Robert H. Bates, et. al, (eds.) Analytical Narratives (Princeton: Princeton University Press, 1998).

Five

The International Coffee Organization: An International Institution

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CURRENTLY worth roughly $10 billion per year, coffee exports stand next to those of oil as the most valuable from the tropics. For many developing nations, coffee constitutes a major source of foreign exchange (see table 5.1).

From 1962 to 1989, the International Coffee Organization (ICO) regulated the world's exports of coffee. The organization was formed under the terms of the International Coffee Agreement, and its members accounted, on average, for 90 percent of the world's total consumption. The consuming nations that remained outside the ICO included the socialist countries of Asia, Eastern Europe, and the Soviet Union, which lacked the convertible currencies so desired by tropical exporters, and the Middle Eastern countries, which possessed such currencies but consumed little coffee (see table 5.2).

The ICO set target prices for coffee. In the later years of its existence, the target lay between $1.20 and $1.40 a pound. The agency then set quotas for coffee exports so as to force market prices into the target range. When its indicator of market prices rose above $1.40 a pound, 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 returned to normal levels and trading resumed within the target range.

Quick calculations highlight the domestic significance of the ICO. Consider, for example, Uganda, one of the major suppliers of robusta coffee: for the coffee

The materials in this chapter are drawn from Bates (1997). The chapter was written while I was at the Center for Advanced Study in the Behavioral Sciences, Stanford, California. I acknowledge the support of Harvard and Stanford Universities as well as the National Science Foundation for its grants to the Center for Advanced Study in the Behavioral Sciences (SES-9022192) and to Robert H. Bates (SES-8821151). I am also grateful for the comments and criticisms received from Mihir Desai, Roberta Gatti, Avner Greif, Margaret Levi, Ronald Rogowski, Jean-Laurent Rosenthal, Fritz Scharpf, and Barry Weingast and the superb research assistance I have received on this project from Laura Alvarez, Rosalba Capote, Carlos Contreras, Amy Curry, Gina Dalla, Catherine Elkins, John Hall, Donald Da-Hsiang Lien, Brian Loynd, Andrew Mason, J. Muthee Musunza, John Nye, Dixie Reeves, Daniel Restrepo, and Michael Thompson.

TABLE 5.1
Percent of Total Exports Composed of 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 (1980, 1990, 1992, 1993); Food and Agriculture Organization of the United Nations (1988–91).

year 1981/82, the ICO granted Uganda a quota of roughly 2.8 million bags (International Coffee Organization 1982:136, table VII-2).[1] Had members of the agency permitted Uganda a 5 percent higher quota, the country could have earned an additional $20 million per year in export markets.[2] Ten more bags of coffee, shipped out by a Ugandan peasant, would have generated an additional income of over $200,[3] an increase equivalent to the average annual per capita income in Uganda at that time.

This chapter presents a narrative of the birth, behavior, and collapse of the ICO. It then analyzes this narrative, employing a variety of analytic approaches. Of particular interest is that several of these approaches fail. Either they fail to fit important features of the empirical setting or, to succeed, they require conditions that are logically inconsistent with their premises. From observing the failure of various analytic approaches, however, we learn: we are driven to a new appreciation of the significance of features of the case materials and to revisions of our approach. The interplay between data and analysis (George 1979) promotes a refinement and deepening of our understanding of the political economy of the coffee market and of the origins and significance of its institutions.

[1]Throughout, I employ the standardized measure adopted by the ICO, according to which one bag contains 60 kilograms of green coffee.

[2]Based on an average price for robusta of $1.06 a pound. See the price data contained in Licht (1993:G.15).

[3]Even assuming that taxes, bribes, and transport consumed over 80 percent of the border price costs. A bag of coffee weighs 60 kilograms, or 132 pounds. With a price at the border of $1.00 per pound, ten bags would be worth about $1,320. The extent of government taxation is documented Sears et al. (1979).

TABLE 5.2
Exports and Imports (Millions of Bags) by Member and Nonmember Nations, 1972/73–1981/82

	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	—	—	—	—	—	—	—	—	—	—
World gross imports	64	64	62	66	60	56	70	67	67	69
Members	57	57	55	59	53	49	63	60	59	61
USA	24	23	20	22	18	17	22	20	18	19
EEC	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 (1982:2, summary table).

The Narrative: Part I

The origins of the ICO lie in the emergence of Brazil as a dominant producer and its subsequent efforts to influence prices in international markets. In the nineteenth century, Brazil became the primary producer of coffee. When leaf rust spread to the plantations of the Dutch East Indies, coffees from that region became scarce and their prices rose. As the supply of Brazilian coffees increased, their prices declined (Delfim Netto 1959:155). As the price differential between coffees from the two origins widened, consumers increasingly switched to Brazil's cheaper coffees. By the mid-1800s, 50 percent of the coffee purchased in world markets came from Brazil, a figure that rose to 70 percent by the early 1900s (figure 5.1). With the collapse of exports from the east, Brazil became a giant in the world coffee market. It became the dominant producer of the world's coffee (see Delfim Netto 1959; Holloway 1975; Bates 1997).

Brazil was quick to seize the opportunity offered by its market power. Led by political leaders from São Paulo, the largest of its coffee-producing states, Brazil in 1906 launched its famous valorization scheme, purchasing and stockpiling nearly eight million bags of coffee (Delfim Netto 1959; Holloway 1975). Brazil's efforts to "stabilize" the price of coffee soon attracted new entrants into the market, and Colombia soon became its major competitor. As shown in figure 5.2, Colombia increased its exports from fewer than three hundred thousand bags in the early 1890s to over three million bags in the early 1930s. In its efforts to exploit its power in the international coffee market, then, Brazil provoked entry.

In the mid-1920s, Brazil once again sought to determine the international price of coffee. Announcing a policy of "permanent defense," the government built warehouses, controlled the movement of coffee by rail and by sea, created a financial system to enable the purchase of the crop, and constructed a regulatory bureaucracy that superintended the stockpiling and movement of coffee, retiring it from the external market and thereby driving up its price in global markets. However, Brazil feared the entry of additional producers into the market. It therefore sponsored a series of international conferences at which it sought to secure agreements to limit the production of coffee for export. In these meetings, its diplomats repeatedly threatened economic sanctions should its rivals fail to restrict production and exports (Ramirez Ocampo and Perez Gomez 1986). When other nations failed to endorse a formal marketing agreement, Brazil acted on these threats: increasing monthly shipments by 50 percent, on November 8, 1937, Brazil dumped its stocks of coffee (Taunay 1943:60).

As a result of Brazil's actions and the loss of the European market in the late 1930s, Colombia and other Latin American producers joined with Brazil to limit exports and thereby stabilize the international price of coffee. The end of World War II led to a sharp upward shift in the demand for coffee. The resultant postwar rise in coffee prices was brought to a climax by the Brazilian frost of

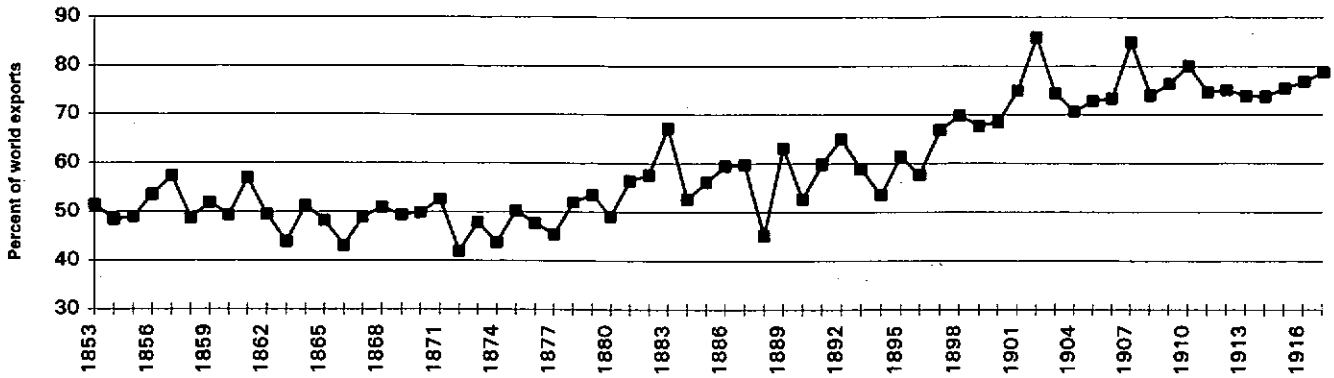

FIGURE 5.1. Brazil's share of world coffee exports by year, 1853–1917. *Source:* Beyer (1947, appendix, table V). Reproduced from Bates (1997).

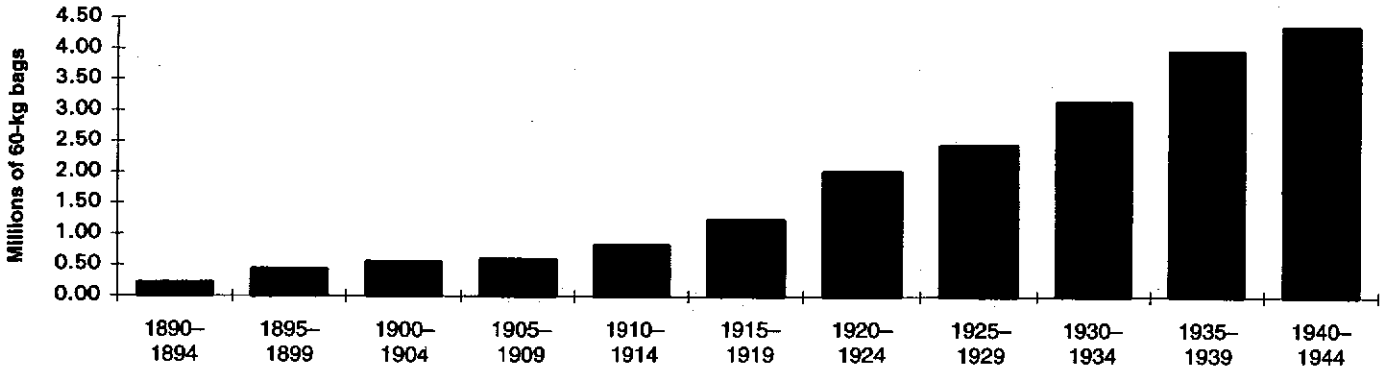

FIGURE 5.2. Colombia's entry into the world coffee market. *Source:* Bacha and Greenhill (1992, appendix, table 1.1). Reproduced from Bates (1997).

