regional exporting patterns. There is little evidence of bloc building in the exporting patterns, though the United States and West Germany seem to be developing closer trading ties to their Latin American and Pan-European neighbors, respectively, while Japan is (relatively) leaving its home region. The United States has four times more trade with its neighbors than the respective ratios for Japan and West Germany (the value was twice as much in 1968); West Germany has 9 times more trade with its Pan-European neighbors than Japan and the United States do (the figures were 10 and 6 times as much in 1968); and Japan has 2 and 1.5 times more trade with its East Asian neighbors than the figures for West Germany (about 6 times as much in 1968). Japan's exports are diffusing more evenly around the world, while its economic rivals continue to concentrate on their home territories. It is little wonder that the strongest recent exponents of regional free trade areas have been the United States and West Germany.

Temporal and Spatial Trends in Trade Shares, 1968–1992

While we were able to replicate and extend the conclusions of the aspatial studies of Anderson and Norheim that bloc building in exports is not very advanced, it is yet unclear to what extent the individual importing countries contribute to the regional patterns. Attention to spatial association and to country-specific trade patterns (both import and export) has been lacking in the existing examinations of the geography of trade. In this section, we consider both global and local indicators of spatial association (LISA) to measure trends in spatial clustering of export shares and to examine the contribution of individual countries.

These shares are computed as

$$E_{ij} = x_{ij}/m_j, \quad (3)$$

where x_{ij} are the total exports of i (United States, Germany, or Japan) to j , m_j are the total imports of j , and

$$M = x_{ji}/e_j, \quad (4)$$

where x_{ji} are the total imports by i (United States, Germany, or Japan) from j , and e_j are the total exports of j . Although these figures are fractions, they are not proportions in the usual statistical sense, in that they do not add up to one for each i (the ratios would add up to one for each j , but such a perspective is not considered here).

The recently suggested LISA approach (Getis and Ord 1992; Anselin 1995) allows us to identify regional anomalies, represent them cartographically, and suggest possible reasons for local trends and deviations. Our point of departure is a global measure of spatial autocorrelation, the familiar Moran's I , which is expressed as

$$I = (N/S_0) \sum_i \sum_j w_{ij} x_i x_j / \sum_i x_i^2, \quad (5)$$

where w_{ij} is an element of a spatial weights matrix \mathbf{W} that shows whether or not i and j are contiguous (typically, and also in our study, this weights matrix is row-standardized such that its row elements sum to one); x_i and x_j are observations at locations i and j , respectively (measured as deviations from the mean); N is the number of observations; and S_0 is a normalizing factor, equal to the sum of all weights ($\sum_i \sum_j w_{ij}$). Since the data (the export and import shares defined in Equations (3) and (4)) did not conform to the normal distribution, we based the significance of Moran's I on the randomization assumption and computed the associated standardized z -value accordingly (for details, see Cliff and Ord 1973, 1981; Upton and Fingleton 1985). All computations were carried out by means of the SpaceStat spatial data analysis

software (Anselin 1992). The temporal trends in the Moran's I indices for export and import shares of the three countries with respect to their 114 partner countries can be assessed from the results reported in Table 3.

The indices of spatial association for both export and import shares of the United States are strongly significant and positive for every year in the sample, indicating strong spatial clustering of both the destination countries of U.S. exports and the origin countries of U.S. imports. Of the three main traders considered, the Moran's I for the United States is the most stable, ranging between 0.3 and 0.5 for exports and between 0.3 and 0.4 for imports, with no detectable trend in either direction. This absence of any trend over a quarter century period confirms earlier caution about the significance of bloc formation in U.S. trading patterns. The indices for West Germany show a higher degree of fluctuation (between 0.15 and 0.54 for export shares, and

between 0.17 and 0.35 for import shares), and they are consistently positive and highly significant (at $p < 0.01$) throughout the period. In contrast to the United States, an increasing trend in spatial association is indicated for West Germany, with higher significance in every year after 1973 for export shares and after 1978 for import shares, though with a decrease in 1992. This decrease may be due to the disruption caused by the consolidation of the economies of the two Germanies in the previous year.

Of the three great economic powers, the trade pattern of Japan shows the greatest variation in spatial clustering. Export shares do not show significant spatial autocorrelation in both 1968 and 1992, though they are highly significant and positively associated in the other years; imports show significant and positive spatial association in all years. The magnitude of the coefficients and their significant move up and down from year to year does not reveal any trend toward

Table 3
Morans I and Associated z -scores for Export and Import Shares

	Exports		Imports	
	I	z	I	z
United States				
1968	0.321	4.56	0.392	5.53
1973	0.435	6.16	0.404	5.75
1978	0.418	6.00	0.309	4.40
1983	0.303	4.44	0.362	5.14
1988	0.484	6.98	0.407	5.76
1992	0.401	5.72	0.369	5.22
West Germany				
1968	0.283	4.13	0.172	2.81
1973	0.149	2.67	0.329	4.68
1978	0.271	4.00	0.226	3.27
1983	0.391	5.69	0.319	4.63
1988	0.535	7.74	0.321	4.61
1992	0.454	6.43	0.349	4.90
Japan				
1968	0.079	1.61*	0.094	3.31
1973	0.407	5.94	0.061	3.53
1978	0.356	5.61	0.302	4.35
1983	0.633	8.83	0.455	6.57
1988	0.502	7.10	0.168	2.55
1992	-0.004	0.16*	0.213	3.16

* Values not significant at $\alpha = 0.01$.

greater geographic concentration of Japan's trade patterns. This oscillating pattern instead indicates a dynamic and globally changing export position, which contrasts with the more static and entrenched U.S. and German trade relations.

While Moran's I provides an indication of spatial clustering of similar values, it does not necessarily imply (spatial) trade bloc formation. In fact, the positive spatial autocorrelation measured by Moran's I in Table 3 includes both similarity of small values between a location and its neighbors as well as similarity of large values. In the context of trade bloc formation, only the latter is relevant. The Moran scatterplot suggested in Anselin (1993b, 1994) provides a means to disentangle the different country contributors to the spatial autocorrelation index. It consists of a scatterplot of the spatially lagged values for each observation $(Wx)_i$ against the observation x_i (with the x in standardized form, i.e., with the mean subtracted and divided by the standard deviation). The $(Wx)_i, x_i$ pairs give an indication of the degree of association between the average of the neighboring values and the value at each location. Perfect spatial association would result in $(Wx)_i, x_i$ pairs located around the 45 degree line. Poor spatial association would be reflected in a random circular cloud around the origin. Since the x values are standardized, the scatterplots are comparable between variables. Also, values of either $(Wx)_i$ or x_i larger than two can be considered as "extreme," in the sense that they are more than two standard deviations away from the mean (the so-called two sigma rule).

