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Introduction

WRITING IN 1976, Peter Katzenstein called for an end to the division between the study of international politics and domestic politics.¹ A decade later, Stephan Haggard and Beth Simmons renewed the call. "We suggest," they wrote, "a research program that views international [politics] not only as the outcome of relations among states, but of the interaction between domestic and international games and coalitions that span national boundaries."² On the one hand, the interval between these pieces underscores a lack of progress in the program set out by Katzenstein; on the other, it highlights its continued significance. In recent years, Frieden, Rogowski, Putnam, Simmons, and others have contributed to this research agenda, which might be called the search for a framework for research into the politics of open economies.³ I, too, seek to contribute to this framework and do so by focusing on the domestic politics of the international market for coffee.

Why Coffee?

Currently worth roughly U.S. \$10 billion per year, coffee stands next to oil as the most valuable commodity exported from the tropics. For many nations in the tropics, coffee constitutes a major source of foreign exchange (see table 1.1). Everywhere coffee has been grown, the politics of coffee has proved central to the politics of national development.

Because of coffee's significance as an export crop, the politics of coffee focuses not only on domestic issues, such as land rights, marketing controls, and labor contracts, but also on international issues, such as global prices and the terms of trade. Since the first decade of this century, developing nations have sought to intervene in the international market and raise the price of coffee. In the early 1960s, their efforts culminated in the formation of a political agency, the International Coffee Organization (ICO), which regulated international trade in the product. Quick calculations highlight the domestic significance of the ICO. Consider Uganda, for example, one of the major suppliers of robusta coffee: for the coffee year 1981–82, the ICO granted Uganda a quota of roughly 2.8 million bags.⁴ Had members of the agency permitted Uganda a 5 percent larger quota, that country could have earned an additional \$20 million per year in export markets.⁵ Ten more bags of coffee, shipped out by a Ugandan peasant, would have generated an additional in-

TABLE 1.1
Percentage of Total Exports Comprising Coffee Exports in Selected Countries

Year	Brazil	Colombia	El Salvador	Guatemala	Kenya	Côte d'Ivoire	Uganda
1950	63.7	77.8	88.9	66.9	17.4	50.0	28.8
1951	59.8	77.6	88.9	69.4	15.1	55.4	28.7
1952	73.8	80.3	87.9	75.6	24.1	62.6	25.8
1953	70.7	82.6	85.5	68.5	29.3	52.5	34.4
1954	60.7	83.7	87.6	70.8	25.2	64.9	32.9
1955	59.3	83.5	85.6	71.0	31.9	52.9	47.8
1956	69.5	76.9	77.5	75.3	41.5	63.7	37.9
1957	60.8	82.4	80.5	72.2	34.8	57.1	41.4
1958	55.3	84.9	72.5	72.6	31.3	59.6	39.6

Sources: International Monetary Fund, *International Financial Statistics* (Washington, D.C., 1980, 1990, 1992, 1993). FAO, *Trade Yearbook* (Rome: FAO, 1988–91).

come of over \$200,⁶ an increase equivalent to the average per capita income in Uganda at that time. Eventually, the ICO broke up. When it did so, prices halved in world markets (figure 1.1) and coffee-dependent economies of the tropics (see map 1.1) suffered accordingly.

These figures illustrate the domestic significance of the international efforts to regulate the market for coffee. Among the central issues to which the ICO gives rise, four stand out:

1. What were the origins of the International Coffee Organization?
2. How did it function?
3. What has been its impact on member nations?
4. And why, ultimately, did it collapse?

In seeking to answer these questions, I turn to two major fields of scholarship: international political economy and developmental politics.

International Political Economy

The field of international political economy is defined by its subject matter: it studies the politics of trade and markets rather than the politics of warfare or security, which constitute the subject matter of security studies. The field is also defined by its premises. Whereas those who study warfare emphasize threat and conflict, those who study markets emphasize exchange and bargaining. Whereas those who study international security emphasize the centrality of states, those who study international trade emphasize the significance of nonstate actors. Most relevant to this book is that those who study international security regard conflict as normal and international agreements as problematic, whereas those who study international political economy re-

