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The National Recovery Administration Reconsidered, *or* Why the Corrugated and Solid Fiber Shipping Container Code Succeeded

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The Corrugated and Solid Fiber Shipping Container Industry Code was one of the only successful codes in the National Recovery Administration (NRA). Compliance was high. It increased production, wages, employment, and product diversity. NRA administrators marveled at its success. Why? And why have historical and rational-choice institutionalists, studying the NRA, overlooked the container code? This paper provides two answers: one microbehavioral, the other macrohistorical. At a micro level, it is impossible to understand the container code with rational-choice theory. It was successful not because it coordinated and enforced collective action, but because it organized "collaborative learning." The code showed manufacturers how to compete over productivity and product diversity instead of volume. At a macro level, historical institutionalists miss the movement that spawned the container code, because they search in vain for liberal corporatism and state autonomy. Instead, this paper shows how the Federal Trade Commission (FTC) led a movement of cost accountants, trade associations, and peak business associations in an effort to channel competition from predation into improvement in products and production processes through "developmental trade associations." The container code drew its personnel and practices from this project. In order to make sense of the container code, I introduce a novel theory of institutions, called "creative syncretism."

The National Recovery Administration (NRA) during the New Deal is a paradigm case of state failure in the twentieth century. Studies show its goals were vague and confused, its administrative structure was ad hoc, and its staff unprofessional. The codes it developed to lift American industry out of depression were contradictory and for the most part ineffective. The outcome advantaged powerful firms over weak, exacerbated the depression, heightened conflict among firms and between labor and management, and deepened the division among policy elites over proper responses to the depression. Well before the Supreme Court declared the National Industrial Recovery Act unconstitutional in 1935, the NRA had imploded from within.[1]

Amidst the ruin of the NRA, the Corrugated and Solid Fiber Shipping Container Industry Code lifted its industry up from the downward spiral of declining wages, prices, production, and investment. The few conflicts that occurred between firms or between labor and management were easily resolved without recourse to the courts or the NRA's coercive machinery. The industry emerged more innovative, productive, and with a greater diversity of products. In 1934, W.W. Pickard, deputy administrator of the

1. Ellis Hawley, *The New Deal and the Problem of Monopoly* (Princeton: Princeton University Press, 1966); Donald R. Brand, *Corporatism and the Rule of Law* (Ithaca: Cornell University Press, 1988); Bernard Bellush, *The Failure of the NRA* (New York: Norton, 1975); Colin Gordon, *New Deals: Business, Labor, and Politics in America, 1920–1935* (Cambridge: Cambridge University Press, 1994), 166–203; Kenneth Finegold and Theda Skocpol, *State and Party in America's New Deal* (Madison: University of Wisconsin Press, 1995), 90–103; Marc Allen Eisner, *Regulatory Politics in Transition* (Baltimore, MD: Johns Hopkins University Press, 1993), 82–88; Marc Allen Eisner, *From Warfare State to Welfare State: World War I, Compensatory State-Building, and the Limits of the Modern Order* (University Park, PA: Pennsylvania State University Press, 2000); Leverett S. Lyon, Paul T. Homan, Lewis L. Lorwin, George Terbough, Charles L. Dearing, and Leon Marshall, *The National Recovery Administration* (Washington, DC: Brookings, 1935); Arthur M. Schlesinger, Jr., *The Age of Roosevelt: The Coming of the New Deal* (Boston: Houghton Mifflin, 1959), 152–76.

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NRA's division on paper and paper products, recounted the container code's success to other administrators. Pickard called on Congress to reauthorize the NRA and proffered the container code as a model to revitalize the moribund agency and its industry codes.

A first generation of historical institutionalists has missed the container code, because scholars working in this tradition make micro-level assumptions about economic behavior and macro-level assumptions about institutional development, which truncate research in ways that make this case invisible. They see the central problem of the NRA as one of enforcing collective agreements to suppress competition and ensuring those agreements were accountable to public, not private, interests. They argue that, with the exception of a few industries with the right structural characteristics, the legacy of institutional development in the U.S. left the NRA and the trade associations without the capacity, autonomy, or authority to realize those ends.

This paper argues that the container code is not the exception that proves institutionalist rule[2] and offers a theory of institutional innovation to make sense of it. The container code succeeded for two reasons. First, instead of trying to suppress competition by coercing or by manipulating the incentives of recalcitrant manufacturers, the container code drew on the human capacity for reflection, creativity, and learning to channel competition from destructive rivalry over volume into improvements in products and production processes. It did so by reconfiguring the way manufacturers calculated costs and by pooling information on market shares. Second, in developing these instruments, the container code's architects recomposed earlier practices and personnel developed by the Federal Trade Commission (FTC), the National Association of Cost Accountants (NACA), the U.S. Chamber of Commerce, and a cluster of trade associations in paper, paper products, and graphic arts. Led by the FTC, the goal of this network of actors was not to suppress competition through state-enforced and regulated cartels; instead it was to regulate competition by channeling it from predation into improvement in products and production processes. The corrugated and solid fiber container industry was part of that network.

In order to make sense of the container code, this paper draws on recent innovations in pragmatist and constructivist social theory to offer a theory of institutional innovation and innovative institutions. Instead of distinguishing an institution's coherence and success by the complementarity or dissonance of its parts, I argue that institutions are better understood as syncretic combinations of an indefinite number of instruments, which can be decomposed and recombined in unpredictable ways in response to unfamiliar problems. Moreover, action within, and between, institutions is always potentially creative. Container manufacturers succeeded in the NRA because they drew on a repertoire of prior experiments in regulation, cost accounting, and associationalism to craft a novel code, which raised the industry from depression by teaching manufacturers to shift production and marketing from volume to diversity. My intention is not to disprove the institutionalist explanation of the failure of the NRA with a single case. It is to demonstrate how a more open approach to institutional practice and innovation can provide access to richer diversity of American political and economic institutions. I give a novel account of successful innovation in a putatively inhospitable setting, presenting new lines of research into American economic policy and regulatory institutions, making it possible to reconsider the NRA.

This paper has three parts. Part 1 explains, criticizes, and offers a theoretical alternative to the institutionalist assumptions that undergird the mainstream narrative of the NRA. Part 2 describes the antecedents to the container code from the FTC's beginning in 1916 to the container industry's trade-practice conference with the FTC in 1928. Part 3 explains the development and success of the container code within the context of the NRA.

PART 1. THEORY AND NARRATIVE

Historical Institutionalism and the Conventional Narrative

Historical institutionalists lay blame for the failure of the NRA in the unique sequence of the development of American state, industrial, and intermediary institutions. Six assumptions underpin this explanation and make it difficult to make sense of the container code and its antecedents.