The Moran scatterplots for the export shares of the United States, Germany, and Japan are presented in Figures 1 to 3 for the six years in the sample (the plots for import shares are not shown but follow a similar pattern). The four quadrants in each plot distinguish the four categories of spatial association: two kinds of positive association (similarity between the value at a location and the values at neighboring

locations) and two kinds of negative association (dissimilarity between the value at a location and the values at its neighboring locations). Positive spatial association between small values (i.e., below the mean) is shown by the points in the lower left quadrant; positive association between large values (i.e., above the mean) are shown in the upper right quadrant. It is the latter that is of particular interest for trade bloc formation. Negative association is shown in the upper left quadrant (between small values at a location and high values at the neighboring locations, or islands of low values) and in the lower right quadrant (between high values at locations and low values at neighboring locations, or islands of high values). As demonstrated in Anselin (1993b, 1994), the slope of the linear smoother in this scatterplot—that is, the slope of a regression line of Wx on x —is Moran's I . In this respect, the stability of the slope for U.S. exports is striking (Fig. 1) and contrasts sharply with the oscillating line for Japan (Fig. 3). For Germany (Fig. 2), the slope increases steadily from 1973 on, with a slight decline in 1992. It is clear from all figures that the bulk of the positive association is low-low—that is, between a country's imports and that of its neighbors in the lower left quadrant of the graphs—and is not of particular interest in the context of bloc formation. The distribution of the points in the three country plots by quadrant is detailed in Table 4.

Countries that are extreme with respect to the linear regression—that is, countries that do not fit the overall (global) pattern of spatial association—are labeled with their International Monetary Fund code in the figures. For illustrative purposes, the six most extreme observations are labeled, although strictly speaking only one or two of these should be considered "outliers." For all three main trading countries, the number of high-high spatial associations seems remarkably stable, only indicating some decline for Japan (in 1992, the Moran's I was not significant for Japan). The makeup of more than 20

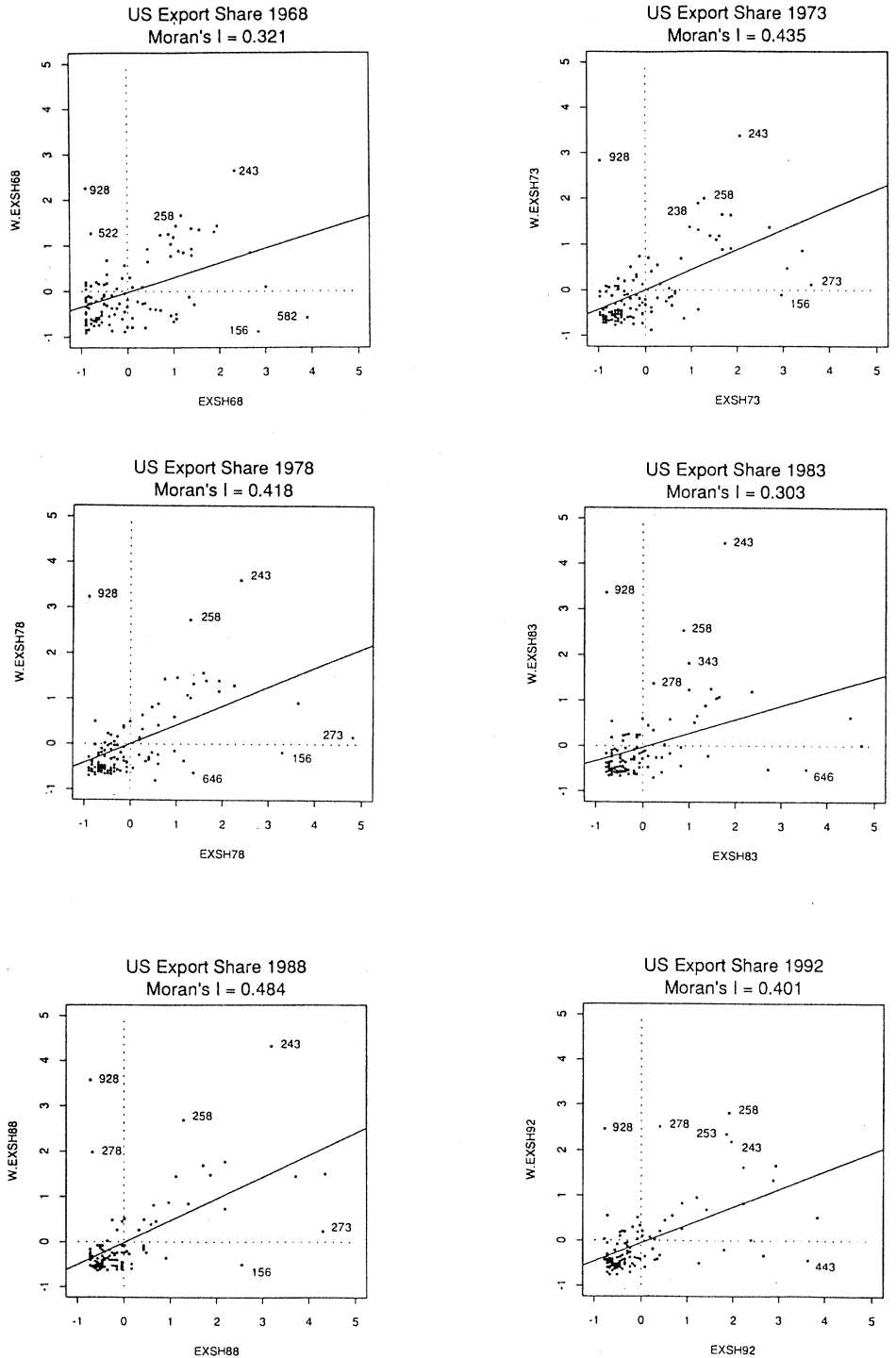


Figure 1. Moran scatterplots of the export shares of the United States, 1968–1992.

