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ABSTRACT

This paper describes information exchange under the *Sugar Institute*, the trade association of U.S. domestic sugar cane refiners, between 1928 and 1936. The Institute collected production and delivery data from the individual firms and returned it to them in aggregated form. Attempts to exchange sales data were stymied by the larger firms. Surprisingly, there is no indication of mis-reporting of statistics by Institute members, although statistics were, at times, withheld. The paper concentrates on the evolution of the Institute. Proposals for successor organizations show that a workable mechanism required greater discretion to the central authority and greater voting rights to the larger firms.

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1 Introduction

The United States cane sugar refiners faced serious difficulties in 1927. The combination of the revival of European beet sugar production after the War, world wide government subsidisation of beet production and a new "slimness craze" had left the industry with substantial excess capacity. Although the industry was still relatively concentrated, with the three largest firms responsible for almost 60 percent of production, this was a far cry from the pre-War years, in which a single firm had dominated the production of this homogenous good. The result was fierce competition by way of secret price cuts and other concessions to selected customers, and so falling profit margins.

To a sugar man with a long enough memory, these conditions must have recalled the situation in the 1880s, when excess capacity was even greater and price wars prevailed. Then the solution was a grand merger of firms. This first took the form of the Sugar Trust, a combination of 18 independent firms representing 80 percent of industry capacity. When in 1891 that form was no longer legally available, the Sugar Trust became the American Sugar Refining Company (ASRC).

Consolidation was the industry's continual response to similar problems throughout its early history. Over the next twenty years or so, ASRC's strategy for dealing with entry was to acquire entrants, at times after a fierce price war. The long run success of that strategy is subject to dispute - contrast Zerbe's (1969) Chicago School skepticism of its viability with Eichner's (1969) account, or consult Genesove and Mullin (1996) for an intermediate viewpoint - but the repeated attempts to repeat the success of 1887 is evident.

In part because the buyout attempts were not completely successful, in part because of the loss of ASRC's founder, Henry Havemeyer, in 1907, and in part due to restrictions imposed by the Department of Justice's 1910 monopolization suit, ASRC shrank in size. Its market share had peaked at 91 percent in 1892, and it declined to 43 percent in 1914.[1] The impact of this decline on competition, however, was masked by the government controls implemented for the war and the immediate postwar period.

By 1927, there were fifteen firms in the industry. Most were located along the Atlantic seaboard, especially between Boston and Baltimore, and refined Cuban raw sugar cane, although there were a few small refiners in Louisiana and Texas that refined domestic cane, and two large ones on the West Coast that refined Hawaiian raw sugar cane. ASRC was still the largest firm, but with only a 25% market share (and a quarter ownership of the next largest firm, National). As Table 1 shows, ASRC and National were the only multi-plant firms, and ASRC the only one to have plants in more than one city. The cane sugar refining industry accounted for 82.5 percent of U.S. sugar consumption. Domestic beet sugar production, concentrated in the Midwest and California, was responsible for most of the remainder (14.4 percent). A small quantity of sugar was refined "offshore", in the cane-producing islands and imported into the United States (2.8 percent).[2]

[1] *Weekly Statistical Sugar Trade Journal.*

[2] The figures are from Temporary National Economic Committee, (1941), p. 112.

Table 1: U.S Cane Sugar Refiners

Firm	Market Share in 1927	Location of Plant(s)
American Sugar Refining Company	25.06	5 plants: Boston, New York City, Philadelphia, Baltimore, New Orleans
National Sugar Refining Company	22.07	3 plants: New York City area
California & Hawaiian	10.84	Crockett, CA
Pennsylvania Sugar Co.	6.73	Philadelphia, PA
Arbuckle Brothers	5.80	Brooklyn, NY
Western Sugar Refinery	4.46	San Francisco, CA
Godchaux Sugars, Inc.	4.02	Reserve, LA
W.J. McCahan Sugar Refining & Molasses Co.	3.60	Philadelphia, PA
Savannah Sugar Refining Corporation	3.26	Savannah, GA
Revere Sugar Refinery	3.20	Charlestown, MA
Imperial Sugar Co.	3.00	Sugar Lands, TX
Federal Sugar Refining (Spreckels Sugar) Co.†	2.66	Yonkers, NY
Colonial Sugars Co.	2.33	Gramercy, LA
Texas Sugar Refining Corporation	1.84	Texas City, TX
William Henderson	1.13	New Orleans, LA

Source: Temporary National Economic Committee (1941), p. 112. Plant locations from Palmer, 1927, p. C-33.

†Federal Sugar Refining entered receivership and was reorganized as the Spreckels Sugar Co. in 1929. The Spreckels company was then liquidated in 1930.

The solution of 1887 was unavailable in 1927. The interpretation and enforcement of the Sherman Act, and its particular application to the sugar industry in the 1910 monopolisation suit, had seen to that. Instead, in January 1928 the refiners formed a trade association, the Sugar Institute. As a substitute to a merger, a trade association is clearly inferior. A trade association lacks the coerecive powers of a firm over its divisions; it must find other ways to induce the desired behavior of its constitutient firms. Indeed, throughout the life of the Institute there were continual, though vague and ineffectual calls for real consolidations among the refiners to produce a tighter oligopoly. Nevertheless, the Institute did succeed in raising price, and within a year had doubled the Lerner price index. But it, too, soon rain afoul of the anti-trust laws. The Department of Justice filed suit in March 1931. The District Court ruled against the Sugar Institute in 1934, and the Supreme Court concurred in 1936.[3]

The Sugar Institute never fixed prices nor set either production quotas or market shares. Its methods were more indirect. Through its Code of Ethics, it promulgated and enforced rules of trade whose purpose was to make price cuts more transparent, as we discuss in a companion paper (Genesove and Mullin, 1996b). In the present essay we focus on the Institute's role in encouraging information exchange. Information exchange served two roles for the Sugar Institute. First, it helped enforce the Institute's rules, and so was a means to an end. A refiner might profess to price openly, as the Institute required, but then give price discounts in secret. Some means of monitoring pricing behavior was therefore essential. But information exchange was also an end in itself. Several refiners testified at trial that the prospects of obtaining credible industry statistical information played an important role in their decision to join the Institute. The Institute undertook other collective actions, such as an industry-wide advertising campaign, and standardization of sugar grades. But such activities were secondary, and when the Supreme Court ruled against the Sugar Institute's primary actions, its members chose to dissolve it.

The formation of the Sugar Institute involved delicate issues of organizational design. A trade association is a particular type of "governance structure", in Oliver Williamson's phrase, in which the member firms cooperate in certain dimensions, yet retain independence over both pricing and production decisions and internal information and accounting systems. This division of authority inevitably gives rise to a conflict between the *collective* interest of firms to share information and the *individual* interest of each firm to withhold it. For example, if firms are colluding on prices, then there is a collective interest in having information available to monitor and maintain collusion. But it remains in the individual firm's interest to undercut the collusive price and cheat if it can do so undetected. This tension animated the Sugar Institute in both its design and implementation, and, shortly after its formation, threatened to render impotent if not destroy the Institute. Nevertheless, the members of the Institute, operating through its established framework, were gradually able to exchange information cooperatively and to modify, with mixed success, industry practices.

[3] *United States v. Sugar Institute*, 15 Fed. Sup. 817 (1934); 297 US 553 (1936).

The organization and operation of a trade association therefore involves incentive problems that are muted if not absent when information is internal to the firm.[4] Several incentive problems face a trade association. First, firms must be induced to join. If non-participation is too attractive, the association will unravel. Second, member firms must give truthful reports of their information. A firm could violate the information sharing agreement either by non-reporting (failing to file a report), or mis-reporting (filing a false report). Finally, the association must protect the confidentiality of any reported information not intended to be shared. These incentive problems are difficult enough when firms are identical; they become more severe when firms are heterogeneous since that sharpens the divergence between the firms' collective and individual interests.

Our study of the Sugar Institute complements other contributions to this conference volume. We conceive of three objects of firm learning: technology, production techniques, and organizations and incentives. Usselman and Lamoreaux and Sokoloff have examined learning about both technique and technology. Mishina documents how knowledge about a production process was created and implemented. In contrast, we study a technologically stagnant industry. The sugar refining industry did not introduce new production technologies in the decades surrounding the formation of the Sugar Trust.[5] Sugar industry members did learn during the period of the Sugar Institute, but it was learning about extra-firm organizational design and the management of incentives. Organizational innovation and its application is as noteworthy as the introduction of new technologies and techniques. Charles and Frank Duryea built and operated the first automobile in the United States, Henry Ford introduced mass production, but it is Alfred Sloan who Chandler (1962) and Williamson (1975) celebrate for successfully addressing General Motors' incentive problems through the Multidivisional or M-form organizational design.

Much of our information about the internal workings of the Sugar Institute comes from the papers of Louis V. Placé, Jr.,Vice President of McCahan Sugar Refining, and that firm's representative as a Director of the Sugar Institute. He prepared notes on meetings of the Sugar Institute's Executive Committee, Board of Directors, and Enforcement Committee, and these notes are available from January 1929 to July 1930.[6] They were prepared to circulate only within a circle of about

[4]There are of course important incentive problems in managing information inside firms. For example, if the performance of a division will affect the compensation of its managers, then the general office may face problems in eliciting indications of poor performance. But the general office still retains greater authority over information systems and greater auditing ability than a trade association would possess over member firms.

[5]A 1945 sugar handbook's list of the apparatuses used in cane sugar manufacturing contains nothing introduced beyond the nineteenth century (Spencer and Meade, 1945, p. 72.) and Yano (1982:54) states "It is generally agreed that the basic technologies in sugar refining were evolved in the late 19th century and no major innovations have occurred since then". Most telling is that the amount of raw sugar (whose standard grade was 96% pure sugar, or sucrose, and 4% water and impurities) required to produce 100 pounds of refined sugar (which is 100% sucrose) remained unchanged for decades. Because there is some loss of sucrose in the refining process, 100 pounds of raw sugar will produce less than 96 pounds of refined sugar. To produce 100 pounds of refined sugar took between 107 and 107.5 pounds of raw at the turn of the century (*Report of the U.S. Industrial Commission*, Volume I, Part II, 1900), 107 pounds of raw in the Sugar Institute period (U.S. Tariff Commission, 1934, p. 109), and still 107 pounds by 1971 (Robert R. Nathan Associates, Inc, 1971, p. 5.)

[6]The bibliographic citation is W.J. McCahan Sugar Refining and Molasses Company, Records of Vice President

six McCahan executives, so they represent a fairly candid account of the Institute's motivations and activities. Placé offered strong views to his McCahan colleagues as to how the Institute should operate, so he was far from a disinterested observer. We also have some correspondence to and from Placé.[7] We also utilize testimony from the trial record.

We highlight our findings as we foreshadow the organization of this paper. In section two, we discuss more fully the incentive issues involved in organizing and maintaining a trade association. Section three addresses the Sugar Institute's formation and early development.

Section four discusses how the Institute learned and evolved as it attempted to effect firm information exchange. The organizational design of the Sugar Institute was fairly decentralized yet created a structure for collective decisionmaking. There were disagreements among the firms over what information should be shared. Production and delivery statistics were circulated with minimal difficulty, but sales statistics were shared for only a temporary period. The largest firms were the least willing to share information, particularly sales information. Heterogeneity among firms, of which the two salient characteristics were size and location, also played a critical role in determining membership in the Institute. Some divergent interests were reconciled within the structure of the Institute, while others remained outside.

Finally section five shows how firms learned from the information provided by the Institute, and how the Institute learned from firms in its enforcement activities. Firms used the aggregate statistics provided from the Institute to benchmark their own performance, while the Institute used information to facilitate adherence to the Code of Ethics. We close with a comparison of the Institute to the sugar refiners' proposed code under the Agricultural Adjustment Act of 1933, which reveals what the industry learned about information exchange.