1953. Brazil once again sought to exploit the opportunity created by the shortage of coffee; by limiting shipments, it attempted to raise the price. In 1953 Brazil's minister of finance instituted a multiple exchange rate in which "coffee dollars" would be exchanged for cruzeiros at a rate far less favorable than that received by the importers or exporters of other commodities. Resources therefore shifted out of coffee production and the dollar price of coffee rose in world markets. The government also increased the price offered by its coffee agency from $0.56 to $0.90 a pound. As exporters could not earn profits selling coffee bought at this price, they abandoned the market to the government.

Just as Brazil's efforts as a price setter before the war had been threatened by entry, so too was its postwar intervention. In an effort to forestall a subsequent decline in coffee prices, the dominant producers, Brazil and Colombia, negotiated an international agreement, El Convenio de Mexico, that obligated coffee producers to withhold a percentage of their products from the international market. Under the terms of this agreement, the government of Brazil accumulated nearly twenty-five million bags of coffee—an amount equivalent to half of the world's total annual consumption—and the government of Colombia purchased over half a million bags per year and withheld them from the market.[4]

El Convenio de Mexico failed to raise the market price of coffee, however, for it failed to prevent entry. The data indicate that while Brazil and Colombia withheld a large fraction of their exportable production from world markets, small Central American nations—Costa Rica, El Salvador, and Guatemala—undercut the market (table 5.3). In addition, African producers remained outside the agreement and continued to expand their market share. During World War II, annual production in Africa had reached four million bags as Africa replaced Latin America in European markets; following the peak of the price rise in 1954, Africa's production more than doubled once again (figure 5.3). Although Brazil repeatedly threatened again to dump its coffee, it refrained from acting on its threat. With the failure of El Convenio de Mexico, the dominant producers sought a broader pact that would enable them to erect political barriers to coffee exports. The result was the creation of the ICO.

Analyzing the Narrative: Cut I

In order to understand better the circumstances that led to the creation of the ICO, we turn to game-theoretic models of imperfect competition and, in particular, to a canonical game: the so-called "chain store paradox" (Selten

[4]American Embassy, Bogotá, to Department of State, Dispatch 341, November 6, 1958, file 821.2333/11–658, United States Archives.

TABLE 5.3
Adherence to Quotas Under El Convenio de Mexico, 1958–61

	1958					1959					1960					1961				
	Exportable production (millions of bags)	Exports (millions of bags)	Addition to stocks (millions of bags)	Exports as percentage of exportable production	Percent of total exports	Exportable production (millions of bags)	Exports (millions of bags)	Addition to stocks (millions of bags)	Exports as percentage of exportable production	Percent of total exports	Exportable production (millions of bags)	Exports (millions of bags)	Addition to stocks (millions of bags)	Exports as percentage of exportable production	Percent of total exports	Exportable production (millions of bags)	Exports (millions of bags)	Addition to stocks (millions of bags)	Exports as percentage of exportable production	Percent of total exports
World total	46.20	36.50	9.70	79.00	100.00	52.00	42.60	9.40	81.92	100.00	66.40	42.50	23.90	64.01	100.00	52.40	43.70	8.70	83.40	100.00
Total Western Hemisphere	35.90	26.40	9.50	73.54	72.33	40.20	31.60	8.60	78.61	74.18	52.80	30.60	22.20	57.95	72.00	37.00	30.50	6.50	82.43	69.79
Brazil	20.80	12.90	7.90	62.02	35.54	26.00	17.70	8.30	68.08	41.55	37.00	16.80	20.20	45.41	39.53	22.00	17.00	5.00	77.27	38.90
Colombia	7.00	5.40	1.60	77.14	14.79	6.90	6.40	0.50	92.73	15.02	7.00	5.90	1.10	84.29	13.88	6.70	5.60	1.10	83.58	12.81
Mexico	1.50	1.30	0.20	86.67	3.56	1.20	1.20	0.00	100.00	2.82	1.50	1.40	0.10	93.33	3.29	1.40	1.50	−0.10	107.14	3.43
El Salvador	1.30	1.40	−0.10	107.69	3.84	1.40	1.30	0.10	92.86	3.05	1.50	1.20	0.30	80.00	2.82	1.30	1.40	−0.10	107.69	3.20
Guatemala	1.20	1.20	0.00	100.00	3.29	1.20	1.40	−0.20	116.67	3.29	1.40	1.30	0.10	92.86	3.06	1.30	1.30	0.00	100.00	2.97
Costa Rica	0.70	0.80	−0.10	114.29	2.19	0.80	0.70	0.10	87.50	1.64	0.80	0.80	0.00	100.00	1.88	1.00	0.80	0.20	80.00	1.83
Other	3.40	3.40	0.00	100.00	9.32	2.70	2.90	−0.20	107.41	6.81	3.60	3.20	0.40	88.89	7.53	3.30	2.90	0.40	87.88	6.64
Total Africa	8.90	8.80	0.10	98.88	24.11	10.40	9.70	0.70	93.27	22.77	11.90	10.70	1.20	89.92	25.18	13.30	11.30	2.00	84.96	25.86
Ivory Coast	1.80	1.20	0.60	66.67	3.29	2.40	2.00	0.40	83.33	4.69	2.50	2.40	0.10	96.00	5.65	3.20	2.60	0.60	81.25	5.95
Angola	1.30	1.30	0.00	100.00	3.56	1.40	1.50	−0.10	107.14	3.52	1.80	1.40	0.40	77.78	3.29	2.70	2.00	0.70	74.07	4.58
Uganda	1.40	1.30	0.10	92.86	3.56	1.50	1.50	0.00	100.00	3.52	1.90	1.90	0.00	100.00	4.47	1.90	1.80	0.10	94.74	4.12
Kenya	0.40	0.40	0.00	100.00	1.10	0.40	0.40	0.00	100.00	0.94	0.40	0.40	0.00	100.00	0.94	0.50	0.50	0.00	100.00	1.14
Tanganyika	0.40	0.40	0.00	100.00	1.10	0.40	0.30	0.10	75.00	0.70	0.40	0.40	0.00	100.00	0.94	0.50	0.40	0.10	80.00	0.92
Others	3.60	3.40	0.20	94.44	9.32	4.30	4.00	0.30	93.02	9.39	4.90	4.20	0.70	85.71	9.88	4.50	4.00	0.50	88.89	9.15
Total Asia and Oceania	1.40	1.40	0.00	100.00	3.84	1.30	1.30	0.00	100.00	3.05	1.70	1.40	0.30	82.35	3.29	2.10	1.70	0.40	80.95	3.89

Source: Rowe (1963:21).

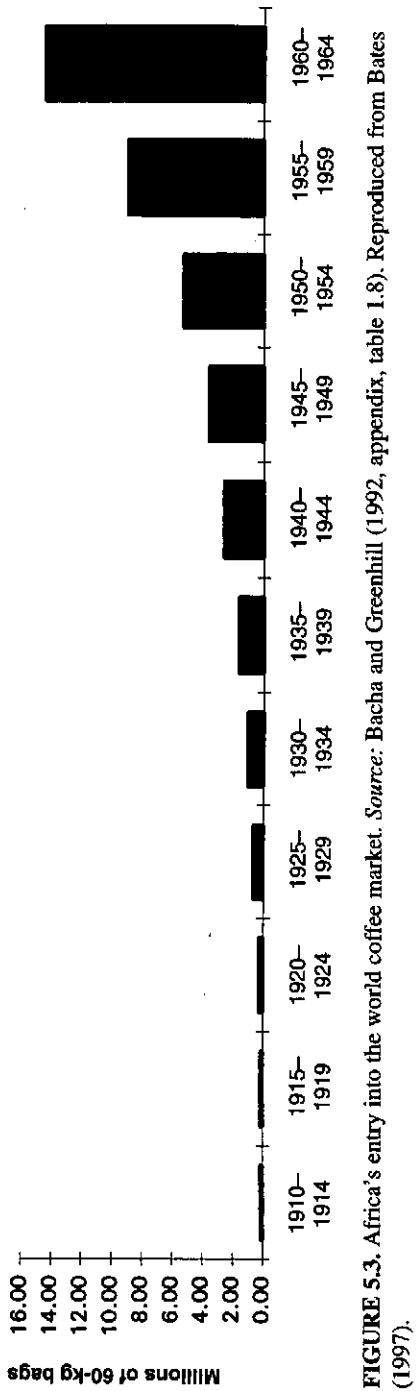

FIGURE 5.3. Africa's entry into the world coffee market. *Source:* Bacha and Greenhill (1992, appendix, table 1.8). Reproduced from Bates (1997).

1978; Kreps and Wilson 1982). Analysis of this game provides insight into the difficulties faced by the dominant producers in preventing entry.

The chain store paradox refers to competition between an established firm, a chain store, and a potential entrant. In order to retain its monopolistic status, the chain store seeks to deter entry; it therefore threatens to fight any firm seeking to enter the market. Fighting is costly. The new arrival, or entrant, can choose whether to enter the market or stay out. The incumbent firm can choose whether to incur the costs of fighting the new entrant, thereby retaining its monopolistic status, or let it enter and then share the market. The new firm moves first.

In figure 5.4, the new entrant is designated NE and the monopolist I (for incumbent). The new firm can enter (E) or refrain from doing so (~E, where ~ signifies negation); the incumbent can then choose to retaliate (R) or not (~R). The payoffs to the entrant are listed first and those to the incumbent second. Should the incumbent deter entry, it then reaps monopoly profits (x). Should it fail to do so, the entering firm receives positive profits ($1 > y > 0$). Fighting inflicts costs of 1 on both firms.

The lessons of the chain store paradox come in two stages: those generated by the game when it is played a finite number of times and those generated when it is played an infinite number of times (or when it is terminated probabilistically).