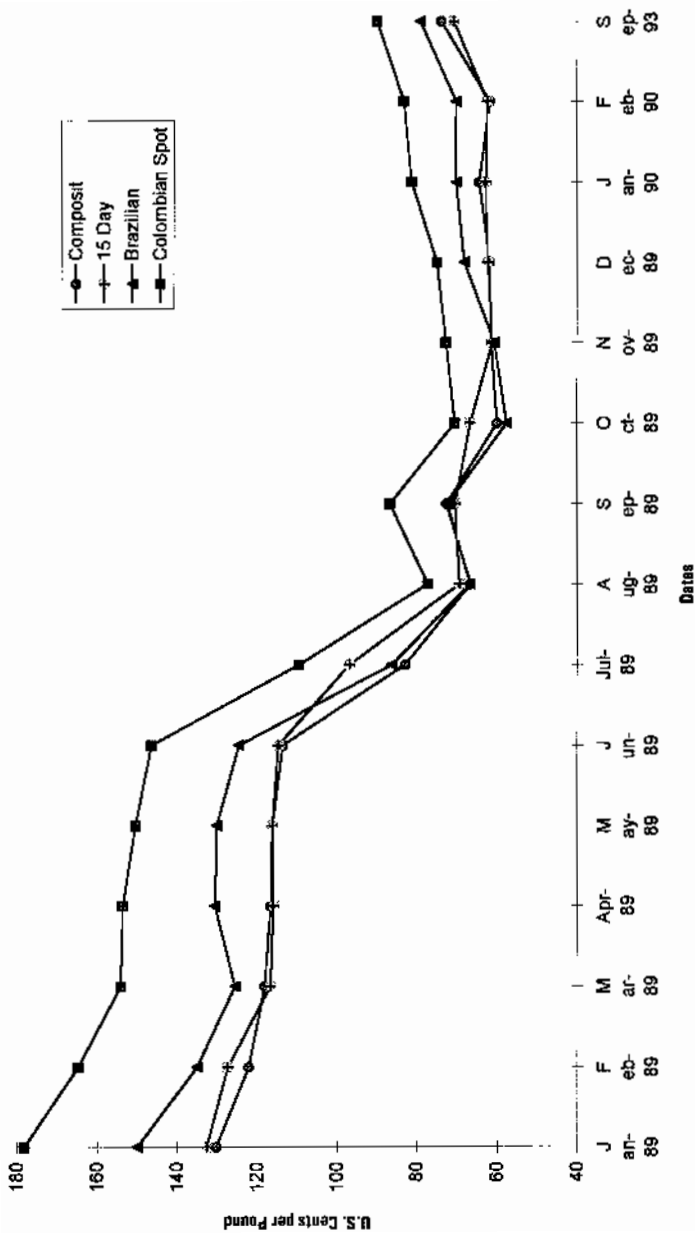
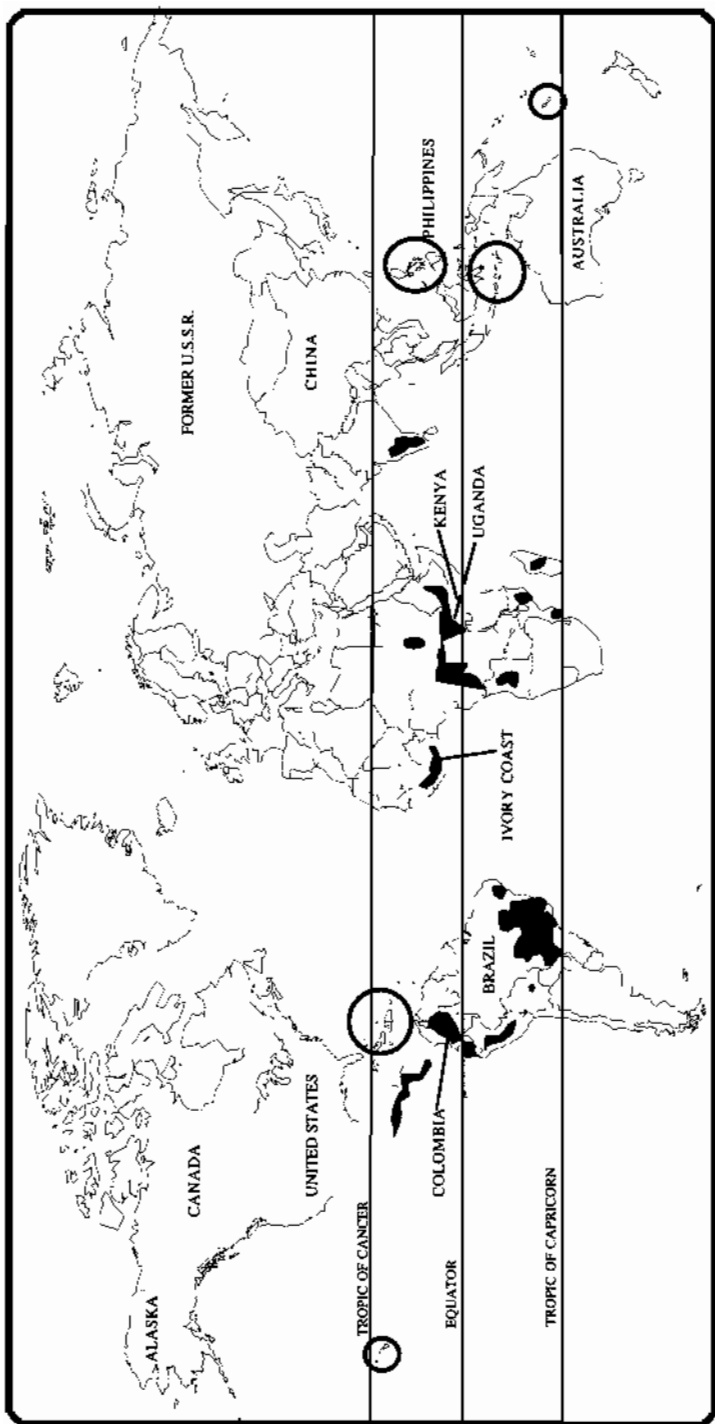


Figure 1.1. The breakup of the ICO—July, 1989. *Source:* Monthly price data from the files of the International Coffee Organization.



Map 1.1. Coffee Zones of the World

gard such agreements as commonplace. As stated by Oran Young, "Far from being unusual, [cooperative agreements] are common throughout the international system."⁷

A central question addressed by international political economy thus becomes: Where does international cooperation come from? Some who address this question launch their answers from the international level, focusing on the distribution of wealth and power in the global system. The study of hegemons constitutes a case in point. A hegemon is a state that controls such a sufficient portion of the globe's resources that it finds it in its private, that is, national, interest to provide collective goods—benefits that are freely available to other nations in the international system. One such good is military security. Another is an international infrastructure that defends markets, facilitates trade, and thereby secures international prosperity. Hegemonic theory thus accounts for the creation of international institutions by taking account of the global distribution of resources and the incentives those create for large powers.⁸

As initially developed by Kindleberger, hegemonic theory drew its logic from economics and, in particular, from the theory of public goods;⁹ as subsequently developed by others, it draws on the closely related theory of collective action.¹⁰ Kenneth Waltz invokes economic analysis when expounding on such system-level modes of reasoning: "In defining a system's structure, . . . the economic analogy [helps]. The structure of the markets is defined by the number of firms competing. . . . If few firms dominate the market, competition is said to be oligopolistic even though many smaller firms may also be in the field."¹¹ A hegemon stands to world politics as a dominant firm stands to industry: it constitutes a "price setter," the benefits of whose actions are reaped by the "competitive fringe" of lesser powers in the global system. In this instance, the benefits assume the form of international institutions that underpin the international coffee market.

