

One

Political Analysis of the Trade Regime

1.1. Introduction

In 1995, with high hopes and great fanfare, the World Trade Organization (WTO) was established. Its champions extolled its many virtues. It was to be a global organization, not just a club of Western trading nations. It would be a legitimate multilateral institution, with formal legal status as an international organization and formal diplomatic status for its secretariat. Its detailed rules and automatic and binding dispute settlement mechanism would make it one of the most legalized international institutions in the world. Its rules were touted as covering “commerce” construed more broadly than ever—not just trade in goods, but also services, intellectual property, investment, unfair trade practices, and other economic issues. And its rules were largely liberal, promising to raise standards of living, welfare, and gross domestic product globally and in each member country. The institutional embodiment of global liberal trade had come of age.

Since then, the assessments of many have changed. Antiglobalization groups protested at the third WTO ministerial meeting in Seattle in 1999. Environmentalists from Europe, the United States, Australia, and elsewhere marched in the streets in opposition to the WTO and its rules. Labor unions were complaining that the WTO ignored their interests and was creating a “race toward the bottom” for labor standards. Members of the U.S. Congress, joined by activists and academics, demanded a solution to the “democratic deficit” in Geneva. Diplomats from developing countries stormed a ministerial caucus that was dominated by developed-country diplomats, complaining that the WTO legislative process was nontransparent and unfair. The “Group of 77,” representing over a hundred developing countries, complained of an “imbalance” in WTO rules that favor the interests of the developed world. And by 2002, both the EC¹ and the United States were failing to implement some significant WTO dispute settlement decisions. During U.S. congressional hearings in 2002 to consider renewed delegation of trade negotiating authority to the president, several witnesses and members of Congress complained about judicial “activism” in the dispute settlement system. While the Doha Round of trade negotiations was successfully launched, the negoti-

ations almost immediately deadlocked along North-South lines. Measured by this political tension, WTO institutions have not been performing as hoped.

What explains these changing perceptions of the trade regime, and to what extent has increasing discontent undermined the purposes of the organization? We address this question in succeeding chapters, focusing on rising resistance to open trade and the extent to which the organization can be credited with both fostering and undermining the trade liberalization process. Although national leaders created the regime to facilitate the joint removal of national barriers to trade, their willingness to endorse rules that allowed the regime to make authoritative decisions has varied over time. In some periods, the regime moved to expand its authority and nations actively participated in the process of trade liberalization; at other times, the regime was impotent to effect behavioral changes in members.

This book argues that this “authoritative gap” reflects the regime’s inability to recast its rules and norms of behavior in line with the changing interests and power of its members. Although the organization has not been stagnant and, in fact, went through a substantial reinstitutionalization in 1995, we argue that the regime’s “contract” regularly falls out of step with the interests of members and the circumstances of international trade. It may be true that international regimes solve problems of cooperation through the creation of common rules and norms; however, it is also true that shifts in the nature of the interests of powerful domestic constituencies in member countries may make past “cooperative solutions” difficult to sustain. When the regime was created in 1947, its small size, cohesive membership, and shared vision meant that aspects of the trade agreement could be left underdefined. Members did not worry whether the decision-making system could accommodate fundamental differences in interests since the organization itself was a club of like-minded nations. In the early years of the General Agreement on Tariffs and Trade (GATT),² this structure was a virtue. Ambiguity and exceptions allowed governments flexibility to deal with political issues at home. Nations were willing to enforce agreements because of shared norms.

The irony of the trading system is that many of the features that explain the early success of the regime later turned out to be its Achilles heel, creating demand for institutional change. Shifting patterns in both the direction and the type of world trade had unanticipated effects on the regime. While the existence of shared rules was a prerequisite for this expansion in world trade, the rules chosen in 1947 to open trade generated political challenges for the organization in the ensuing decades.

First, and most important, trade liberalization created a dynamic for the expansion of the organization’s membership that could not be easily accommodated. The GATT/WTO³ has had network effects, whereby the

addition of every new member makes the organization more valuable to members and more desirable to nonmembers. The diversion of trade and investment associated with exclusion from the regime generated global demand to join and led to an expansion of the GATT from a small club of nations into the WTO, with nearly 150 members. The growth of the number of members was accompanied by a second shift: U.S. dominance in world trade and production declined, and the EC shares increased. Both of these changes occurred with no resultant shift in the formal governance practice that had relied upon consensus decision-making since the late 1950s. As long as EC and U.S. interests were largely aligned, members were able to cooperate in using sources of power extrinsic to the consensus decision-making rule to drive outcomes they favored. But to the extent that the EC and United States have focused on internal politics, and EC-U.S. competition and tensions have intensified, transatlantic cooperation has proven more challenging and governance under consensus decision-making procedures has been more difficult.

Trade liberalization not only led to more and different trade relations among members but also brought new trade issues, such as intellectual property, and new actors, such as nonstate organizations, into the center of the regime. As international trade moved from manufactured items to services, and from commercial transactions to foreign direct investment, the interests of the membership began to separate along North-South lines. Attention to new trade issues, such as protection of intellectual property rights, exacerbated this divide since the developing world often was required to change its domestic rules and institutions. The expectation of compliance increased in the post-Cold War years since there was no Communist threat to counter the ideological fervor of those who supported free markets. At the same time, the reduction in trade barriers and the creation of global markets made salient the argument of “a race to the bottom,” activating new groups who did not favor the regime’s purpose. Labor and environment groups have been among the many nonstate actors whose self-declared purpose has been to constrain or undermine the integration project that was the ideological basis of the regime. Their activity has also required institutional change.

Second, while the GATT encouraged members to open up home markets to all members, the organization’s rules made it acceptable for nations to join preferential regional trading groups. GATT Article XXIV permits the establishment of free trade areas and customs unions, despite their inconsistency with the GATT’s most-favored nation (MFN) cornerstone. The result has been an explosion of such arrangements, even though the trade and investment diversion resulting from regionalization, and the political tension associated with it, often conflict with the goals of the multilateral regime. The GATT’s founding members saw regional-

ism as akin to an “insurance policy” for the smaller nations; being a member of multiple trading organizations re-equilibrated some of the asymmetries between large and small trading partners. But that flexible rule encouraged countries to find solutions to their trade problems in venues other than the multilateral regime. Such “exit options” may now make it more, and not less, difficult to conclude trade agreements.

The ambiguity of the original rules became a problem in the WTO structure for a third reason. In the GATT, imprecision in the “law” created space for countries to placate powerful domestic groups, when necessary, without endangering their general commitment to the regime. Disputes were most often settled without formal procedures, reflecting the fact that members shared a common vision of the purposes of the regime. Flexibility, however, granted new members, such as Japan and other Asian developing countries, license to ignore the spirit of the rules. Moreover, the EC and United States invented new vehicles of protection, such as voluntary export restraints and the Multi-Fiber Arrangement, which seemed to fall within shadows of the trade regime’s rules. This led to increasingly complicated negotiations as the norms of MFN and national treatment became insufficient guides for behavior.