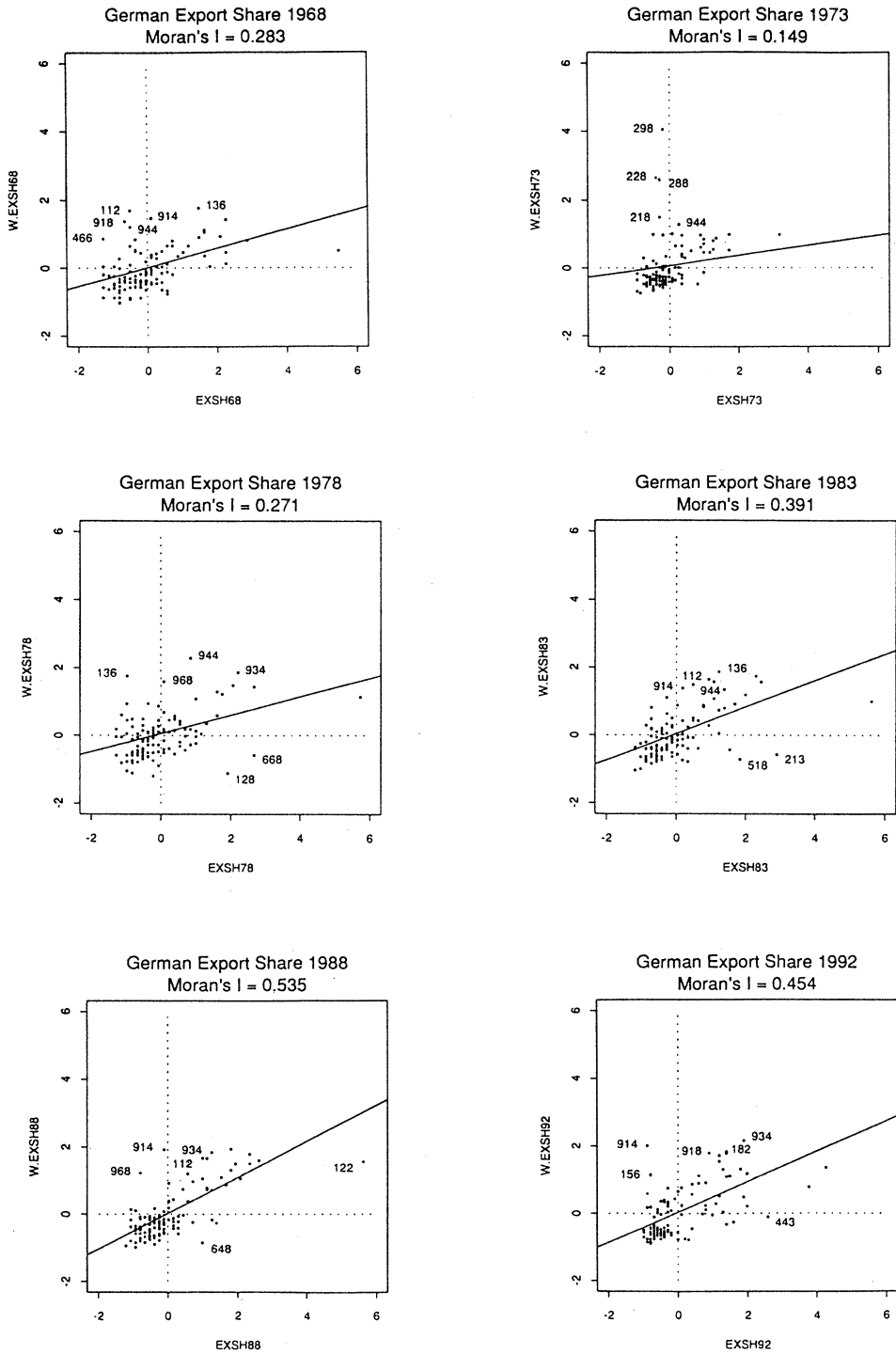


Figure 2. Moran scatterplots of the export shares of West Germany, 1968–1992.