First, institutionalists studying the relationship between industrialization and state building assume that structural conditions—such as technology and product markets—determined the interests of economic actors and the nature of economic problems. Institutionalists, to be sure, are not technological determinists. They recognize that existing institutions, culture, and the constellation of interests determine how economic interests are mediated or how economic problems are solved in different national settings. Nonetheless, economic structure determined interests and the vector of problems to be solved.[3]

2. See, for example, Brand's account of the petroleum code in Brand, *Corporatism and the Rule of Law*, 175–206.

3. The classic statement of this perspective on technology in business history is Alfred D. Chandler Jr., *The Visible Hand* (Cambridge, MA: Harvard University Press, 1977); and Alfred D. Chandler Jr., *Scale and Scope* (Cambridge, MA: Harvard University Press,

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Second, and corollary to the first assumption, institutionalists studying the NRA and its antecedents assume that firms behave rationally within structural constraints. That is, they act to realize their interests in augmenting profits within the constraints of the cost, market, institutional, and technological constraints indicative of their industries.

Third, historical institutionalists argue that the sequence of institutional developments determined institutional form. In this perspective, institutions are multiple, and they develop at different rates. When one looks across nations, one sees that the sequence of institutional development in industry, state, and politics occurred in different patterns.[4]

Fourth, institutionalists argue that in the history of institutional development, new institutions rarely fully displace old ones. Hence they see institutions as layered, that is, always composed of incongruous rules and instruments designed to solve problems associated with different eras. Orren and Skowronek call this intercurrence; Streeck and Thelen call it layering.[5] Fifth, institutionalists conceptualize the historical development of institutions as path-dependent. History oscillates between relatively open and closed periods, which turn on conjunctures that produce increasing returns to routine. Historical legacies shape current rules, cognitive patterns, interests, and behavior. Sixth, institutionalists assume that institutional structures in state and economy constrain and enable action.

In the institutionalist account of industrialization and state building in the U.S., modern industry was distinguished from traditional industry by its technology. The cracking process in oil, the Bessemer process in steel, and the Bonsack cigarette-rolling machine had two economically salient characteristics in common. They were all capable of high-volume throughput, and they all had high fixed costs. This meant that the firms who managed these technologies effectively could all achieve economies of scale. It also meant, however, that modern industry was racked by periodic crises of overcapacity, in which firms had perverse incentives to maintain production during a downturn in the hope of keeping costs down and raising sufficient revenue to cover fixed costs and stave off bankruptcy.[6]

The initial response to the drive for scale economies and periodic crises of over capacity was the same across the industrializing world: form cartels. In Europe and Japan the state legalized, enforced, and regulated cartels, whereas in the U.S., antitrust laws made cartels illegal. This was the result of historical sequencing. In the U.S., where democratization came prior to industrialization and state building, a petit bourgeoisie tied to competitive markets had inordinate power in patronage parties and Congress. Faced with cartels—the "trusts"—they elected to overturn them in 1890. The result was to preclude associations as an effective means to regulate overcapacity in the U.S.

1990). See also Herman Daems, "The Rise of the Modern Industrial Enterprise: A New Perspective," in *Managerial Hierarchies*, eds. Alfred D. Chandler Jr. and Herman Daems (Cambridge, MA: Harvard University Press, 1980). Among organizational historians who make this assumption, see Thomas K. McCraw, "Rethinking the Trust Question," in *Regulation in Perspective*, ed. Thomas K. McCraw (Boston: Harvard Business School Press, 1981), 1–55; and Louis Galambos, "Technology, Political Economy and Professionalization: Central Themes of the Organizational Synthesis," *Business History Review* 57 (Winter 1983): 471–93. This assumption is also shared by leading economic sociologists. See Neil Fligstein, *The Transformation of Corporate Control* (Cambridge, MA: Harvard University Press, 1993), 33–74; and Frank Dobbin and Timothy J. Dowd, "The Market That Anti-Trust Built," *American Sociological Review* 65 (2000): 631–57. Historical institutionalists in political science, studying business regulation, also assume technology determined the characteristic economic problems of industrialization. See, for example, Stephen Skowronek, *Building a New American State: The Expansion of National Administrative Capacities, 1877–1920* (Cambridge: Cambridge University Press, 1982), 121–25.

4. Theda Skocpol, *Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States* (Cambridge, MA: Harvard University Press, 1992), 41–47; Edwin Amenta and Theda Skocpol, "Taking Exception: Explaining the Distinctiveness of American Public Policies in the Last Century," in *The Comparative History of Public Policy*, ed. Francis G. Castles (New York: Oxford University Press, 1989), 292–333; Skowronek, Building a New American State; Margaret Weir, Ann Shola Orloff, and Theda Skocpol, "Introduction: Understanding American Social Politics," in *The Politics of Social Policy in the United States*, eds. Margaret Weir, Ann Shola Orloff, and Theda Skocpol (Princeton, NJ: Princeton University Press, 1988), 3–36; Ira Katznelson, "Working-Class Formation: Constructing Cases and Comparisons," in *Working Class Formation in Western Europe and the United States*, eds. I. Katznelson and A. Zolberg (Princeton, NJ: Princeton University Press, 1986), 3–41; Martin Shefter, "Trade Unions and Political Machines: The Organization and Disorganization of the American Working Class in the Late Nineteenth Century," in *Working Class Formation*, eds. Katznelson and Zolberg, 197–275.

5. Karen Orren and Stephen Skowronek, "Beyond the Iconography of Order," in *The Dynamics of American Politics: Approaches and Interpretations*, eds. Lawrence C. Dodd and Calvin Jillson (Boulder, CO: Westview, 1994); Karen Orren and Stephen Skowronek, *The Search for American Political Development* (Cambridge: Cambridge University Press, 2004), 108–18; Kathleen Thelen, *How Institutions Evolve: The Political Economy of Skills in Germany, Britain, the United States and Japan* (Cambridge: Cambridge University Press, 2004), 31–37; Wolfgang Streeck and Kathleen Thelen, eds., *Beyond Continuity: Institutional Change in Advanced Political Economies* (Oxford: Oxford University Press, 2005). On layering in the U.S. presidency, see Jeffrey Tulis, *The Rhetorical Presidency* (Princeton, NJ: Princeton University Press, 1987).

6. This paragraph and the following two are based on Chandler, *The Visible Hand*; Fligstein, *Transformation of Corporate Control*, 38–66; Dobbin and Dowd, "Market That Antitrust Built"; John R. Bowman, *Capitalist Collective Action: Competition, Cooperation and Conflict in the Coal Industry* (Cambridge: Cambridge University Press, 1989); Oliver E. Williamson, "The Modern Corporation: Origins, Evolution, Attributes," *Journal of Economic Literature* 19 (Dec. 1981): 1537–68; J. Rogers Hollingsworth, "The Logic of Coordinating American Manufacturing Sectors," in *Governance of the American Economy*, eds. John L. Campbell, J. Rogers Hollingsworth, and Leon L. Lindberg (Cambridge: Cambridge University Press, 1991), 38–40.