In this study, I argue that such systematic arguments do not work. In the coffee market, Brazil occupied the position of the dominant firm, or hegemon, in the international marketplace; yet, as we shall see, Brazil repeatedly refused to exploit the position of market power conferred on it by its position as the leading exporter of coffee. The United States occupied the position of hegemon in the global state system. Yet, at key moments, it too proved reluctant to act as a dominant power. In the case of the coffee market, the position of states within the global system thus fails to define their behavior within it.¹²

It is Kenneth Waltz who, unwittingly, highlights the central problem: "An international political theory," he writes, "does not imply or require a theory of foreign policy any more than a market theory implies or requires a theory of the firm."¹³ But economists have found it desirable and necessary to develop a theory of the firm. By analogy, what is required for the study of international political economy is a domestic theory of politics. Indeed, I will demonstrate that the foreign economic policies of the great powers that cre-

ated the International Coffee Organization represent the product of domestic political struggles. Brazil's on-again, off-again mobilization of its market power, and the United States' uncertain response to international threats, resulted from the difficulty of forging coherent economic policies in decentralized political systems. The policies of nations toward the international marketplace are not defined, then, by the nations' location in that environment. Rather, they are defined domestically, and in a political process that is structured by institutions.

Hegemonic theory stresses the unequal distribution of capabilities in the global system and the incentives for dominant states to provide collective goods, such as international agreements and regimes. The reasoning originates in economics. So too does the reasoning invoked by a second major approach to the study of international institutions: that of game theory, and, in particular, the theory of noncooperative games in extended form.¹⁴

The international system, scholars note, is made up of sovereign states. Being sovereign, these states can behave as they wish; for no government exists at the global level that is capable of constraining their choices. In the midst of this anarchy, scholars note, cooperation nonetheless takes place: agreements are reached, regimes are forged, and, as in the case of the International Coffee Organization, institutions are created at the global level. In seeking to explain the emergence of cooperation, scholars cite the incentives created not by the dominance of a particular actor or a government but by the fact of repeated interaction.

These arguments are best conveyed by exploring a canonical game, the so-called chain-store paradox.¹⁵ There exists an established firm, a chain store, in a particular market. In order to retain its monopoly status, the firm seeks to deter entry; it therefore threatens to fight any firm seeking to enter the market. Fighting is costly. The new arrival can choose whether to enter or to stay out. The incumbent firm can choose whether to incur the costs of fighting the new entrant, thereby retaining its monopoly status, or to let it enter and then share the market. The new firm moves first.

On the basis of these premises, scholars then analyze a single play of the game; finitely repeated plays of the game; and then the game when repeated an infinite number of times, or when randomly terminated. For a single play of the game, the outcome is clear: the new firm will enter, despite the incumbent's threats. For fighting is costly; and for a wide range of costs and benefits, the incumbent firm therefore does better sharing the market with the entrant. Its threat to fight is not credible.

This result lays the foundation for the paradox, which becomes apparent when the game is repeated a finite number of times. Intuitively, when the game is repeated, it would seem plausible that the incumbent would fight. A chain store, for example, might be expected to pay the costs of punishment in one market so that it could render its threats credible in others. It could

thereby recoup the costs of fighting by reaping monopoly profits in other locations. But the analysis of the game shows that such intuition is violated. In the last market, knowing that the incumbent cannot profit from fighting, the new firm enters. So too in the penultimate market. Through backward induction, the process therefore unravels, such that in the first market, the chain store chooses to share the market rather than to contest entry. Knowing that no future periods of monopoly profits await it in other markets, the incumbent will not incur the costs of fighting in the first. The dominant firm—the chain store—is therefore, paradoxically, powerless. Even in repeated play, its threats are not credible.

There are many lessons to be extracted from this example, and I shall build several major arguments upon them.¹⁶ What is relevant here, however, are the lessons to be learned when the game is repeated not a finite number but rather an infinite number of times (or when it is of uncertain duration). When the game is repeated an infinite number of times, or when its stopping point is uncertain, then there is no knowable last period of play; the game therefore does not unravel. As the incumbent's present costs of fighting can be recovered from the future stream of monopoly profits, albeit ones discounted for lying in the future or for being uncertain, the incumbent firm may well find it in its interests to implement its threat. Knowing that to be the case, the entrant will refrain from contesting the market. Under such circumstances, then, the established firm's threat to punish becomes credible. And the reaping of monopoly profits therefore becomes a sustainable (subgame perfect) equilibrium.

The shift from a finite to an infinite time horizon—that is, the shift to infinitely repeated play—thus yields outcomes that were not sustainable as equilibrium in other settings.¹⁷ It therefore illustrates what is known as the folk theorem.¹⁸ For scholars of international relations, the significance of the folk theorem is obvious and has been rapidly absorbed: cooperation *can* be sustained as an equilibrium, even in a world that lacks a government.¹⁹ International agreements can be sustained as an equilibrium of the infinitely repeated interactions among states at the global level.

Scholars of international political economy thus explain the emergence of international bodies, such as the International Coffee Organization (ICO), by appealing to game theory and to repeated interaction. As with the theory of hegemonic behavior, however, this approach too encounters difficulties. And these difficulties reemphasize the importance of shifting the focus from the international level to domestic politics.

The policy choices of the "players" in the international game are not solely a function of the strategic situation: the distribution of capabilities, in the case of hegemonic theory, or the structure of the game, in the case of noncooperative game theory. They are also a function of the preferences of the players, and thus of the payoffs they assign the outcomes resulting from these choices. These payoffs accrue to domestic political actors. For any choice of foreign

policy, there will be winners and losers at the domestic level; what one player values, another may discount. Without information about the domestic politics of the nation, we therefore cannot understand how choices at the international level are arrived at. The analysis of decisions must be based on both preference and constraint. As a theory of international politics, game theory therefore requires an analysis of domestic politics for its completion.²⁰

Throughout this study, we will marshal the logic of games in extended form. We will do so in an attempt to comprehend the origins of the ICO. Ultimately we will find game theoretic models of collusion unsatisfactory, however. But we will learn much from their failures. The failure of these approaches will provoke innovation. It will lead us to reconceptualize the problem posed by the ICO as one in *political* economy and international policies as the outcome of domestic political struggles. The domestic political process, and the policies that result from it, I will argue, are governed and structured by institutions. Again and again, throughout this study, I will therefore reaffirm the importance of moving from economics to politics, from the international to the domestic—and toward the analysis of institutions.