The response to this problem was to better specify the rules and procedures of the regime. Increased legalization led members to specify with greater detail aspects of the trade contract. Still, gaps and ambiguities remained, often a result of an inability to agree on details. This ambiguity posed a challenge to the new judicial system established in the WTO. Consistent with a view taken by many national judicial bodies, the WTO Appellate Body has seen its mandate as clarifying and ensuring the completeness of WTO law. The result has been a new judicial culture in the WTO that favors making law—a role for the Appellate Body far different from what was expected by its creators. In any individual case, law made by the Appellate Body may not accord with the interests of the powerful members of the organization—or with the negotiators’ political compromises. However, on balance, the Appellate body has not fundamentally shifted the balance of WTO rights and responsibilities against the interests of powerful members.

In sum, a great transformation is under way in the global trade regime. We argue in the ensuing chapters that the GATT/WTO has succeeded politically to the extent that its rules, principles, practices, and norms⁴ have kept up with the politics of a deeper and geographically broader integration of world economies. Yet many aspects of the trade regime are not currently politically functional. Some institutional changes are bringing the regime into accord with its environment, but substantial political turbulence remains. As opposed to the early regime, in which mem-

bership made the opening of markets easier for decision makers, aspects of the regime may now make further liberalization more difficult.

This book focuses on the politics of institutional change in the GATT/WTO system. The central question we pose is whether GATT/WTO-related institutions have evolved in ways that match underlying material and ideational changes so as to maintain and rebuild constituencies for an increasingly open, global trading system. We argue that power politics, reflecting the interest of the United States (and later, the EC) as the largest market, fundamentally shaped the creation and evolution of the GATT/WTO system. Shifts in underlying material interests and ideas, and the challenges presented by expanding membership and preferential trade agreements, have applied pressure for the regime to change. We trace how the institution has evolved from flexible rules to greater legalization, and from liberalization of trade barriers to regulation of a much broader range of economic issues.

Chapter 2 offers the historical context in which the subsequent chapters evaluate the evolution of the regime. Chapter 3 looks at the WTO's legislative and judicial structures. Chapters 4 and 5 consider new problems and issue areas that have emerged over the course of GATT/WTO history: chapter 4 examines traditional border measures, while chapter 5 looks at newer domestic regulatory issues, suggesting why application of the older rules, principles, and processes to the newer missions may not work.

Chapter 6 evaluates the implications of increased diversity in the types of states and entities that participate in the GATT/WTO system, and suggests how WTO rules may bolster liberal reform efforts within member states. The chapter also considers the emergence and proliferation of regional trade agreements and their implications for the multilateral system. As new issue areas have emerged and the diversity of state membership has grown, new nonstate actors have begun to engage in trade politics. Chapter 7 considers institutional design and the entry of those new nonstate actors into trade politics. Chapter 8 concludes with implications for analysis and policy.

1.2. Understanding the Political Economy of the GATT/WTO Regime

The GATT is a multilateral trade agreement among autonomous entities (not necessarily states)⁵ aimed at expanding international trade. As described in greater detail in chapter 2, the GATT was signed originally in 1947 as an interim agreement, and it became the key international agreement and institution concerned with global trade. In 1995, the GATT 1947 was replaced with the GATT 1994, which is substantively

TABLE 1.1.

Flow of Ideas: Cost of a Three-Minute Telephone Call from the United States to the United Kingdom

	1927	1956	2003
Technology	Radiowaves	Cable	Satellite
Nominal cost of call	\$75	\$12	\$0.21
U.S. Urban CPI (1927 = 100)	100	156	1056
Cost of the call in 1927 dollars	\$75	\$7.69	\$0.02

Source: AT and T and U.S. Bureau of Labor Statistics.

identical but a legally distinct instrument, and the WTO was created as an international organization to administer the GATT and related trade agreements.

Much about the international environment has changed since the GATT took effect in 1948. The United States remains the world's biggest market, but the EC, which now includes twenty-five members, has grown into a market almost as large as the United States; Japan and China have emerged as among the world's strongest economies, each with a national economic system structured in ways significantly different from those of the Western nations. Issues never given much consideration when the GATT was negotiated—such as multilateral environmental protection and intellectual property protection—are now central to trade negotiations. Yet the rules and principles of the regime—the central rules and principles that govern the world trading system—remain largely unchanged.

The world is far more integrated today than in the middle of the twentieth century, in part as a result of technological changes in the information, communications, and transportation sectors. One indicator, the declining cost of transatlantic phone calls, illustrates the magnitude of these changes. Table 1.1 shows how much the cost of a telephone call from the United States to the United Kingdom has fallen over the last seventy-five years, in contrast to a tenfold increase in the general price level in urban areas in the United States, suggesting how much more cheaply and rapidly ideas can flow across borders now.

Cross-border flows of capital are another measure of this growing economic interdependence. Figure 1.1 shows the sharp increase in foreign direct investment (FDI) over the past forty years—both in nominal terms and in terms of share of global output—indicating that capital flows more freely today than before. Trade in goods and services has also increased as a share of GDP. In the early postwar period, world GDP growth averaged 5 percent and international trade grew at 8 percent. Figure 1.2 shows

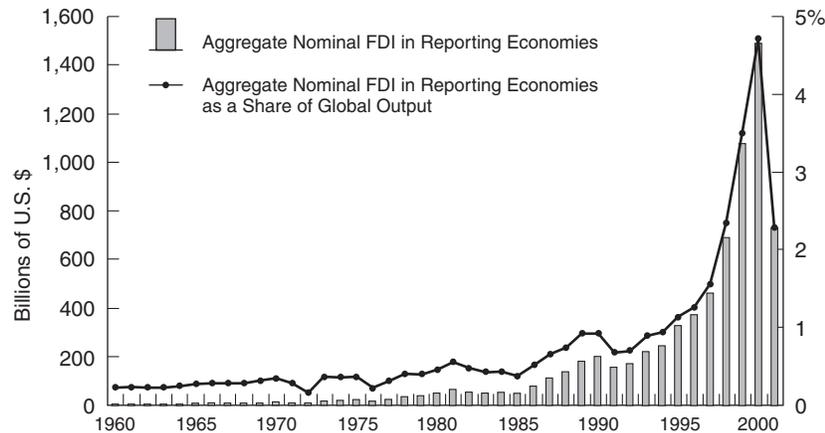


Figure 1.1. Aggregate nominal foreign direct investment, 1960–2002



Figure 1.2. Global export value and share of trade in GDP, 1992–2002

that the rise in the value of global exports continued through the 1990s, rising from \$4 trillion to \$6 trillion (in current dollars) and now accounts for about 20 percent of economic activity in the WTO member countries.