Played once, the game yields a clear outcome: despite the incumbent's threats to retaliate, it will fail to deter entry. The monopolist will gain, should the new firm refrain from entry; but once the new firm has chosen to enter, the monopolist does better by acquiescing, for fighting is costly. The monopolist's threats are therefore not credible.

This result lays the foundation for the paradox. 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. But 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 then unravels, such that in the first market the chain store chooses to share the market rather

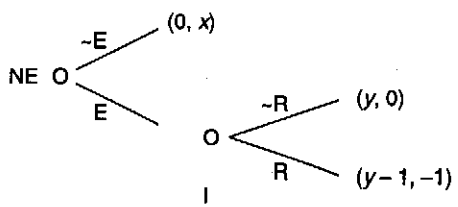

FIGURE 5.4. A stage in the chain store game. *Abbreviations:* NE, new entrant; I, incumbent; E, enter; ~E, not enter; R, retaliate; ~R, not retaliate.

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.

When the game is infinitely repeated (or randomly terminated), however, then the analysis suggests that for a sufficiently high discount factor, the dominant producers will fight to deter entry. The costs of fighting will yield a stream of benefits over a sufficiently long period that, if not heavily discounted, will more than compensate for the short-term losses. In the face of an infinite (or uncertain) time horizon, the monopolist might therefore be willing to pay the cost of fighting (Fudenberg and Maskin 1986). The dominant producer will treat the costs as an investment in creating a valuable reputation. Knowing that it will fight, potential competitors refrain from entry; they are deterred from competing in the market.

In applying this analysis to the coffee market, we can note that Brazil, Colombia, and other producers were locked in an infinitely lived game, or one that would be terminated only through a random act of fortune—such as by the diseases that had earlier befallen the East Indies. And yet, although the incumbent, Brazil, sought to deter entry in the 1930s, it refrained from doing so in the 1950s. The logic of the model thus fails to find confirmation in the data. However, its failure proves fruitful; it motivates us to return once again to the narrative and to a reappraisal of the case materials.

One possible lesson is that governments possess interests that differ from those of nations. The producing countries may be infinitely lived, but their governments are not. Governments may therefore not be willing to incur short-term costs to achieve gains that will accrue over time. The more politically insecure the government, the more heavily it will discount the future. Such reasoning highlights the significance of domestic politics to the international behavior of nations. It highlights in particular the importance of the political insecurity of the government of Brazil and especially of its pressing need for foreign exchange (Bates 1997). But this attempt to render the analytics consistent with the narrative runs afoul of an obvious difficulty: the fact that the Brazilian governments of the 1930s were surely as insecure as those of the 1950s, but nonetheless contested entry.

We are thus driven to take yet another look at the data. In both the 1930s and the 1950s, Brazil constituted the dominant producer in the international coffee market. In the 1930s, when Brazil faced competition from Colombia, it faced prospective, but not present, threats from Africa as well. After World War II, however, Brazil actually faced competition from that quarter: during the war, African producers had expanded their plantations and captured a large portion of the European market. They had already entered the coffee market.

Returning to the logic of the model, we rapidly gain an appreciation of the political significance of these economic facts. Coffee production involves high fixed costs. Prior to the late 1960s, coffee trees required five to seven

years to reach full production, and variable inputs, such as pesticides and labor, constituted less than 30 percent of the total costs of production. After producers incurred such high fixed costs, they would naturally be reluctant to close down production in response to a fall in price; in this case, they would be reluctant to uproot their plantations, and instead would simply reduce their inputs of labor. The implication for the model is that when a region enters production, the game becomes a one-period game; for any reasonable rate of discount, the new player must be viewed as infinitely lived. The chain store model demonstrates that with finite repetition (such as one period of play), entry cannot be deterred by costly threats; in such settings, threats lack credibility. Changes that took place during the 1940s thus rendered the market of the 1950s the equivalent of a single-shot game.

In studying the origins of the ICO, we have taken recourse to one theory of imperfect competition: a theory of entry deterrence. From it, we have gained a deeper appreciation of the political significance of the economics of the coffee industry and, in particular, of the way in which the technology of production influenced the strategic behavior of the producing nations. We have also gained insight into why dominant producers failed in their attempts to cartelize the market and why they therefore sought an alternative way of restricting market competition—one based not on entry deterrence, but rather on third-party enforcement.

Return to the Narrative

When Brazil and Colombia realized that they were unable to prevent free riding on the part of small producers, they turned to the dominant consumer, the United States, to police the agreement by imposing restrictions on coffee imports. In so doing, they were aware that economic arguments would not work. The United States was a consumer, not a producer, of coffee. Brazil and Colombia therefore based their appeal for U.S. cooperation on the threat of communism.

In January 1959, Castro entered Havana; by the middle of 1960, he had made clear his opposition to the United States and his commitment to a Marxist-Leninist philosophy. In the presidential elections of 1960, John Kennedy and Richard Nixon competed to see who could pose as the greater crusader against communism and, in particular, "Castroism," its local variant. The governments of Brazil and Colombia were able to link the defense of coffee prices to the defense of hemispheric security. Indeed the United States' statement of support for the coffee agreement was incorporated into the proclamation of the Alliance for Progress, the Kennedy Administration's principal response to the communist threat in Latin America.[5]

[5]The best treatments of these events are contained in Fisher (1972). See also Wagner (1970) and Levinson and Onis (1970).

For the United States to become a member of the ICO, the executive branch's support for an international coffee agreement was a necessary, but not a sufficient, condition, however. Membership required passage of a treaty, and thus action by the Senate. It also required the passage of enabling legislation by the House of Representatives, empowering U.S. customs authorities to monitor and police shipments by private firms (figure 5.5). Although the executive branch and the Senate may have been willing to trade off economic costs for political gains, the House was much less willing to do so. Indeed, because of its concerns with inflation and the growth of government regulation of private markets, the House first delayed and then defeated the legislation necessary for U.S. participation in the ICO. Only with the convening of a new Congress did it pass the legislation, after having delayed U.S. entry into the ICO for over two years. Even then, repeated assurances from major corporations that the regulation of the market would not harm their interests were necessary before the House would act.

The Department of State sought to regulate international trade in coffee so as to raise its price and thereby inject much-needed foreign exchange into the economies of Latin America. However, it lacked the expertise about commercial practices that would enable it to regulate trade effectively, and so it turned to the large coffee-roasting firms for information. These firms—General Foods, Procter and Gamble, and others—purchase "green" coffee from the coffee-producing nations, which they then roast, grind, and sell at retail in consumer markets. The executive branch also needed to secure the support of Congress, and the firms' cooperation proved critical for this purpose as well.

U.S. participation thus rested upon a domestic political coalition that included the executive branch—the White House and the Department of State—and Congress. The large firms played a major role in constructing that coalition. The consensus of all who have researched the history of the ICO is that, had the firms opposed the agreement in their testimony before Congress, the treaty would not have passed and the ICO would never have been created (Krasner 1971, 1973a,b; Bruchey 1987).

Analyzing the Narrative: Cut II

The Chicago School

Having employed one model—the chain store model of entry deterrence—to examine the origins of the ICO, we now turn to another: the model of third-party enforcement offered by the so-called "Chicago school" of regulation (Stigler 1971; Peltzman 1976). This approach stresses that cartels are inherently unstable; producers face grave difficulties in restricting entry and in restraining competition. In response, the argument holds, producers shift their efforts

	Executive branch	Congress
Necessary condition	+	0
Sufficient condition	+	+

FIGURE 5.5. Necessary and sufficient conditions for passage of executive policy in the United States. *Symbols:* +, supports; 0, does not object.

from the marketplace to the political arena. By marshaling public-interest arguments—such as the need to enhance quality or to protect public health—private firms secure government regulation of an industry. By thus bending the regulatory process to their own ends, they employ public power to secure private objectives: the cartelization of the market and the redistribution of income from consumers to themselves.

The Realist School

The argument of the Chicago school seeks to provide a neoclassical model of cartel formation. But when applied to the case materials, the argument confronts a major anomaly: the United States is a consumer, not a producer, of coffee.[6] Being neoclassical, the model requires rationality in individual choice. A major reason for applying models to narratives is to secure logically consistent explanations for events or outcomes. The United States' expenditure of costly effort to establish an agreement that raised prices to consumers violates the premises of the model.

As was the case in our discussion of the chain store paradox, this failure of analysis is nonetheless informative: it casts light upon important properties of the data. In this instance, the failure highlights the significance of the communist threat to U.S. security. Just as the public's concern with air safety today enables producers to secure the regulation of competition among airlines, so, by analogy, the United States' concern with the communist threat enabled the producers of coffee to secure the regulation of competition in the coffee market. Adding "political preferences" to the United States' objective function thus restores logical consistency; it highlights political benefits that compensate for the economic costs resulting from the formation of the cartel. The neoclassical model thus joins the set of explanations offered by the "realist" school of international relations, which treats states as rational actors and argues that large states, or so-called hegemons, willingly bear the private costs of providing the infrastructure that provides collective goods (e.g., Kindleberger 1973; Waltz 1979).

[6]With the exception of the relatively small amount of coffee production in Hawaii.

The facts of the narrative again intrude, however, and mark as premature such efforts at closure. The explanation is saved by noting the magnitude and intensity of threats to security. But the narrative discloses that even at the height of the cold war—even when the introduction of Soviet missiles into Cuba underscored the fragility of U.S. security and the dangers of communism—the Congress of the United States delayed and defeated the administration's efforts to implement the ICO. There is thus an awkward lack of fit. Given the supposed magnitude of the stimulus, the response was uncertain and long delayed; a major reason for the delay was that multiple domestic actors were responsible for foreign policy. Our attempt to preserve the neoclassical vision of policymaking by identifying political benefits thus fails to fit the data.

Turning to Domestic Politics

The performance of the Chicago model of cartels thus inspires us to search for a more decentralized model of politics. We shift from a unitary actor to a perspective based on collective choice. Phrased another way, we shift from a focus on international relations between presumably unitary states to a focus on the domestic politics of international policymaking.

The United States' entry into the ICO required subscribing to the terms of a treaty between states. Enabling legislation was required to implement the treaty, and participation in the ICO therefore required the concurrence of both houses of Congress. To model the behavior of the United States, we can adopt a spatial framework: one that adheres to the premise of rationality in choice but that analyzes how collective policy emerges from the strategic interplay among decentralized interests.