2 Incentive Issues in Information Exchange Agreements

Collusive agreements are constantly in danger of being undermined by secret price cuts. Since a collusive agreement results in a price above marginal cost, participant firms have an individual incentive to undercut this price slightly and receive a larger share of industry demand and profits. A firm cheating on the collusive arrangement in this way will want to do so secretly in order to avoid retaliation from other producers.[8] Anything that makes detection of a secret price cut more likely therefore serves to enhance collusion. The Sugar Institute's Code of Ethics had as its first

Louis V. Placé, Jr., 1928-1945, University of Florida, George A. Smathers Libraries, Braga Brothers Collection, Record Group IV, Series 151, Box 11, Sugar Institute, memoranda and notes of meetings. We will cite these records herein as Placé Memoranda. A few stray memoranda up through June 1931 are also included.

[7]The bibliographic citation is W.J. McCahan Sugar Refining and Molasses Company, Records of Vice President Louis V. Placé, Jr., 1928-1945, University of Florida, George A. Smathers Libraries, Braga Brothers Collection, Record Group IV, Series 151, Box 1, M.E. Rionda Correspondence. Boxes 2-3, General Correspondence. We will cite these records herein as Placé Correspondence.

[8]This idea was first expressed by Stigler (1964). Its most successful formalization is Green and Porter's (1984).

requirement that "sugar should be sold only upon open prices and terms publicly announced." Adherence to this requirement and the truthful provision of prices and production levels would clearly make cheating more evident.

Although we find this collusion explanation for the Sugar Institute the most compelling, we do not dismiss the possibility that efficiency concerns may have also played a role in the Institute's information exchange. A number of theoretical papers have shown that there are non-strategic incentives for firms to agree to information exchange. If each firm receives only a noisy signal of aggregate market demand, then exchanging signals will result in a more precise signal for all participants, allowing them to make better informed production and inventory decisions, thereby reducing expected production costs. Information sharing also increases the correlation of firm strategies, precisely because this allows firms to base their decisions on commonly shared information. The combination of these effects can be both privately and socially beneficial as illustrated by Kirby (1988).

The collusion and efficiency explanations should not be viewed as mutually exclusive, however. It is possible that the exchange of production information both supported collusion and generated more precise demand information and hence more efficient planning by firms. Also, the promise of information exchange may have induced firms to join the collusive undertaking who would have otherwise free-rode on it. In any case, ascertaining the ultimate aims of the Sugar Institute is not our primary focus here, since the problems of institutional design and evolution are present regardless of the ultimate aim.

Models of firm information exchange treat the trade association as a "black box" that neutrally transmits verifiable information that has been submitted by the firms. In practice, a workable information exchange agreement involves critical, concrete choices of institutional design. A potentially very serious problem is that parties to an information exchange agreement, whatever its purpose, may wish to mis-report their price or production information. That is obviously true when the goal is to prevent price cutting, but it is also true if the parties are brought together by other goals. In the language of mechanism-design, the trade association faces a problem of "incentive compatibility." More colloquially, it is a problem of "truth telling"– will firms be willing to report their true information, given the auditing and sanctioning technology at the disposal of the trade association?

There are two ways in which a firm might violate an information sharing arrangement. First, it might simply refuse to report its information. Enforcement against this violation requires some sanction for non-reporting. Second, the firm might mis-report its information. Enforcement against this requires not only sanction but also detection of the violation, creating a need for auditing or monitoring of firm activity and/or records.

Surprisingly, and with the exception of reports on undelivered contracts, which we discuss later, there is no indication of mis-reporting of *statistics* by Institute members. There are several reasons why firms might not mis-report. Individuals may be averse to lying for ethical or moral reasons,

and thus make a distinction between the refusal to file a report and falsifying one. Also, it may be important for individuals and firms to develop a reputation for truth-telling, both in their dealings inside the Institute and outside it. Of course, this reputation is jeopardized only if there's a chance that the truth will out. But that was a risk in this environment, since there were other sources of information, such as brokers, customers, and the observations of purchases of raw sugar, the key input. These other sources did not enable outsiders to observe the firm's private information perfectly, but it may have enabled them to provide a sufficiently accurate assessment to deter lying. The possibility of an ex-post audit by the Institute (although none was ever conducted) would have a been a further deterrence. In sum, it may be too difficult to construct a credible, systematic lie, since a variety of bits of information, both internal and external to the firm, have to be made consistent with any false report.

Another enforcement problem is how to exclude non-participants or violators from receiving the shared information. If all participants in the agreement receive the same information from the Institute, then there may be an incentive for a non-participant to purchase the information from a cooperative participant. This, in turn would affect the incentives for participation and in the extreme case the entire agreement would unravel. Vives (1990) addresses this issue in a setting in which no single firm is large enough to influence aggregate market outcomes, an assumption not matched in the sugar refining industry. Nevertheless his results are instructive. Under an exclusionary disclosure rule, in which only members receive shared information, information sharing is an equilibrium, provided that the costs of joining the trade association are not too high. Under a non-exclusionary disclosure, in which the information is made available to non-members and the public as well, the free rider problem prevents information sharing from being an equilibrium.

A more subtle issue is how to ensure credibly the *non*-sharing of information. The Sugar Institute aggregated the individual member statistical reports before distributing that aggregate information to the members and/or the trade. The central office of the Sugar Institute was more than a simple adding machine, since it had to assure members that their individual reports would not be shared with anyone else. A firm might be willing to submit its information to a central organization yet not want to share that individual information with its competitors. If this was a relevant concern, then the failure to preserve the confidentiality of this private information could destroy the information exchange agreement. Paradoxically, tight controls on the sharing of information could create more equilibrium sharing of information.[9]

[9]The models of information sharing suggest that the crucial issue is the nature of the private information. Information could be private-valued (like the idiosyncratic costs of an individual firm), common-valued (like an individual firm signal of industry demand), or some combination of the two. If information is completely common-valued, no firm would be willing to pay for the report of any individual firm, nor would any individual firm care about such a disclosure. With common-valued information, the aggregate report contains the only useful information; the aggregate statistic is a sufficient statistic. In the presence of private-valued information, however, there could be concerns about unauthorized disclosure.

Creane (1996) categorizes the previous literature and advances a framework for establishing more general results.

3 Formation of the Sugar Institute

3.1 Environment and Origins

The broader historical context for the Sugar Institute is found in the changing political and legal environment of the 1920s and 1930s, which saw the rise and fall of trade associations, information exchange agreements, and "open price associations." With an initial impetus provided by Arthur Jerome Eddy's 1912 book *The New Competition*, 150 open price associations were operating by 1921.[10]

From 1921 to 1928, Secretary of Commerce Herbert Hoover played a pivotal role in promoting a variety of cooperative, associational activities, including industry trade associations. As documented by Hawley (1974, 1981), Hoover promoted trade associations both directly, through the Department of Commerce's expanded jurisdiction, and indirectly, by influencing and persuading other government entities to look favorably upon such organizations.

The greatest threat to these trade associations was posed by antitrust law as enforced by the Department of Justice and interpreted by the Courts. Two Supreme Court decisions in 1921 and 1923 outlawed the information exchange activities of the hardwood lumber and linseed oil industries, and this threatened to curtail significantly the number and activities of trade associations.[11] In *American Column and Lumber Co.*, the Supreme Court found illegal an information exchange agreement in which members were required to submit weekly the details of individual sale transactions, including the price and buyer for each sale, which the trade association then reported in full to all its members.

In 1922 the Commerce department countered this ruling by substituting its own activities for those outlawed for trade association. It collected more data about individual industries than before, and for a period essentially acted as a clearing house for data provided by private trade associations. Since under both sets of arrangements the statistics were at least nominally collected by Commerce, compliant firms could not be prosecuted for an antitrust violation. Hoover also tried to convince the Department of Justice to accept the legality of trade associations which engaged solely in the exchange of statistics. Attorney General Harry N. Daugherty was resistant to this suggestion, but his departure in 1924 paved the way for successors more sympathetic to Hoover's viewpoint.[12]

Moreover, the Supreme Court soon adopted a friendlier attitude. The *Maple Flooring* and *Cement Manufacturers* cases of June 1925, while not directly overturning *American Column and Lumber*, did significantly narrow the scope of that earlier case's prohibitions.[13] There were some

[10] Federal Trade Commission Survey, cited by Simon Whitney, "Competition Under Secret and Open Prices," *Econometrica*, January 1935, p. 40.

[11] *American Column and Lumber Co. et al. v. United States*, 257 U.S. 377 (1921); *United States v. American Linseed Oil Co. et. al.*, 262 U.S. 371 (1923).

[12] Hawley, 1974, p. 126, 136. Galambos, 1966, p.93.

[13] *Maple Flooring Manufacturers' Association et al. v. United States*, 268 U.S. 563 (1925); *Cement Manufacturers' Protective Association et. al. v. United States*, 268 U.S. 588 (1925).

important differences of fact which distinguished these latter cases from the earlier precedent. In *Maple Flooring*, for example, individual members' reports to the trade association on quantity sold, production costs, past prices received, and inventory were first summarized or masked before being distributed to other members. Also, the summary statistics were disseminated to the trade generally, and were not limited to the members, as in the earlier case. But the Supreme Court's more favorable treatment certainly reflected a changed economic and political sentiment. The Court itself acknowledged in *Maple Flooring*,

> It is the consensus of opinion of economists and many of the most important agencies of Government that the public interest is served by the gathering and dissemination, in the widest possible manner, of information with respect to the production and distribution, cost and prices in actual sales, of market commodities, because the making available of such information tends to stabilize trade and industry, to produce fairer price levels and to avoid waste which inevitably attends the unintelligent conduct of economic enterprise.[14]

Preliminary discussions about forming a sugar trade association began as early as 1925, but significant progress was not made until a June 1927 conferral between the attorney Wilbur Cummings and the presidents of five refineries - Foster of ASRC, Lowry of the Pennsylvania Refinery, Post of the National, Rionda of McCahan, and Spreckels of Federal Sugar Refining Company. [15] After a second meeting, Cummings conferred with officials of Secretary Hoover's Commerce Department, the Department of Justice, and the FTC about the proposed trade association and its activities. By then, the political and legal environment had become conducive to the formation of trade associations and industry codes of ethics. William Donovan, who had became the head of the Antitrust Division of the Department of Justice, was willing to guide firms seeking to form trade associations that would remain within the law.[16] Donovan indicated that he had no objection to the proposed association, although he warned that such a statement did not foreclose the possibility of future prosecution. With this tentative approval in place, the five organizing refiners or "Institute Founders" suggested that Cummings write each of the other U.S. cane sugar refiners, outlining a proposed Sugar Trade Association and inviting them to comment on the proposal and to participate in the organization of this association.[17]

[14] *Maple Flooring Manufacturers' Association et al. v. United States*, 268 U.S. 582-583 (1925).

[15] The Sugar Institute, Inc., v. the United States, Transcript of Record, Volume II, Supreme Court of the United States, October term, 1935, pp. 603-604. Although this document was prepared for the appeal to the Supreme Court, it is the Transcript of the District Court Record. This is a condensed version of the verbatim testimony from the District Court trial. Such Narrative Statements of Evidence are produced by turning a series of questions and answers into a statement by the witness. The Transcript of Record documents can be found in the National Archives as part of the *District Court* record. U.S. v. Sugar Institute, Records of the District Courts of the United States (Record Group 21), Southern District of New York, Equity File No. 59-103, Box 504274A, National Archives, New York City. Henceforth cited as District Court Record.

[16] Hawley, 1974, p. 136.

[17] Transcript of Record, Volume II, pp. 606-608. District Court Record, Box 504274A.