Much of the international flow of capital and goods is within rather than between corporations, reflecting the development of cross-national networks as a central form of production in the global economy. Table 1.2 shows an absolute increase in intrafirm imports and exports during the last years of the twentieth century.

In general, one would expect institutional attributes of an international organization to correspond in some logical way to the international envi-

TABLE 1.2.
Intrafirm Trade and Its Share of Total Trade, Various Countries and Years
(billions of U.S. dollars and percentages)

Country and Year	Intrafirm Exports		Intrafirm Imports	
	Value (bill U.S.\$)	Share in Country Exports (%)	Value (bill U.S.\$)	Share in Country Imports (%)
Japan				
1983	33	22	17	15
1993	92	25	33	14
Sweden				
1986	11	38	1	3
1994	22	38	4	9
United States				
1983	71	35	99	37
1993	169	36	259	43

Source: UNCTAD, *World Investment Report 121*, note 3 in notes on chapter 4 (1996).

TABLE 1.3.
Institutional Attributes of the GATT/WTO

	<i>Prescriptive</i>	<i>Mandates and Constraints</i>
<i>Written</i>	Principles	Rules and procedures
<i>Unwritten</i>	Norms	Practices

ronment that it purports to govern. We conceptualize institutional attributes in terms of whether they are prescriptive (i.e., general concepts of appropriateness) or mandatory and whether they are written or informal. Table 1.3 presents a matrix of these institutional attributes: principles are written prescriptions for behavior, whereas norms are unwritten prescriptions; similarly, rules and procedures are written mandates for or constraints upon behavior, whereas practices are unwritten mandates for or constraints upon behavior.

The ensuing chapters assess the effects of environmental shifts, both exogenous and endogenous, on the written and unwritten institutional attributes of the GATT/WTO. The GATT/WTO is treated as a legal system, which has been defined in terms of the relationship and interaction between its legislative, judicial, and administrative functions (Hart 1961). These institutional components and structures should not be viewed in isolation from other parts of the larger system. Hence, change in particular GATT/WTO institutional rules or procedures, such as the creation of an Appellate Body, should be analyzed in the context of other parts of the WTO structure.

The absence of fundamental change in GATT rules and procedures, noted above, is not surprising. Analysts have shown that different institutional arrangements can be designed to perform the same function (Koremenos, Lipson, and Snidal 2001). This multiple-equilibrium view of institutional design has a number of implications. Two are most important. First, the rules of the regime may not be optimal; rather, a whole range of possible rule structures could be consistent with a cooperative outcome. Second, moving among rule sets may be dictated by political considerations, outside the liberal institutional model.⁶ Scholars of institutions well understand the difficulty of changes in procedures and norms within an organization. Rules create beneficiaries whose interests lay in the status quo. The organization may have to be very inefficient—that is, even the actor most benefited by the system is disaffected—before change is possible.

The challenge for any institution is to devise, *ex ante*, a mechanism that allows the organization to respond to environmental change, *ex post*. Regimes that do not adapt will become irrelevant; in the extreme, the political disorder engendered by inadequate institutional adaptation may cause a collapse of the institution. Thomas Jefferson made a similar point about the need to amend or reinterpret a national constitution as society changes.⁷ Samuel Huntington's work on maintaining political order in changing societies demonstrated the need for state institutions to evolve with societal change as countries develop economically (Huntington 1968). Organizational theorists have made similar arguments.

International organizations are confronted with changes in their environment as profound as, or more profound than, those that challenge domestic institutions. The League of Nations was doomed to irrelevance and eventual collapse because it failed to include constitutional rules championed by one of the great powers—the United States. The World Intellectual Property Organization (WIPO) became less relevant in the 1980s and 1990s, when it seemed unable to cope with demands from two powerful actors—the EC and the United States—to increase global intellectual property protection, and unable to offer an institutional solution to their demands for enforcing Berne Convention and Paris Convention obligations (Beier and Schriker 1989). Similarly, the International Telecommunications Union lost much of its relevance in the 1990s as rapid technological developments outstripped its institutional capacity to set international policy (Borrus and Cohen 1998).

Moreover, the converse holds: institutions survive and remain a focus of international activity if they adjust well to environmental change. So, for example, NATO has thus far survived the collapse of the Soviet Union and the Warsaw Pact—the elimination of its *raison d'être*—by redefining the functions it performs and reorganizing to do so. And the EC has widened and centralized its political authority since 1957 through a series of

major institutional reforms—most notably, the Single European Act, the Maastricht Treaty on European Union, and the treaties of Amsterdam and Nice—each aimed at solving new economic and political challenges.

Three environmental shifts—of state power, interests of nonstate actors, and ideas about trade—bear on WTO politics and design, and serve as benchmarks for measuring the extent to which GATT/WTO institutions have evolved as these environmental factors have changed. Subsequent chapters offer a more complete analysis of these relationships in an effort to understand the extent to which WTO-related institutions maintain and regenerate political support for multilateral liberalization of trade.

1.3. State Power and International Trade Institutions

Despite recent obituaries for sovereignty and the central role of the state in international affairs, states are still the primary actors in the international system. States and customs territories, and no other entities, have standing in the WTO. International institutions are voluntary organizations; states adhere to their mandates out of self-interest. Given a world of sovereign nation-states, we would expect that decision-making processes will either formally reflect the interests of powerful states, or will be supplemented by informal action that allows their expression of power.

However, operationalizing state “power” poses a central challenge to this line of argument. While there is some consensus that power should be defined as the ability to get others to do what they otherwise would not do, measurement is another problem (Keohane and Nye 1977). Some analysts evaluate state power in the aggregate, considering total military and economic might in order to classify countries as “great powers” or not (Waltz 1979; Gilpin 1981). But in a specific negotiating context, like trade negotiations, in which only some dimensions of power are likely to be brought to bear, the measure of power must be more tailored.

In analyzing trade relationships, market size—the capacity to open or close a market—may offer the best first approximation of bargaining power (Steinberg 2002b). Most political scientists and trade economists agree that governments treat foreign market opening and associated increases in export opportunities as a domestic political benefit and domestic market opening as a cost (Schattschneider 1935; Bauer, de Sola Pool, and Dexter 1963; Putnam 1988). Hence, for example, the greater the export opportunities that can be attained, the greater the domestic political benefit to the government of the country attaining them. Market opening and closure have been treated as the currency of trade negotiations in the postwar era (Hirschman 1945; Waltz 1970; Krasner 1976).