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In response, business elites and their attorneys succeeded in changing corporation law to make mergers easier. Consequently, associations turned from cartels (or "loose combinations") to corporate consolidation in the largest merger wave in American history from 1898 to 1902.

To be sure, institutionalists recognize that although mass production and corporate capitalism came to dominate modern industry, the twentieth-century economy was segmented between core and peripheral industries. Some sectors—like glass, printing, cordage, and furniture—remained more like their nineteenth-century counterparts: labor-intensive, populated by many small- and medium-sized firms, competitive, and proprietary. Nonetheless, peripheral industries were subject to the same institutional constraints as their mass-production counterparts. Faced with overcapacity born of overinvestment (rather than scale economies), they also organized cartels, which fell prey to cheating and antitrust prosecution. The result was a dual economy, marked by competitive markets and corporate hierarchies, with little coordination by associations in between.[7]

The second stage in the institutionalist narrative involves state building in response to industrialization. In the politics of antitrust policy, Americans fought over how to assimilate the large-scale corporation after the great merger wave. The progressive movement, supported by many professional economists, advocated a national regulatory commission, which would accept and supervise the corporation to ensure its benefits were widespread. However, such efforts at state building were notoriously difficult in the U.S., where progressives had to first displace an old order of courts, patronage parties, and the nineteenth-century ideas about competition embedded in them. Like the Interstate Commerce Commission (ICC) before it, the FTC was born a weak and captured agency in 1914. Hemmed in by an intercurrent struggle, it was bereft of autonomy from industry or Congress, monitoring and enforcement capacity, and legitimate authority. McCraw argues that the FTC was stillborn; Carpenter writes that, like the ICC before it, the FTC was a failed agency; Gordon writes that the FTC "ghost walked" through the 1920s; Skocpol and Finegold tag the FTC an "ad-hocracy," an agency, that is, unable to plan or execute policy; and Lowi claims the FTC portended the fatal turn from progressive state building to interest-group liberalism.[8]

Institutions constrained, and actors reacted. By the time the U.S. entered the First World War, the national state was so weak that government officials had little choice but to mobilize business to run the war production effort itself. Run by "dollar-a-year men" from business and trade associations, the War Industries Board was a unique American organization. As business returned to normal after the war, trade associations attained a new prestige, which was harnessed to cope once again with problems of overcapacity and cutthroat price competition. Despite the great merger wave and the consolidation in the core of American industry, many manufacturing sectors were racked by overcapacity and cutthroat competition. Armed with the newfound prestige from war effort, cartelization took on a new life in the 1920s. The Department of Commerce, under Herbert Hoover, supported and encouraged associations. The FTC encouraged self-regulation through its trade-practice conferences, and associations experimented with many new methods to coordinate price fixing, which might avoid antitrust prosecution.

However, path dependencies ruled and, with few exceptions, associations ran into analogous problems to the state. They had too little autonomy from member firms, capacity to monitor agreements, or authority to enforce them; and their members continued to face "high-powered" incentives to cheat.

A few lucky industries were blessed with structural features, which made enforcement possible or mitigated incentives to cheat. For example, several studies demonstrate that small numbers (oligopoly), a long history of price coordination (through "gentlemen's agreements" and "basing point" systems for shipping), and relatively homogeneous costs among firms made tacit price coordination and cooperation exceptionally effective in the steel industry. Similarly, Gordon notes that a few large firms in the abrasives industry successfully colluded to restrict access to patents from their smaller-scale competitors who undercut price agreements with excessive discounts. However, here too an "exceptional combination of market power, product identification, and economies of scale" was necessary. Finally, sociologist John Bowman shows how the American Veneer Package Association successfully fostered "spontaneous cooperation" in price fixing by providing members with price data, which made it possible for them to monitor one another's behavior. Bowman concludes, however, that efforts to generalize the Veneer Package

7. On segmentation and the absence of associational coordination in the U.S. economy, see McCraw, *Prophets of Regulation*; Hollingsworth, "Logic of Coordinating American Manufacturing Sectors"; Peter Hall and David Soskice, "Introduction to Varieties of Capitalism," in *Varieties of Capitalism*, Peter Hall and David Soskice (NY: Oxford University Press, 2001), 9–12.

8. On the ineffectiveness of the FTC, see Daniel P. Carpenter, *The Forging of Bureaucratic Autonomy* (Princeton, NJ: Princeton University Press, 2001), 7–11; Theodore Lowi, *End of Liberalism: The Second Republic of the United States* (New York: Norton, 1979), 97, 101, 111–12; Gordon, *New Deals*, 137; Kenneth Finegold and Theda Skocpol, *State and Party in America's New Deal* (Madison: University of Wisconsin Press, 1995), 53–57; Thomas Lane Moore III, "The Establishment of a 'New Freedom' Policy: The Federal Trade Commission, 1912–1918" (PhD diss., University of Alabama, 1980); McCraw, *Prophets of Regulation*, 81, 125–28.

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Association's success in "open price associations" largely failed, because it required highly restrictive structural conditions, which were absent in most industries: small numbers, high entry barriers, and homogeneous products.[9] In short, absent the institutional conditions for enforcement and accountability, trade associations were left to dumb luck.

Moreover, efforts by peak business associations, like the National Association of Manufacturers and the U.S. Chamber of Commerce, to revise or repeal antitrust law failed. The same petit bourgeois interests and populist sentiments, which shaped the Democratic Party and ruled Congress in the 1890s, continued into the 1920s, when they placed strict limits on initiatives to alter the law. Thus, despite the Republicans' public appeal to an associative state and Herbert Hoover's assiduous attention to trade associations in the Department of Commerce, the ruling party failed to empower corporatist organizations sufficiently to make them workable. As a result, the twin economic problems of the era—managing overcapacity and arbitrating distributive conflict—remained unresolved and reared their heads with a vengeance in the Great Depression.[10]

Despite the failures of associationalism in the 1920s, path dependencies ruled, and the NRA was built on the model of the War Industries Board. In authorizing the NRA to organize industry to write codes of fair competition, Congress allocated state power to trade associations. However, like the ICC, the FTC, and the Department of Commerce before it, the NRA had too little authority, professional autonomy, or technical capacity to enforce compliance with industry codes or hold them accountable to public ends. The NRA was a weak, confused, and internally divided agency. Moreover, the trade associations, which wrote and implemented industry codes, were too weak to render them effective. As in the 1920s, there were exceptions, which proved the rule. A few industries with the right structural features used the NRA codes to effectively foster cooperation. On the whole, however, institutional legacies made successful enforcement and accountability impossible. Thus hemmed in by the constraining sequence of democratization, industrialization, and state building in the U.S., the NRA failed to lift American industry out of the downward spiral of wages, profits, and production.[11]

Problems with the Institutionalist Story

This is a compelling story, which explains a lot, but runs into four empirical problems, which are salient to the container code and its antecedents: cost structures are an unreliable independent variable, competition policy remained unsettled, the law was interpreted in multiple ways, and conflict between institutions associated with different eras provided resources for innovation.