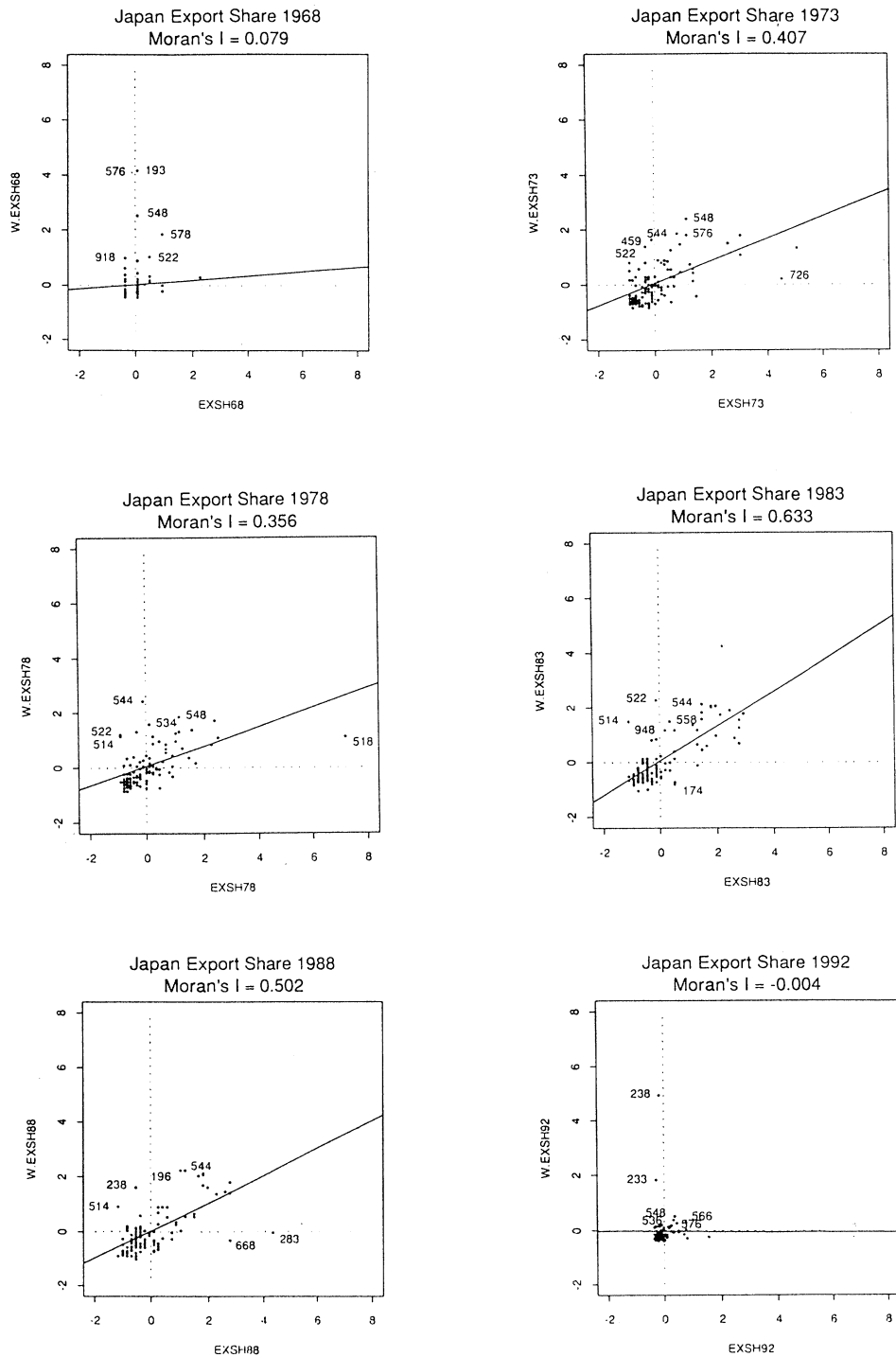


Figure 3. Moran scatterplots of the export shares of Japan, 1968–1992.

Table 4
Relative Presence of Four Types of Spatial Association

	Positive Spatial Association		Negative Spatial Association	
	High-High	Low-Low	High-Low	Low-High
United States				
1968	23	59	17	15
1973	23	63	12	16
1978	22	64	13	15
1983	20	70	12	12
1988	18	78	12	6
1992	21	71	10	12
West Germany				
1968	31	55	13	15
1973	23	63	12	16
1978	31	43	12	28
1983	29	53	15	17
1988	26	67	14	7
1992	29	58	7	20
Japan				
1968	24	49	28	13
1973	32	56	9	17
1978	33	48	16	17
1983	27	65	10	12
1988	27	60	12	15
1992	13	74	13	14

countries in the upper right quadrant for the United States is very stable as well, with 14 countries (Argentina, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Mexico, Panama, Peru, Venezuela, and Jamaica) present in every year. These countries are all in South and Central America and the Caribbean, confirming the continuing importance of the Pan-American bloc for U.S. exports.

For the United States, there is again a remarkable consistency in outliers. The two most extreme values in every year are Cuba (928), because of the U.S. trade embargo (low Cuban imports contrast with very high U.S. imports by its neighbors), and the Dominican Republic (243), which is extreme in terms of its own imports from the United States. Another outlier that can easily be explained by changes in political relations is Vietnam (582), as an island of high imports (in the lower right quadrant) in 1968 but not later. The presence of Canada (156) in the lower right quadrant is partly due to its

lack of “neighbors,” since the United States is not included in this set.

For West Germany, there is a similar stability in the set of high-high associations (Fig. 2), with some indication of an increasing reach, as well as a shift from a primarily Southern and Western European focus (six countries are present in every year of the sample—Austria, Greece, Portugal, Spain, Turkey, and Yugoslavia; while the Western European and Scandinavian ones are present except in 1978—the United Kingdom, Belgium, Denmark, France, Italy, the Netherlands, Norway, Sweden, and Finland) to a broader one that includes Eastern Europe as well after 1973 (with Bulgaria, Czechoslovakia, Hungary, Poland, Romania, and the former Soviet Union present in every year). There is no clear pattern for the outliers, except that Albania (914) and Hungary (944) are present in more than half the years, Albania as an island of low imports and Hungary because of higher values than its East European neighbors. Interestingly, in 1973, most outliers for

West Germany are in South America, with indications of negative spatial association (Uruguay (298), Chile (228), Paraguay (288), and Bolivia (218)).

For Japanese exports (Fig. 3), the dominance of the Pacific Hemisphere in general and Southeast Asia in particular is clear; eight countries are present in the high-high quadrant in every year of the sample (Australia and New Zealand, and Myanmar, Indonesia, Malaysia, the Philippines, Singapore, and Thailand). Since 1973, three Persian Gulf countries are consistently present as well—Iran, Oman, and the United Arab Emirates (Kuwait until 1992)—whereas the southern Asian cluster of Afghanistan, India, Nepal, Pakistan, and Vietnam, as well as China, is present for the first five sample years. Clearly, here again, there is no indication of a Japanese bloc forming outside its traditional sphere of influence.

The indication given by the Moran scatterplot is only exploratory, in the sense that no measure of statistical significance is associated with the individual patterns. This is obtained by means of the G_i^* statistic of Getis and Ord (1992), which is one of a general class of local indicators of spatial association or LISA statistics (Anselin 1995). The G_i^* statistic is computed as

$$G_i^* = \sum_j w_{ij}(d) \cdot y_j / \sum_j y_j, \quad (6)$$

where $w_{ij}(d)$ is an element in a binary contiguity matrix, and y_j is an observation at location j . The G_i^* statistics are computed for each country and can be interpreted as a measure of clustering of similar values around that country (it includes the value for the country, i , in the computation). In contrast to the values used for the computation of Moran's I and the Moran scatterplot, the G_i^* statistics are based on the unstandardized observations. The G_i^* index only measures positive spatial association in the usual sense, but distinguishes between autocorrelation of small values (the low-low quadrant in the Moran scatterplot) and that of high values (the high-high quad-

rant in the Moran scatterplot). These two cases are referred to as, respectively, negative and positive spatial association by Getis and Ord (1992). As for Moran's I , significance of the G_i^* statistic is assessed by means of a standardized z -value, which is asymptotically distributed as a normal variate. As illustrated in Anselin, Dodson, and Hudak (1993), the G_i^* statistics can be easily visualized by means of a GIS or mapping system as triangles pointing up (for high-high association) or down (for low-low association) and with varying sizes corresponding to different significance levels.