Whether trade bargaining takes the form of mutual promises of market opening, threats of market closure, or a combination of both, larger, developed markets are better endowed than smaller markets in trade negotiations. The proportionate domestic economic and political impact of a given absolute change in trade access varies inversely with the size of a national economy. Larger national economies have better internal trade possibilities than smaller national economies. An additional value of exports offers proportionately more welfare and net employment gain to smaller countries than larger ones. The political implication is that a given volume of liberalization offers proportionately less domestic political benefit to the government delivering it in the larger country. Table 1.4 shows the twenty countries with the highest proportions of world trade and the twenty countries most dependent on world trade. None of the five countries with the highest proportion of trade appear on the list of countries most dependent on trade: smaller countries depend more on trade. Therefore, smaller countries may be more “impatient” to reach agreement on trade liberalization than larger countries. Similarly, in trade-liberalizing negotiations, the internal trade possibilities of larger, developed countries give them a better “best alternative to a negotiated agreement” than is available to the smaller ones.

Conversely, in negotiations entailing threats of trade closure, a threat of losing a given volume of exports is a relatively less potent tactic when used against a large country than when used against a small one. Hence, it is well established that developed economies with big markets have great power in an open trading system by virtue of variance in the relative opportunity costs of closure for trading partners (Krasner 1976).

By this measure, the United States must be considered the most dominant state in shaping GATT and WTO institutions over their history. However, its role has waned, and increasingly it has needed to cooperate with other great powers in order to govern the system. While the United States may be hegemonic on security matters, it now shares power with the EC on trade. Figure 1.3 shows the proportion of GDP of GATT/WTO members accounted for by the United States and the EC, respectively, from 1947 to 2001. While such figures are only an approximation of power in the trading system (e.g., they do not account for the effects of the fall of the Soviet Union or the increased size and diversity of GATT/WTO membership), the graph illustrates the relative loss of U.S. market power, and the rise of Europe, in the GATT/WTO since 1947. In 1948, the first year the GATT was in force, U.S. gross domestic product (GDP) accounted for about 65 percent of the total GDP of all GATT members, and combined U.S.-UK GDP accounted for about 75 percent of the total.⁸ By 1970, U.S. GDP share of the GATT total had fallen to 46 percent, and EC share was 14 percent;⁹ hence, by the early 1970s, political analysts

TABLE 1.4
Importance of Trade and Dependence on Trade, by Country

<i>Twenty Countries with Highest Share of World Trade</i>	<i>Percentage of World Trade</i>	<i>Trade Dependence (Imports + Exports) as Percentage of GDP</i>
United States	19.90	20.72
EU	17.81	30.17
Japan	8.38	17.74
Canada	5.09	75.80
China	4.63	43.87
Hong Kong	4.07	256.15
Mexico	3.41	60.16
Korea, Republic of	3.25	72.11
Taipei, Chinese	2.81	92.97
Singapore	2.66	295.28
Malaysia	1.76	201.21
Switzerland	1.61	68.86
Australia	1.32	34.71
Thailand	1.28	107.13
Saudi Arabia	1.12	66.11
Brazil	1.11	19.13
Indonesia	0.93	62.80
Norway	0.92	58.35
India	0.91	20.31
Poland	0.79	47.87
Overall	83.76	32.19
<i>Twenty Countries Most Dependent on Trade</i>		
Singapore	2.66	295.28
Hong Kong	4.07	256.15
Malaysia	1.76	201.21
Bahrain	0.10	152.53
Swaziland	0.02	144.04
Botswana ^a	0.05	136.82
Angola ^a	0.08	135.73
Papua New Guinea ^a	0.03	129.85
Mongolia ^a	0.01	121.50
Congo, Republic of ^b	0.02	109.66
Nigeria	0.44	109.29
Thailand	1.28	107.13
Nicaragua	0.02	103.77
Philippines	0.72	98.48
Costa Rica	0.12	94.99
Lesotho	0.01	93.74
Bulgaria	0.11	93.52
Ghana	0.05	93.21
Taipei, Chinese	2.81	92.97
Namibia ^c	0.03	91.79
Overall	14.38	154.75

Sources: WTO International Trade Statistics 2001, IMF, International Financial Statistics, Dec. 2001.

^aData from 1999.

^bData from 1998.

^cData from 1997.

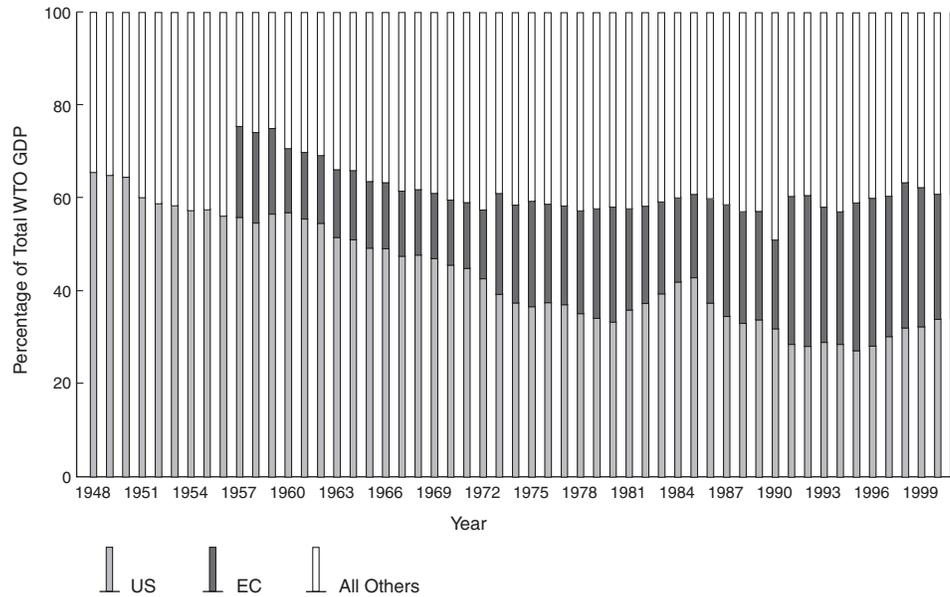


Figure 1.3. U.S. and EC shares of total GATT/WTO member GDP, 1948–2001

observed that the United States and the EC together ran the GATT (Curzon and Curzon 1973).

As the turn of the millennium approached, U.S. share continued to fall, while the EC market had become almost as large as that of the United States: in 2000, U.S. GDP accounted for about 33 percent of the total GDP of all WTO members and EC GDP about 31 percent. The combined share of the “Quad countries” (United States, EC, Japan, and Canada) was roughly 81 percent of the total.¹⁰ Some of the decline in relative U.S. market size is attributable to an increase in the number of states that are members of the GATT/WTO: the organization grew from 19 members in 1948 to 145 by 2002. The EC share has increased in part as a result of enlargement. Thus, U.S. power at the GATT/WTO has been on the decline, and cooperation with other players there—especially the EC—has become crucial to determining the shape of WTO institutions.