First, research has demonstrated that industry cost structure is an unreliable guide to organizational strategy and success. The work of Lamoreaux, Roy, and Thompson on the great merger wave demonstrates that there is no reliable relationship between high fixed costs and mergers. My work on railroads demonstrates that cost structures were highly malleable in this industry and had much more to do with contingent decisions in receivership and corporation law than technology. Additionally, Thompson's work on railroad cost structures demonstrates that the leading sector of the great merger wave had precisely the opposite cost structure than the one institutionalists attribute to it.[12] Moreover, Berk and Schneiberg recount a successful movement to upgrade the quality of competition through "developmental" trade associations in the 1910s and 1920s, in which participant industries varied enormously in the structural characteristics that rational-choice institutionalists consider necessary for success—including the homogeneity of costs, the number and size of firms, the homogeneity of products, and the level of entry barriers.[13] In short, the economic characteristics of industries, especially when measured by cost

9. On the steel industry, see Brand, *Corporatism and the Rule of Law*, 207–26; and Alexander and Liebcap, "The Effect of Cost Heterogeneity," 393–94. On abrasives, see Gordon, *New Deals*, 138. On "spontaneous cooperation," see John R. Bowman, "The Politics of the Market: Economic Competition and the Organization of Capitalists," *Political Power and Social Theory* 5 (1985): 35–88.

10. Robert H. Salisbury, "Why No Corporatism in the United States," in *Trends toward Corporatist Intermediation*, eds. Philippe Schmitter and Gerhard Lembruch (Beverly Hills, CA: Sage, 1972), 213–30; Gordon, *New Deals*, 35–86, 128–65; Robert F. Himmelberg, *The Origins of the National Recovery Administration* (New York: Fordham University Press, 1976); Ellis Hawley, "Three Facets of Hooverian Associationalism: Lumber, Aviation, Movies," in *Regulation in Perspective*, ed. Thomas K. McCraw (Cambridge, MA: Harvard University Press, 1987); Finegold and Skocpol, *State and Party in America's New Deal*; Eisner, *From Warfare State to Welfare State*, 106–21; Skowronek, *Building a New American State*, 267–71; Louis Galambos, *Competition and Cooperation: The Emergence of a National Trade Association* (Baltimore: Johns Hopkins University Press, 1966); Robert D. Cuff, *The War Industries Board: Business-Government Relations during World War I* (Baltimore: Johns Hopkins University Press, 1973).

11. See note #1. See also Theda Skocpol, "Political Responses to Capitalist Crisis: Neo-Marxist Theories of the State and the Case of the New Deal," *Politics and Society* 10 (1980): 155–201; and Neil Fligstein, *The Transformation of Corporate Control* (Cambridge, MA: Harvard University Press, 1993), 119–22.

12. Naomi Lamoreaux, *The Great Merger Movement in American Business, 1895–1904* (Cambridge: Cambridge University Press, 1985), 21–41; William G. Roy, *Socializing Capital: The Rise of the Large Industrial Corporation* (Princeton: Princeton University Press, 1997). See also Gregory L. Thompson, "Misused Product Costing in the American Railroad Industry: Southern Pacific Passenger Service between the Wars," *Business History Review* 63 (Autumn 1989): 510–554.

13. Gerald Berk and Marc Schneiberg, "Varieties *in* Capitalism, Varieties *of* Association: Collaborative Learning in American Industry, 1900–1925," *Politics and Society* 33:1 (Mar. 2005): 46–87.

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structures, are unreliable guides to industry organization or the success of trade associations.

Second, research has demonstrated that antitrust law remained what political theorist William Connelly calls an "essentially contested concept" throughout the era under consideration. Its meaning was so unsettled that it is an unreliable exogenous factor shaping economic policy and business strategy. Although it is true that the Supreme Court outlawed price cartels in the early years of antitrust practice, the meaning of critical legal concepts, like "restraint of trade" and "unfair competition" remained unstable. As a result, the status of many trade association and government activities—from cost accounting to trade-practice rules and information pooling—was contested and uncertain. Antitrust law, in short, is an unreliable determinant of business and public policy from the great merger wave through the Great Depression.[14]

Third, and corollary to the second finding, in order to be useful guides to action, the principles of state and economic institutions necessitated interpretation. Rules were never self-evident guides to action for state officials, professionals, and economic actors. Institutional schemas were rarely, if ever "taken for granted." Instead, some antitrust officials interpreted the antitrust reforms of 1914 as license to enforce competition, whereas others saw it as license to regulate it. The implication of these differences for the status of associations was critical and consequential. Moreover, some associationalists fixed their sights on reversing rules against price fixing in the 1920s and the NRA, whereas others saw the antitrust reforms of 1914 as a warrant to upgrade the quality of competition through better cost accounting and information pooling. Professional economists and cost accountants also derived very different practical lessons from antitrust case law and competition policy. As a result, they organized professional societies and served their clients in the state and economy in remarkably diverse ways. In short, whether defined as rules or cultural schemas, the regulatory and economic institutions associated with competition policy from 1900 to 1940 provided multiple guides to action.[15]

Fourth, the clash between institutional practices from different historical eras (layering or intercurrence) provided resources for innovation, not merely grounds for stalemate, paralysis, and confusion. The institutional conflict between nineteenth-century principles of competition (embedded in the judiciary) and twentieth-century principles of administration (embedded in the FTC and the NRA) proved fertile ground for organizational and policy experimentation. The historical legacy of failed cartels, for example, led some associationalists to circumvent antitrust and collective-action problems by teaching their members how to shift competitive strategy from a Hobbesian struggle over volume to rivalry over product and process innovation. They sought not to escape nineteenth-century strictures (competition) with twentieth-century instruments (administration), but to combine them into organizations that reshaped and upgraded the quality of competition. Similarly, the temporal conflict between nineteenth-century rules to enforce competition and twentieth-century principles of command and control regulation in the FTC and the NRA provided resources for innovation, as well as conflict and confusion.[16]

In summary, research on the great merger wave, antitrust law, trade associations, and the FTC, as well as the evidence presented in this article on the NRA, raises a variety of difficulties for institutionalist assumptions and narrative. First, the costs of modern industry appear to be more social conventions than unambiguous measures of reality or direct constraints on economic behavior. Second, all institutions appear to be internally pluralistic, and this can be the source of innovation and productive deliberation, as well as dysfunction and confusion. Third, existing institutions do not necessarily constrain human action; instead, actors seem perfectly capable of reflecting on the circumstances of their problems and coming up with experiments to alter them. Fourth, history is not path dependent in the sense that previous conjunctures and prior legacies determine a narrow range of possibilities at a later time.