This invitation, in turn, led to a meeting of all the U.S. cane sugar refiners in New York City over December 12-16, 1927. Although a representative from the firm California and Hawaiian (C&H) attended this meeting, that firm had already indicated its intention to remain outside the association.[18] The result of this meeting was crystallized in a proposed industry Code of Ethics, which was slightly modified after a further consultation with the Attorney General's office. The Institute's by-laws and Code of Ethics were adopted at a meeting of member refiners January 7, 1928.[19] Of the fifteen U.S. cane sugar refiners, all but C&H joined in forming the Institute.[20]

3.2 Goals and Structure

Although the industry Code of Ethics (see appendix) was detailed, "the fundamental principle underlying practically all" of its requirements was that "All discriminations between customers should be abolished," and open prices and publicly announced terms should therefore prevail. For example, the Code prohibited quantity discounts to customers, so that a large customer such as Kroger or Coca Cola would have to pay the same price as a small local grocer. It directly forbade special allowances for customers via rebates or transportation charges.

The Code also discouraged practices that while not discriminatory on their face, created the opportunity for secret concessions. For example, the Code required that brokers selling refined sugar not be affiliated with any warehouses that stored sugar, nor any buyer be affiliated with a public, commercial warehouse that stored sugar. Combining these activities into the hands of a single party gave too large a scope for discrimination between buyers, as a broker could give a price concession to a buyer by not charging for storage services rendered.

The Institute attempted to limit sales contracts to 30 days as another mechanism to ensure contractual uniformity and thereby avoid discrimination. Refined sugar was sold, both before and after the Institute, on a system of price "moves." Any price increase would become effective the day after it was announced, enabling customers to make purchases at the previous, lower price. Customers would not have to take delivery immediately, but could spread out withdrawals [deliveries] against these contracts over 30 or more days. For the 30 day limit to be effective under the Institute, refiners had to "enforce" their contracts, forcing customers to take delivery.

Cummings' September 2, 1927 letter of invitation is contained in the correspondence files of Manuel Rionda y Polledo. Manuel Rionda y Polledo, Papers and Financial Records, University of Florida, George A. Smathers Libraries, Braga Brothers Collection, Record Group II, Series 10c, Subject File- W. Cummings, 1921-1943.

[18]Transcript of Record, Volume II, p. 608. District Court Record, Box 504274A.

[19]Transcript of Record, Volume II, p. 611. District Court Record, Box 504274A.

[20]This counts the Western Sugar Refining Company as an original member, although that classification is uncertain. Frank Sullivan of the Western testified that his company did not initially join the Institute because of pending discussions about purchase of the Spreckels interests, including Western. When those discussions fell through, however, Western joined the Institute in October 1928. Transcript of Record, Volume II, p. 882. District Court Record, Box 504274A. However, Sullivan was reported as one of the fifteen original directors of the Institute (*Weekly Statistical Sugar Trade Journal*, January 12, 1928, p. 31), perhaps because Western cooperated in submitting statistics and received statistical reports even before it joined the Institute.

Information exchange was an express aim of the Institute's Articles of Incorporation.'[21] Moreover, testimony at trial suggests that the prospects of obtaining credible industry information played an important role in the decision of some refiners to join the Institute. The testimony of W. Edward Foster, President of ASRC and one of the Institute's organizers, is typical in this respect:

"We ... were rather cranks on the question of statistics. I could not see how any industry could operate successfully without knowing what was going on in the industry, because we were always moving around in the dark and we thoroughly believed that if the industry itself knew what was going on in the way of meltings [production] and deliveries, and had some knowledge of stocks, that we would have guiding posts which would enable us to better carry on our business."[22]

The macroeconomic environment, foremost the Great Depression, makes no appearance in the primary sources' discussions of the Institute's formation and operation. This is in part because these sources relate to the early years of the Sugar Institute, that is, the two years before the stock market crash and the early, least severe, years of the Depression itself. But, in part, this is also due to the relatively good performance of the sugar refining industry in the early stages of the Depression. Compared to total industrial production which declined 24 percent from December 1929 to December 1930 (Romer, 1990), U.S. sugar consumption in 1930 declined by only 3.6 percent from the previous year.[23] Such relative stability is consistent with Romer's (1990) finding that the onset of the Great Depression was associated with much sharper cutbacks in purchases of durables than of non-durables, seasonally adjusted sales of which actually rose in the last months of 1929 before decreasing only slightly in early 1930. Sugar is a staple good and, although storable, in purchase decisions is more like a perishable good. As the macroeconomy continued to tumble over the next several years, sugar consumption was affected, but less than industrial production as a whole. The *Weekly Statistical Sugar Trade Journal* remarked that U.S. sugar consumption in 1931 "held up remarkably well," with a decrease from 1930 of only 2 percent.[24] Consumption fell a further 5 percent in 1932, but levelled off in 1933-1935.[25] The sugar *refining* firms were somewhat sheltered from the full effects of the Depression because contemporaneous economic and political developments brought low prices for raw sugar, the chief cost component in refined sugar.[26]

Any effect of the Great Depression was probably to strengthen the incentives of firms to co-

[21] Certificate of Incorporation of the Sugar Institute, Inc., in Answer of the Defendants, *United States of America, Petitioner, v. The Sugar Institute, et al., Defendants*, in the District Court of the United States for the Southern District of New York, Filed August 1, 1931, pp. 66-67.

[22] Testimony of W. Edward Foster, R. 9206, quoted in Brief for the Defendants on the Facts, p. 20. District Court Record, Box 504270A.

[23] *Weekly Statistical Sugar Trade Journal*, January 15, 1931, p. 18, and January 9, 1930, p. 18.

[24] *Weekly Statistical Sugar Trade Journal*, January 4, 1932, p. 18.

[25] *Weekly Statistical Sugar Trade Journal*, January 11, 1934, p. 18. Consumption increased 1 percent in 1933 over 1932, then fell 2.6 percent in 1934, then rose 4 percent in 1935.

[26] World raw sugar production continued to rise in the 1930s, even as raw sugar prices reached record lows. Bill Albert and Adrian Graves, Editors, "Introduction", *The World Sugar Economy in War and Depression, 1914-1940*, London: Routledge, 1988.

operate within the Sugar Institute. First, the reduction of industry demand, and with it the exacerbation of conditions of excess capacity, made competition less profitable and hence cooperation and collusion a more attractive alternative. Financial difficulties pushed two of the smaller refiners into receivership, Spreckels in 1930 and Texas City in 1931. Second, information sharing may have had particular value in the new, more uncertain environment brought on by the Great Depression. The Depression brought about not only reduced economic activity, but also greater firm and consumer *uncertainty*. Thus the knowledge refiners had accumulated from their years of business experience had become partially obsolete. As a result, the gain from sharing demand information with competitors was heightened

Turning from goals to initial structure, the Sugar Institute was organized as a membership corporation, i.e. a corporation composed of and owned by member firms. The structural details of this organization illustrate the very decentralized nature of the Institute. Each member firm was represented on the Institute's Board of Directors by one, and later two, directors, and Institute counsel Wilbur Cummings served as an additional director.[27] The Board of Directors was authorized to elect a subset of directors to serve as an Executive Committee, which operated the day-to-day business affairs of the Institute. Geographical proximity to New York City, where the Sugar Institute was located, of course favored the East Coast firms. Major decisions were reserved to the Board. [28]

Firms could be elected members of the Sugar Institute by a majority vote of the directors present, along with the payment of an initiation fee of $500. Members could be expelled for non-payment of dues or assessments by a majority vote of the directors present. Moreover members could be expelled "for any conduct which, in the opinion of the Board of Directors, is prejudicial to the purposes, principles or interests of the corporation or for any other cause deemed sufficient by the Board."[29] But expulsion was an unlikely punishment as it required a vote of at least *two-thirds* of directors present "at a meeting of the Board duly called and held for the purpose of taking such action."[30] So the Institute itself had little punitive powers.

The Board of Directors was authorized to appoint a Statistics Committee to "submit to the Board of Directors a detailed plan of reports to be made by the members to the [Sugar Institute]."[31] Upon approval of the Board, this plan was to be submitted for approval by the members, adoption

[27]The number of directors was increased to 28 by a vote at the annual meeting of members on January 17, 1929. Answer of the Defendants, p. 79. Placé's memo on the March 14, 1929 Meeting of the Board refers to the election of "additional Directors from each of the members." Also, the election for the Board in 1930 brought each of the then 15 members two representatives. *Weekly Statistical Sugar Trade Journal*, January 23, 1930, p. 55.

[28]The By-Laws stipulated that the "Executive Committee shall not be empowered to elect or expel members, to amend these By-Laws or to change the Code of Ethics." By-Laws, p. 79.

[29]By-Laws of the Sugar Institute, Inc., in Answer of the Defendants, *United States of America, Petitioner, v. The Sugar Institute, et al., Defendants*, in the District Court of the United States for the Southern District of New York, Filed August 1, 1931, pp. 74-75.

[30]By-Laws, *op cit*, p. 75.

[31]By-Laws, p. 81.

or any modification requiring a four-fifths vote. At the December 1927 meeting it was initially suggested that members be required to submit any reports that the Institute or the Statistics Committee demanded of them. But Arbuckle Brothers refused,[32] and the agreed upon rule became that "no plan requiring reports from members shall be binding upon any member without it shall have been approved by such member."[33]

As this example illustrates, the Institute's institutional design was both cause and consequence of the Institute's problems in attaining its professed goals. Many of the provisions that weakened the Institute were deliberately incorporated into the original design. That, in turn, reflected an unwillingness of (some) refiners to cede discretion to a central industry organization. It is this unwillingness, coupled with the structural weaknesses, that undermined the Institute's efficacy.

3.3 An Initial Assessment

Despite these weaknesses, however, the industry did come to exchange information previously unavailable to the refiners. These included weekly total meltings [production], total stocks on hand, and total deliveries. In addition, information as to deliveries and stocks by state were distributed weekly and monthly. The Institute's statistical services was a point of pride in the refiners' defense at trial, and the Defendants' Fact Brief devotes a section to it. These particular defense claims are supported both by the public record and the private accounts of Placé.

The refiners claimed that this information "collected by the Institute could not have been obtained by the trade *through any other source*."[34] This claim is somewhat exaggerated. Accurate raw sugar imports were available from the Customs House, and the premier trade publication of the period, the *Weekly Statistical Sugar Trade Journal* (see Figure 1), had been reporting them for years. However, although there were no other uses for raw sugar than refined sugar, at high frequencies these figures could be used only to guess the aggregate level of production given the variable length of time for which raw sugar was stored. The *Sugar Trade Journal* did report production at the regional level, but, again, at high frequencies the reported figures were in part estimates; the *Journal*'s publisher and chief statistician testified that he received reports from the refiners "[w]eekly, monthly, semi-annually or, at least, yearly". The *Journal* also published figures on deliveries, although only Western and C&H actually reported theirs. The deliveries of the other refiners were estimated on the basis of their production and estimates of their refined sugar stocks.[35] The *Journal* published no information on the location or level of consignment stocks, or state level sales. Thus, trade statistics were available before the Sugar Institute, but they were inaccurate, especially at high frequencies and the further downstream the stage of activity.

[32]Testimony of Goetzinger, Transcript of Record, Volume II, p. 680. District Court Record, Box 504274A.
[33]By-Laws, p. 81.
[34]Defendants' Fact Brief, p. 69. District Court Record, Box 504274A.
[35]Gardiner, Transcript of Record, Volume I, p. 362 and p. 369. District Court Record.