This change in power structure has not been accompanied by change in the GATT/WTO’s fundamental constitutional rules or practices. Moreover, changes in judicial rules and practices, discussed in chapter 3, do not seem directly related to power shifts. Some *formal legislative rules* have been tinkered with over the years: for example, three-fourths of the WTO membership is now required to affect a waiver, instead of the two-thirds required in the GATT system. But most *formal legislative rules* are

essentially unchanged—one nation, one vote; majority rule for “joint action” by the parties; unanimity required to amend Part I of the GATT (most-favored nation treatment); three-fourths vote to amend any other part of the GATT. And the main legislative *practice* has not varied since the 1950s: despite the formal rules just listed, most action is taken by a “consensus” of GATT/WTO members—a motion carries if no member formally objects to it (Steinberg 2002a).

1.4. Nonstate Actors and Domestic Institutional Design

We have spoken as if states or governments have clear or well-understood “interests” in international trade policymaking. But understanding state interests is not straightforward. Interests are generally exogenous to “pure” models of international relations: few interests other than survival can be ascribed to all states. Some other theory, observation, or assumption about interests is necessary to supplement a pure international approach.

The most common analytical approach is to join a state-centric international story with a liberal domestic political model of national preference formation (Moravcsik 1991, 1997). Hence, classic political analyses of international trade policy in the twentieth century were often stories about how powerful domestic actors in the United States or Europe—business organizations and trade associations—shaped national trade policy (Schattschneider 1935; Bauer, de Sola Pool, and Dexter 1963). Economists have generally gone along with this argument, analyzing the consequences of protection of special interests on the greater good. The result is often a “two-level” explanation of the actors influencing international institutions and the interests at play: a domestic political story about how state interests are defined and an international story about how powerful states secure their state interests (Putnam 1988).

The domestic political analysis of trade should begin with an explanation for the constitution of domestic institutional arrangements that aggregate to trade preferences. How do national rules and procedures channel the voices of various trade interests? Are certain groups encouraged to have voice? Do government policies explain variation in the impetus to organize? For example, if national law offers no opportunity or incentive for the organization of such interests (e.g., no right to collective bargaining), then those interests are likely to be unorganized and weak. And even if national laws do provide opportunities and incentives for the organization of such interests, but they are excluded from national trade policymaking processes, then the resulting trade policy and associated institutions will be doomed to constant domestic political opposition from the

excluded actors. To produce a broadly supported national trade policy, domestic political institutions must intermediate between the interests of all organized interests.

To maintain support for liberalization, domestic and international institutions also must together solve the problem of aggregating and intermediating interests in a way that is not protectionist. Various institutional mechanisms may be used to facilitate the aggregation of interests favoring liberalization over those that would permit domination by protectionist interests. For example, processes of treaty making and treaty implementation that encourage a national government to logroll a package of market-opening policies are more likely to catalyze powerful support for liberalization than processes that allow piecemeal consideration of each element of the package (Bailey, Goldstein, and Weingast 1997).

Domestic and international institutional arrangements should be analyzed simultaneously. They may operate in a consistent and mutually supportive manner, or they may operate at cross-purposes. For example, when a foreign government is failing to comply with its WTO obligations and that failure nullifies or impairs benefits that would otherwise accrue to the United States, WTO dispute settlement rules may operate in conjunction with a U.S. statute (Section 301 of the Trade Act of 1974, as amended) to target trade retaliation threats in a way that improves the likelihood of the foreign government's compliance with WTO obligations (Goldstein and Martin 2000; Martin 2000).

Not only must domestic and international trade-related institutions function effectively together, they must do so over time. For example, GATT/WTO enlargement has increased the diversity of types of nations that are GATT/WTO members and that increased diversity has strained the multilateral institution. A majority of the original GATT 1947 contracting parties were developed, capitalist economies. The countries that have acceded since the early 1950s have tended to be of a different type—developing countries and, now, countries transitioning from central planning to a form of capitalism. Over a hundred of the WTO's approximately 150 members are developing countries. Increased diversity in the composition of GATT/WTO membership raises a host of institutional problems. For example, consider a comparison between tariff reduction and the harmonizing of competition policy from the perspective of the demands on states engaging in the exercises. Politically, negotiations over tariff reduction demand that a state negotiator balance the demands of import competitors and export-oriented producers—not a trivial task, but one that has proved feasible. Administratively, lowering tariff rates requires simply changing the rate charged by an existing bureaucracy (the customs authority). No judicial action is required, except perhaps to review the processes by which the tariff was reduced. In contrast, harmonizing competi-

tion policy entails for most states the establishment of an entirely new governmental institution; its enforcement requires establishing the rule of law; and the policy itself potentially challenges the industrial structure of the national economy—daunting political, judicial, and administrative challenges. For rules and principles that perform many of the new trade functions, it may be that a “one size fits all” approach is not appropriate and that a two-speed or multispeed system may be required. Rules and procedures must account for different levels of state capacity.

Similarly, liberalization typically begets functional or political demands for further liberalization (Haas 1958; Burley and Mattli 1993). For example, the elimination of tariffs and quotas—a once classic definition of trade liberalization—exposes the trade-constraining effect of different technical regulations across countries, creating demand to reach international agreement on what constitutes a legitimate technical barrier to trade. These “spillovers” from previous liberalization demand institutional change not only because there are new functions to be performed, but also because they are accompanied by the participation of new actors in the politics of the system. New functions and issues do not often stand on principle alone: they have become new issues because interested parties have brought them onto the stage. For example, as border measures have fallen, environmentalists and labor unions have raised an additional set of trade issues—protection of the environment and of labor rights. A threshold institutional question concerns how to accommodate these new actors in the political system that governs global trade. They must be given procedural avenues for participation at either the national level or at the WTO, and their interests must be mediated with those of other actors—or they will likely remain in the streets, protesting against the system.

1.5. Ideas and Institutional Design

Changes in the environment may be cognitive as well as material. Institutions may confront changes in ideational structures, both within their own organization and in their operating environment. From a merely materialist base, it is often impossible to understand both the choice of particular rules and procedures and the impetus for change. For example, it may be true that the United States dictated the initial form of many postwar institutions, but only an analysis of American goals and strategies can provide an explanation for the particular choices made (Goldstein 1993).

The institutional arrangements embodied in the GATT 1947 reflected the vision of the postwar world found in the United States and the United Kingdom. Diplomats from both countries wanted to establish rules and

an international organization that could avoid repeating the catastrophic closure of world trade that was symbolized by the Smoot-Hawley Tariff Act and that exacerbated the Great Depression. But they recognized that contemporary domestic political realities would make orthodox liberalism infeasible: some protection was a political necessity. For example, the U.S. Congress grandfathered a set of laws to protect domestic producers. The British, for their part, objected to U.S. demands and did not give up imperial and commonwealth preferences.