Maps of the G_i^* statistics for export shares in 1968 and 1992 for the three main traders are given in Figures 4 to 9. These maps confirm and clarify the impressions gained from the Moran scatterplots. For the United States (Fig. 4), the strong positive association for the Caribbean, Latin America, and South America is highly significant and contrasts with the significant clustering of small export shares in an arc from Scandinavia through Eastern Europe, the Middle East, and East Africa south to Zambia. The clear regionalization effect implied by the map strengthens the notion that the evidence for bloc building must be sought inside the large world regions. Distance from the United States and political-ideological effects would seem to be strong predictors of U.S. export shares (see also Anselin and O'Loughlin 1990). The level of concentration of U.S. exports in the Caribbean is remarkably stable over the quarter century covered by our data, as illustrated for 1992 in Figure 5. The maps for U.S. imports (not shown here) are quite similar, which leads to the conclusion that U.S. trade is highly concentrated in sub-panregions. Bloc building is not occurring, as there have been no significant changes since the late 1960s.

In 1968, a significant spatial cluster of high German export shares can be found in North and West Africa and the Mediterranean region (Fig. 6). Marginally significant association is shown for Central America (positive) and Southeast Asia

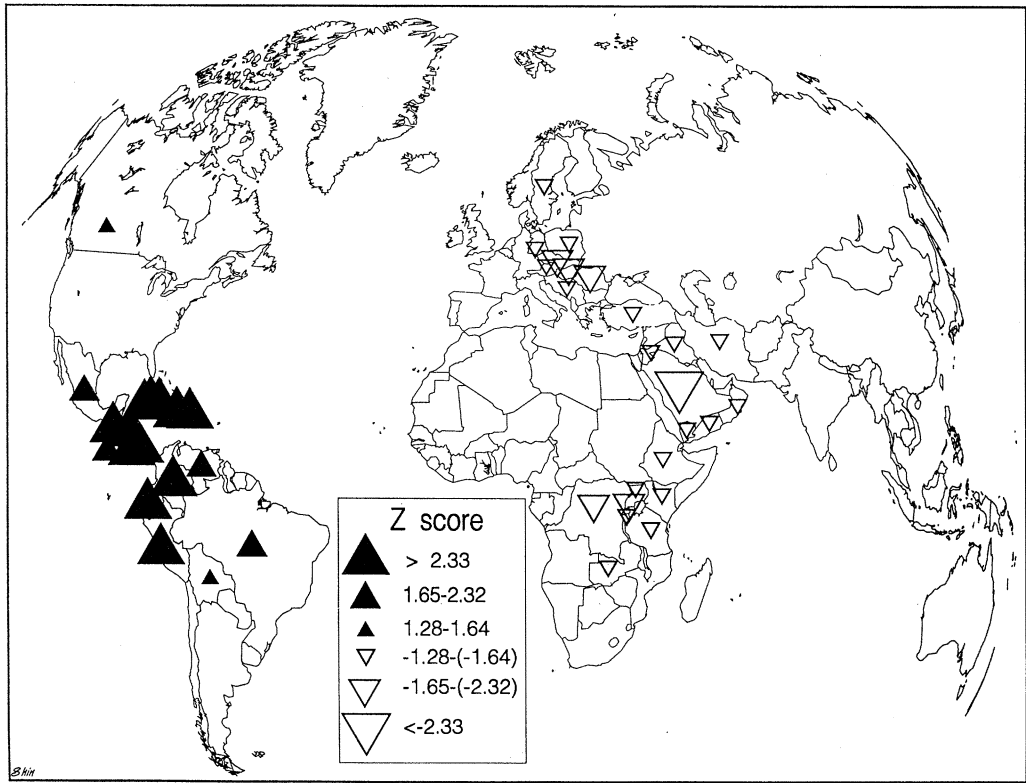


Figure 4. Location of significant G_i^* statistics for United States export shares, 1968.

(negative). Interestingly, these clusters do not qualify as high-high associations in the Moran scatterplot, since the values for the standardized $(Wx)_i$, x_i pairs are slightly below average (perhaps because the G_i statistics are based on unstandardized values). This dispersed pattern counters any notion of a home territory effect, and most of the world experiences a random distribution of German exports. By 1992, the pattern of significant German high and low export shares had changed substantially (Fig. 7). High significant values are found in both Western and Eastern Europe (confirming the indication given by the stable high-high associations in Figure 2) and to a lesser extent in central Africa, while spatial clusters of low export shares are found in the Middle East and to a lesser extent in South and Southeast Asia. Hence, combining the evidence of Figure 2 with Figures 6 and 7,

there is a strong impression of bloc building in terms of the European neighbors of Germany, but the notion of a wider panregional bloc is not substantiated. From the maps for 1973–88 (not shown here), it follows that the major shift toward Europe happened in 1973 and has been stable since then (confirming the interpretation given for Figure 2). Maps of German import shares show stability over time and positive association throughout Europe, through the Balkans to the oil-exporting states of the Persian Gulf.

Unlike the impression given by the maps for the United States and Germany, the clusters of Japanese export shares are small and much more fragmented. In 1968, only a Southeast Asian cluster is evident (Fig. 8), while in 1992 this is extended by a pattern of positive association in the Persian Gulf (Fig. 9). This pattern was essentially in place in 1973, as