Spatial models are neoclassical; they locate the preferences of actors as points in a policy space, which represent ideal or bliss points, i.e., points of maximum utility. Policy outcomes can also be represented as points in that space, and their distance from an ideal point can be interpreted as a measure of utility losses, the extent of the loss being proportional to the distance. As security could be purchased by paying higher coffee prices, the policy space can be cast in one dimension: a greater interest in security implies a greater willingness to pay for coffee imports.

In figure 5.6, I construct a spatial portrait of the interactions among the executive branch (E), the Senate (S), and the House of Representatives (H). The status quo (SQ) denotes the level of security generated by prevailing policies. International security constitutes the underlying dimension; more specifically, the dimension depicts the willingness to commit resources to counter the threat posed by communism. Panel A represents the distribution of preferences in the early 1950s. The location of the ideal points of the House, Senate, and executive

branch suggests a low concern with security, the executive branch being the most concerned. The point labeled "ICO" signifies the level of resources that would be channeled into the fight against communism by entering into the ICO. Panel A suggests that the executive branch would be most inclined to join the ICO. Its ideal point lies midway between the status quo and the ICO policy outcome. The ideal points of the House and Senate, however, lie closer to the status quo than to the ICO, suggesting that, given their low assessment of the significance of the communist threat, they would not be willing to shift to the new policy.[7]

Panel B suggests the change brought on by the rise of Castro. The executive branch now shifts to supporting the ICO, as does the Senate. Some members of the House likewise reappraise the significance of the communist threat; some remain unwilling to ask American consumers to finance the war against communism by paying higher consumer prices. But the median of the House does shift to the right; its preferences track those of the large roasters, who have now come out in favor of the international agreement. As the two houses of Congress as well as the executive branch now prefer the outcome under the ICO to that under the status quo—i.e., as their ideal points lie closer to the point marked ICO than to the point marked SQ—the necessary conditions for the adoption of the policy now prevail and the collective choice now shifts in favor of the agreement.

In seeking an explanation for the formation of the ICO, we have thus moved from the study of entry deterrence (or its failure) to the study of cartel behavior. Although it provided a useful starting point, the Chicago model of regulation encountered a major anomaly, one that challenged its neoclassical foundations. To fit the narrative, while also preserving logical consistency, we recast the model,

[7]It is important to justify the specification of preferences. One way is by appealing to case materials. As described by Krasner (1971), Bruchey (1987), and Bates (1997), the passage of the ICO was managed in the Senate by the Foreign Affairs Committee, whose members were deeply concerned with international relations. Prior to addressing the question of the ICO, the committee had investigated and reported upon the origins of political instability in Brazil, and in doing so it had emphasized the destabilizing impact of low commodity prices and shortages of foreign exchange. In the House of Representatives, the Ways and Means Committee introduced the legislation. Little concerned with foreign affairs, the committee focused instead on domestic taxation.

Another way of justifying preferences is by appealing to reason. A senator is elected for a six-year term, a congressman for two. One-third of the Senate is up for election every two years, but all members of the House stand for reelection on that schedule. Economic shocks are therefore more likely to have an impact upon the elections of a majority of the members of the House than upon those of a majority of the members of the Senate. The House is thus more likely to pay attention to economic issues. Moreover, it is easier to launch a presidential campaign from the Senate than from the House. Motivated by ambition, senators might be more willing than members of the House to endorse costly programs that yield enhanced national security. It is notable, in that regard, that several of the senators on the Foreign Affairs Committee at the time of its endorsement of the ICO—for example Senators James W. Fulbright and Hubert H. Humphrey—were maneuvering for places on the national ticket of the Democratic Party.

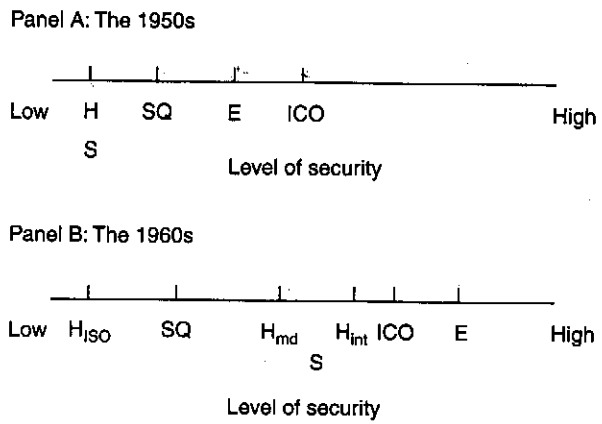

FIGURE 5.6. A spatial analysis of U.S. domestic politics. *Abbreviations:* E, executive branch; H, House; H_{int}, House internationalists; H_{iso}, House isolationists; H_{md}, House median; ICO, policy outcome under ICO; S, Senate; SQ, policy outcome under the status quo.

rendering it a variant of "realism." But this effort also foundered on anomalies in the data, forcing us to move from a form of international relations theory to a decentralized neoclassical model—one that focused on domestic politics.

In the domestic political game, it was the roasters that helped to put in place the conditions necessary for U.S. support for the ICO. They brought the House of Representatives into the coalition between Congress and the executive branch. To explore the role of these large firms, we turn once again to case materials.

Return to the Narrative

The largest players in the industry, General Foods and Procter and Gamble, are well-managed, dynamic, and expansionary firms that have access to large amounts of capital (see, for example, Harvard Business School 1987). The rivalry between them is intense. Competition takes the form of the introduction of new forms of coffee: soluble in the 1950s, freeze-dried in the 1960s, and decaffeinated in the 1970s, for example. It also takes the form of introducing new brands, such as Taster's Choice, Brim, International Coffees, High Point, and Mellow Point. In addition the firms compete in penetrating regional markets. Historically, General Foods' Maxwell House has tended to dominate markets in the East, Procter and Gamble's Folgers, markets in the West. However, when Folgers invested heavily in advertising and promotional campaigns to capture selected markets east of the Mississippi, General Foods retaliated, cutting its prices and concentrating its advertising in the "home base" from

which Folgers had launched its expansion (Harvard Business School 1987; Hilke and Nelson 1989).

Though intense, this rivalry between the firms is not competitive, in the strict meaning of the term. At the time that the United States sought to enter the ICO, the top four firms accounted for roughly 60 percent of the domestic sales of coffee (table 5.4).

In their study of the U.S. coffee industry, Gallop and Roberts (1979) grouped the over 160 coffee roasting firms by size, assigning one large firm (General Foods, one must presume) to a category of its own, the five next largest firms to a second group, and the remaining 150 or so, each with less than 1 percent of the market, to a third. They then calculated the reaction functions of firms in each category. The small firms, they found, behaved as if taking into account the behavior of larger firms, and the leading firms chose levels of production as if anticipating the behavior of firms in every size class. This behavior, they concluded, was consistent with "dominant firm leadership" (p. 326) in a market characterized by imperfect competition.

Being locked in strategic interrelationships with other roasters, the large firms thus possess incentives not only to compete but also to cooperate. In the marketplace, cooperation can take the form of refraining from entering into a particular market or from cutting prices in an effort to increase market share. In the political realm, it can take the form of providing public goods, as by seeking to influence public polices toward the industry.

When the executive branch turned to the coffee industry, it approached the National Coffee Association (NCA), an organization that represented the interests of importers, roasters, and distributors of coffee. As control over the making of policy toward international commodities moved from the Treasury Department, with its commitment to free trade, to the Department of State, with its preoccupation with national security, the NCA organized a Foreign

TABLE 5.4
Characteristics of Six Leading Coffee Roasting Firms

	Market share (percent)			
Firm	1955	1961	1968	1970
General Foods	21	34	36	28
Proctor and Gamble	9	12	15	3–15
Standard Brands	6	6	5	< 10
Hills Brothers	8	6	9	> 90
Nestlé	4	3	4	20–30
A&P	NA	NA	7	< 10
Total	48	61	69	—

Source: Krasner (1973b:503).
Notes: NA, not available. All totals exclude A&P.

TABLE 5.5
Members of the Foreign Affairs Committee of the National Coffee Association, 1960–63

Year	Six largest roasters	Six largest green coffee firms	Small firms
1960	3	0	3
1961	3	0	4
1962	3	1	3
1963	4	1	1

Source: Krasner (1971:255).

Affairs Committee to monitor and advise the government as it prepared to intervene in coffee markets. The committee intensified the association's efforts to educate the bureaucracy about the economic and commercial realities of these markets. It communicated by letter,[8] by dispatching delegations to the Department of State,[9] and by hosting Department of State representatives at business conferences.[10] At the department's invitation, the Foreign Affairs Committee of the NCA participated in the Coffee Study Group, a committee organized by the Department of State to develop the regulations that constituted the framework for the International Coffee Agreement.[11] As shown in table 5.5, the large roasting firms held half or more of the positions on the Foreign Affairs Committee.

The industry was active not only in the United States but also in Latin America. Even a casual reading of the commercial press and the minutes of organizations within the Latin American coffee industry yields an appreciation of the prominence of its executives. The arrival in a producing country of, say, George Robbins, head of the coffee division of General Foods, amounted to a state visit, with formal receptions, ceremonial dinners, and extensive coverage by the national press on the political, economic, and society pages. And Robbins did visit, regularly touring the great coffee centers: Rio, Santos, São Paulo, Manizales, and Bogotá.[12]

One of the most significant of his visits took place in Bogotá in July 1963. The treaty had been ratified by the U.S. Senate in December 1962. General

[8]See, for example, the correspondence between Edward Aborn, president of the NCA, and the secretary of state, contained in file 821.2333/1–1653, United States Archives.

[9]See the discussions in Fisher (1972) and Bruchey (1987:103ff).

[10]The NCA holds an annual conference in Boca Raton, Florida, to which it invites government officials from the United States and abroad.

[11]Information on the organization of the Coffee Study Group is contained in file 398.2333/2–1955, United States Archives.

[12]So constant was the presence of Robbins that I failed to record each notice of his arrival. For a Brazilian example, see the coverage given his 1948 visit in *Revista do Comércio de Café de Rio de Janeiro,* February and March 1948. For examples from Colombia, see Actas No. 38 and 42–44, October 30–December 18, 1952, in Comité Nacional (1952). See as well records of the visit of his successor, Paul Keating, to Manizales in Federación Nacional de Cafeteros (1980).