Creative Syncretism

In order to make sense of the anomalies recounted above, as well as the history of the container code, this article shifts conceptual focus from the ways in which institutional legacies constrain and enable

14. On the continuing debate over the meaning of competition, see Ellis W. Hawley, *The New Deal and the Problem of Monopoly: A Study in Economic Ambivalence* (Princeton: Princeton University Press, 1966); Rudolph J.R. Peritz, *Competition Policy in America* (Oxford: Oxford University Press, 1996); Michael H. Best, *The New Competition: Institutions of Industrial Restructuring* (Cambridge: Harvard University Press, 1990), 88–92; Marc Allen Eisner, *Antitrust and the Triumph of Economics: Institutions, Expertise and Policy Change* (Chapel Hill: University of North Carolina Press, 1991); Gerald Berk, *Louis D. Brandeis and the Making of Regulated Competition* (Cambridge: Cambridge University Press, 2009).

15. On the variety of trade association strategies, see Gerald Berk, "Discursive Cartels: Uniform Cost Accounting among American Manufacturers before the New Deal," *Business and Economic History* 26:1 (Fall 1997): 229–251; Gerald Berk, "Communities of Competitors: Open Price Associations and the American State, 1911–1929," *Social Science History* 20:3 (Fall 1996): 375–400; Berk, *Louis D. Brandeis*, 150–84; Himmelberg, *Origins of the National Recovery Act*; Gordon, *New Deals*, 128–65; and Howell J. Harris, *Bloodless Victories: The Open Shop Movement in the Philadelphia Metal Trades, 1900–1940* (Cambridge: Cambridge University Press, 2006).

16. Berk and Schneiberg, "Varieties *in* Capitalism, Varieties *of* Association"; Berk, *Louis D. Brandeis*, 150–84.

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subsequent possibilities to the problem of institutional innovation. How do policy makers, professionals, and economic actors experiment with novel organizational forms in putatively hostile institutional settings, that is, where existing theory and evidence tells us innovation or entrepreneurship is unlikely? How should we make sense of success in the midst of failure? How can we reconceptualize history and institutions to open novel lines of empirical research into institutional innovation and into innovative institutions? In order to gain leverage on these questions, this paper draws on recent work in pragmatist and constructivist social theory to outline five alternative propositions about technology, institutions, action, and time: 1) costs are socially constructed; 2) institutions are better understood as combinations of indefinite numbers of instruments or features, which can be decomposed and recombined to ameliorate problems in unpredictable ways; 3) action within institutions is always potentially creative; 4) time situates—it does not constrain—action in a repertoire of past practices, whole and broken, which become resources for creative recombination; and 5) actors imagine novel combinations through narrative, that is, by drawing upon ongoing cultural stories to retell the sources of their distress and imagine a better future.[17]

This paper begins in the same place as the institutionalist narrative, namely with the cost structures of modern industry. Whereas historical and rational-choice institutionalists see costs as structural constraints on business strategy, associational form, and public policy, I see them as malleable social constructions. As accounting scholar Peter Miller writes, "[A]ccounting is not a neutral device that merely documents 'the facts' of economic activity." It is better understood as a "set of practices that affects the world we live in, the social reality we inhabit … and the way we administer the lives of others and ourselves."[18] In this paper, costs are conceptualized as an artifact of contests over accounting conventions, the outcome of which legitimated some techniques over others and made corresponding economic problems and institutional strategies appear more or less natural.

Second, this paper extends the critique of rule following, by reconceptualizing institutions as composed of an indefinite number of rules, cognitive schemas, or policy instruments, which can be recomposed in unpredictable ways. Drawing on the concept of "syncretism" from religious studies—where it means popular modification of orthodoxy through unauthorized recombination of ritual, symbols, or practice—Berk and Galvan call this quality of institutions "creative syncretism."[19] Others have noted similar phenomena. Sociologist Colin Crouch argues that all institutions have "redundant" features, which are always available as resources for innovation.[20] Organization theorist Karl Weick argues that institutional parts are rarely, if ever, tightly organized in the hierarchical and complementary patterns outlined in classical theories of bureaucracy. Instead they are better seen as "loosely coupled" parts, which are routinely recombined through "bricolage."[21] Or, as sociologist Elisabeth Clemens writes, institutional fields in modern societies house heterogeneous organizational models, which constitute an "organizational repertoire" that can be

17. Gerald Berk and Dennis Galvan, "How People Experience and Change Institutions: A Field Guide to Creative Syncretism," *Theory and Society* 38(6) (2009), 10.1007/s11186-009-9095-3, 43–80; and Berk, *Brandeis*, 15–25.

18. Peter Miller, "Accounting as Social and Institutional Practice: An Introduction," in *Accounting as Social and Institutional Practice*, eds. Anthony G. Hopwood and Peter Miller (Cambridge: Cambridge University Press, 1994). There has been a lot of excellent scholarship on the social studies of accounting in recent years. In addition to the articles in Hopwood and Miller, see Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton, NJ: Princeton University Press, 1995); Mary Poovey, *A History of the Modern Fact* (Chicago: University of Chicago Press, 1998); and Michael Power, *Accounting and Science: Natural Inquiry and Commercial Reason* (Cambridge: Cambridge University Press, 1996). Post-positivist policy studies have also taken up the social construction of measurement in the public sector. See, for example, Deborah Stone, *Policy Paradox: The Art of Political Decision Making* (NY: Norton, 2002), 163–87, 305–23; and Dvora Yanow, *Constructing "Race" and "Ethnicity" in America: Category Making in Public Policy and Administration* (Armonk, NY: M. E. Sharp, 2003). See also Marc Schneiberg and Gerald Berk, "From Categorical Imperative to Learning by Categories: Cost Accounting and New Categorical Practices in American Manufacturing, 1900–1930," *Research in the Sociology of Organizations* 31(2010):255–92.

19. Berk and Galvan, "How People Experience and Change Institutions."

20. Colin Crouch, *Capitalist Diversity and Change* (Oxford: Oxford University Press, 2005), 64–65, 88–91; Colin Crouch and Henry Farrell, "Breaking the Path of Institutional Development: Alternatives to the New Determinism," *Rationality and Society* 16(1) (Feb. 2004): 5–43.