The Institute's provision of state level data may have been of greatest value to the firms. Prior to the Sugar Institute, individual refiners knew little beyond their own figures about the consumption and distribution of sugar in specific portions of the country. Because each operated only in particular geographic markets, this information was much more important than national aggregates. Campiglia of C&H testified that "the distribution by States ... gave us a comparison with distribution of former years by States, and it gave us the quantity of stock of raw sugars and refined sugars on hand; and permitted us to determine whether stocks were piling up and accumulating or moving out freely to the trade; and many things which we considered valuable to us."[36]

The Institute achieved only temporary success in exchanging sales statistics. In light of the consensus to report meltings and deliveries, what additional information would sales statistics provide? Most sugar was sold on one of the price "moves." With the knowledge of a firm's meltings and deliveries in the aftermath of a move, one could eventually estimate its sales. However, recall that the reported weekly deliveries and meltings were aggregated before being distributed to Institute members. In the aftermath of a price move, these figures would help refiners estimate total sales, but not the sales of any individual refiner.

Aggregate sales statistics would therefore provide more immediate information on the level of demand. Individual sales statistics could help indicate whether a given refiner was offering secret concessions. Assuming truthful reporting, if a refiner obtained unusually large sales on a given price movement, its rivals might infer that it had offered a secret concession. In practice, the refiners agreed to circulate aggregate sales statistics, and then only temporarily.

4 Evolution: Inducing Information Exchange

We are faced with a puzzle. If the Sugar Institute was such a weak organization, lacking much central authority, how was it able to attain any of its goals? At an initial reading, the provision that no report would be mandatory upon a member unless approved by that member would seem to guarantee that the Sugar Institute would effect no improvement in information exchange. But the organization of the Institute, along with this provision, created a framework in which members could debate and bargain over what reports would be binding. In this section we examine the learning process, and analyze the factors contributing to the Institute's successes and failures in overcoming the incentive problems involved in organizing information exchange.

4.1 Agreeing on Shared Statistics

Arbuckle Brothers objected to the original demand that the Statistics Committee have a claim on *all* statistics because the claim was unspecified. "I stated that we would not agree in advance to give

[36]Quoted in Defendants' Fact Brief, pp. 19-20.

anybody all the information they asked for concerning our business", its representative at the early meeting later testified. It is entirely reasonable that firms would not want to surrender control over their proprietary information on an ex-ante, carte-blanche basis. At this initial stage of organizing the Sugar Institute, potential members could not possibly anticipate what information might be sought in the future. But that concern need not translate into a resistance to all information exchange. Rather, the adopted provision allowed firms to determine what information would be required, after the agreement was signed. Thus was the legitimate fear of an overly inquisitive Sugar Institute structurally allayed. This ex-post veto gave each firm a bargaining chip in the ex-post negotiation over what information was to be required.

Since reporting was not mandatory, attempts were made to induce "voluntary" reporting of statistics, especially sales statistics. One mechanism to try to induce the reporting of sales statistics was to use the Sugar Institute as a forum for moral suasion, or as a "bully pulpit." This was an initial tack taken by Judge Ballou, Executive Secretary of the Sugar Institute. Ballou repeatedly emphasized the collective, and by implication, individual interest in having statistics available. At the March 14, 1929 meeting of the Directors, Ballou indicated that C&H suspected that it had received inferior sales volume on the previous buying movement because of the failure of Eastern refiners to enforce the 30 day limit on contracts. Rolph of C&H further indicated his intention to "investigate upon his return to San Francisco the amount of sugar that they sold in various parts of the country and if he arrives at the conclusion that the C. & H. proportion of sales were smaller than the share to which they were entitled he indicates that it will be his intention to break the price to the 4.75 cents basis again. Judge Ballou seized upon this opportunity to again express to all refiners present the desirability of having statistics on sales available for the Institute. Such statistics would make it impossible for anyone to arrive at an imaginary grievance regarding the amount of sugar sold by any one refiner."[37]

Ballou's statement is noteworthy for several reasons. First, exchange of sales information was linked to contract enforcement and homogeneity of contractual terms, at least in C&H's mind. Second, Ballou suggests that information exchange was meant, in part, to avoid price wars that would otherwise be triggered by outside factors, such as shocks to industry demand. Third, he tried

[37]Placé memoranda, Board of Directors Meeting, March 14, 1929.

Taken out of context, one might view Rolph's reference to the market "share to which they were entitled" as an indication that an the Sugar Institute was administering an explicit price-fixing or market-allocation agreement. But the entire private and public record strongly indicates otherwise.

Certainly, individual members at times spoke, almost wistfully, about using production quotas, but such matters were never acted upon. Typical is the following entry in Placé: "Mr. Babst submitted a formula for the self-regulation of meltings of individual refiners. He suggested that proper percentages of total melt must be arrived at by individual refiners taking the capacities of all refiners reported to the U.S. Government during War-time 'control' plus 50% of any subsequent increase in capacity . ... This question of 'self-regulation' was discussed at great length but no decision was arrived at. No one expressed any opinion regarding Mr. Babst's proposed formula." (11/05/1929: 1) Almost a year later, Bartlett complained "that, in spite of all the pretty speeches which have been made on this subject, there is no evidence of this principle being put into practice. Mr. Foster replied that, unfortunately, the Institute's attorney does not allow discussion of this subject on a basis which could bring actual results." (02/06/1930: 1).

to show why it was in the *individual* interest of firms to supply this information. If the absence of complete sales information triggered a price war, all firms in the industry would be harmed, including those that had chosen to keep their sales statistics private.

Moral suasion was insufficient, at least for some refiners. At this same meeting, ASRC's Foster "very emphatically stated that in his opinion it was no one's business how much business [ASRC] or any other refiner booked on any one buying movement. He stated that [ASRC] would refuse to give any statistics on sales. This had been the position of [ASRC] from the very start."[38] ASRC was the largest of all the cane refiners, with a market share of about 25%. Its sales statistics would therefore be very informative about industry-wide fluctuations. This indicates the seriousness of ASRC's refusal to provide statistics, and also suggests a possible source of that refusal - ASRC may have been large enough to infer industry trends on its own. Moreover, since ASRC operated several plants and was active in a number of markets throughout the country, that may also have given ASRC a greater ability to assess market trends independently. ASRC's non-reporting led other firms to do the same. National, Pennsylvania, and Federal, respectively the 2nd, 3rd, and 11th largest members of the Institute, stopped reporting sales.[39] This suggests a domino effect ordered by firm size, since the largest firm reporting its sales may provide more information than it receives in return. Of course, this does not account for why the smaller Federal halted its reports.

With information exchange breaking down, the Sugar Institute switched to an exclusionary disclosure rule. In the March 28, 1929 meeting, Ballou "reported that he had issued (only to those refiners who were reporting sales) some interesting statistics regarding the last buying movement. He is to follow this up with further statistics regarding the rate of withdrawal of these contracts. Any refiner not now receiving these statistics can secure them by reporting his own sales records."[40]

Placé advocated a more radical change. In early April 1929, a memo that he authored was presented by McCahan's President at a special "Institute Founders"' meeting. The memo, which framed a sizeable portion of the meeting's agenda, characterizes the early structure of the Institute as suffering from nearly fatal flaws. "The conception (generally), the discussion, the wording, the approval or the rejection, and finally, the enforcement of the Institute's 'resolutions' are all dictated, not by an impartial, well-considered and comprehensive plan for the benefit of the Industry as a whole, but by the self-interest of the individual members on each separate issue. This fundamental defect in the Institute's organization has manifested itself in numerous issues," including the provision of statistics. On this issue "Different members have arbitrarily assumed the right to refuse to furnish to the Institute any statistics which they, individually, do not care to reveal, irrespective of whether or not the Institute believes such statistics to be important in preventing serious misunderstandings." After surveying other problems attributed to the Sugar Institute's

[38] Placé memoranda, Board of Directors Meeting, March 14, 1929.

[39] Placé memoranda, Board of Directors Meeting, March 14, 1929. C&H, the third largest firm in the industry was not a member of the Institute at this time.

[40] Placé memoranda, Executive Committee Meeting, March 28, 1929.

decentralized structure, the memo proposes "delegating positive power to some central authority," specifically an executive officer with binding authority.

The assembled "Institute Founders" referred the issue to the Statistics Committee to decide on the statistics required. The decision of that committee was "to be binding on all members." Nevertheless, no additional penalties were authorized for non-compliance with requests for statistics. At the May 2, 1929, Directors' meeting, considerable discussion about enforcement resulted in the creation of an Enforcement Committee "with the power to issue regulations for the enforcement of the resolution passed today and with the authority to pass judgment on any disputed case involving brokers, warehousemen or merchants." This did not mark the end of the Institute's enforcement problems, but it did set up a more explicit institutional structure for addressing those issues. By August 1929 at the latest the Enforcement Committee was successfully requesting refiner reports on undelivered contracts to assist in contract enforcement.[41]

Compliance with the request for statistics increased thereafter, although it was not accomplished immediately or uniformly. But as we have noted, the refiners came to agree to furnish weekly reports on meltings, deliveries, total stocks, and deliveries by state.

Despite these areas of agreement, there was still the highly sensitive issue of the sharing of sales statistics. The major objections for furnishing sales statistics came from ASRC, National, and Arbuckle Brothers.[42] These were the first, second, and fifth largest firms in the industry, and so they may have felt that their individual sales statistics were sufficiently informative that sharing these numbers would not be a fair trade. Another laggard in providing sales statistics was the Colonial, one of the smallest refiners but also one accused of engaging in unethical practices during the Institute.[43] Colonial's refusal was probably an attempt to hide its violations, however much it might have been might have been tantamount to an admission of guilt.

Since the Institute was unable to make sales statistics mandatory, it reverted to use of an exclusionary disclosure rule; only those members making sales reports would receive sales statistics. This was successful for a time in encouraging some participation, but it ultimately unravelled. C&H, which had become a member of the Institute in September 1929, stopped reporting its sales statistics in February, 1930, because five other refiners were not reporting.[44] Although not identified, these firms presumably include ASRC, Arbuckle, and National, whose opposition to supplying sales statistics was unconditional. If so, then C&H would have been the largest firm supplying sales statistics before halting its cooperation. C&H may have felt that cooperation on

[41] Placé memoranda, Enforcement Committee Meetings, August 8, 1929, August 22, 1929. Placé was placed on the Enforcement Committee only on August 1, 1929, which therefore marks the beginning of his memoranda on the Enforcement Committee. It is therefore possible that refiner reports to the Enforcement Committee on undelivered contracts might have been occurring for several months previously.

[42] Temporary National Economic Committee, 1941, p. 121.

[43] Colonial eventually acknowledged some of these violations. Placé memoranda, Enforcement Committee, October 3, 1929.

[44] Placé memoranda, Board of Directors, February 14, 1930.

those terms was an unfair trade, since it was providing a relatively precise signal of West Coast demand in exchange for a relatively imprecise indication of East Coast demand. This precipitated a renewed discussion by the Institute Board. ASRC, Arbuckle and National declared themselves "unalterably opposed" to reporting sales. Colonial, Spreckels, C&H and McCahan refused to make sales reports unless all did. It was decided that "[t]he other eight refiners are to continue to make [these] reports and, in turn, they (and only they) will receive from the Institute a report on the total 'Sales' ... made by the eight refiners involved."[45] But the handwriting was on the wall, and two months later, by which time only Savannah, Henderson, Imperial and Texas City, all southern refiners, were reporting sales, the collection of sales statistics was abandoned.[46] As the number of cooperating firms declined, the "aggregate" sales statistics became less informative about general market trends and more revealing about the business patterns of the cooperating firms, information which those firms might wish to remain private.