Foods had participated in the trade advisory committee that had helped to draft the accord in Washington and in the delegation that helped to negotiate its ratification by member nations. Its executives also served on the delegation representing the United States at meetings of the ICO. In the meetings in Bogotá in July 1963, Robbins, formerly a member of the U.S. delegation, entered into direct commercial negotiations with the managing director of Colombia's coffee agency. And the executive committee of that agency convened a series of secret sessions to discuss his proposal.[13]

In the early 1960s, General Foods was purchasing 1,800,000 bags of Colombian coffee annually, or nearly one-quarter of Colombia's total production and nearly two-thirds of its exports to the United States. It now offered to increase its annual purchases by 500,000 bags, with a commitment to continue at this increased level for three years. In exchange, General Foods wanted a reduction of $0.02 a pound in the price charged for the additional bags purchased, over and above its usual discount of 10 percent. It also offered to launch a new brand of coffee, to be called Yuban, that would feature "pure Colombian" coffee.

The leaders of Colombia's coffee industry treated General Foods' offer with great caution. They had long sought to build consumer loyalty to Colombian coffee in the United States and had even paid a leading advertising firm to promote it; General Foods' offer to feature a "pure Colombian" label would, they felt, inspire emulation by other roasters, and so give a boost to their marketing campaign. However, they also saw disadvantages to the proposal. One was the danger of becoming even more dependent on General Foods; another was the risk of being seen by other producers as cutting the price of coffee, just as an accord to stabilize prices was being put in place. In the end, the executive committee decided to go ahead with the deal. They did so, I believe, in order to strengthen, not weaken, the international agreement.

Shortly after the initiation of postwar efforts to build an accord, the dominant producers had signed bulk contracts with the large coffee roasting firms. Colombia appears to have signed its first such contract with General Foods in 1959; Brazil followed suit in May 1960.[14] The evidence suggests that similar contracts were signed with other major roasters: Nestlé, Rotfus, and Procter and Gamble. The contracts committed the roasters to the purchase of fixed amounts of coffee per quarter—450,000 bags, in the case of General Foods in the early 1960s—in exchange for discounts on the price of coffee. Under the terms of each contract, the discount was applied to the costs of future purchases. Because the discount was not paid immediately, but rather rebated in subsequent periods, the market for coffee was transformed from a spot market. Under the terms of the bulk contracts, the producers and roasters entered into long-term relationships.

[13]This account is drawn from Federación Nacional de Cafeteros, Comité Nacional (1963).

[14]Acta No. 4 de la sesión del día 28 de enero de 1960 and Acta No. 18 de la sesión del día 12 de mayo de 1965 in Comité Nacional (1960, 1965).

Of course, financial costs and benefits constitute a significant component of the exchange between the dominant producers and the large roasting firms. The $0.02 per pound price reduction in the purchase of Colombian coffee enabled General Foods to pay nearly $2 million less for its 1,500,000 bags of coffee and Colombia to generate a 17 percent increase in its sales in the North American market. But Colombia got even more out of the bargain. As part of its relationship with General Foods, it also secured political services.

General Foods and the other large roasters were not merely purchasers and processors of coffee. They were also lobbyists and members of national delegations. They provided the executive branch with the information necessary to maintain and to regulate the coffee trade and testified before Congress on behalf of U.S. intervention. From Colombia's point of view, the discount in the price of coffee to General Foods bought compensating advantages: the help of a large roaster in securing the United States' enforcement of the International Coffee Agreement, thereby checking opportunistic behavior by the competitive fringe—and raising the average price of coffee.

In turn General Foods and the other large roasters who had signed bulk contracts received major economic advantages. The large roasters operated in the national market. Taking into account their costs for advertising, distribution, and promotion, the purchase of raw materials constituted a comparatively small portion of their expenses. However, for the small, regional roasters with whom they competed—Chock Full O'Nuts in Baltimore and Atlanta or Breakfast Cheer in Pittsburgh—the price of raw materials constituted a relatively larger percentage of total costs (Hilke and Nelson 1989; Sutton 1991). By structuring the regulation of the market so as to increase the price of raw materials, and by securing rebates from the dominant producers of those raw materials, the larger roasters were able to increase the costs of raw materials to their competitors, thereby achieving a cost advantage.[15]

Analyzing the Narrative: Cut III

In describing the behavior of the major coffee firms, this narrative has portrayed behavior analyzed by Oliver Williamson and others: a form of market rivalry in which one firm seeks to maximize its profits by raising the costs incurred by its rivals.[16] Within the United States, the large roasters backed the cause of the agreement. Insofar as the U.S. government enforced it, it raised the costs of raw materials to all coffee firms; however, insofar as the large roasters received discounts from the producers, the increase in costs affected only their competitors. They thus secured a cost advantage.

[15]The situation most clearly resembles the Penington case (Williamson 1968). The impact of the industrywide shift in the costs of production on competitors in the industry is magnified in this instance by the rebates (Salop and Scheffman 1983).

[16]See Williamson (1968) and Salop and Scheffman (1983).

A major question then arises: why would such an agreement be stable? As suggested in the logic highlighted by the entry-deterrence game, the answer must lie in the credibility of the threats that support it. This reasoning focuses attention on the relationship between those who demanded the agreement (the large coffee producers) and those who organized its supply (the coffee roasting firms). Examining the outcome of their behavior in a collusive equilibrium, we find that when a large roaster, like General Foods, helped the U.S. government to police illicit shipments of coffee from the competitive fringe—say, Central America—it drove up the price of those coffees. The differential between the price of Colombian and other coffees then declined. Given the differentials in quality between Colombian and other mild coffees, buyers switched to Colombian coffee. As more buyers turned to Colombian coffee, Colombia's dependence on any one given buyer of its coffee declined. The strategies pursued by the parties in the collusive equilibrium thereby lowered the costs to producers of implementing threats to the roasting firms. The reduced costs to Colombia of canceling its contract with any given firm rendered Colombia's threats—but this time, against firms—more credible. The collusive agreement could therefore become self-enforcing.

In an interview (October 27, 1982) with the head of the coffee division of Procter and Gamble, the second largest roaster of coffee in the United States, I gained insight into the extent and nature of the fears that deterred movement away from the collusive equilibrium. Procter and Gamble cultivates a reputation for a strong commitment to "all-American" values: patriotism, capitalism, and competitive markets. Yet when I questioned the head of its coffee division about the agreement he indicated that "the free market would be O.K." "We may in fact testify in Congress against [the agreement]," he added. "How about Brazilian reprisals?" I asked. "Would they be likely to punish you by canceling your contracts?" There was a long pause before the executive replied, "Don't even breathe that possibility to anyone else. I will have to explain to our Chief Executive that the Brazilians may force us on board. I would be less than honest if I didn't say this to him. The Brazilians price coffee so attractively to us—we go with that contract and buy big and use it. We buy all we can get. But then they can put the screws on us."

The chief executive officer of Procter and Gamble preached the virtues of the free market; the head of its coffee division had to deal with the realities of the coffee market. I take the latter's comments as confirmation of his beliefs as to what would happen were his company to stray from the path of collusion and violate the terms of its relationship with the organizers of the accord.

In seeking an analytic framework for the narrative offered by the ICO, I have reached for models of imperfect competition. Most fail, but each does so in an interesting and informative manner. As with the chain store paradox and the Chicago model of regulation, their failures highlight important features of the data—features whose significance has thus far been insufficiently appreciated. Their failures also inspire important reformulations of the models,

either to improve their goodness of fit or to restore consistency in their logic. Economic models of collusion become models of political economy, or, as with the realist school, models of international relations give way to models of domestic politics.

In the end, we arrive at a complex vision, albeit still one of a cartel. Formally the ICO constituted an agreement among sovereign states. In reality it was a political and economic alliance engineered at the subnational level. The ICO represented a coalition among bureaucrats, politicians, and firms that used the power of states to restructure markets. The result was enhanced political security for public officials and the enhanced profitability of firms, which secured wealth in return for political service.

The ICO as an Institution

Thus far we have explored the creation and maintenance of the ICO.[17] We now turn to its behavior.

Effectiveness

It is difficult to measure directly the impact of the ICO. Being unable to generate reliable estimates of the impact of the ICO, I have therefore settled for a less direct assessment of its impact. For the ICO to work, it needed to fulfill two necessary conditions: it had to restrict arbitrage between the member and nonmember markets and competition among the producers of coffee. The evidence suggests that it succeeded at both.

RESTRICTING ARBITRAGE

Figure 5.7 presents evidence concerning the effectiveness of the ICO. The horizontal axis displays years, including the dates during which quotas were in effect: August 1965 to October 1972 and October 1980 to August 1985. The vertical axis records the ratio between coffee prices in the markets of member

[17]The operations of the ICO create three measurement problems. The imposition of quotas limits supplies when prices are declining, thus censoring the data and biasing estimates of the determinants of market prices; market forces determine prices when they lie above the target range and quantity restrictions when they enter that range, thus imposing a change in regime; and prices can induce a change in quotas, just as quotas can induce a change in prices, thus creating a problem of endogeneity. The attempts of other scholars to assess the impact of the ICO have failed to address these issues. I therefore could not use their estimates. My own attempts to construct a properly specified model of the regulated coffee market foundered on the absence of data on key variables, especially in monthly time series.