Substantively, the United States and United Kingdom converged not on a set of substantive rules and principles of pure free trade, but rather a system designed to move in a liberal direction, with ongoing efforts to reciprocally reduce tariffs and to lock in those tariff reductions while simultaneously maintaining various forms of protection (Ruggie 1983). Organizationally, U.S. and UK diplomats sought to create an International Trade Organization (ITO), which was to be established through the Havana Charter. By 1951, it became clear that the U.S. Congress would not ratify the Havana Charter, so it was never submitted to Congress and never came into existence (Jackson 1969). The GATT—an instrument negotiated largely by U.S. and UK diplomats, never formally approved by Congress, containing weak and ambiguous rules of governance, and claiming only twenty-two original contracting parties—was left to govern multilateral trade.

Just as generals who adopt plans based on how the last war was fought are often ill-prepared for the next conflict, international institutions designed to remedy the failures of previous policies and institutional arrangements may be ill-equipped to address new exigencies. The drafters of the GATT created rules, principles, and procedures intended to foreclose the border measures that had been a vehicle for the beggar-thy-neighbor policies of the 1930s. They largely succeeded in meeting that objective. But trade associations, trade policymakers, and states behave strategically, and any given institutional arrangement creates opportunities for strategic behavior intended to confer advantage on those engaging in it.

Thus, for example, the mercantilism of the 1980s and 1990s looks very different from the mercantilist battles of the 1930s. In the more recent period, the relative “competitiveness” of national economic systems became a metric for good trade policy in many countries. Several scholars have identified a new rationale for national policies intended to foster the development or maintenance of a particular sector (Tyson 1992; Cohen and Zysman 1987; Krugman 1991). “Strategic trade theory” was premised on the idea that analysts could identify “strategic sectors,” which offer high rents and positive externalities not associated with other sectors. With traditional border measures—tariffs and quotas—disciplined

by GATT rules, states could use industrial policies to block imports or maintain an undervalued currency to stimulate exports, building and maintaining strategic sectors (Prestowitz 1988). These policies seemed to many to be neomercantilist contradictions of the foundational “free trade” principle upon which the GATT was built. Yet they were not effectively disciplined by GATT rules.

Similarly, many issues raised in the context of the Doha Round of trade negotiations relate to effects *of* trade rather than effects *on* trade. Most trade policy debates in the first forty years of the GATT/WTO system centered on national policies that create barriers to trade. Since 1990, debates have expanded to consider principles, rules, and procedures pertaining to the relationship between trade and the environment, organized labor, and human rights. The scope of the debate has expanded.

1.6. Accommodating Changes in Power, Interests, and Ideas

Outcomes from international institutions may disproportionately benefit powerful states (Krasner 1991), but the outcomes may nonetheless make all states better off. Hence, many analysts have shown that international institutional arrangements may facilitate the conclusion of Pareto-improving contracts. Milgrom, North, and Weingast (1990), for example, show that the medieval institutions of the law merchant and trade fairs solved a fundamental credibility problem that had been a barrier to long-distance trade, providing crucial information about the reputation of sellers for delivering and buyers for paying. Others have shown more generally that international institutions may solve cooperation problems that otherwise would be an obstacle to reaching Pareto-improving agreements (Keohane 1982, 1984; Stein 1993). According to this logic, international institutions can solve cooperation problems by undermining *ex post* opportunistic behavior of members, through such mechanisms as monitoring, information gathering, and reducing transaction costs.

In this light, the GATT/WTO may be seen as performing important functions for its members, including facilitation of an important exchange of information. Reaching agreement about rules and principles that will be applied to nearly 150 countries is not a trivial task. It requires understanding the structure of each constituent national political economy and, in many cases, detailed information about its laws and regulatory structures. The continuous presence of negotiators from many WTO member countries in a single location—Geneva—greatly reduces the costs of obtaining that information. The GATT/WTO’s Trade Policy Review Mechanism, which generates a detailed report on the trade-related laws, regulations, and practices of each member every four years, provides a wealth

of information for these purposes. The secretariat's efforts to collect, organize, and distribute information specific to particular negotiations helps solve the information problem. And, although not all members of the WTO agree with the practice, creating informal negotiating groups from a representative sample of interested countries facilitates information exchange better than that which takes place in a group where all members are present (Steinberg 2002a).

GATT/WTO rules have facilitated the expansion of trade in other ways. For example, the assumption of international legal obligations has affected domestic politics by tying the hands of governments and leading policymakers who often cite such obligations as a basis for opposing protectionist measures (Goldstein 1996). Moreover, the assumption of market-opening obligations may tip a domestic political balance towards further openness by diminishing the power of a group that was enriched and empowered through protection.

Throughout much of the GATT years, international and domestic institutional mechanisms of interest aggregation and intermediation complemented and reinforced each other. In the United States, for example, Congress delegated authority to the executive branch, which packaged liberalizing deals at the international level in a way that built sound political coalitions at home. Perhaps the biggest single problem for trade today is that the domestic and international institutional mechanisms are no longer fully complementary: the range of domestic stakeholders has expanded, and the international issues have become more complex and demand more domestic institutional change. In this context, delegation to an executive branch committed to older notions of what should be contained in trade agreements now interferes with successful interest aggregation and intermediation.

The GATT 1947 was a child of its political time, but times change. Institutions may fail to adjust to political demands that they perform new or expanded functions. The main purpose of the GATT was to lower trade barriers at the border: tariffs, quotas, countervailing duties, antidumping duties, safeguards measures, together with their administration. But, as suggested above, early efforts at trade liberalization generated "spillovers"—a newer set of trade barriers and demands to liberalize them. One observer has likened these spillovers to peeling an onion: as one layer of trade barriers is stripped away, the next layer of barriers is exposed.

Since the GATT was written, deeper layers of trade barriers have indeed been exposed, creating dozens of newer functions for the GATT/WTO system to perform. In the 1960s and 1970s, demand grew for more elaborate rules to discipline antidumping and countervailing duty actions, voluntary restraint agreements, and government procurement. In the 1980s and 1990s, demand emerged to address many "new" issues, such as trade

in services, intellectual property protection, and internal investment measures. Since the Uruguay Round, the WTO has also begun addressing issues relating to environmental protection and competition policy. In short, spillovers have increasingly generated “trade” topics that historically have been treated as internal regulatory measures. In noting this shift, Stanley Hoffman has taken issue with the onion analogy, declaring that trade spillovers are more like an artichoke than an onion: from 1947 to 1979, we peeled off the outer leaves, and we have now arrived at the heart of the matter—differences in national regulatory systems that have been reserved traditionally for sovereign control (Vogel 1986).