Domestic Politics

Thus far I have focused on approaches to the study of international political economy. But a major objective of this book is to isolate and define the elements of what can be called an open-economy approach to the study of politics. With respect to the developing areas, two earlier efforts stand out, the one Marxian in inspiration and the other neoclassical.

The so-called dependency school constitutes a major, earlier effort to create a theory of open-economy politics.²¹ In the 1980s, scholars abandoned this approach; they did so too precipitously, I feel. In the developing world, the debt crisis precipitated the conversion to market-based economics; with the rise of Reagan and Thatcher and the collapse of socialism in the advanced industrial economies, the spread of market forces heralded the decline of Marxist thought. But, at the same time, those who supplied international capital gained unprecedented influence over economic policies throughout the developing world. Aligned with the governors of national banks and finance ministries, suppliers of international capital launched an extension of the market system from the core to the periphery of the global economy. Ironically, then, dependency theory fell out of fashion just when it was becoming most relevant. I, too, will critique it; but I will also build off it, rather than ignoring it, as too many others now do.

Developing societies specialize in the production of primary economies, dependency theorists stress, which they exchange in global markets for manufactured goods. With the growth of per capita incomes, the prices of primary products fall in international markets relative to the prices of industrial com-

modities; and with static production technologies, the result is continued poverty among the developing nations. Dependency theorists therefore argue that the route to development lies in reducing reliance upon the production of primary commodities for export to world markets; it lies in promoting industrial production for the domestic market. But, dependency theorists note, the policies of the state reflect the interests of economic elites. Changes in policy therefore encounter political resistance from those whose economic fortunes are tied to traditional exports. Only by wresting power from the "feudal oligarchy" of export agriculture can domestic industrialists secure the policies that will enable them to transform the economic structures of developing societies, break ties of dependence on foreign markets, and thereby secure economic development.

This book focuses on the coffee industry. It therefore enables us to assess critically the dependency school, which treats Brazil as a critical case.²² In the "dependency account," the story of Brazilian development becomes a story of political capture. The coffee barons of São Paulo don the garb of feudal oligarchs; the political conflicts between export agriculture and the industrializing elite, including Vargas and Kubitschek, provide a parable from which are drawn lessons about development. Brazil was underdeveloped when dominated by export agriculture; this was the Brazil of the Old Republic. Brazil began to develop when agrarian elites were overthrown by the urban industrial classes; that is the story of Brazil under Vargas and Kubitschek. The lessons are clear: Policy choices reflect the interests of dominant groups, and economic development results when political power is transferred between them.

The dependency school thus provides an interpretation of Brazil's political and economic history. Building from that history, it provides as well an interpretation of the International Coffee Organization. By joining with other coffee producers in founding the ICO, Brazil organized the poor agrarian nations of the south over and against the rich, industrial nations of the north, it claims. Through the ICO, the development-minded elites of Brazil led a producers' alliance that raised the price of primary commodities in international markets, increasing Brazil's export earnings and redistributing income from the advanced industrial nations of the north to the developing nations of the tropics. The international politics of coffee thus represents an extension of Brazil's domestic transformation. The ICO, the dependency theorists argue, constituted a means by which Brazil could reverse its declining terms of trade.

Dependency theorists thus offer an open-economy approach to the analysis of developmental politics. They offer an analysis of Brazil and of the ICO. I endorse their insistence that the analysis of the domestic politics of developing nations be situated within the analysis of international markets. I endorse their argument that foreign economic policy, such as Brazil's support of the ICO, should be viewed as an extension of domestic political struggles. But I concur with the critique offered by those who dissent from the dependency school's interpretation of Brazilian political history.²³ As we shall see, even in the Old

Republic, Brazilian politics was *not* captive. Politics in the Old Republic was dominated by politicians, *not* by interest groups. The policies the politicians favored and the measures they devised to address the needs of the coffee industry reflected the incentives created and the constraints imposed by the political institutions within which they competed for power. Contra the dependency school, public policy is not the result of capture by economic interests, I demonstrate. Public policy is the outcome of the efforts of politicians to gain and retain political office within a structure of domestic political institutions, sometimes to the benefit of particular interests, and other times not.

Trade theory provides a second approach to the study of politics in open economies. Whereas the foundations of dependency theory lie in Lenin's theory of imperialism, those for trade theory lie in neoclassical economics.²⁴ Recent works by Ronald Rogowski and Jeffry Frieden best illuminate this approach.²⁵

Rogowski draws upon the Stolper-Samuelson theorem in trade theory; Frieden on the Ricardo-Viner variant. Employing neoclassical reasoning, both theorems link changes in international prices to changes in the domestic distribution of income, and thus to patterns of conflict among domestic interests. According to both theories, income is determined by the flow of payments to factors used in the production of commodities.²⁶ Increases in the price of a commodity produce a more than proportional increase in the returns to the factors used in its manufacture; decreases lead to a more than proportional fall. Because nations hold a competitive advantage in the production and export of goods that make intensive use of factors with which they are relatively abundantly endowed, those who derive their incomes from the payments that flow to the relatively abundant factor favor free trade. Those who own relatively scarce factors, by contrast, find their incomes depressed by competition from lower-cost producers abroad and so favor protection. Relative positions of advantage in international markets thus induce domestic political differences.