21. Karl E. Weick, *Making Sense of the Organization* (Malden, MA: Blackwell, 2001), 33–56. On syncretic or "recombinant" institutions, more generally, see Roberto Unger, *Social Theory: Its Situation and Its Task* (Cambridge: Cambridge University Press, 1987), 33–37; Charles Sabel and Jonathan Zeitlin, "Stories, Strategies, Structures," in *World of Possibilities: Flexibility and Mass Production in Western Industrialization*, eds. Charles F. Sabel and Jonathan Zeitlin (Cambridge: Cambridge University Press, 1997); Jonathan Zeitlin and Gary Herrigel, eds., *Americanization and Its Limits* (New York: Oxford University Press, 2000); Rudra Sil, *Managing "Modernity": Work, Community, and Authority in Late-Industrializing Japan and Russia* (Ann Arbor: University of Michigan Press, 2002); Dennis Galvan, *The State Must Be Our Master of Fire: How Peasants Craft Sustainable Development in Senegal* (Berkeley: University of California Press, 2005); David Stark and Laszlo Bruszt, *Postsocialist Pathways: Transforming Politics and Property in East Central Europe* (Cambridge: Cambridge University Press, 1998); William H. Sewell, "A Theory of Structure: Duality, Agency and Transformation," *American Journal of Sociology* (July 1992): 1–29; and Elisabeth S. Clemens, "Afterward: Logics of History? Agency, Multiplicity, and Incoherence in the Explanation of Change," in *Remaking Modernity: Politics, History, and Sociology*, eds. Julia Adams, Elisabeth S. Clemens, and Ann Shola Orloff (Durham, NC: Duke University Press, 2005), 499–507.

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redeployed or recombined in novel ways to address unanticipated problems.[22]

This paper hypothesizes that syncretism is not the conditional result of historical layering, intercurrence, or punctuated equilibrium—a deviation, that is, from the norm of rationality, determinacy, and complementarity. Rather, as pragmatist philosophers demonstrate, it is a more stubborn feature of all human habits, theories, cognitive schemas, rule systems, or institutions, namely, that they are partial and plural. No matter whether one understands institutions as systems of rules or as taken-for-granted cognitive schemas, institutions never fully guide action or make sense of all experience. Like theories, they are irreducibly partial, and experience (or observation) inevitably overflows their strictures. Moreover, as Orren and Skowronek, Friedland and Alford, Sewell, and others demonstrate, modern societies are populated by multiple institutions.[23] This means that it is never precisely clear which institutional rules, habits, or cognitive schemas apply to a particular situation. As a result, wrote John Dewey in 1922, people experience the flow of life's situations in modern institutions as "never twice the same."[24] Uncertainty over which rules or schemas apply, and in what combination, is for pragmatists a fact of life. From this perspective, we may think of institutions more productively as *orienting* practice but never *determining* it. Rules, schemas, or other institutional instruments necessitate interpretation, "recombination," or "recomposition" in the normal course of practice.

This paper will show how administrative forms in state, civil society, and economy—the FTC, the U.S. Chamber of Commerce, and trade associations—are better understood as syncretic combinations than as consistent constraints on action. These syncretic combinations provided actors with a repertoire of resources, which were recomposed in response to new challenges.

The third idea, which guides the narrative in this paper, is that action within institutions is historically situated and yet always potentially creative.[25] If institutions are composed of an indefinite number of rules, schemas, or instruments, which are recomposed in everyday use, then institutional actors have little choice but to interpret the relationships, and accord them novel meanings, in the normal course of going about their business. This is a creative process, which involves the imaginative projection of novel combinations, in light of the definition of existing problems and possibilities for solutions. At the same time, creativity is always situated in time, as actors draw on a repertoire of prior practices to innovate.[26] Finally, actors devise novel combinations and accord them new meaning by retelling the causal history of their distress and how experiments in the present can lead to a better future.[27]

In short, where historical institutionalists studying the NRA and its antecedents see costs as exogenous technical constraints on action, this paper sees them as endogenous social constructions. Where institutionalists see institutions as constraints on action, this paper sees them as composed of loosely coupled instruments, which are better understood as resources for action. Where institutionalists conceptualize time as sequenced, layered, and path-dependent, this paper sees time as a context for repertoires of practice on which creative actors draw to recompose institutions in the normal course of practice. Where institutionalists see action as institutionally enabled and constrained, this paper sees it as always potentially creative.

Map of the Argument

With these concepts in mind, I retell the history of the FTC, the trade-association movement of the 1920s, the NRA, and the place of the container industry in each.

I show that the FTC was not stillborn in intercurrence, but a polyvalent or pluralistic organization, created with multiple, yet quite coherent, missions.

22. Elisabeth S. Clemens, "Organizational Repertoires and Institutional Change: Women's Groups and the Transformation of U.S. Politics, 1890–1920," *American Journal of Sociology* 98(4) (Jan. 1993); Elisabeth S. Clemens, *The People's Lobby: Organizational Innovation and the Rise of Interest Groups in the United States, 1890–1925* (Chicago: University of Chicago Press, 1997), 41–65.

23. Karen Orren and Stephen Skowronek, *The Search for American Political Development* (Cambridge: Cambridge University Press, 2004); Roger Friedland and Robert R. Alford, "Bringing Society Back In: Symbols, Practices, and Institutional Contradictions," in *The New Institutionalism in Organizational Analysis*, DiMaggio and Powell, 232–263; Sewell, "A Theory of Structure."

24. John Dewey, *Human Nature and Conduct* (Amherst, NY: Prometheus Books, 2002 [1922]).

25. In addition to Berk and Galvan, "How people experience and change institutions," on the creativity of action, see the recent literature on entrepreneurship: Adam Scheingate, "Political Entrepreneurship, Institutional Change and American Political Development," *Studies in American Political Development* 17 (2003): 185–203; Crouch, *Capitalist Diversity and Change*; Hokyu Hwang and Walter W. Powell, "Institutions and Entrepreneurship," in *Handbook of Entrepreneurial Research* (Norwell, MA: Kluwer, 2005), 179–210. For a more general effort to bring creativity into the center of social and political research, see Hans Joas, *The Creativity of Action* (Chicago: University of Chicago Press, 1996).

26. Or, as Clemens writes, although organizational repertoires situate human action in a historical field, they always serve as a potential platform for both mimesis and innovation. See Clemens, "Organizational Repertoires and Institutional Change"; and Elisabeth S. Clemens, "Invention, Innovation, Proliferation: Explaining Organizational Genesis and Change," *Research in the Sociology of Organizations* 19 (2002): 397–411.

27. Margaret R. Somers, "Narrativity, Narrative Identity, and Social Action: Rethinking English Class Formation," *Social Science History* 16 (Winter 1992): 591–630; Margaret M. Somers, "Narrativity, Narrative Identity and Social Action: Rethinking English Working Class Formation," *Social Science History* 16 (Winter 1992): 591–630; Donald Polkinghorne, *Narrative Knowing and the Human Sciences* (Albany, NY: SUNY Press, 1988).