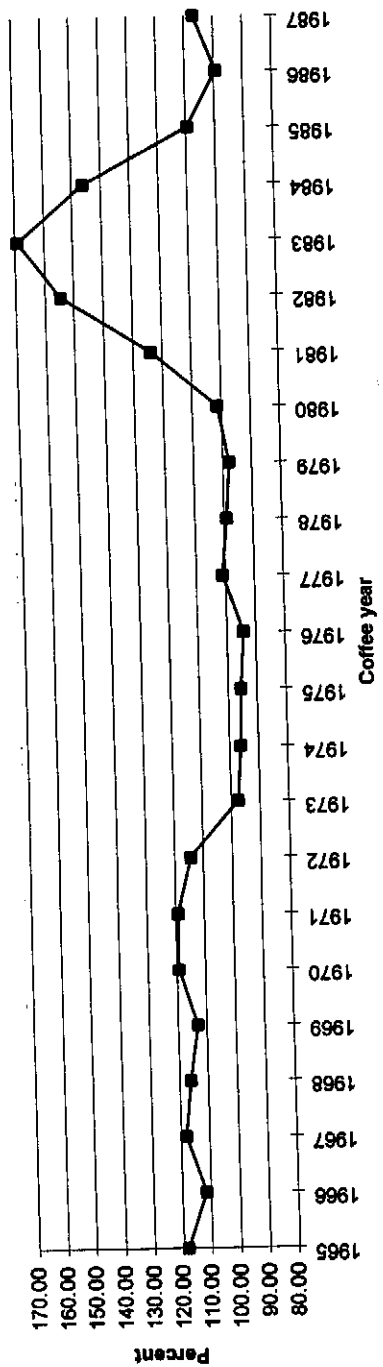

FIGURE 5.7. Price of coffee exported to members as percentage of price of coffee exported to nonmembers. Quotas were in force during the periods August 1965 to October 1972 and October 1980 to August 1985. *Source:* Monthly price data from the files of the ICO. Reproduced from Bates (1997).

and nonmember nations, expressed as a percentage.[18] When the ratio exceeds 100 percent, then prices in member markets exceed those in the markets of nonmembers; arbitrage has been prevented and barriers to trade effectively put in place. The evidence in figure 5.7 suggests that when the ICO imposed quotas it was able to enforce them, yielding a higher price in the coffee markets of member nations.

Although 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 during periods in which the ICO did and did not impose quota restrictions.[19] I constructed a variable, 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 0, or that there is no statistically significant difference between the mean of the prices in the two markets. We can reject the null hypothesis if the test statistic falls into a critical range—a range within which its value would be highly unlikely (one chance in one hundred) to fall were it determined by chance. In this instance, I chose a critical range appropriate to a one-tailed test; I wished to reject the null when the value of the test statistic was highly and significantly positive, i.e., when the mean price of coffee in the member market exceeded 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 5.6, 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. The imposition of quotas appears to generate a significantly higher price in member markets.[20]

RIVALRY

Thus far I have focused on the impact of the ICO on average prices. At least as important is its impact on relative prices, for competition between coffee

[18]The measure of coffee "prices" is actually the unit value of exports, as recorded in International Coffee Organization, W.P.—Agreement No. 1/88, Rev. 2.

[19]With the help of Ms. (now Dr.) Dixie Reeves, my research assistant. For a development of the method followed, see Larsen and Marx (1990:486–87, 496–97).

[20]As seen in figure 5.7 and table 5.6, when quotas were not in place, prices in member markets fell below those in the markets of other countries. At such times, exporters sought hard currency earnings and competed for sales in Europe and the United States.

The greater tendency for producers to sell low-quality coffees in the nonmember market constitutes a plausible alternative explanation of the price differentials. Research by economists at the Department of State concluded, however, that this behavior could not account for the magnitude of the differential (interview, Washington, D.C., June 1990). And a reanalysis of the data underlying table 5.6 suggests that the differential was as great for each quality of coffee, i.e., as great for robusta as for milds.

TABLE 5.6
Testing for the Impact of the Coffee Quota

	Number of observations	Mean for D	t-Statistic
Periods in which quotas were in place			
August 1965 to October 1972	600	2.342	5.295
October 1980 to August 1985	299	18.742	6.571
Periods in which quotas were not in place			
November 1972 to September 1979	420	−1.516	−1.264
September 1985 to August 1988	240	−9.150	−1.923

Source: Monthly price data from the files of the ICO.

producers takes the form of competitive price cutting by producing nations. The market appears to recognize four qualities of coffee. Colombian milds, a washed arabica, are positioned at the top of the market.[21] Then come the other milds, the washed arabicas produced in Central America. Brazil's unwashed arabicas occupy the third rung in the quality rankings.[22] Africa's robustas slot in at the bottom of the market.[23] Despite the quality differences, consumers are willing to substitute among these varieties, given sufficient incentive. A competitive cut in the price of other mild coffees would therefore produce a lowering of the price of Colombian coffee, for consumers would be willing to switch from Colombia's high-quality coffee, given a sufficient price differential.

A second test of the effectiveness of the ICO, then, is its impact on relative prices. Figure 5.8 illustrates the pattern of relative prices for a period during which quotas were in effect. By and large, price differentials remained stable. The pattern contrasts with that exhibited in figure 5.9, which portrays relative prices in a period during which 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 5.8 and 5.9). It also produced a massive distortion in relative prices. After recovering, Brazil sought to reposition its coffee at a price level intermediate between that of the other milds and that of robusta coffees. But, as can be seen in figure 5.9, African producers resisted, cutting their prices to keep Brazil from closing the gap. So did the producers of other milds, who lowered their prices below those charged by Brazil. This competitive response posed a challenge to Colombia as well, for the growing price differentials between other milds and Colombian coffee encouraged consumers to abandon the higher-quality

[21]The vast bulk of which are produced in Colombia, of course. But Kenya and the Kilimanjaro region of Tanzania also produce coffees classified in this group.

[22]Ethiopia also produces unwashed arabicas; its crop is insignificant by comparison with that of Brazil.

[23]Indonesia is also a major producer of robusta coffees.

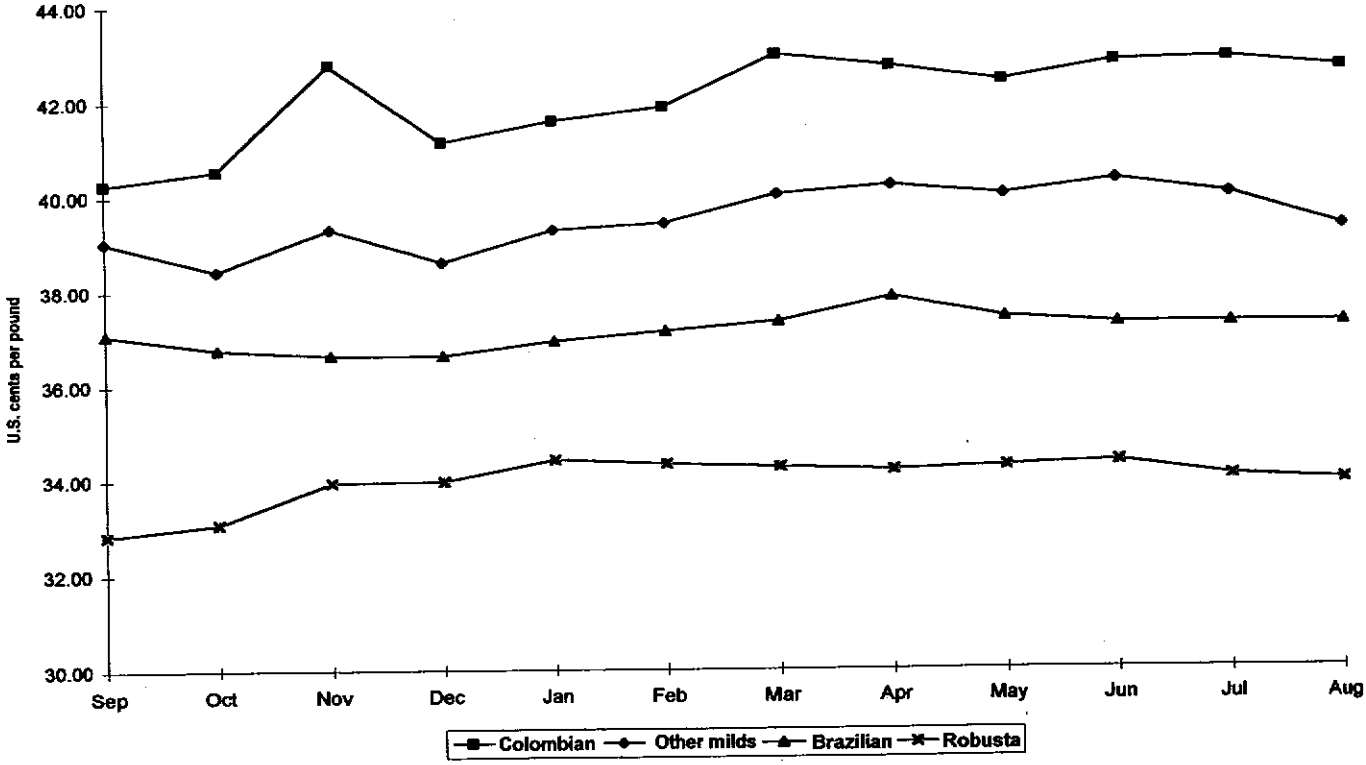

FIGURE 5.8. Coffee prices, 1967–68. *Source:* Monthly price data from the files of the ICO. Reproduced from Bates (1997).