The GATT/WTO has faced great political challenges as its functional focus has shifted from border measures to internal regulatory issues. It is not at all obvious that the same principles, procedures, and practices for trade liberalization that worked in the case of border measures will be appropriate when applied to internal measures. For example, consider—once again—GATT tariff liberalization and WTO proposals to coordinate or harmonize competition policy, this time from the perspective of comparing the effectiveness of applying fundamental principles and procedures of tariff liberalization to a competition policy exercise. Traditional GATT/WTO principles, like most-favored nation (MFN) treatment and national treatment, and typical GATT/WTO practices, like the “horse trading” associated with request-offer negotiations, have been quite effective in and central to multilateral tariff reduction, but they are unlikely to be effective in or central to harmonizing competition policy.

As suggested previously, the GATT/WTO has needed to respond to changes in the types of trade problems the organization addresses, shifts in the power and interests of domestic and international actors, and new ideas about the benefits of free trade. Over time, these errant forces have been addressed, more or less successfully, by the organization. Geopolitical shifts, such as the emergence of the Cold War, initially limited GATT participation largely to countries in the Western bloc; conversely, the end of the Cold War has given the EC and the United States a freer hand in setting the rules of the WTO (Steinberg 2002a). Changing macroeconomic conditions, such as the Asian financial crisis of 1997, have provided leverage to the United States and Europe to open new markets through International Monetary Fund (IMF) agreements. Technological developments have led to the creation of truly global markets as well as the ability to sell services as well as manufactured products. This too has created an incentive to change WTO rules.

Institutional change has also been driven by endogenous factors. Spillovers from earlier rounds of liberalization created new participants as well as problems for the trade regime. Similarly, the pattern of opportunities and incentives offered by the WTO’s rules and procedures for settling

disputes may generate its own dynamic of increasingly expansive trade law (Keohane, Moravcsik, and Slaughter 2000). Rules adopted to serve one purpose may provide opportunities or incentives that create their own dynamics. Change in one aspect of an institution may generate outputs that feed back onto other parts of the institution, placing new functional demands on those parts—which they may or may not be able to accommodate.

Institutional redesign has been led most proximately by the community of trade negotiators, secretariat officials, and academics who involve themselves in GATT/WTO affairs. It is commonly asserted that the GATT/WTO is a “member-driven organization,” suggesting that representatives of the members propose and negotiate the terms of institutional rules, principles, procedures, and practices. Several histories of GATT/WTO negotiations seem to support that view (Paemen and Bensch 1995; Winham 1986; Wilcox 1972). But the GATT/WTO secretariat has also offered proposals for institutional change,¹¹ perhaps most commonly with respect to GATT/WTO practice. And occasionally, nonstate actors and academics may propose institutional changes that are successfully adopted.¹² It is ultimately the ideas of such agents that specify the form that institutional change will take.

Many commentators have observed that the GATT/WTO has become increasingly legalized over time, most markedly via the Uruguay Round Dispute Settlement Understanding. Whether WTO dispute settlement is now “overlegalized” has been debated from many perspectives (Steinberg 2004; Barfield 2001; Goldstein and Martin 2000). Some commentators, such as Claude Barfield, have argued that the Uruguay Round created an overlegalized process, when viewed in the context of the WTO legal system as a whole. Barfield argues that legalization of the dispute settlement process has generated judicial activism and specificity in interpretation of WTO agreements. He claims this to be a “constitutional flaw”: given the weak legislative capacity of the WTO under the consensus decision-making rule, the “political branch” of the WTO is unable to react efficiently to politically problematic dispute settlement decisions. Understanding whether or not Barfield is correct entails a much more complete analysis of formal and informal aspects of the organization than he offers. Judicial lawmaking could be a functional response to a particular problem in the regime; that is, it could be that such lawmaking fills gaps and clarifies ambiguities that are intrinsic to all legal texts and that the Appellate Body has performed those functions in ways that do not fundamentally and adversely change the balance of rights and responsibilities of powerful states. Analysts need to understand not only the impetus for a particular change in structure but also the implications of the shift for the larger political environment in which trade regulation occurs.

1.7. Alternative Perspectives on the Trade Regime

Political analysis of GATT/WTO institutions has not dominated U.S. commentators' views of the organization. Indeed, much of that analysis, and many of the prescriptions for institutional change have been driven by economic and traditional legal approaches. Increasingly, advocates of "democratizing" the WTO have joined the debate. The political approach employed here complements these alternative perspectives.

Economic analysis of international institutions has largely grown out of two related North American intellectual movements: trade economics in university economics departments and in think tanks, and the law-and-economics movement in law schools. Economic analyses of the efficiency of the GATT/WTO build on the classical and neoclassical formulations of comparative advantage and related theories. Trade economists have for a generation critiqued the rules of the world trading system and national trade laws in terms of the inefficiencies resulting from barriers to free trade. The second movement may be traced to the late 1950s and 1960s, when law scholars began applying economic methods and metrics to the analysis of law (Coase 1960; Calabresi and Melamed 1972). The approach blossomed in 1970s to become one of the most influential movements of the last half-century in the analysis of legal institutions. Alan Sykes, perhaps the best-known trade law and economics scholar, has repeatedly used economic analysis to advance free trade, critique the inefficiency and internal contradictions inherent in U.S. countervailing duty law, and identify types of product standards that may be internationally inefficient (Sykes 1998, 1989, 1995). Others use economic analysis to champion the liberalization of investment law, critique U.S. trade remedy laws, and distill the logic of arguments about trade and the environment (Boddez and Trebilcock 1993).

Efficiency is an important, appropriate, and central objective for the world trading system, and no movement in the North American academy has been more coherent, vocal, and influential in trade policy than trade economics. However, as with many normative metrics, a positive evaluation of the feasibility of its prescriptions is extrinsic to the metric. Maximization of efficiency does not maximize political support for liberal, multi-lateral trade, partly because efficiency maximization cannot explain interest groups' relative political power on trade policy issues. For example, consumers who benefit from trade liberalization often face a collective action problem in attempting to organize in support of pure free trade, whereas producers, some of whom are protectionist import-competitors, can more easily organize to bias the political calculations of elected officials (Olsen 1971). Moreover, to the extent that nonefficiency

interests are unaccounted for, an efficiency-oriented approach cannot accurately estimate the political sustainability of the liberal trade orthodoxy it typically favors. While a safety net for economic and social dislocations resulting from liberalization may be paid for from efficiency gains, efficiency does not inherently imply the extent to which those equity problems should be resolved (Okun 1975). And many environmentalists have concerns that transcend traditional notions of economic value (Leopold 1990). Hence, the efficiency approach does not intrinsically explain or value the political sustainability function of maintaining “safety valves” (such as some trade remedy laws) or ways in which a generally liberalizing institution may have some illiberal rules because they are “embedded” in a particular sociopolitical context (Ruggie 1983). These are usually treated as second best institutional elements and explained by an appended political argument.