So while the attempts to exchange data on meltings and deliveries were successful , the attempt to exchange sales information was ultimately not. Interestingly, although the *Weekly Statistical Sugar Trade Journal* had been reporting weekly (estimated) meltings and deliveries since the 1880s (indeed, the credibility of these published statistics may be supported by the *Journal's* longevity), the *Journal* never published sales statistics. One interpretation of the difference between meltings/deliveries and sales is that the former statistics were nearly common knowledge without the Institute, and the Institute exchange merely made the public information more accurate. As noted earlier, there was independent information available on those series from raw sugar purchases. On the other hand, because the *Journal's* estimates were based in part upon information provided them by refiners, perhaps that information was more publicly available precisely because it was less sensitive than sales information.

Since it was the larger firms that were the most reluctant to provide sales statistics, why did the larger firms participate at all? They participated because of their interest in facilitating collusion. A firm that does not intend to cheat on the collusive understanding has an incentive to share credibly its own information, since that establishes to other firms in the industry that in fact, it did not cheat. The alternative to information exchange might have been either continued cutthroat competition, or intermittently successful collusion, with adverse industry-wide demand shocks resulting in periodic price wars. The larger firms, precisely because they controlled a greater share of industry output, had a larger incentive to make collusion workable than did the smaller firms. But the larger firms may have thought that shared meltings and delivery information would be sufficient to detect and absolve cheating, but that individual sales statistics would reveal too much about an individual refiner's business strategy.

Moreover, even if collusion motivated the formation of the Sugar Institute, it need not have

[45]Placé memoranda, Board of Directors, March 13, 1930.
[46]Placé memoranda, Executive Committee, May 15, 1930.

embraced all the firms in the industry. In particular, the five "Institute Founders" may have organized the Institute with an eye toward monitoring the fringe competitors. They might have doubted these fringe firms' willingness to stick with a collusive agreement, or they might have had uncertainty over these firms' supply functions. Under this view, the Institute attempted to gather and disseminate aggregate industry statistics so that the larger firms could subtract out their own figures and thereby infer the supply (functions) of the fringe. This knowledge could then be used in future pricing decisions, much the same way as a dominant firm would set a price anticipating the supply response of the competitive fringe. Conversely, the promise of demand information, more valuable to the small than to the large firm, may have been the carrot that induced the small firms to participate. Unfortunately, we have uncovered no narrative evidence in support of either interpretation.

4.2 Audits and Investigations

Auditing and direct investigation of refiner or affiliated businesses' records provided another source of shared information. These were intended to enforce the Code of Ethics, rather than facilitate information exchange narrowly construed. There is no indication of any audit of a refiner report concerning its own meltings, deliveries, or sales, although refiner consignment stocks were audited.

The Enforcement Committee investigated and ruled on affiliations between brokers and warehouses, and between customers and warehouses. To that end, it was authorized on May 9, 1929 to retain investigators firms to follow up on complaints, and it subsequently retained the firms Proudfoot-Chinal and the Bishop Agency. Although the authorization for these investigations nominally concerned only the separation of brokerage and storage activities, the implicit scope was much broader. At the May 29, 1929 meeting of the Institute Board, Colonial indicated "that refiners should be willing to throw their books open for the investigation of *any* violation of the Code of Ethics." Other firms agreed, although they found no need to adopt a resolution "because no refiner had ever failed to supply full information on any subject requiring investigation." [47]

Investigations of brokers and warehouses proceeded, many times without incident. But conflicts sometimes arose when a buyer or broker who had a close relationship with a single refiner was involved. When an investigation by an Institute employee, Patterson, revealed that the Webster Grocery Company was affiliated with warehouses, Godchaux, which supplied Webster, objected to the findings, and the Enforcement Committee agreed to a new investigation by Proudfoot-Chinal.[48] When shortly thereafter, the Institute Board authorized an investigation of warehouses and it was suggested that Patterson conduct it, the Godchaux representative "stated very emphatically that he ... will not allow Mr. Patterson to enter the Godchaux offices again as he considers him inefficient,

[47] Placé memoranda, Board of Directors, May 29, 1929.
[48] Placé memoranda, Enforcement Committee, August 15, 1929.

biased, and liable to make unsupported accusations."[49] Other Board members spoke in Patterson's defense, but it was decided that the investigation of warehouses throughout the nation required a national agency, and so an outside firm was retained instead.[50]

These episodes suggest the hazards the Institute faced in choosing its investigators and auditors. The Institute typically decided upon an outside firm, rather than rely on member refiners themselves, or use an Institute employee. As the Patterson example illustrates, the neutrality of an Institute employee might be challenged and thereby undermine the employee's effectiveness in other tasks. Retaining outside firms was costly in its own way. For example, the auditing firm of Haskins & Sells, retained to audit the stocks refiners were storing in consignment markets, acknowledged at the outset that it did not have experience conducting that type of audit.[51] The refiners themselves had employees with the requisite experience, but they were not used by the Institute, presumably because their independence would be in doubt.[52]

The level of consignment stocks was the only area in which refiners themselves were audited. There is a single recorded incident in which a refiner withdrew its permission for such an audit. Godchaux refused permission on the grounds that its original agreement "was given with the provision that Colonial also submit to a similar audit. [But since] the Institute lacks knowledge of the warehouses in which Colonial is storing, this proviso has not been lived up to."[53] Though a single incident, this points up a weakness in the blanket authorization for the Institute to conduct audits, namely that the authorization was not binding. Just as firms were required to file statistical reports yet could fail to file a report in any given week, firms could be required to open their books to the Institute and yet rescind that authorization in any particular case. These issues are intimately connected with the hybrid organizational design of the Sugar Institute. Just as a firm retains residual control over its information, it controls the residual right to refuse an audit by an outside agency. Even under the Institute, that right was retained by the individual firms, and was waived only on a case-by-case basis.

4.3 Confidentiality

The Sugar Institute revealed less information to its members than it knew. It received the complete vector of reports from its members, but in most cases aggregated it before distributing it to them. In this, the Institute may have been steering its way between the 1921 and 1925 Supreme Court

[49] Placé memoranda, Enforcement Committee, September 12, 1929.

[50] Proudfoot-Chinal was too small a firm to undertake this investigation.

[51] Placé memoranda, Board of Directors, February 28, 1929.

[52] Williamson's (1975) discussion of the auditing capabilities of a firm may be relevant here. He argues that an audit conducted by an internal agent, such as a representative of the general office, will be more successful than an outside audit. In addition to the greater legal rights that an internal auditor will possess, the internal auditor *will* receive greater cooperation from the audited unit. Similar cooperation with an outside auditor could be viewed as disloyal. In this setting, however, the need for independence and neutrality was paramount.

[53] Placé memoranda, Executive Committee, November 7, 1929.

decisions discussed in Section 3. On the other hand, aggregation may have been a requirement of incentive compatibility. A firm might not want to reveal to its competitors its own information, but might be willing to reveal that to a third party who would aggregate it first. Either reason supports the need for an intermediary.

The incentive-compatibility reason also suggests the importance of the procedures that an intermediary adopts to ensure confidentiality. Clearly, this was a concern of refiners. The Institute reporting system was designed to protect confidentiality. Individual member reports were received by the Institute staff, and a letter code assigned each refiner. The individual statistics were then transferred onto standard Institute forms identified by code letter, without reference to the refiner's name.[54] Clearly, these efforts depended upon the integrity of the Institute staff. There is no indication of any leakage of individual refiner reports. An aggregate, annual report of Sugar Institute statistics did find its way into the hands of an economics professor, and members were sufficiently upset to bring the matter to the Executive Committee.[55] The importance of the staff was highlighted after the District Court decision against the Sugar Institute. Several refiners spoke of replacing the Sugar Institute with a newly-organized United Sugar Association, which would gather, aggregate and disseminate statistics on past prices and terms under the legal restrictions imposed by the Court. An unsigned memorandum advancing this proposal noted, "Naturally, the integrity of the Association staff must be above suspicion so that no member need fear that the intimate details of his business shall be divulged."[56]

4.4 Participation: Members and Non-Members

The Sugar Institute did not encompass all sugar producers, nor even all sugar cane refiners. Both technological and geographical differences limited the association's expanse. The largest California refiner was not initially a member of the Institute. Offshore refiners always remained outside the Institute. And beet sugar producers were organized in a separate trade association, the Domestic Sugar Bureau. Even among members themselves, there were important geographical differences. Refiners differed in the cost of shipping their sugars to consumption centers. The distance and the transportation mode (rail versus water) varied by the refiners' location. Nevertheless, over time, the Institute acknowledged and accommodated these heterogeneous interests, if not through membership, then through cooperation.

C&H was the third largest U.S. cane sugar refiner, and the largest in California. Its primary marketing area was the Western states, although it did compete directly with New Orleans and East Coast refiners for sales in the Midwest, including Chicago. The West was the center of the

[54] Minutes of the Executive Committee Meeting, November 30, 1936. Louis V. Placé, Sugar Institute - Reorganization and Closing, Record Group IV, S.G. 3, Series 151, Box 11.

[55] Placé Memoranda, Executive Committee, November 7, 1929.

[56] Although unsigned, it is likely that the memorandum was drafted by Louis Placé and/or William Tyler of C&H. Louis V. Placé, Sugar Institute - Reorganization and Closing, Record Group IV, S.G. 3, Series 151, Box 11.

beet sugar industry, and so C&H's main competition came from there. While the Sugar Institute was being formed, similar discussions were being held among beet and Louisiana cane firms about forming the Domestic Sugar Bureau. These groups considered their interests to be opposed to those of the cane sugar refiners, and so to foster good relations with its beet sugar rivals, C&H initially chose to join their association and remain outside the other.[57] Moreover, President Rolph of C&H, who desired a single trade association encompassing all sugar producers, thought that remaining outside the Institute gave him the opportunity to persuade beet sugar interests of the desirability of union.[58] If C&H failed to merge the associations within two years, Rolph intended to apply for Institute membership.

To the Eastern refiners C&H was the scourge of the industry. Rudolph Spreckels testified at tariff hearings in June 1929 that while "C&H has not alway precipitated the cut in refined ... I have found their fine Italian hand back of every refiner's cut that has been made."[59] The Eastern refiners' private assessments were no kinder.[60] Underlying this Eastern pique was a genuine divergence of interests born of geography. Since Hawaiian raw sugar faced a lower tariff than Cuban, C&H's refining costs were lower than the Eastern refiners. On the other hand, in the Midwest, where C&H and the Eastern refiners actively competed, the latter were advantaged by the shorter distance to the East Coast and the cheap water transportation over the Great Lakes. C&H's absorption of this freight cost differential reduced the prices Eastern refiners could command not only in the Midwest, but also within their own territories, because they could not completely price discriminate between the two regions. These differences, particularly C&H's need to absorb transportation costs, were at the heart of the C&H participation issue. Differences in costs across refiners made collusion more difficult to achieve.

Despite these differences, there were also shared interests, which helps accounts for the consultation between C&H and the Institute. That Ballou had formerly served as C&H's counsel aided this interaction. Nevertheless, there were limits to what could be accomplished while C&H remained a non-member, and by September 1929, C&H was prepared to join the Sugar Institute. Having concluded that a merger of the beet sugar and cane sugar trade associations was not imminent, Rolph carried out his initial plan to join the Institute roughly two years after its formation. Nevertheless, C&H insisted on retaining its membership in the Domestic Bureau. Its application for Sugar Institute membership included the proviso that in any situation in which Institute requirements conflicted with those of the Bureau, the C&H would not be responsible for adhering to the Institute requirement.[61] This term was accepted. There were not many conflicts between the two associations' requirements, yet this was still a considerable concession by the Sugar Institute. The

[57]Temporary National Economic Committee, 1941, pp. 115-116.
[58]Placé Memoranda, Executive Committee, September 19, 1929.
[59]Spreckels, "Tariff Act of 1929", p. 167.
[60]Placé memoranda, Executive Committee Meeting, March 8, 1929.
[61]Placé Memoranda, Executive Committee, September 19, 1929.

willingness of incumbent members to accept a separate set of rules for C&H indicates that they had decided to address the differences with C&H within the Institute rather than outside it. For C&H, membership gave a voice and vote in shaping ongoing Institute resolutions; each had value precisely because the Sugar Institute was an evolving, learning organization. Correspondingly, the Institute preferred C&H as a member because that made enforcing adherence to resolutions easier. Moreover, membership facilitated communication among refiners.