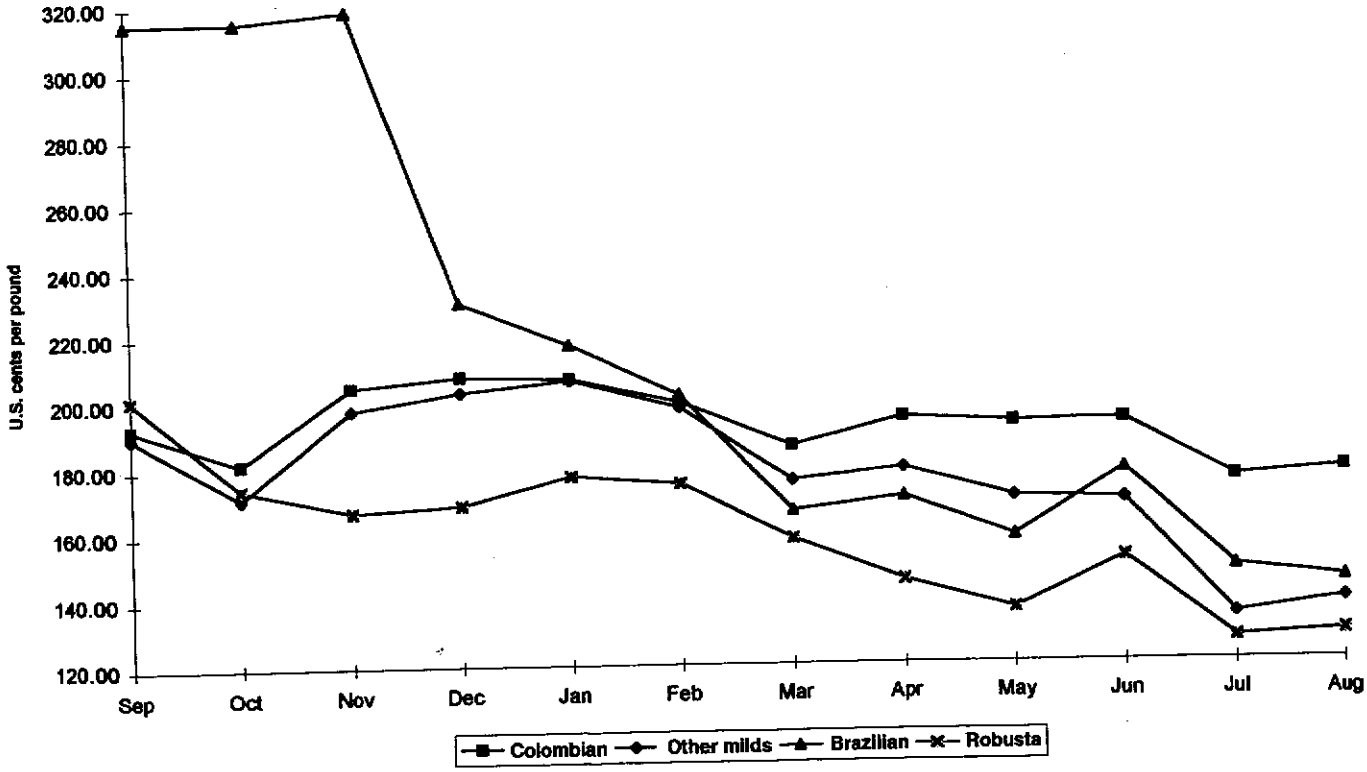

FIGURE 5.9. Coffee prices, 1977–78. *Source:* Monthly price data from the files of the ICO. Reproduced from Bates (1997).

Colombian product. Colombia therefore joined in the price cutting. In the face of the kind of competitive behavior portrayed in figure 5.9, the dominant producers sought to reimpose the quantity constraints that would generate the evenly spaced price differentials exhibited in figure 5.8. They succeeded in doing so.

The ICO thus appears to have worked. It was apparently able to prevent arbitrage across markets and competition between producers of different kinds of coffee. It appears to have been able to regulate behavior in the coffee market in ways that enabled it to achieve higher average prices. Indicative of this power is the behavior of coffee prices following 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 5.10, 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.

Operations

In addition to having been able to regulate the coffee market effectively, the ICO appears to have been rule governed. The best-documented example of the impact of the rules comes from the negotiations that led to the assignment of quotas in 1982.[24] Quotas had been suspended when prices rose above the target range because of shortages resulting from the Brazilian frost of 1975. As prices returned to the level at which the ICO would seek to defend them, Brazil proposed a new set of quotas. Under this proposal, Brazil would secure over 33 percent of the market, a share held in the 1960s but long since lost, particularly since the frost of 1975. The primary victim of Brazil's proposal would have been Colombia, which would have been constrained to less than a 19 percent share of the market, after having captured over 22 percent of it following the frost. Colombia therefore set out to block Brazil's proposal by crafting one of its own.

Under the rules of the ICO, quotas had to be voted upon, and Article 13 of the International Coffee Agreement governed the allocation of votes. Under Article 13, the proportion of total exports for the period 1976/77 to 1979/80 accounted for by a given producer, i (call them P_{1i}, where 1 stands for the time period above, i for the producer, and P for export performance) determined the proportion of the votes controlled by that producer (call that proportion W_i). This rule can be represented as

$$W_i = f(P_{1i}) \qquad (1)$$

[24]This section draws heavily upon Bates and Lien (1985) and Lien and Bates (1987). The articles contain the data underlying this analysis. For treatments of closely related issues, see Fielding and Liebeck (1975) and Hosli (1993).

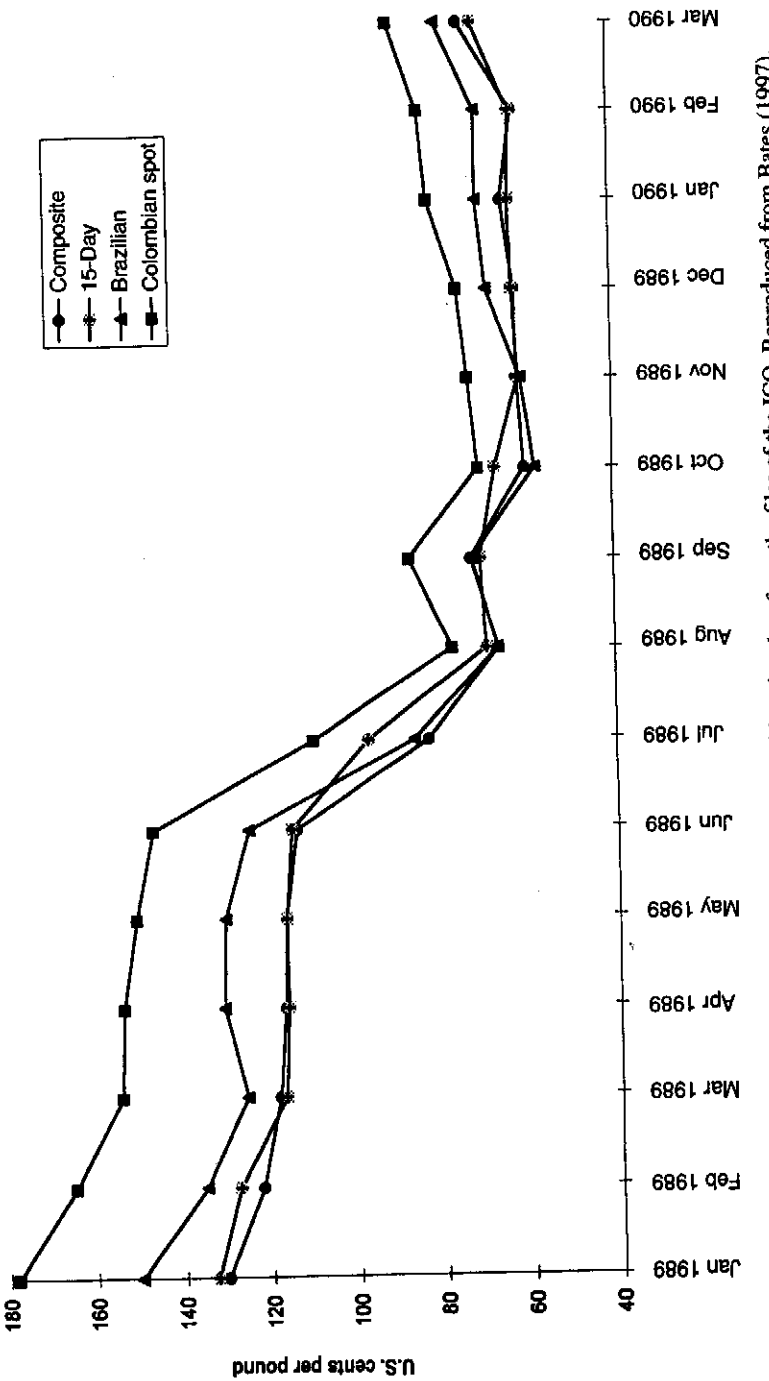

FIGURE 5.10. The breakup of the ICO, July 1989. *Source:* Monthly price data from the files of the ICO. Reproduced from Bates (1997).

Article 30 of the agreement governed the allocation of quotas. Claims for quotas, this article stated, were to be based on average exports over one of two three-year periods: 1968/69 to 1971/72 or 1976/77 to 1979/80.[25] Claims for quotas were transformed into actual quotas only when voted upon, however; quotas were set by a (distributed) two-thirds majority vote of the member nations. Article 30 can therefore also be represented in the form of a function, wherein the quota assigned to a particular nation, $i(q_i)$, is a function of past export performance (P_{2i}, where the subscript 2 refers to the time period noted in this paragraph, rather than that used in the allocation of votes, as discussed earlier) and of votes (W_i). Thus

$$q_i = g(P_{2i}, W_i) \tag{2}$$

Rule-governed environments produce opportunities for sophisticated behavior. In the presence of voting rules, actors can behave strategically. In majority-rule environments, they can convert endowments of votes into political power by converting coalitions into political majorities. Given a set of rules that defines a winning majority, the Shapley value of an actor provides a measure of that actor's power: the percentage of all coalitions among members of the group which that actor, given its allocation of votes, can convert into a winning majority.[26] Once again, the reasoning can be summarized:

$$S_i = h(W_i) \tag{3}$$

where S_i stands for the Shapley value of nation i and W_i for its endowment of votes, as noted previously.

The rules that governed the assignment of the quotas by the ICO thus can be recast as a system of equations:

Equation	Justification
1. $W_i = f(P_{1i})$	Article 13
2. $q_i = g(P_{2i}, W_i)$	Article 30
3. $S_i = h(W_i)$	Behavioral assumptions

In effect, this system constitutes a model of how quotas (q_i) would be assigned under the rules of the ICO, were actors making sophisticated use of the powers conferred upon them by those rules. An advantage of this formalization is that it suggests a way of estimating the impact of the rules. We can estimate

[25]The producer nations could choose either period. Brazil, for example, chose the first and Colombia the second, as the former lost market share following the frost of 1975 while the latter gained.

[26]For a discussion, see Luce and Raiffa (1957). For illuminating critiques and discussions, see Roth (1988).

the parameters of the model, and thus the impact of the rules of the agreement, by using a two-stage least squares approach, in which the constant terms, P_1 and P_2, are used as instruments to eliminate the correlation between S_i and q_i indirectly produced through their association with export performance.[27]

Equation (4) presents the results for the allocation of the quota proposed by Colombia:

$$q_i = \underset{(0.214)}{-0.2279} + \underset{(0.0674)}{0.8281}P_{2i} + \underset{(0.0746)}{0.2175}S_i \tag{4}$$

The figures in parentheses represent standard errors of the estimated parameters. The standard errors of the estimated coefficient relating Colombia's Shapley value to its quota is one-third the value of the estimated parameter, and it is therefore statistically significant.