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Among them was "regulated competition," wherein the FTC's goal was to channel business competition from predation into improvements in products and production processes. Creative administrators at the FTC recomposed a wide range of cultural, professional, and historical resources to realize these ends. Regulated competition had both a coercive and a cultivational side. The goal of the former was to check predatory activities before they turned into unassailable power and, by doing so, to better realize the traditional American aspiration, economic equality. The goal of the latter was to upgrade the quality of competition through civic development, collaboration, and scientific learning. The FTC cultivated economic improvement by working closely with professional, peak business and manufacturing trade associations to improve cost-accounting methods and set standards of productive competition. The commission's efforts to recompose business, professional, and associational resources to the ends of regulated competition, we shall see, bore fruit. Under its guidance, more than 15 percent of all manufacturing trade associations adopted the tools of regulated competition and, in doing so, made the transition from competition-suppressing cartels to what I shall call developmental associations.

Part 3 traces the FTC's project into the corrugated and solid fiber container industry, where it made a great deal of progress toward regulated competition in the 1920s. I show how industry leaders recomposed institutional resources from the FTC, the cost-accounting profession, and cognate industries to form a developmental association in the 1920s. Part 4 traces the container industry into the NRA. I show how the architects of the container code drew on the repertoire of institutional resources from the 1920s to develop a careful critique of cartel strategies in the NRA and recomposed those resources to create a highly successful experiment in regulated competition within a polyvalent NRA. The story ends not with a conjectural resolution of institutional diversity and contestation, but rather an unresolved controversy within the NRA over how to make sense of the container code.

PART 2. ANTECEDENTS

Regulated Competition

Between 1916 and 1929, the FTC organized a network of trade associations, cost accountants, and peak business associations to regulate competition. Under the commission's tutelage, the U.S. Chamber of Commerce, NACA, and nearly one third of all trade associations in manufacturing industries participated in an ambitious cost-accounting program whose goal was to channel rivalry from cutthroat competition over volume into the improvement of products and production processes.

Although institutionalists are correct to characterize the FTC's mandate as confused, they are incorrect to cast it as vague. The FTC was born with multiple, yet quite coherent, missions, with regulated competition among them. In 1914, the Senate forged a majority coalition in favor of the Federal Trade Commission Act by writing a law with different meanings for its supporters. Section 5 of the statute empowered the FTC to regulate "unfair competition." For progressive Republicans, this meant *regulated monopoly*. The FTC should accept corporate power as an inevitable byproduct of economic efficiency and ensure that corporations did not abuse it to bilk consumers and crush competitors. Like institutionalists looking back, progressive Republicans thought regulated monopoly necessitated a strong, autonomous FTC. By contrast, for Woodrow Wilson, his antitrust advisor Louis Brandeis, and many Democrats in Congress, section 5 empowered the FTC to *regulate competition*. This was a prophylactic power, which was meant to check predatory competition before it turned into unassailable power and to cultivate the conditions for productive competition over improvements in products and production processes. The senators who managed the passage of the Federal Trade Commission Act forged a majority coalition by interpreting section 5 differently to the factions who supported it. Following in their footsteps, President Wilson appointed a constituency commission, with commissioners who represented different perspectives on the meaning of the law. The result was a polyvalent agency governed by multiple logics, with regulated competition among them. It was the logic of regulated competition that the architects of the NRA's container code drew on in 1934.[28]

Between 1916 and 1928 three FTC chief commissioners invented two programs to implement the cultivational side of regulated competition. In 1916, Edward Hurley initiated an ambitious program to upgrade competition through better cost accounting. Three years later, Nelson Gaskill initiated a program to assemble industries in trade-practice conferences to create codes of fair competition. Then in 1925, William Humphrey institutionalized trade-practice conferences and cost accounting by creating a new FTC division devoted to running conferences and reviewing codes and cost systems.

A successful Chicago manufacturer and head of the Illinois Manufacturers Association, Edward Hurley came to the FTC in 1916, having observed at close range how faulty accounting assumptions led manufacturers into destructive competition. He thought two taken-for-granted principles were particularly destructive: 1) volume always reduces average costs, and 2) the joint costs of two or more products were lower than producing those products independently.

28. Berk, *Louis D. Brandeis*, 90–111.

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Hurley noted that so deep and unreflective were these ideas that manufacturers rarely thought it necessary to gather data to test them. As a result, they pursued volume compulsively, even if this meant driving prices below costs or taking huge losses on some products, hoping in vain to make them up with profits from other products. This "volume illusion" (as Hurley's successor, Nelson Gaskill, named it) not only truncated the search for improved profits and productivity, it caused cutthroat price competition as firms poached one another's markets in search of ever-higher volume and drove prices below costs in the vain hope that higher volume would lower costs (through scale economies). Thus, unlike many managers of his time and virtually all institutionalists looking back, Hurley hypothesized that cost conventions, not the inexorably high fixed costs of technology, led firms into cutthroat competition, cartelization, and ultimately into corporate mergers.[29]

There was another way to measure costs and compete. For some time, cost accountants and trade associations in printing and metalworking had been experimenting with more refined metrics that allowed managers to assess the profitability of volume and to more carefully segregate the costs of different products. Thus, in 1916, the FTC launched a cost-accounting division under Hurley's leadership.

Hurley considered requesting authorization and finances from Congress for the division to set and enforce mandatory accounting standards. Like institutionalists looking back, he realized the conditions were poor for such bureaucratic autonomy, authority, and capacity, but institutional conditions were not bereft of possibility. Seen through the lens of regulated competition (not regulated monopoly), Hurley perceived assets where others had seen only constraints. As he saw it, the problem with the manufacturers and economists who assumed that volume always realized efficiency advantages was that they reduced a diversity of conditions to a single principle. However, industry conditions varied so much that Hurley thought decentralization and collaboration with managers and professionals were assets (not a second best to FTC autonomy). The more the commission left the most important principles of cost accounting up to industry practitioners, the more likely they were to be successful and the more the FTC could serve as a clearinghouse for comparison between industries and inductive learning.

Thus, Hurley decided to work with industry trade associations, the U.S. Chamber of Commerce, and the cost accountants to develop and diffuse techniques to help manufacturers overcome the volume illusion. Under Hurley's leadership, the FTC set up an in-house division of cost accounting and hired neither a certified public accountant nor a university professor, but a Cleveland cost accountant with extensive experience in metalworking factories to run it.

The FTC's cost division was not a precursor to the Securities and Exchange Commission's accounting division or state-level licensing boards, which were designed to oversee financial accounting standards through professional education, licensing, and enforcement. Instead, the cost-accounting division worked closely with cost accountants and trade and peak business associations to develop industry-appropriate cost-accounting standards. The FTC left the bulk of practical work to organizations in civil society. The cost division produced two demonstration cost manuals (one for manufacturing and another for retail) and began to review industrial association cost systems for informal approval.