The Sugar Institute did not absorb all relevant interests under its tent. One example was Hershey, an "offshore" refiner operating in Cuba. Although a non-member, Hershey intermittently supplied statistics on contract enforcement.[62] When C&H joined the Institute, Ballou suggested that eventually the Institute might extend Hershey at least associate membership.[63] Later, a group of Southern refiners proposed that the Institute either force Hershey to discontinue its "unethical" business practices in Florida or invite it to join the Institute. But Spreckels and C&H, who, unlike the Southern refiners, did not compete with the offshore refiners, objected to extending cooperation to membership, because offshore and domestic refiners had diametrically opposed interests on the tariff on imported refined sugar. It was felt that membership for Hershey might undermine the Institute's efforts to lobby for a higher refined tariff.[64]

Tariff matters also played a role in keeping the beet sugar producers and the cane sugar refiners apart. As documented in Ellison and Mullin (1995), the domestic sugar cane refiners wanted a high tariff on refined sugar and a low tariff on their input, raw (cane) sugar. The beet sugar manufacturers, on the other hand, wanted a high tariff on imported raw cane sugar, the essential input of a near perfect substitute. Moreover, beet sugar was produced by dozens of small, price taking firms (the price of sugar in Western states equalled the San Francisco base price plus freight from San Francisco, where the West Coast cane sugar refiners were located). As a result, no individual firm had the incentive to join the Institute. If the Institute advanced collusion, each beet firm would prefer to free ride on the higher price.

Nevertheless, there were common interests among all sugar producers, and these were advanced through consultation between the respective trade associations.[65] The Institute and the Domestic Bureau exchanged figures on the deliveries of all sugar, cane sugar and beet sugar, by state, on a monthly basis.[66] Since beet sugar accounted for over 14 percent of U.S. consumption, such

[62]Placé Memoranda, Executive Committee, October 24, 1929, indicates that Hershey was supplying its figures on undelivered contracts through its broker, Pike, and that Pike was requesting that the Institute reciprocate. Hershey statistics on undelivered contracts are reported in the next week.

[63]Placé Memoranda, Executive Committee, September 19, 1929.

[64]Placé Memoranda, Board of Directors, July 24, 1930.

[65]The Domestic Sugar Bureau had its own concerns in terms of securing membership and adherence, which is beyond the scope of this paper. "The Bureau represented 80 to 90 percent of total beet sugar production and about 30 percent of Louisiana cane production. Although none of the beet companies east of Chicago was included in the membership, the only important nonmember was the Michigan Sugar Co." Temporary National Economic Committee, 1941, p. 116.

[66]Defendants' Fact Brief, p. 70. District Court Record.

information was essential for estimating demand at both the national and regional level. Since each cane refiner had particular territories, the regional decompositions were particularly valuable. A second, less benign use would be for a division of markets between the beet and cane interests, although there is no indication that a formal or informal division of markets ever took place.[67]

5 Learning from Shared Information

In addition to learning about solving incentive and organizational problems, the members of the Sugar Institute learned on another level as information about competitors and the market was shared.

5.1 What Individual Firms Learned from Shared Information

A case study in the use of Sugar Institute reports is provided by some of the other records of the McCahan Sugar Refining Company in the Braga Brothers collection. Louis Placé was not only McCahan's representative at Sugar Institute proceedings, he was also Vice President of McCahan, "in charge of all activities of the company except production and raw sugar purchases."[68] Of course, precisely because Placé was an active participant in the Sugar Institute, his use of that information may be atypical. But the important people in the Sugar Institute were generally high ranking executives within their constituent firms.

Individual refiners reported their private statistics, which were then aggregated and those aggregates were disseminated, becoming public information. Subsequent firm decisions were based upon combining their (still) private information with the public information produced by the Sugar Institute. In particular, the aggregate statistics provided an average or benchmark to compare with one's individual statistics or performance.

For example, in several separate letters to McCahan's president, Placé uses Institute figures to benchmark McCahan's practices or performance. In 1931 McCahan was holding larger stocks of refined sugar than it had held in 1930. Yet Institute figures revealed, as Placé pointed out, that McCahan was holding a smaller *proportion* of the industry's stocks than in 1930.[69] By referring to industry statistics, a refiner could ascertain whether it was experiencing a change in conditions unique to itself, or was merely participating in some larger phenomenon. Moreover, this information helped allay any McCahan fears that it was losing sales to other firms that were giving secret price concessions.

[67]At one Institute Executive Committee meeting, the representative from the Domestic Sugar Bureau displayed a map he intended to circulate showing a potential division of markets. Nevertheless, the plans for circulating this map were quickly abandoned. Placé Memoranda, Executive Committee, March 8, 1929; May 16, 1929.

[68]Testimony of Louis Placé, Transcript of Record, Volume II, p. 827. District Court Record.

[69]Placé Correspondence. July 20, 1931. Louis V. Placé- Correspondence, Costs and Melts, Record Group IV, Series 151, Box 1.

This type of benchmarking applied to specific markets as well. Some Institute figures were reported by states, and that information had never before been available. Due to the geographic dispersion of refiners, with overlapping market areas, the information broken down by state could be a great help to a firm in assessing its own performance. In another letter Placé argues that McCahan is not holding excessive stocks in Illinois because McCahan is selling 16.5% of all sugars there but only holding 8.9% of the stocks there.[70]

This benchmarking role may be unsurprising, but it is still noteworthy because it is consistent with the models on the competitive effects of information sharing. In particular, information sharing increases the correlation of firm decisions because firms are acting upon common information. This correlation occurs even absent formal collusion by firms. Moreover, this benchmarking is related to a possible efficiency gain of information exchange, by reducing the chances of erroneous firm decisions based upon poor information. In the previous example, McCahan assessed its level of inventories based upon a comparison with other refiners. Absent the Sugar Institute, McCahan might have been led to reduce its inventories below that of its competitors. If its competitors collectively had better information, then McCahan's independent decision to lower its inventories could hurt McCahan and market performance if stockouts occurred.[71]

5.2 What the Sugar Institute Learned from Shared Information

Statistical exchange advanced adherence to the Code of Ethics, as exemplified by the enforcement of delivery on 30 day contracts.[72] Recall that refined sugar was purchased on a price "move", and that the customer thereby purchased the right to take delivery gradually over the following period, which prior to the Institute was 30 days or more. The Institute tried to restrict contracts to exactly 30 days, and in order to monitor compliance, the Enforcement Committee requested and received reports from refiners.

A standard contract stipulated only the quantity of sugar and the basis price, the price for standard granulated. Details such as the grades of sugar the customer wished to receive did not have to be specified until shortly before delivery.[73] If a customer had not yet furnished these instructions, that contract remained unspecified. All unspecified or undelivered contracts were supposed to be reported to the Institute for each price move. These reports were not aggregated across refiners

[70]Placé Correspondence. July 22, 1931. Louis V. Placé- Correspondence, Costs and Melts, Record Group IV, Series 151, Box 1.

[71]This argument can be advanced without invoking stockouts. Since inventories serve to smooth production and thereby minimize costs, an inventory decision that turns out to be a mistake will result in higher costs of production.

[72]The Institute gathered other statistics that played a role in Code compliance. These were "the amount of sugar on consignment by states (weekly), the amount of sugar stored in transit by states (weekly) and the amount of sugar moved by eastern and southern differential routes for refiners' account and for customers' account. This information (being of little or no interest to the trade generally) was ordinarily sent only to members and to the importers." Defendants' Fact Brief, pp. 69-70.

[73]An example of a grade is powdered sugar, which results from crushing granulated sugar.

before dissemination. These figures were of interest as the contract due date approached since a firm carrying a large balance of undelivered or unspecified contracts was unlikely to meet the due date, either because of capacity constraints in production or transportation, or because the high balances signalled an unwillingness to pressure customers to take delivery. This information allowed other refiners to adjust their own contract enforcement, and threaten to do so. This in turn could provide incentives for the uncooperative refiner to strengthen its own contract enforcement efforts.

In most instances, this information was reported and reported accurately. Some firms initially refused to supply contract figures, but this was met successfully by the actual and threatened retaliation of non-reporting by other firms. In a few other instances irregularities in reported numbers arose, apparently due to sincere misunderstandings as to how contracts should be classified.[74]

A case of intentional mis-reporting surfaced in January 1930. Before a meeting of the Enforcement Committee, the National's representative conferred privately with Placé and a member of the Institute staff, indicating that he had definite evidence that some other refiners had "failed to receive specifications for some contracts which they have reported to the Enforcement Committee as being specified." Given these circumstances the National would refuse to continue reporting contract enforcement figures, and would not undertake to force deliveries. Placé stated that he had heard similar rumours and so he "thought a 'show-down' was necessary." [75]

When the meeting opened, the representatives of ASRC and Spreckels admitted that they had large balances of undelivered contracts with A&P, a major sugar customer. In both cases, they had received "dummy" instructions from A&P, meant to be cancelled later, but they had classified these contracts as "specified" for Institute reporting purposes. The National had received and refused similar instructions from A&P, and had therefore classified its A&P contracts as unspecified. The National repeated its intention to withhold contract enforcement figures. [76] Nevertheless, the next week the National agreed to return to supplying contract enforcement figures on the understanding that all refiners would make "honest" reports.[77] Although this is a case where mis-reporting occurred, this example illustrates the factors that prevented it from completely undermining the agreement. First, information was available from other sources to detect possible mis-reporting, and this information was sufficiently credible to be used as a basis for retaliation. Second, retaliatory non-reporting was apparently sufficient to deter additional problems.

6 Conclusion: Other Codes

The half-decade that followed the spring of 1930, when the Placé minutes trail off, saw a constantly changing legal environment for the refiners. In the spring of the next year, the Department of

[74]Placé Memoranda, Enforcement Committee, January 9, 1930.
[75]Placé Memoranda, Enforcement Committee, January 23, 1930.
[76]Placé Memoranda, Enforcement Committee, January 23, 1930.
[77]Placé Memoranda, Enforcement Committee, January 30, 1930.

Justice filed suit. 1933 saw the passage of the Agricultural Adjustment Act (AAA) and the National Industrial Recovery Act (NIRA), both of which held out the promise not only of government relaxation of antitrust restrictions on industry association activities, but, initially, of government enforcement of those actions as well. In 1934, the government passed the Sugar Act, which established quotas on the importation of raw sugar and the production of beet sugar and marked the beginning of continuous government involvement in the industry. Though not directly collusive, this did protect domestic refiners from entry in the form of offshore refiners and beet producers. But two months later, the District Court found against the refiners in the *Sugar Institute* case. Around this time, the refiners became aware that the government would not enforce the AAA or NIRA Codes. The beginning of the end of the New Deal experiment in corporatist economics came in the 1935 Schechter decision which declared the NIRA unconstitutional. The Supreme Court annulled the AAA as unconstitutional in January 1936, shortly before issuing its verdict in the *Sugar Institute* case.

Several times during this period, the Sugar Institute tried to reinvent itself - first as a Code of Fair Competition under the AAA, then as an all encompassing sugar producer association, and finally as a revised Institute that would be in compliance with the Supreme Court decision, before abandoning any attempt at a trade association in November of 1936. Although none of these plans ever came to fruition, they nonetheless reflect what refiners learned from the Sugar Institute experience, and how they responded to the changed legal environment.