These results can be interpreted as suggesting that Colombia took cognizance of the rules and their effect on the distribution of power and allocated quota entitlements so as to accommodate the voting power of particular nations. Indeed documentary evidence underscores the hypothesis that the Colombian delegation counted votes and crafted its proposal accordingly.[28] The rules thus appear to have shaped the behavior of member nations, and, in particular, the allocation of rights to export in international markets.

By creating the ICO, the dominant producers sought to erect a governance structure that enabled them to reduce the risks of opportunistic behavior—risks that undermined their capacity to incur costs with the certainty that they, and others, would reap the benefit of higher coffee prices. The results of the estimates also provide a test of their ability to do so. The Shapley value provides a measure of the ability of a nation to convert coalitions into winning coalitions, i.e., into ones that command electoral majorities. Under the rules of the agreement, bigger producers were endowed with greater numbers of votes; intuitively they should therefore have possessed more power. Equation (5) provides the test we seek. As seen in that equation, the relationship between the voting strength of a nation and its Shapley value is indeed nonlinear; it is quadratic, such that as the number of votes controlled by a nation increases, its Shapley value rises more than proportionately:

$$S_i = \underset{(0.0031)}{0.8227}W_i + \underset{(0.0018)}{0.0152}W_i^2 \tag{5}$$

The lesson is clear: by controlling more votes, larger nations gained more "Shapley power," as shown in equation (5) and therefore could extract greater quotas, as shown in equation (4). This estimate of the impact of the rules thus

[27]Da-Hsiang Donald Lien and I have performed this analysis (Bates and Lien 1985).

[28]Memorandum No. 001, enero 22 de 1982, pp. 1–2, Convenio International de Café, *Copiador Memorandos*, 1982.

underscores the ability of the ICO to offer the large producers the assurance that were they to restrict exports, they need not fear predation by the smaller exporters.

The values of the parameters estimated from the model provide a further measure of the economic significance of the political rules put in place by the ICO. They suggest, for example, that had Kenya possessed but one vote more in 1982, it could have increased its quota such that it could have earned an additional $168.5 million each year throughout the 1980s. We can thus see how the rules of this government of coffee affected the wealth of nations.

In this section, we show that the ICO was rule governed. Earlier in this chapter, we have argued that its rules became self-enforcing. The rules were so regularized that they could be modeled and the model tested against data generated by the behavior of states. Where the rules of an organization are so precise that they can be formalized, and where the tests of the resultant model suggest that the rules in fact shape the conduct of actors, then I, for one, am willing to call that organization an institution.

Return to the Narrative

Narratives describe a birth, a life, and a death. In the preceding sections, we have provided an account of the birth and life of the ICO. In this section, we describe its demise. The collapse of the organization represents a shift in outcomes—a change in the value of endogenous variables. It also implies that the values of the variables that we posited as exogenous themselves change. It therefore provides a test of our explanation.

The ICO, I have argued, constituted a coalition among firms and bureaucrats that used states to regulate international markets. A key to the ability of the producers to secure third-party enforcement was the willingness of coffee roasters and security specialists in the United States to elicit the enforcement of the agreement. The mix of coffees demanded by consumers changed, but, given the binding nature of the quotas, the mix of coffees supplied by the producers did not. In the United States, consumers switched from soluble coffees, which intensively employed robustas, to ground coffees, with a higher percentage of arabicas. In seeking to respond to changes in consumer preferences, the roasters confronted the supply constraints imposed by the ICO.

Because the ICO worked, it resulted not only in a fixed proportion of coffees of different types but also in large price differentials between member and nonmember markets. As the price differential increased, so too did the fears of the large roasting firms, who worried that competitors would secure low-cost coffee, illicitly importing it from nonmember countries. The cooperation of the large firms remained knife edged: each was willing to cooperate only so long

as it was certain of the cooperation of others. Insofar as the agreement worked, then, incentives to elude the administrative barriers strengthened, and so too did the readiness of key actors to abandon the agreement.

In the 1980s, two changes appear to have triggered defection. One was the large-scale movement of European roasters to Berlin, attracted by favorable tax policies. The other was the entry of a European firm, Nestlé, into the North American market, through its purchase of Hills Brothers. The large U.S. roasters now faced a competitor with possible access to cheap coffee, purchased in the nonmember markets of Eastern Europe.

In response to the constraints imposed by the ICO on the mix of coffees available in the market and their relative prices, and to the entry of Nestlé into the U.S. market, the Foreign Affairs Committee of the NCA shifted from a supporter to a critic of the ICO. In February 1988 it indicated that it had detected

> two severe weaknesses in the operation of the current agreement . . . :
>
> 1. The sale of coffee to non-members . . . at prices substantially below the price at which . . . coffee is offered to members of the Agreement. This practice has created a so-called "two-tier" market that is not only economically unfair to member states, but also encourages various illegal or clandestine diversions of coffee. . . .
>
> 2. The inflexibility of the quota system in making coffee of the origins or types required by consumers available to the market.

The committee therefore concluded and resolved "that the interests of the United States coffee . . . industry are best accommodated by free and unrestricted trade of coffee."[29]

The Department of State, we have argued, constituted a second key element in the domestic coalition underpinning the ICO. The department was concerned with international security; in particular it was concerned with the threat of communism. But in the late 1980s, the communist threat collapsed. The left no longer posed a political threat in Brazil, and, in a variety of industrial and agricultural markets, Brazil had come to resemble more closely a mature economic rival than a struggling developing nation. Another key element of the ICO's domestic support coalition, the Department of State, therefore defected.

The structure of policymaking in the United States requires that the executive branch push for the agreement and that it secure the consent of Congress. Essential to the latter is the backing of the coffee roasting firms. The support of both the Department of State and the coffee roasters for the ICO had weakened. In terms of our spatial model, we can think of the changes that took place in the 1980s as representing a shift from panel B to panel A in figure 5.6. The executive branch and the House, deferring to the preferences of the roasters,

[29] "Report of the Foreign Affairs Committee, Board of Directors, National Coffee Association," February 1988, p. 4.

shifted their policy preferences away from the ICO and toward the free ma
policies that had formed the earlier status quo.

The collapse of the ICO marks the last stage of this narrative. The institu
did not endure. But our understanding of it appears to have survived the
posed by its demise. Changes in the value of explanatory variables a
decisively, and in expected ways, upon the politics of the coffee market.

Conclusion

As a political institution that regulated international markets, the ICO was ve
rare indeed; few other bodies have effectively governed the behavior of st
in the global arena. As with other rare occurrences, the history of the ICO c
be described; it possessed a birth, a life, and a death. In analyzing this ca
however, I have sought to move beyond mere narration. I have sought to extra
systematic knowledge.

In an effort to do so, I have sought to fit analytic frameworks to the histo
of this institution. One framework was that of noncooperative game theo
and, in particular, the chain store model of entry deterrence. Like the narrativ
the game analyzed actors and choices. Being starker than the narrative itself,
highlighted features of the narrative. It sharpened our understanding of the log
underlying the events and heightened our awareness of what was problema
and therefore in need of explanation. It also provided an engine of discove
directing our attention to important features of the data.

The analysis also drove us to recognize that the creation of the ICO w
not the result of purely economic behavior, but rather of political and ec
nomic choice making. In keeping with the Chicago theory of cartel behavio
I sought to see why a third party—the government of a consuming nation, t
United States—would provide enforcement for a collusive agreement amo
producers. Using the tools of spatial analysis, I explored the politics of coalitio
formation and isolated the domestic political coalition that explained why th
government of a consumer nation should support a cartel.

The last part of this chapter emphasized an additional advantage of movi
from historical accounts to analytic narratives: the transformation helps
render such accounts amenable to testing. Models explicitly separate exogeno
from endogenous factors and specify the causal linkages between them. The
constitute a claim that changes in the exogenous variables should, of necessity,
generate changes in those that are endogenous. Models therefore set the stag
for testing. One way is by estimating relationships between variables. Anothe
is by making observations of data generated by events that take place outsid
the original sample. Thus did the death of the ICO provide an opportunity to
assess our account of its creation.

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Conclusion

THE CHAPTERS in this volume have explored the sources of political order, the origins of conflict, and the interplay between international and domestic political economy. Throughout their discussion of such themes, they have focused on the nature and significance of institutions. Because the chapters engage such fundamental issues, they are of general significance. Those seeking insight into state formation, the political foundations of development, and the role of institutions can read them with profit. But although the themes and insights are general, the generality of the *explanations* is far less apparent. It is to this issue that we now turn.

Postdiction

Green and Shapiro (1994) criticize the literature on rational choice for failing to be empirically grounded. We hope that these chapters offer a convincing rebuttal. But in eluding this charge we may run afoul of another. Insofar as users of rational choice theory address empirical evidence, Green and Shapiro contend, they construct models that simply account for the original evidence. Mere exercises in "curve fitting," such efforts do not offer adequate tests of theory.

In the introduction, we provide one rejoinder: that in constructing our theories, we were often driven to the discovery of new features of our data. Thus Greif was compelled to move from the domestic to the international level, Levi found it necessary to consider the distinction between rural and urban populations in their response to military recruitment, and Weingast had to address the revision in Southern expectations following the Democratic Party's loss of the House elections. The chapters themselves provide another rejoinder: in some, the models fail. Bates, for example, was compelled by the evidence to discard, or reconfigure, a variety of approaches to the analysis of cartels. Greif began with a model derived from the spatial literature on voting (Hinich and Munger 1997)—an approach that he was forced to abandon. Levi had to reconsider a model in which changes in conscription followed directly from expansions in suffrage. In addition, models posit relationships among variables that render them subject to testing. In Rosenthal's chapter, for example, the conditions that make it rational to launch wars suggest relationships between the fiscal power of elites and the returns from fighting, thereby providing a means for evaluating his explanation.

When models highlight features of the data that hitherto have escaped attention; when they can be contradicted by the evidence; and when they