Thus far, the approaches followed by Frieden and Rogowski follow the same path. Where they diverge is in the assumptions they make about the nature of the factors of production. For Rogowski, factors flow freely among many alternative uses; the release of labor in one industry thus affects the price of labor in others, for example. As a result, changes in international markets animate class interests; they affect the price of factors of production—labor, land, or capital—nationwide. For Frieden, by contrast, factors are specific. Factors that are released from one industry or sector do *not* compete with factors employed by another. When an industry or a sector is adversely affected by foreign competition, the results are recession and unemployment, but for that industry or sector alone. For Frieden, changes in international markets therefore animate specific industries or sectors, rather than classes, in the domestic economy.²⁷

Employing the logic of trade theory, Rogowski and Frieden analyze the

domestic political significance of international market forces. Rogowski, for example, examines the impact of the lowering of transport costs upon the emergence of political cleavages in Europe and North America in the nineteenth century; he explores as well the domestic effects of the collapse of trade upon class conflict during the Great Depression. Frieden focuses on the impact of the recession and debt crisis of the 1980s on politics in Latin America. He stresses the resultant patterns of sectoral politics where factors are specific, as in the case of Brazil, and class conflict where factors are not, as in the case of Chile.

Ironically, while derived from fundamentally different intellectual traditions, the neoclassical approaches of Rogowski and Frieden and the Marxist approaches of the dependency theorists share much in common. Both seek an open-economy theory of politics and view international markets as fundamental determinants of domestic political conflict. Both treat political actors as agents of economic interests, be they classes, sectors, or industries. Neither accords a significant, much less determinative, role to political institutions. Both offer interest-based, economically deterministic visions of politics. The criticisms I offer for dependency theory therefore extend to the neoclassical approach as well.

Both dependency theory and neoclassical trade theory treat Third World exporters as small nations, that is, as price takers in world markets. For dependency theory, the result is victimization by large multinational firms or by protectionist forces in the markets of the advanced industrial nations; for the neoclassical trade theorists, the result is that world prices can be treated as exogenous, and the domestic distribution of income can be viewed as the product of forces unleashed in international markets. In recent years, however, prominent trade theorists—such as Krugman, Helpman, Grossman, and others—have abandoned the assumption of competitive international markets, noting that particular firms, industries, or nations possess the power to shape prices in international markets.²⁸ They have produced the so-called “new trade theory,” based upon models of imperfect competition. It too offers a theory of open-economy politics.

As we shall see, the international coffee market is highly imperfect. A few nations, led by Brazil and Colombia, dominate the production of coffee; a few firms, led by General Foods and Nestlé, dominate the processing and sale of coffee in consumer markets. Economic agents have responded to market imperfection by attempting to set market prices. This study traces the efforts of producers to exploit their power in international markets and the attempts of processors and consumers to resist producers' efforts; indeed, it shows how the dependency school was born of public reactions to struggles between producer and consumer nations. The imperfect market for coffee inspired the international politics of coffee, as it created incentives to use economic power to redistribute resources at the global level.

Attempts at institution building represent a second result. Some took place

internationally: Efforts to build the International Coffee Organization represented attempts to create a context within which smaller producers could credibly pledge to abide by cooperative agreements. Others took place domestically. Particularly when the ICO worked and prices rose, producers of coffee would seek to increase exports, thereby threatening to undermine the accord. Governments therefore needed to constrain and to alter the behavior of farmers, and they devised regulatory institutions to do so.

In keeping with recent work in international trade theory, I therefore adopt an approach that emphasizes the imperfection of international markets; contra both dependency theory and neoclassical trade theory, large coffee producers possess market power. Seeking to reap the benefits to be secured from the manipulation of market prices, the producers created institutions both at home and abroad.²⁹ In particular, their choice of international strategy led them to transform the domestic political economy and to reshape the structure and behavior of markets. Their ability to do so, and the way in which they do so, is shaped by domestic politics.

To emphasize this last point, note that, as illustrated in map 1.1, coffee production bands the globe. As we shall see, when the International Coffee Organization shocked the world coffee market by requiring each producing nation to limit its exports, similarly situated producers chose ways of restructuring domestic markets that led to different allocations of the costs of adjustment to the ICO's quotas (see table 1.2). Each form of adjustment represents a distinctive political story.

Under one form of adjustment (table 1.2, Policy I), the producers respond to the increase in world prices by producing more coffee. But the government elicits adherence to the international quota by withholding coffee from the market. The government creates institutions that purchase and stockpile surplus coffee. Such a response represents *a triumph for export agriculture; it entails transfers of resources to farmers from the state*.

Alternatively, the government secures adherence to the international quota by imposing an export tax (Policy III). The growers then do not perceive the new world price, created by the ICO's limits on exports; rather, they see that price discounted by the amount of the tax imposed by their government. Given this tax, producer incentives are weakened; and coffee growers therefore reduce production to the assigned quota level. This means of apportioning the costs of adjustment represents *a triumph of the state over export agriculture*.

A third possibility (Policy IV) involves the creation of institutions that enable the manipulation of the exchange rate. Under this form of adjustment, the government creates a domestic price for coffee growers that lies below the world market price by appreciating the domestic currency. Following an appreciation of the national currency, exporters are forced to sell the "dollars" they earn to the national bank for fewer "pesos" than before. They therefore reduce their production of coffee, thereby adhering to the international quota.

TABLE 1.2

Divergent Policy Outcomes

<i>Policy Choice:</i>		
<i>Limitations of Exports by</i>	<i>Illustrative Cases</i>	<i>Political Implications</i>
Policy I: The government purchases coffee surpluses	Brazil 1906 Brazil under the Permanent Defense	Farmers capture the state
Policy II: The government bans coffee planting	São Paulo 1906	Established producers exclude new entrants Estates triumph over peasants
Policy III: The government taxes coffee exports	The Vargas regime Brazil 1954-64 Brazil under military government Colombia under Rojas Pinilla and the National Front	The state triumphs over export agriculture
Policy IV: The government overvalues the currency	Colombia after World War II Brazil, 1954-64	Import-substituting industry extracts resources from export agriculture
Policy V: The coffee growers tax themselves	Colombia, all periods	Export agriculture left partially autonomous
Policy VI: Unrestricted exports	Colombia, 1930s	Export agriculture left unregulated

Appreciating the national currency acts as a tax on coffee exports; by strengthening the "peso" relative to the "dollar," the government also confers a subsidy on imports, which now appear cheaper, in terms of local currency. In the context of the developing nations, imports are usually demanded by industry; exports are usually furnished by farmers. This mode of allocating the costs of adjustment therefore represents a *triumph of the urban, industrial sector over export agriculture*.