The refiners' first response to the New Deal legislation was to move to dismiss their case. The motion was rejected; nonetheless, the District Court decision did stipulate that the decrees could be modified if the refiners so requested under the NIRA.[78] In the meantime, the refiners had submitted a Code of Fair Competition under the AAA in August 1933.[79] Like many other such codes, it called upon the Secretary of Agriculture to restrain new entry and capacity expansion, to allocate production directly if necessary, and to license all members of the industry.[80] It conferred upon the refiners the right "to confer among themselves" to halt ruinous price cutting, and its Article III, Unfair Competition, condemned the same practices as the Sugar Institute's Code of Ethics.

The organizational structure envisioned in the AAA Code differed significantly from that of the Sugar Institute. The "one refiner, one vote" system of the Institute was supplemented by an additional requirement which gave larger refiners a greater voice. Changes to the AAA Code would require approval of not only a majority of Directors, but also the assent of refiners with a combined market share of at least two-thirds. [81]

This stregthening of the voting powers of the larger firms was accomplished in the face of

[78] *United States v. Sugar Institute.* 15 Fed. Sup. 910 (1934).

[79] The proposed Code is reproduced in *Weekly Statistical Sugar Trade Journal*, August 10 31, 1933, pp. 327-363.

[80] *Weekly Statistical Sugar Trade Journal*, August 10, 1933, pp. 330-331.

[81] *Weekly Statistical Sugar Trade Journal*, August 31, 1933, p. 361.

the ability of small refiners to block the agreement itself, for the refiners had been informed that the Secretary of Agriculture would accept only a unanimous agreement.[82] In contrast, individual refiners had no such veto over the formation of the Sugar Institute; indeed, as we have shown, not all relevant sugar producers were at all times members of that association. Evidently, experience under the Sugar Institute had taught refiners that it was important that the larger firms have greater formal voting rights in industry deliberations.

This outcome stands in sharp contrast to that of many other industries. Brand (1988) has emphasized that the political power of small firms led industries to approves Codes that were disadvantageous to the larger firms and so unsustainable without government enforcement. Alexander (1995) illustrates this process for the macaroni industry, whose Code was crafted to appeal to the majority of smaller, less efficient firms. When the government then failed to enforce the industry Codes, the industry's attempts at collusion were undermined by the aggressive pricing of the larger, lower cost firms. These important cost asymmetries were not accommodated within the industry Code, and this proved fatal to its success.

The steel industry affords a more appropriate comparison. As in the sugar industry, a consolidation near the turn of the century had created a dominant firm with a near monopoly that by the 1930s had remained the market leader notwithstanding a sizeable decline in market share decline over the intervening decades. In granting firms differential voting power in its NIRA code, the steel industry departed from the "one firm, one vote" system even more sharply than the sugar industry. U.S. Steel and Bethlehem Steel possessed 511 and 160 votes, respectively, in the code authority, while each of the other 38 firms possessed only one to 86 votes, depending upon firm size.[83] Evidently, the steel firms had also learned the necessity of giving greater voting power to the larger firms. As with the sugar industry, a prior collusive experience may have determined the response to the New Deal legislation. Lamoreaux (1985) has argued that US Steel's policy after 1902, shortly after its formation, of cutting prices when demand was slack taught the independents to curtail their output in recessions. That industry's equivalent of the Sugar Institute was the Gary dinners, which served as an avenue to notify the independents of US Steel's intentions. History had thus conditioned members to the benefits of an asymmetric cartel headed by US Steel. Baker (1989) has provided the quantitative evidence that the steel industry was able to reap the collusive gains offered by the NIRA.

The AAA Code strengthened not only the large firms but the coordinating body itself. Discretion over statistical reports and auditing authority would be transferred from the member firms to the Board of Directors. It would have blanket, ex-ante authority to conduct audits, rather than having to request audit authority on a case-by-case basis. It was now empowered to employ public accountants to make "periodic checks or audits of refiners books and records in order to determine

[82] Placé Correspondence. July 24, 1934 memo from Ellsworth Bunker. Louis V. Placé- General Correspondence, 1932-1933-1934, Record Group IV, Series 151, Box 2.

[83] National Recovery Administration, 1934.

whether or not [the] Code is being observed", and to "to call on any one or all members of the industry ... for reports and statistics relating to ... matters concerning which the Board is entitled to have information under this Code."[84]

These stronger powers were backed up with new sanctions for violations of the agreement, including non-reporting of statistics or failure to allow auditing. First, since the proposed AAA Code included government licensing of all members of the industry, a violation could result in the revocation of a license. Second, the proposed AAA Code was to be considered "a valid and binding contract," with violations of the Code constituting a breach of contract and therefore making the violator liable for liquidated damages.[85] These sanctions replaced the, perhaps not credible, expulsion of a member refiner and the often-used blackballing of downstream firms under the Sugar Institute.

The Secretary of Agriculture rejected the proposed Code on the grounds that it did not protect consumer interests sufficiently.[86] Delays in revising the proposed refiners' Code later ensued because the Secretary considered Marketing Agreements for raw sugar and beet sugar to be a higher priority. By July 1934, ASRC believed that the government would not enforce AAA Codes,[87] and no other sugar refiners code was ever submitted under the AAA. Nevertheless, a Code of Fair Competition for a United Sugar Association that was to encompass both beet and cane producers was drafted in 1935, and in August 1936, in the wake of the Supreme Court *Sugar Institute* decision, a proposed reorganization of the Sugar Institute was drawn up. The first agreement was silent on voting rights; the second maintained the same system as the AAA Code. Both draft agreements maintained the enhanced powers of the Board of Directors to obtain any statistics it required, with the sanction of liquidated damages (in the 1935 draft set at 25 cents per hundred pounds, or about one-half of per unit variable profits, of the relevant quantity). One hears echoes of Placé's earlier call for "delegating positive power to some central authority" in the 1935 draft's anointing of the Executive Director as the "judge of violations".[88]

One's initial inclination is to classify the Sugar Institute as a failure. It could not avoid prosecution, which threat was one of the constraints of the economic, legal, and political environment in which the Institute operated. Nor did information exchange survive the Sugar Institute. Even after the Sugar Institute was dissolved, the firms could have shared information by making it available through the trade press. This did not occur. An examination of the *Weekly Statistical Sugar Trade Journal* for the years following the Supreme Court's decision shows that the dissemination of information had returned to the pre-Institute state. Estimates of weekly deliveries and meltings are

[84] *Weekly Statistical Sugar Trade Journal*, August 31, 1933, p. 359.

[85] *Weekly Statistical Sugar Trade Journal*, August 31, 1933, pp. 359-360.

[86] Placé Correspondence. July 27, 1934 letter to Manolo Rionda, and accompanying July 24, 1934 memo from Ellsworth Bunker. Louis V. Placé- General Correspondence, 1932-1933-1934, Record Group IV, Series 151, Box 2.

[87] Placé Correspondence. July 20, 1934 Letter to Manolo Rionda.

[88] Both agreements are to be found in L.V.Placé, Sugar Institute, Reorganization & Closing, F.G. IV - S.G.3 - Series 151 - Box 11.

reported. But information on the weekly sales of refined sugar, one of the most elusive statistics, is nowhere to be seen. And there are no state level data.

In the end, the legal changes overshadowed any learning. The sugar refining industry did learn how to manage incentives within an information sharing agreement, and more broadly, they learned the advantages such an organizational form offered in advancing industry aims, such as collusion. But the Supreme Court decision denied the industry that organizational form, at least as it was conceived and implemented. It was as if the industry had learned how to use a particular tool, and its value, and then that tool was taken away. Within the longer historical context, the changing legal and political treatment of trade association activities first gave the sugar industry the opportunity to form and operate the Institute, and then took away much of the Institute's perceived power by limiting its activities.

Like a constitution, the Code did not completely specify all future decisions, rather, it specified how those future decisions are to be made. Thus the Sugar Institute was at least a partial success because its structure enabled future decisions to be made that advanced the Institute's original aims. In particular, the Institute established a framework in which learning and adaptation could take place. First, the Institute's organizational structure was sufficiently flexible to allow the Institute and its requirements of members to change as members learned about how the strengths and weaknesses of the original Institute requirements. Second, the Institute enabled firms to learn more about their market and their own performance through the information exchange that was accomplished under the Institute's auspices. Third, although some of the lessons about organizing information exchange could not be put into practice due to political and legal constraints, those lessons were nevertheless learned.

7 Appendix: Code of Ethics

Code of Ethics of the Sugar Institute, Inc.

Among the purposes for which this Institute was formed were the following: To promote a high standard of business ethics in the industry; to eliminate trade abuses; to promote uniformity and certainty in business customs and practices; and to promote the service of the industry to the Public.

Accordingly, the organization of this Institute was a frank recognition, in and of itself, that customs and practices had grown up in the industry which were unsound and unbusinesslike, and which were harmful to producers and consumers alike. These customs and practices had resulted in confusion in the trade and discrimination as between purchasers, with a consequent uneven and uneconomic distribution of sugar to the public. The more important result to the industry was a demoralization and restriction of the retail trade in sugar and a retardation of the normal increase of consumption.

Believing that the trade will welcome a rectification of those business methods of the industry which have served to promote discrimination between purchasers; and believing that the public will be better served if the present channels of distribution are preserved and enlarged by maintaining equality of business opportunity among merchants of sugar; and believing that the members of the industry will recognize that it is in the interest of the industry to encourage and promote the wider distribution of its product to the end of increasing its consumption;

The Institute declares its policy to be founded upon, and recommends to its members the adoption of business methods in accordance with, the following principles, to wit:

1. All discriminations between customers should be abolished. To that end, sugar should be sold only upon open prices and terms publicly announced.

2. The business of the sugar refining industry is that of refining a raw product, the price of which to the industry is the controlling factor in the price which the industry receives for its own refined product; and the industry as a purchaser of raw sugar receives no concessions for quantity purchased. Concessions made by the industry for the quantity of refined sugar purchased have resulted in discrimination between customers, which discrimination the Institute believes it to be in the interest of the industry, of the trade and of the public to avoid. The Institute accordingly condemns as discriminatory, and in so far as this industry is concerned, as unbusinesslike, uneconomic and unsound, concessions made to purchasers on the basis of quantity purchased.

3. The following trade practices if not uniformly employed with all customers of a refiner are discriminatory. Furthermore, if not secretly employed they will of necessity be generally

demanded, with the result that they must then be uniformly employed or abandoned. If uniformly employed they amount to a general price concession which should frankly take the form of a price reduction. The Institute condemns them as unethical except when practiced openly; as discriminatory unless uniformly employed; and in any event as wasteful and unbusinesslike.

(a) Variations from the open and publicly announced prices and terms, including (but without limiting the generality of this clause) the following:

Special allowances by way of discounts, brokerage, storage or advertising; variations from openly announced grade or package differentials; reduction or substitution of grades or packings; delayed billings; full discounts in cases of delayed payment; and rebates or other allowances by any name or of any nature.

(b) Split billings, except on cars moving on an 80,000 lb. minimum and rate.

(c) The use of differential rates on consignments, or otherwise than on direct shipments over differential routes at customers' request.

(d) Payment of brokerage where any part thereof inures to the benefit of the purchaser.

(e) Storage[89] of sugar in warehouses in which customers or brokers are interested, or with which they are in any way affiliated.

(f) Allotments to brokers running beyond the close of business of the day on which an advance in price is announced by the refiner.

(g) Special services to customers without appropriate charges therefor.

(h) the sale of secondhand sugar by refiners.

(i) Sales for export under contracts which do not provide for shipment out of the country.

4. The factors which enter into and determine the cost of his product for the refiner are so largely outside his control, and the probable margin of his profit so small, as to render highly speculative and unsound the giving by him of options to purchase his sugar. Furthermore, unless equally available to all customers alike, the giving of options is discriminatory. The Institute condemns the giving of options by refiners.