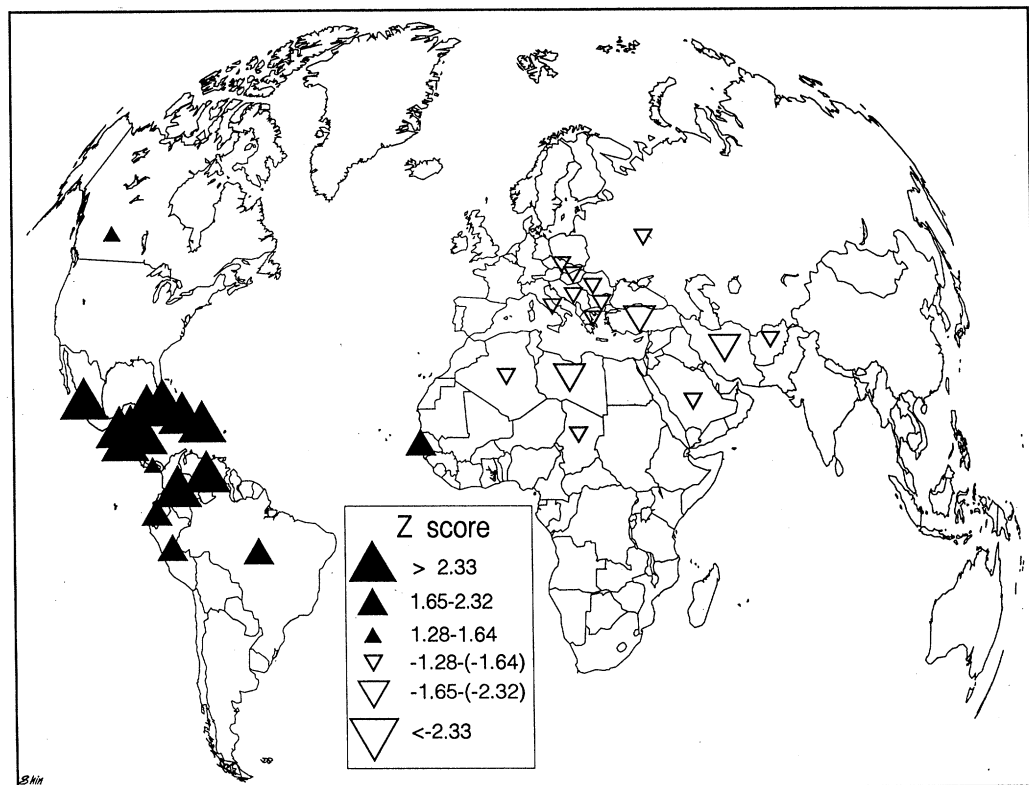


Figure 5. Location of significant G_i^* statistics for United States export shares, 1992.

is also borne out by the interpretation of Figure 3. Exports from Japan seem to be more evenly spread around the globe than those of its two global trade competitors, and there is certainly no evidence of a "yen bloc" in East Asia. Indeed, the existence of such a bloc would be inimical to Japan's long-term economic interests, a fact not lost on Japanese policymakers. In contrast, Japanese import shares show strong signs of regional concentration. In 1968, they were heavily clustered in South and East Asia, with no significant high or low concentrations elsewhere. By 1992, there were three additional clusters of positive association, including the oil states of the Middle East, Central America, and West Africa and a cluster of low-import shares from former Eastern Europe. The mid-1970s, when the OPEC oil cartel was at its peak influence, marks the consolidation of these clusters, dem-

onstrating the Japanese dependence on resource imports emanating from a few sources; these are critical to Japanese economic prosperity (Friedman and Lebow 1991).

The summary picture of this exercise in exploratory spatial data analysis is that the geographic evidence, the most important for the support of the bloc-building hypothesis, is weak and mixed. Global indicators of spatial autocorrelation (the Moran's I values) have not changed much over time, except for Japan. The local evidence of trade clustering provided by the Moran scatterplot and the G_i^* statistics supports hypotheses that the United States and West Germany continue to develop strong trading links with their immediate neighbors, but these links were well established before the mid-1970s and have been essentially stable since then. The Japanese experience is

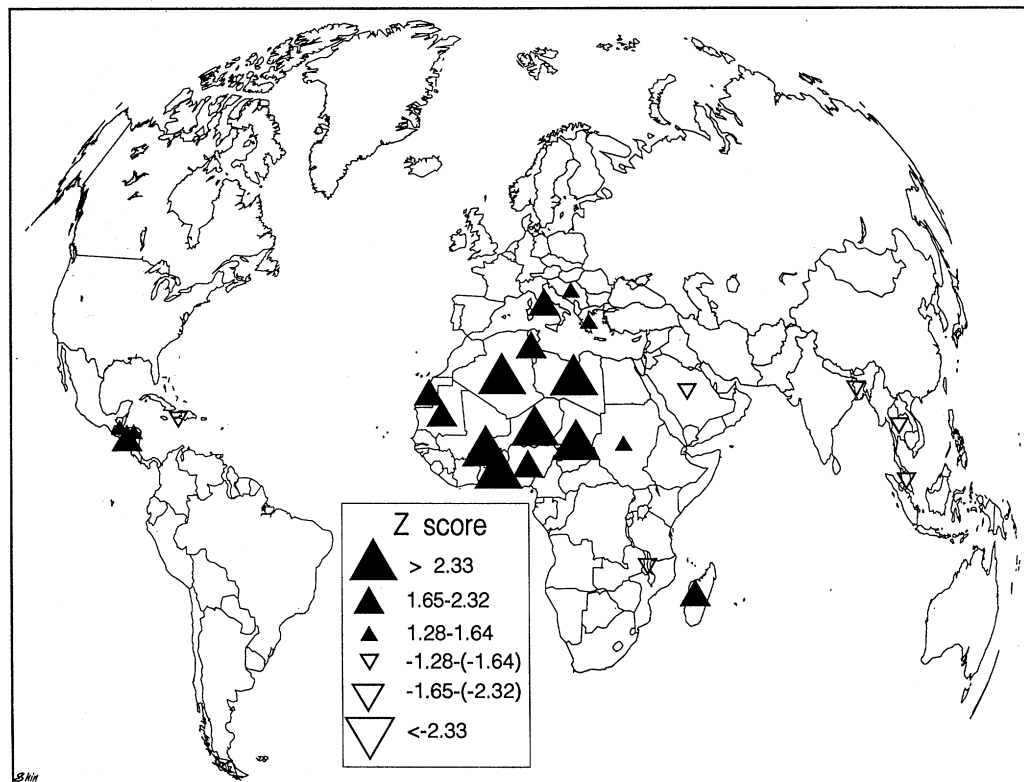


Figure 6. Location of significant G_i^* statistics for West German export shares, 1968.

the reverse; Japanese exports are globalizing, while imports are increasingly clustered. The notion of a so-called yen bloc seems premature.

Conclusions

Like rumors of Mark Twain's death, the formation of blocs in the world trading system has been greatly exaggerated. The fears of free traders like Bhagwati (1991), that the system is "at risk" because of the formation of large regional blocs, are unwarranted. There is some intensification of long-established trade links between the United States and its neighbors in the Americas, as well as between West Germany and its European Community partners. Japan, on the other hand, is showing the reverse trend, toward broadening and deepening its export and import linkages with extraregional part-

ners to complement its well-established connections to its East Asian partners.