As illustrated in map 1.1, the coffee-producing nations lie scattered throughout the tropics. Each supplies a similar product to a single, or at least a tightly integrated, market; but, as revealed in table 1.2, their governments can, and do, differ in the ways they adjust to the imposition of export limits and therefore in the ways in which they apportion the costs. By focusing on domestic politics, I seek to account for this variation in the way in which governments articulate their domestic economies with the international market. I thereby seek to take advantage of the opportunity provided by the coffee market to integrate the study of comparative politics with the study of international political economy.

Did the ICO Work?

Before launching into an analysis of the ICO—its origins, operations, and impact—we must ask, Did it have any impact? Responding to this question forms a necessary preliminary to any investigation of the agency. For if the ICO had no effect on international markets, then it would not warrant our attention.

The ICO divided the world into two categories: the member and the non-member nations. As seen in table 1.3, over the period 1972–73 to 1981–82, its members—those who had signed the International Coffee Agreement—accounted for virtually all of the world's exports of coffee and, on average, for 90 percent of the world's imports. The nonmember consuming nations included the socialist countries of Asia, Eastern Europe, and the Soviet Union that lacked the convertible currencies so desired by tropical exporters; and the Middle Eastern countries that possessed such currencies but consumed little coffee.

By agreement among its members, the ICO constructed an indicator price and used it to set target prices for coffee. In the later years of its existence, the target interval for the indicator price lay between \$1.20 and \$1.40 a pound. The agency then set quotas for coffee exports so as to force the indicator price into the target range. When the indicator rose above \$1.40 a pound for a predefined period, then quotas were relaxed; when it fell below \$1.20 a pound, they were tightened. At times of extreme increases in prices, such as after major frosts in Brazil, quotas were abandoned altogether, until production resumed normal levels and trading took place at prices falling within the target range.

When in effect, the quotas were enforced by the customs authorities of the consuming members. Every quarter of the coffee year—which runs from October 1 to September 30—the secretariat of the ICO would issue stamps to its exporting members; the "value" of the stamps would total the magnitude of that nation's quota. Customs officers in the consuming member nations inspected coffee shipments. They would deny entry to those lacking stamps. And they would collect the stamps from shipments bearing proper documentation, returning them to the secretariat of the ICO. In this way, the secretariat could monitor adherence to the quotas. Shipments to nonmember markets could be made using normal commercial documents, as they did not count against the exporter's quota. Without the stamps of the ICO, however, they could not legally be re-exported to member states.

Did the controls imposed by the ICO work? As suggested in table 1.4, the studies that have directly addressed this question suggest that the ICO's constraints on exports raised coffee prices. The studies are few in number, however.³⁰ In addition, they appear to rely on methods that may yield erroneous estimates.

TABLE 1.3
Exports and Imports by Member and Nonmember Nations, 1972/73-1981/82
(Millions of Bags)

	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82
World Exports	61	58	57	57	53	55	64	61	59	64
Member Exports (by origin)	60	57	57	57	52	51	63	60	59	63
Brazil	18	15	15	13	15	9	13	14	16	17
Colombia	6	7	8	7	5	8	11	12	9	9
Other Americas	19	16	20	19	18	20	22	20	19	20
Robustas	16	18	15	18	14	14	16	15	15	17
Member Exports (by destination)										
To members	54	51	50	50	48	46	57	54	52	52
To nonmembers	7	6	6	7	5	5	6	6	8	9
Exporting Nonmembers ^a	—	—	—	—	—	—	—	—	—	—
World Gross Imports	64	64	62	66	60	56	70	67	67	69
Members	57	57	55	59	53	49	63	60	59	61
U.S.A.	24	23	20	22	18	17	22	20	18	19
E.E.C.	22	22	22	24	22	21	27	25	27	27
Other members	12	12	12	13	13	10	15	14	14	15
Member Imports by Origin	57	57	55	59	53	49	63	60	59	61
From exporting members	54	53	51	55	50	46	59	56	55	56
From importing members	3	3	3	3	3	3	4	4	4	4
From nonmembers	—	—	—	1	—	—	—	—	—	1
Importing Nonmembers	6	7	7	7	7	6	7	7	7	8

Source: International Coffee Organization, *Quarterly Statistical Bulletin, July-September 1982* (London: ICO, 1982), summary table, p. 2.

^aLess than 500,000 bags.

TABLE 1.4

Recent Studies of ICO Impact on World Coffee Prices

Akiyama, Tamassa, and Panayotis Varangis (1990), "The Impact of the International Coffee Agreement on Producing Countries." *World Bank Economic Review* 4, 2 (May 1990): 157-73.

Model/ Methodology	Simulations based on a multiequation econometric model of the world coffee market. The econometric model used annual data, 1968 to 1986; simulations were run for the 1981-86 period.
Findings	<p>Average prices under the quota system, 1981-85, were higher than if there had been no quotas. If no quotas had been in place during that period, however, 1986 world coffee prices—when Brazil experienced production shortfalls due to drought—would have been 24 percent higher than actual prices, since the quota system induced accumulation of stocks that were released into the world market in 1986. In general, such stock accumulations would reduce coffee prices in years when the quota system was not in operation.</p> <p>Overall, the quota system had a stabilizing effect on world coffee prices. Quotas reduced real export earnings for most small exporting countries, but large producers gained. Most small countries gained in terms of reduced variability of export income.</p>

Herrmann, Roland, Kees Burger, and Hidde P. Smit (1990), "Commodity Policy: Price Stabilization vs. Financing," in *Primary Commodity Prices*, ed. L. Alan Winters and David Sapsford (Cambridge: Cambridge University Press, 1990).