5. In the interest of a more even distribution to the trade, the Institute recommends that sugar shall be consigned only to recognized detention points for reshipment, or to recognized markets and then in care of railroad or steamship lines or to public[90] warehouses, and that the control of the sugar shall remain with the refiner.

[89]Subparagraph (e) originally read "Storage of sugar in customers' warehouses" and was amended to read as printed above by resolution adopted May 2, 1929.

[90]The words "or brokers," appearing before the word "warehouses" were striken out by resolution adopted May 2, 1929.

6. The Institute recommends the use by members of uniform contracts to be adopted by the Institute for Eastern, Southern and Western markets.

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FIGURE 1

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WEEKLY STATISTICAL SUGAR TRADE JOURNAL

(REG. U. S. PAT. OFF.)

RECEIPTS and IMPORTERS' STOCK

Receipts—Past Week	1927 Nov. 9 Tons	1926 Nov. 10 Tons	1925 Nov. 11 Tons	1924 Nov. 12 Tons
NEW YORK	32926	32499	38189	21159
BOSTON	9887	12316	8026	....
PHILADELPHIA	7098	16823	....	8112
BALTIMORE	....	8136	10024	4611
TOTAL RECEIPTS	49911	69774	56239	33882
Total since November 1	53951	76588	63728	51406
Total since January 1	2727400	3019076	2983965	2821015
Balance Year	....	404103	441542	218089
Entire Year	....	3423179	3425507	3039104
Importers' Stock	Tons	Tons	Tons	Tons
NEW YORK	126380	155155	16036	4930
BOSTON	....	....	....	....
PHILADELPHIA	....	....	....	....
BALTIMORE	....	....	....	....
TOTAL IMPORTERS' STOCK	126380	155155	16036	4930

RAW SUGAR QUOTATIONS—At New York, duty paid

Cuba Centrifugals—	1927 Nov. 10	1926 Nov. 11	Inc.	Dec.
96 Degrees	4.650	4.550	0.100	....
Highest during year†	5.270	5.150	0.120	....
Lowest during year††	4.460	3.960	0.500	....
PRICES DURING WEEK	High 4.650c		Low 4.580c	

† Jan. 4, 1927 † Dec. 6, 1926 †† July 22, 1927 †† March 23, 1926

REFINED SUGAR QUOTATIONS

Basis Fine Granulated—100 lb. Bags
Latest quotations received by us, subject to change without notice
Terms—Cash in 7 days, less 2 per cent.

REFINERY	F. O. B.	
American	New York	5.90c
National	New York	6.00c
Arbuckle	New York	5.70c
Federal	New York	5.90c
American	Boston	5.90c
Revere	Boston	5.70c
Franklin	Philadelphia	5.90c
Lowry & Co., Inc	Philadelphia	5.70c
McCahan	Philadelphia	5.70c
American	Baltimore	5.90c
Savannah	Savannah, Ga	6.00c
American	New Orleans, La	5.90c
Colonial	New Orleans, La	6.00c
Henderson	New Orleans, La	6.00c
Godchaux	New Orleans, La	6.00c
Imperial	Sugar Land, Texas	5.60c
American	Texas City, Texas	5.90c
Cal. & Haw.	S. F. Cal. (Chicago 5.60c)	5.80c
Western	S. F. Cal. (Chicago 5.60c)	5.80c

GRANULATED.—Highest and Lowest Prices.—Quotations at New York for Cane Granulated Sugar, in cents per pound less 2% for cash. The below table shows the range of prices from the first of the year to date of publication for the current year, compared with similar prices for the whole of the preceding year.

	1927	1926
HIGHEST.	Jan. 1, to date—Jan. 3, 6.35c	Entire year—Nov. 29, 6.25c
LOWEST.	Jan. 1, to date—Aug. 3, 5.60c	Entire year—Mar. 8, 5.00c

All tons in this Sugar Journal are 2,240 pounds each

U. S. ATLANTIC PORTS SUMMARY to Nov. 9, 1927, in tons (including NEW YORK, BOSTON, PHILADELPHIA and BALTIMORE)

THE NEW ORLEANS AND OTHER PORTS STATISTICS GIVEN ELSEWHERE

	1927 Nov. 9	1926 Nov. 10	Inc.	Dec.
Receipts for week—				
From Cuba	39557	64219	....	24662
Porto Rico	3934	3055	879	....
Other W. I. Islands	....	....	....	....
Brazil	....	....	....	....
Philippine Islands	6420	2500	3920	....
St. Croix	....	....	....	....
Java	....	....	....	....
Hawaii	....	....	....	....
Other Foreign Countries	....	....	....	....
Domestic	....	....	....	....
TOTAL TONS	49911	69774	....	19863
Increased since last week	8012	....	....	....
To Importers	....	1375	....	1375
To Refiners and Consumers	49911	68399	....	18488
Receipts since January 1—				
From Cuba	1822336	2270526	....	448190
Porto Rico	506965	480899	26066	....
Other W. I. Islands	....	....	....	....
Brazil	....	....	....	....
Philippine Islands	392222	262189	130033	....
St. Croix	5877	5462	415	....
Java	....	....	....	....
Hawaii	....	....	....	....
Other Foreign Countries	....	....	....	....
Domestic	....	....	....	....
TOTAL TONS	2727400	3019076	....	291676
To Trade included above	53902	35000	18902	....
Deliveries—				
For Week	49911	70177	....	20266
Increased since last week	1083	....	....	....
Since January 1	2715883	2872577	....	156694
Meltings by Refiners—				
For week, partly estimated.	48500	52000	....	3500
Increased since last week	500	....	....	....
Since January 1	2683098	2869000	....	185902
Receipts to Trade considered as Meltings—				
For week	500	1000	....	500
Since January 1	53902	35000	18902	....
Total Meltings—				
Refiners and trade for week	49000	53000	....	4000
Since January 1	2737000	2904000	....	167000
Exports since January 1—				
Of Refined	100000	78200	21800	....
Importers' Stock—				
This week	126380	155155	....	28775
Unchanged since last week	....	....	....	....
At highest point	155650	226389	....	70739
At lowest point	94418	8927	90491	....
Refiners' Stock—				
New York	29241	19767	9474	....
Boston	25315	12950	12365	....
Philadelphia and Baltimore	16445	14138	2307	....
Increased since last week	911	....	....	....
Total Stock—				
Partly estimated	197381	202010	....	4629
Increased since last week	911	....	....	....
In all hands on January 1	206981	86934	120047	....
At highest point in year*	285349	383264	....	97915
At lowest point in year**	135114	50031	85083	....

* May 4, 1927 ** January 26, 1927
* June 16, 1926 ** January 27, 1926

Consumption.—U. S. through all ports, including all Sugar, Foreign and Domestic; year 1926, 5,671,335 tons; year 1925, 5,510,060 tons.

WEEKLY STATISTICAL SUGAR TRADE JOURNAL
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ADVERTISING RATES ON APPLICATION

VOL. 51 November 10, 1927 No. 45

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UNITED STATES ATLANTIC PORTS MARKETS.—Sales at New York. All sales basis 96° unless otherwise specified.

November 7.—2,500 tons Philippines February shipment at 4.60c delivered to operator.

November 9.—5,500 bags Cubas prompt shipment at 2⅞c c. & f. (4.65c) to operator. 7,000 tons Philippines December-January shipment at 4.60c delivered to operator. 2,500 tons Philippines November shipment at 4.65c delivered to operator.

MARKET QUOTATIONS	96° Centrifugals Spot or prompt	Granulated Net Cash	Difference
This date	4.650c	5.586c	0.936c
Last Year	4.550c	5.684c	1.134c

	Prompt	November
96° test Cuba Centrifugals c. & f.	2.875c	2.875c
96° test Porto Ricos c. i. f.	4.650c	4.650c

Afloats, estimated, to the United States from Cuba and Porto Rico 60,000 tons, Philippines 7,000 tons, Total 67,000 tons against 57,000 tons last year.

RAWS.—The market during the week has been a quiet one but the tone appears to be slowly gaining in strength. This condition of affairs is more apparent in the course of prices on the Sugar Exchange than in actual sugars, as most deliveries on the Exchange are higher for the week. The market appears to be influenced by advices from Europe that Cuba's mission, under Colonel Tarafa, is being well received there. More of the Trade in Europe are beginning to believe in the possibility of several countries in Europe co-operating with Cuba in connection with a crop and export restriction program. So far, however, nothing official has been received from Colonel Tarafa, nor has the Committee in Havana issued any new reports affecting the Cuban sugar situation.

As far as actual sugars are concerned, refiners appear willing to pay 2 13-16c c. & f. or 4.58c duty paid basis, and operators have bid 2⅞c c. & f. (4.65c) for Cubas, but Cuban holders are indifferent sellers.

Sales reported during the week include Philippines for February-March shipment at 4.60c, say 2,500 tons, and this transaction was followed by sales on Wednesday of about 10,000 tons of Philippines for November-December-January shipment, part at 4.60c and part at 4.65c. Refiners also became more active and purchased about 100,000 bags prompt Cubas at 2⅞c c. & f. (4.65c). A lot of Philippines in port also sold at 4.65c. All the Philippines were taken by operators.

The new Louisiana crop is now getting under way rapidly and the first new crop sugars arrived at New Orleans during the week. This lot amounted to 90 barrels, Choice Clarifieds, and was sold in New Orleans at 5⅛c. Our Louisiana advices state that, owing to the unsettled market conditions and sharp competition among refiners to dispose of their refined sugar, most of the Louisiana producers will make raw sugar.

REFINED.—Telegrams from the West on Friday stated that the California & Hawaiian declined to 5.60c but they have discontinued the 7c storage allowance. This quotation covers their general competitive territory. On the Pacific Coast the California & Hawaiian and Western quote 5.80c Pacific Coast basis. Locally, there has been no change, several refiners appearing to be willing to sell at the basis of 5.70c. There has been a moderate to fair demand experienced on some days at this price but generally the week has been quiet.

Beet sugar for territory from Chicago to Buffalo-Pittsburgh is quoted at 5.50c and for a limited territory east of Buffalo-Pittsburgh at 5.60c. Western Beet for territory between Chicago and the Rocky Mountains is also quoted at 5.50c seaboard basis. Western producers are withdrawn east of Chicago.

AMERICAN SUGAR REFINING CO.—New Director.—Joseph B. Terbell, president of the American Brake Shoe & Foundry Company, was elected a director in the American Sugar Refg. Company to fill the vacancy caused by the death of the late Gen. Guy E. Tripp.

GLASGOW.—Clyde Sugar Market.—Report for the week ending October 28, 1927.—The CLYDE melt of raw sugar during the week has been 1,239 tons. Refiners quotations have been a shade easier, at 28s 4½d for Fine Granulated and 27s 9d for Ordinary, per cwt. duty paid, while Yellows, being in limited supply, remain unchanged.

CONTINENTAL descriptions for immediate shipment have been steady, at 15s 3d for Fine Dutch and 15s for Ordinary, also at 14s 9d for November-December, all per cwt. f. o. b. Czechos ready and for first week November have latterly been sold at 15s to 14s 10½d f. o. b.

HOME GROWN Granulated from the Cupar factory has been on offer at 27s 9d for first week November, and at 27s 6d for November-December ex factory.

A moderate business has been done in refined during the week, almost entirely in ready sugars and at steady prices. Dealers have acted with much caution, having the fear of a possible pressure of home grown sugars causing a reduction in values.

The business passing in raw sugar, so far as reported, has been confined to important parcels of Peruvians at 12s, and to a further cargo of Mauritius now afloat at 17s c. i. f., the equivalent of 11s 9d for foreign 96° cane. B. W. I. are now nominally quoted at 15s 6d c. i. f.