International law commentators and practitioners offer institutional prescriptions for the GATT/WTO system that differ from those of economists. While there are notable exceptions,¹³ much of the work of European and U.S. trade law commentators has prescribed increased legalization for the GATT/WTO system: more precise rules; increased delegation of dispute resolution to judicial authority; and more obligatory compliance by members.¹⁴ Various GATT/WTO legal commentators have been championing interpretive approaches that aspire toward completeness and predictability in the WTO legal system, largely through filling gaps and clarifying ambiguities, as well as compliance, coherence, and dynamism in the legal system (Pauwelyn 2001; Jackson 2000; Trachtman 1999).

Without doubt, the GATT/WTO system has become increasingly legalized since 1970, when a “legal culture” began to emerge among members. The Uruguay Round agreements clearly moved the system towards greater formalization of rules and enforcement. And since its creation, the WTO Appellate Body has rendered many decisions that rely on the broad expanse of public international law and have increased the precision of WTO rules (Steinberg 2004; Palmetier and Mavroidis 1998).

Many of these prescriptions and the nature of the legalization trend (discussed subsequently) may not be well aligned with the politics of the trade regime. For example, while there is a legal obligation to comply strictly with WTO Dispute Settlement Body decisions (Jackson 1997b), compliance may not be appropriate politically in all contexts. Under some circumstances, when domestic political forces are strongly or popularly aligned against compliance, a state may need to pay “compensation,” by means of lowering its tariffs on products from countries suffering nullification or impairment of a WTO benefit as a result of the contravention (Bello 1996). Where compensation liberalizes a volume of trade equal to

the trade closure resulting from the contravention, the result may have welfare effects virtually equivalent to those brought about by compliance. The difference is that the compensated breach is more efficient politically: the breaching state will have decided that it is better off breaching and paying compensation than complying, and the state victimized by non-compliance will be no worse off than under the status quo ante because it will have been compensated. Hence, the contractual, efficient breach approach permits resolution of trade disputes through a set of institutional alternatives that may be more politically sustainable than a legalistic, strict compliance approach.

Completeness, predictability, coherence, and dynamism are appropriate objectives for the WTO legal system. But achieving those objectives through Appellate Body action requires judicial lawmaking, which could either weaken or strengthen political support for the organization. Political analysis is necessary for understanding the parameters within which judicial lawmaking must operate if it is to avoid weakening political support for the organization.

Finally, some new nonstate actors and commentators complain broadly of a “democratic deficit” at the WTO. They complain about the WTO’s lack of external transparency (i.e., its “secrecy”) and limited opportunities for NGO (nongovernmental organization) participation in WTO trade policymaking and dispute settlement (Charnovitz 2002; Atik 2001; Raustiala 2000; Wallach 2000). One critic has argued that WTO decision-making processes should more closely resemble the “accepted and the legitimate practices that are broadly shared by liberal democratic states” (Raustiala 2000). At the same time, many developing-country negotiators complain of a lack of “internal transparency” at the WTO, claiming that the negotiating process is “undemocratic” and biased against them. Sophisticated analysts of democratic shortcomings at the WTO are quick to disaggregate “democracy” in an effort to measure WTO performance and prescribe solutions (Keohane and Nye 2003; Howse 2002b; Dahl 1999).

“Democracy” has undeniable rhetorical power in much of the world, and so democratic attributes of the WTO bear upon its legitimacy and political support for the organization. But from the perspective of those interested in maintaining or increasing political support for the WTO and trade liberalization, even the most sophisticated democratic critiques of the WTO are simultaneously underinclusive, since they approach legitimacy only as a matter of democracy and do not consider other factors affecting political sustainability, and overinclusive, since they may consider moral philosophy that is not central to political support for the organization. At the international level, a fully democratic process would be politically unsustainable: for example, powerful trading countries would withdraw from a trade regime with population-weighted voting; and de-

veloping countries are bitterly opposed to increasing external transparency, which they see as a vehicle for increased WTO penetration by northern-dominated NGOs.

In short, we do not deny the importance of efficiency, legal order, or democracy in the world trade regime. But none of those values can be advanced, and the regime itself cannot persist, if WTO institutions are not functional politically. Hence, in the ensuing chapters, we explore the evolution of the trade regime in terms of how its institutions have kept pace—or failed to keep pace—with changes in the underlying political environment.

Notes

1. *EC* is here used to refer to the European Community, the European Communities, or the European Economic Community, as appropriate. The European Economic Community was seated at GATT meetings from 1960 (Jackson 1969). The phrase *European Communities* refers to the three entities (the EEC, Euratom, and the European Coal and Steel Community) that were later merged as the European Community. The European Communities became a member of the WTO at its inception, though the individual member states are also members. We will refer to the European Union (EU) in context as the political manifestation of European integration that includes the European Community as well as other common structures.

2. There are two GATT instruments: GATT 1947 and GATT 1994. While the two instruments are legally distinct, they are substantively identical. The distinction between the two will be drawn here only when necessary.

3. We use the term *GATT/WTO* to refer to the GATT and its successor organization, the WTO, to emphasize the continuity of the trade regime.

4. Institutional developments refer to changes in WTO rules, principles, practices, or norms. The concept is similar to that of “changes in a regime,” used by some political scientists (Krasner 1983).

5. By autonomous entities, we mean territories that are not necessarily states, such as the EC, and colonies and overseas territories that were nonmember participants in the GATT’s early years.

6. In the liberal institutional model, institutions are cooperative solutions to collective action problems (Keohane 1984; Martin 1992).

7. Thomas Jefferson, “Letter to Samuel Kercheval,” July 12, 1816, inscribed in the Jefferson Memorial. “I am certainly not an advocate for frequent changes in laws and constitutions. But laws and institutions must go hand in hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times. We might as well require a man to wear still the coat which fitted him when a boy as civilized society to remain ever under the regimen of their barbarous ancestors.”

8. Calculated from International Monetary Fund 1977.
9. Calculated from World Bank 1972.
10. Calculated from World Bank 2001.
11. For example, see the “Dunkel text” of the Uruguay Round agreements.
12. For example, John Jackson’s proposal to create an International Trade Organization is given much credit for inspiring creation of the WTO (Jackson 1990).
13. Robert Hudec was more cautious than most other trade law commentators about legalization of the WTO. See, e.g., Hudec 1999, 1992.
14. This treatment of legalization borrows from the definition in Abbott et al. 2000.