Model/ Methodology	Simulations based on econometric estimations of the world coffee market. Estimations used 1966-81 annual data. Simulations compared hypothetical nonquota prices in 1982 and 1983 with actual prices under the quota system.
Findings	In 1982 and 1983 world prices in ICO member markets were 47 and 17 percent higher, respectively, than would have been the case without quotas; conversely, prices were lower in nonmember markets. Although higher prices reduced demand in member importing countries, ICO exporters experienced net welfare benefits—as did nonmember importers. ICO member importers and nonmember exporters experienced welfare losses. On net, the world coffee economy experienced welfare losses due to the quota system.

(continued)

Arbitrage

Figure 1.2 presents evidence concerning the effectiveness of the ICO. The horizontal axis displays the dates in which quotas were in effect: August 1965–October 1972 and October 1980–August 1985. The vertical axis records the ratio between coffee prices in the markets of member and nonmember nations, expressed as a percentage.³¹ When the ratio exceeds 100 percent, then prices in member markets exceed those in the markets for nonmembers, arbitrage has been prevented, and barriers to trade have been put in place effectively. The evidence in figure 1.2 suggests that when the ICO imposed quotas, it was able to enforce them, yielding a higher price in the coffee markets of member nations.

While visually satisfying, were these effects statistically significant? To answer this question, I calculated the means and variances of coffee prices in member and nonmember markets in periods in which the ICO did and did not impose quota restrictions.³² I constructed a variable, call it D , which measures the difference in the mean value of prices in the member and nonmember markets in each period. D can be transformed into a test statistic that possesses a t -distribution. The null hypothesis is that the mean of D is zero, or that there is no statistically significant difference between the mean of the prices in the two markets. We reject the null if we observe values for the test statistic that fall into a critical range—a range where its value would be highly unlikely (one chance in one hundred), were it determined by chance.

In this instance, I chose a critical range appropriate to a one-tailed test of the null hypothesis; I wished to reject the null when the value of the test statistic is highly and significantly positive—that is, when the mean price of coffee in the member market exceeds that in the nonmember market by a level significantly greater than would be likely by chance. Given the number of observations available, the critical region in which one can reject the null hypothesis begins at 2.33. The results of the test, presented in table 1.5, enable us to reject the hypothesis of no difference in the mean price of coffee in the two markets at the .01 level of confidence in periods in which the ICO quotas were in place. The imposition of quotas appears to generate a significantly higher price in member markets.³³

Rivalry

Thus far I have focused on the impact of the ICO on average price. At least as important is its impact on relative prices. For competition between coffee producers takes the form of competitive price cutting by producing nations. If average prices are to stay high—if the marketing agreement is to work—then such competition would have to cease.

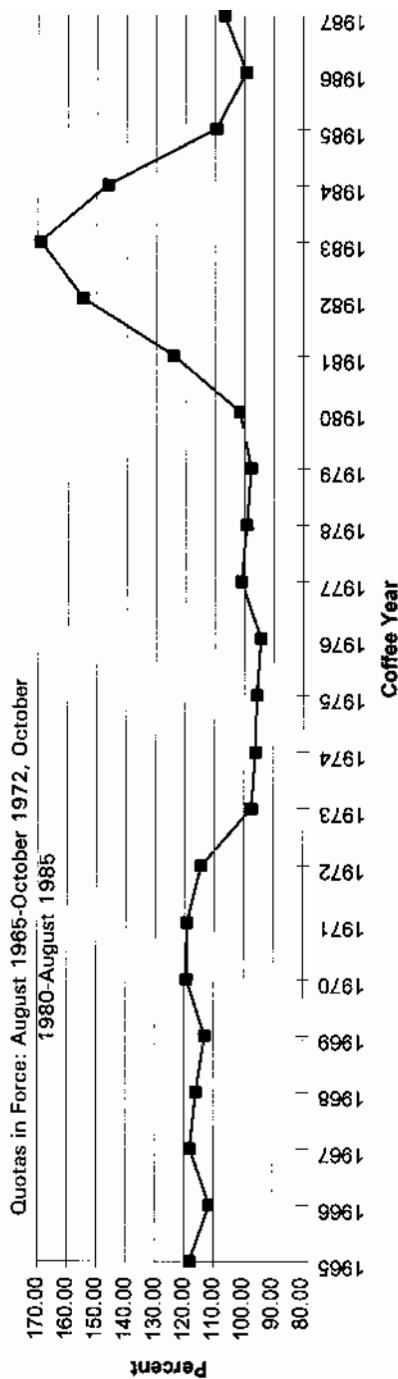


Figure 1.2. Price of Coffee Exported to Members as Percentage of Price of Coffee Exported to Nonmembers. *Source:* Monthly price data from the files of the International Coffee Organization.

TABLE 1.5
Testing for the Impact of the Quota

	<i>Number of Observations</i>	<i>Mean for D</i>	<i>t-Statistic</i>
Periods in Which Quotas Were in Place			
August 1965–October 1972	600	2.342	5.295
October 1980–August 1985	299	18.742	6.571
Periods in Which Quotas Were Not in Place			
November 1972–September 1979	420	-1.516	-1.264
September 1985–August 1988	240	-9.150	-1.923

Source: Monthly price data from the files of the International Coffee Organization.

Loosely speaking, coffee markets recognize four major types of coffee. At the top of the market stand the coffees of one dominant producer, Colombia.³⁴ Accounting for 15–20 percent of the world's coffee exports, Colombian coffees tend to fetch the highest average price in international markets. Brazil, with 20–30 percent of the world's exports, produces coffee valued in the middle range of the market.³⁵ Positioned between the coffees of Brazil and Colombia are the "other milds"; produced largely in Central America, they tend to be preferred to the coffee of Brazil but to be regarded as of lower quality than that of Colombia. Robusta coffees, produced largely in Africa, occupy the bottom rung of the coffee market.