For the purposes of this paper, world regions were equated with the panregions identified by the German geopolitical writers of the 1930s. In previous research, blocs have been narrowly defined to exclude areas far from the country of interest. Interest in Germany's bloc building was thus confined to German-European Community trade relations; German relations with the rest of the world were ignored. As Anderson and Norheim (1993a, 1993b) noted, a country could be intensifying its trade relations with its neighbors and with the rest of the world simultaneously; a narrow regional focus will likely miss the propensity to export extraregionally. Within the large panregions that we used, there is a great deal of diversity in the intensity of trade relations with the regional superpower.

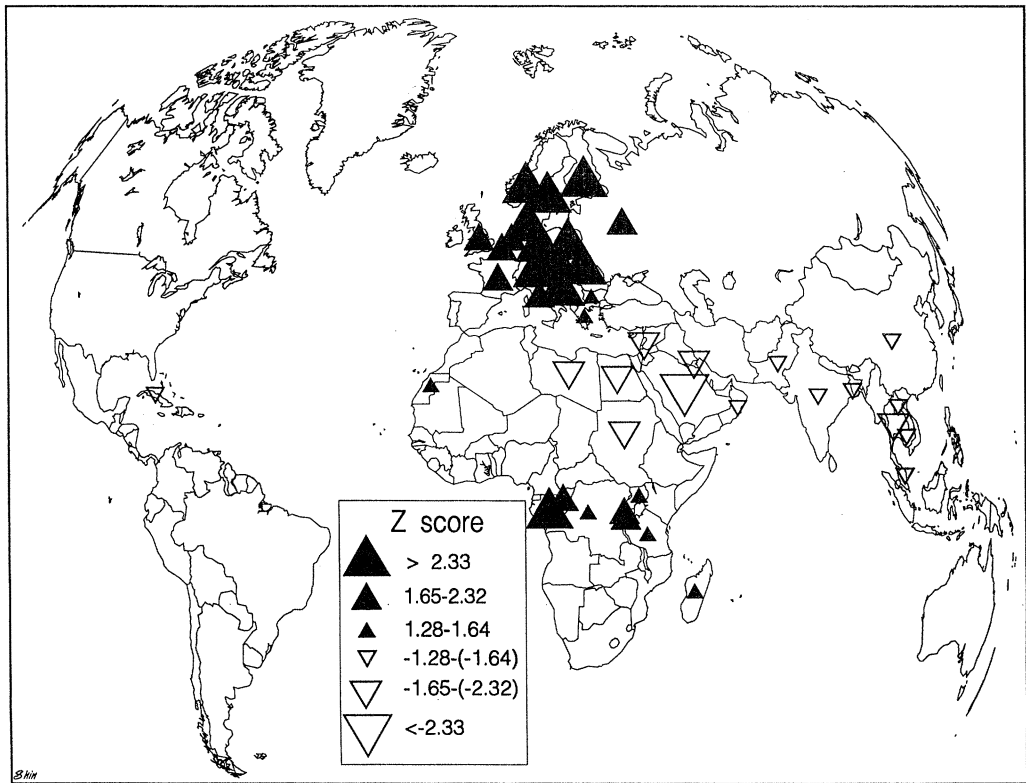


Figure 7. Location of significant G_i^* statistics for West German export shares, 1992.

For both the United States and West Germany, the linkages to other countries are highly varied and countries within their "blocs" exhibit both very high and low trade links with their large economic neighbor. Japan, by contrast, is a global nonregionalizing trader. Significant changes in the GATT world, such as more management of trade, raise the possibility of negative consequences for the seemingly inexorable Japanese trade expansion.

This exploratory spatial analysis indicates that the geographic evidence, the most important for the support of the bloc-building hypothesis, is weak and mixed. Global indicators of spatial association provide evidence of clustering but the Moran's I values have not changed much over time and even diminished in some years. The local evidence of trade clustering in the G_i^* statistics supports hypotheses that the United States and

West Germany continue to develop strong trading links with their immediate neighbors, but these links were established before the mid-1970s; recently, these clusters have stabilized rather than spread. The Japanese experience is the reverse: Japanese exports are globalizing while imports are increasingly originating in the East and Southeast Asian region. The scatterplots showed a large amount of deviation from the best-fit line, another indicator of lack of regional clustering.

The picture that emerges in this paper of the analysis of trade ties is one of regional complexity and local circumstances. These local disjunctures, so evident in the scatterplots, suggest that a more contextual and local-specific view of trade is warranted. These local effects, so often the result of cold war divisions translated into the trading world, provide further support for the emerging view in

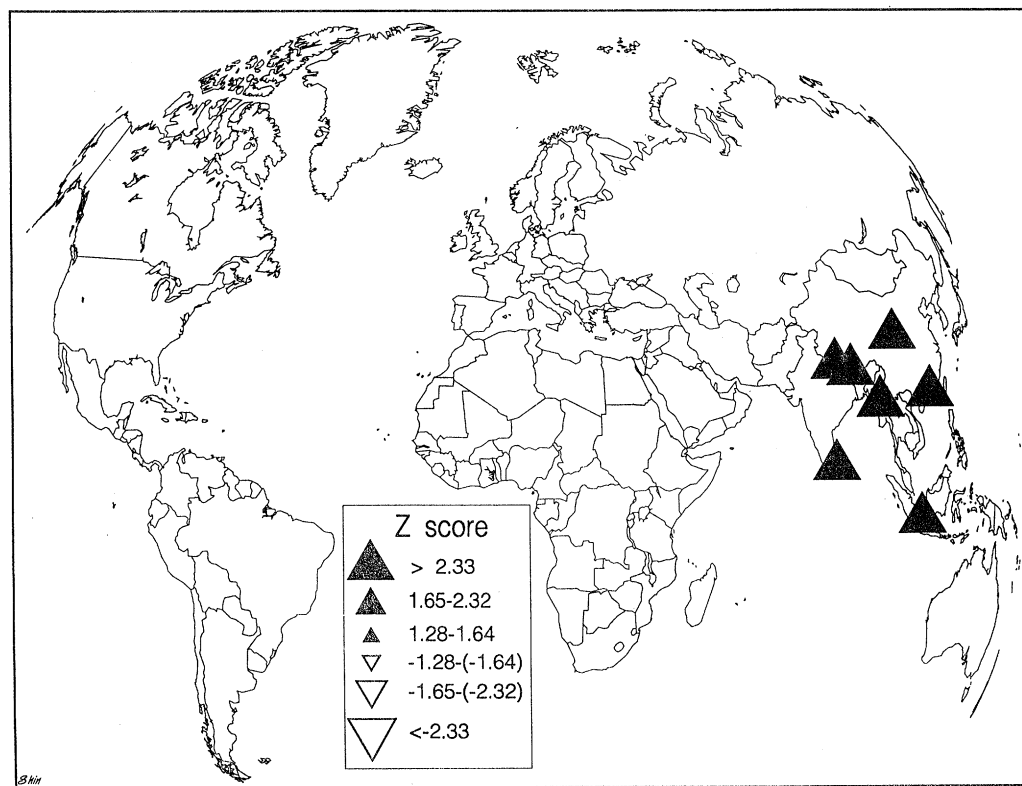


Figure 8. Location of significant G_i^* statistics for Japan export shares, 1968.

political geography that the approaches of international relations must be more nuanced to account adequately for sizable deviations from global trends (O'Loughlin and Anselin 1991; Ward 1992). Or, stated in the language of Most and Starr (1989), "domain-specific" models need to be considered, since general laws miss important effects in the various contexts that constitute the world system. There has been, thus far, little attempt to define and measure these "domains," which, in the language of geographers, can be equated with regional contexts. It seems certain on the basis of this exploratory spatial analysis that the contexts are much smaller than the panregional, or large bloc, view adopted in this kind of trade analysis.

GDP trends and political relations are driving export patterns, while the "reassertion of economic geography" in the form of stronger ties to regional neighbors

is only beginning to be seen after the end of the ideological divide between capitalism and Communism in 1990. Dilemmas arise as a state's involvement with the international economy grows (Strange 1988). Though the interests of the state and its exporting companies, especially multinationals, are not always coincident, a trend toward "managed trade" will likely bring the political and economic sectors closer together. It is in no country's interests unilaterally to confine its trade energies to one region. A better strategy is to try to hold market share in the region of dominance while expanding the direction of trade to other, especially growing, regions of the world. Regional partners tend to chafe under the leadership of a regional hegemon, making regional trade and economic pacts hard to solidify.

Trade is only one, though probably the

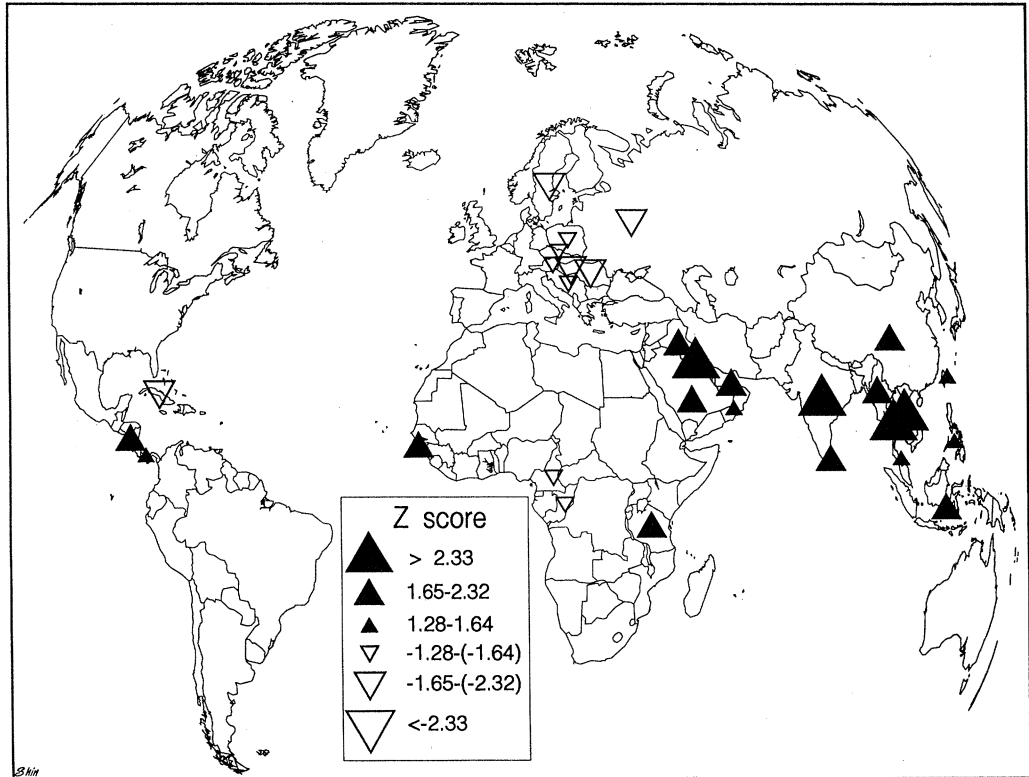


Figure 9. Location of significant G_i^* statistics for Japan export shares, 1992.

most visible, of the many international interactions defining the new geo-economic world. However, unlike the visions of the 1930s geopolitical writers, trade is not controlled by state policy except at the margins. Transnational corporations are increasingly the engines of the world economy. For most capitalist countries, imports and exports flow unfettered by government regulation and control. The Uruguay Round agreement will further solidify control of the international regime at the expense of individual state preferences. The geo-economic world is different than the recent geopolitical world because state control of important international interactions is more circumscribed. The battle lines between competing states are not so neatly drawn, nor are the interests of the exporters always the same. State policy must balance the demands of uncompetitive industries, like

textiles in the United States, against the wishes of successful exporters, like aircraft and grain interests in the United States, for a global free trade regime. As Ruigrok (1991, 83) notes, "national security and preservation of internal order have been, and will remain, more important government concerns than maximizing efficiency."

The shifting international division of labor consequent on the changing patterns of industry will reorganize the trade patterns of the world economy. The past quarter century has seen few shifts in the export patterns of the major countries, as this paper shows. Trade follows global trends in output; regional integration, though more developed than in the late 1960s, is not yet a global trend. Defensive strategies to protect market shares and national interests in the form of sponsorship and support of regional trade pacts

will come in conflict with the clamor for open markets and access to expanding economies by successful industries. State policy must balance these interests. The end product of a geo-economic world may be a trading regime that is liberal in rhetoric and law but illiberal in practice. In such a world, real geo-economic competition begins and regional trade strategies loom ever more prominent.

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