From the point of view of Colombia, the other milds constitute the competitive fringe; from that of Brazil, the other milds and robusta coffees. For, within limits, the different types of coffee can be substituted for one another. Should Colombia raise the price of its coffee and the producers of other milds not follow, then consumers would switch to other milds; the ratio of the prices would be less than the ratio of the marginal utilities. Should African producers reduce robusta prices, Brazil would have to follow suit; for, given a suitable price differential, consumers could switch to the lower quality coffee without suffering a decrease in their utility. And should Brazil seek to raise the price of its coffee while the producers of other milds maintained their prices, then consumers could increase their utility by switching to the higher quality washed arabicas of the other milds group.

A second test of the effectiveness of the ICO, then, is its impact on relative prices. For the agency to work, it had to enable Brazil and Colombia, the dominant producers, to raise their prices without being undercut by the competitive fringe. Figure 1.3 illustrates the pattern of relative prices for a period when quotas were in effect. Overall, price differentials remained stable. The pattern contrasts with that exhibited in figure 1.4, which portrays relative

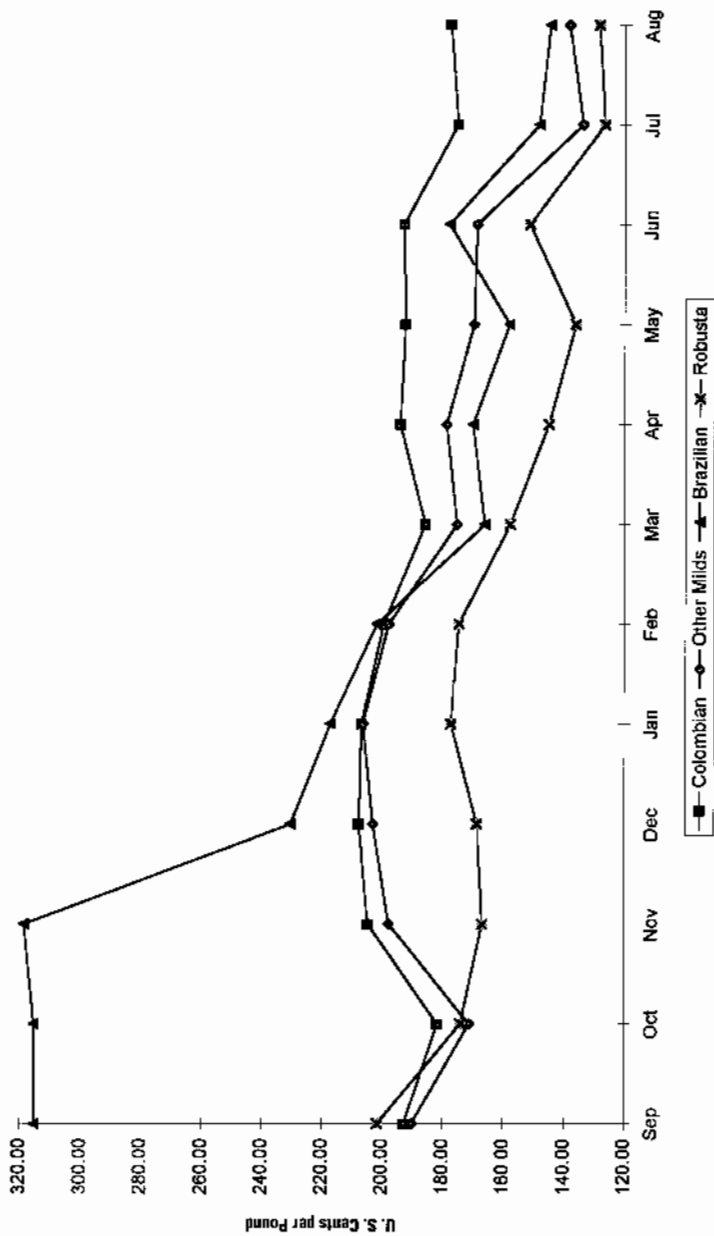


Figure 1.4. Coffee Prices, 1977-78. Source: Monthly price data from the files of the International Coffee Organization.

prices in a period when quotas were suspended following a catastrophic frost in Brazil. Given Brazil's size in the market, the frost produced a massive rise in prices (compare the prices on the vertical axes of figures 1.3 and 1.4). It also produced a massive distortion in relative prices. Upon recovering, Brazil sought to reposition its coffee at a price level intermediate to that of the other milds and robusta coffees. But, as can be seen in figure 1.4, African producers resisted, cutting their prices to keep Brazil from closing the gap. So too did the producers of other milds, who lowered their prices below those charged by Brazil. The competitive response posed a challenge to Colombia as well, for the growing price differentials between other mild and Colombian coffee encouraged consumers to abandon the higher quality Colombian product. Colombia therefore joined in the price cutting. In the face of the kind of competitive behavior portrayed in figure 1.4, the dominant producers sought to reimpose the quantity constraints that would generate the evenly spaced price differentials exhibited in figure 1.3.

The Collapse of 1989

Restraint of competition represents an essential prelude to price-setting behavior. The evidence contained in figures 1.3 and 1.4 therefore suggests that the ICO was an effective institution.

I offer one last piece of evidence: the behavior of coffee prices at the time of the breakup of the ICO. As will be recounted in the narrative that follows, in June and July 1989 the ICO collapsed. As seen in figure 1.1, when the ICO broke up, coffee prices plummeted. The spot price for Colombian milds, for example, fell from \$1.80 a pound in June to less than \$1.00 by July—and stayed below \$1.00 a pound for several years thereafter.

In data not presented here, I have also analyzed the behavior of prices for future coffee contracts.³⁶ Through June 1989, the spread between future prices and spot prices remained negative, suggesting that agents perceived a scarcity of supplies and sought to sell rather than to store coffee. In June and July, however, the relationship between future and spot prices reversed. Immediately upon the breakup of the agreement, spreads became positive, implying that agents in the market perceived an abundance of supplies.³⁷

The data thus suggest that not only had the ICO been effective, but that it had also been perceived as effective by those making decisions in the marketplace. When the ICO was no longer in place, relative prices reflected the end of its restrictions upon the availability of coffee.

Where did the ICO come from? How did it operate? How did it impact upon member nations? Why did it collapse? To these questions we now turn.