In time, the FTC closed its cost division and folded its cost work into a broader project intended to create industrial codes of fair competition through trade-practice conferences. In 1917, the FTC's economic research division assembled members of the fertilizer industry to review a report on their industry. To the economists' surprise, manufacturers agreed to set aside a number of customary, yet destructive, competitive practices. When they followed up six months later, the economists found extremely high levels of compliance. In a larger, more hierarchical, and professionalized bureaucracy, where research and legal functions were more clearly divided, the fertilizer case might have gone unnoticed. However, in an agency characterized instead by a relatively flat hierarchy, by a great deal of lateral communication across departments, and by multiple logics among its commissioners, the architects of regulated competition perceived the fertilizer case as a potentially generalizable experiment, a method, that is, by which the FTC could work with industry to set standards of unfair competition in a diverse set of circumstances. Seen from this perspective, the FTC's formative conditions were resources for organizational innovation, not constraints on bureaucratic autonomy.[30]

Under the leadership of the FTC's third chief commissioner, Nelson Gaskill, the commission launched an ambitious program for "trade practice conferences." The idea, as Gaskill put it, was not to self-regulate (the mark of a captured agency with little in-house capacity, as institutionalists suggest), but to perturb industry customs, which had once been functional but had become predatory and destructive. Once conference participants had identified such customs and crafted alternative methods of competition, the commission would review the new proposals for legality.[31]

29. This paragraph and the following three are based on ibid., 122–29.

30. Ibid., 133–34.

31. Ibid., 134–40.

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In 1925, the FTC's fifth chief commissioner, William Humphrey, institutionalized trade-practice conferences by launching a division devoted to them. In addition to running conferences, the division worked closely with FTC lawyers to distinguish trade-practice conference rules according to their legality. They classified some as Group I rules, which were thoroughly consistent with legal doctrine, and others as Group II rules, which were expressions of good practice with no legal force. The trade-practice conference division also took up the cost division's earlier role of reviewing trade-association cost systems. Within its first eight years, the division held 150 conferences; among them it reviewed fifty association cost systems and included them in Group II rules, which endorsed accounting systems and encouraged firms to adopt them.[32]

The commission's efforts bore fruit. In 1918, the cost accountants bolted from financial accountants in the American Institute of Accountants (whose clients were increasingly corporations) and set up their own organization: the NACA. Among its many goals was to create accounting and managerial capacity in trade associations. It sought to teach manufacturers the principles Hurley's cost division had outlined at the FTC: product costing, overhead distribution, and departmental costing. The goal of these techniques (which will be explained in my account of the container industry) was neither to suppress competition nor to make business accountable to the state and investors (as in financial accounting). It was to show manufacturers how to compete and make profits without falling prey to the volume illusion.[33]

The NACA spawned a new profession: business consulting, or what they called "management engineering." Its leading firms included Stevenson, Jordan and Harrison (SJ&H); Scovell, Wellington; and Henry S. Denham. Two partners in SJ&H would serve as NACA presidents in 1920s, and the partnership would participate actively in the NRA, designing codes for glass, envelope, and the corrugated and solid fiber shipping container industries.

The U.S. Chamber of Commerce also took up the FTC's challenge to advance regulated competition through trade associations. In 1919 the chamber launched a manufacturing division, which devoted itself exclusively to working with trade associations and cost accountants during its early years. Between 1919 and 1924 the division held a series of meetings on regulated competition through trade associations. There were hundreds of participants at these meetings, representing an equal number of manufacturing industries. Many were trade-association executives, but public officials, corporate managers, and cost accountants also attended.

These forums culled a model of regulated competition through trade associations, which economic sociologist Marc Schneiberg and I have called elsewhere "developmental associations."[34] Developmental associations were not corporatist organizations, which attempted to suppress competition. (Institutionalists are correct to conclude that the conditions for corporatism were absent in the U.S.) Rather, like the FTC, they sought to channel rivalry from predation to improvement by perturbing destructive customs and showing manufacturers a better way to compete. Developmental associations had four defining features: 1) they created a standard cost-accounting system for their industry, 2) they implemented a system of performance benchmarking through which firms could compare their cost performance to others in their industry, 3) they held regular meetings to make comparisons and revise the metrics by which performance was measured, and 4) they encouraged firms to stabilize prices by competing over product quality and diversity instead of volume.

By 1928, 15 percent of all trade associations in 25 percent of manufacturing industries had adopted these features in whole or part. Also, in a number of sectors—especially those in printing, graphic arts, and paper products—developmental associations succeeded in improving technology, labor skills, productivity, and profits. Moreover, counter to rational-choice and economistic expectations, these were not cases of spontaneous cooperation or tacit coordination, which work only under restrictive structural conditions (such as homogenous products, high entry barriers, or homogeneity of costs among firms). Participation in developmental associations occurred in industries with significantly varied structural characteristics. Some industries, such as paper, were continuous processing industries with a relatively small number of dominant firms; whereas others, like commercial printing, had a large number of small specialty firms. Far more important to participation were the political and sociological characteristics of these industries, that is, whether they were linked to state efforts to regulate competition and to other industries that had made progress in regulating competition, or whether they attended national forums on cost accounting. This is why developmental associations spread quickly throughout a cluster of industries related to paper and graphic arts.[35]

In summary, the FTC succeeded in cultivating conditions for regulated competition during its first fifteen years. It renamed the causes of cutthroat

32. Ibid., 140–43.

33. This paragraph and the following three are based on ibid., 150–84.

34. Berk and Schneiberg, "Varieties *in* Capitalism, Varieties *of* Association," 46–87.

35. Berk and Schneiberg, "Varieties *in* Capitalism, Varieties *of* Association."

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competition, cartelization, and corporate mergers from the constraints of technology (witness the language of "fixed" costs) to cost conventions that overvalued volume (the volume "illusion"). It wrote two cost manuals, which showed business how to compete differently by measuring their costs differently. Furthermore, it cultivated the capacity to upgrade competition in the NACA, the U.S. Chamber of Commerce, and a large group of industry trade associations. In other words, a state-sponsored cluster of industry associations developed to regulate competition.

The Container Industry

The corrugated and solid fiber container industry was barely forty years old when Congress passed the National Industrial Recovery Act in 1933. By the 1910s, it became a diverse and segmented industry, in which some firms fabricated their own containerboard, others manufactured boxes from purchased board, and still others made boxes from "blanks" produced by other manufacturers. As a result, container manufacture had none of the characteristics rational-choice institutionalists or economists think necessary for spontaneous cooperation, tacit price coordination, or success in the NRA. Nonetheless, associationalism was critical to the development of this industry from its early days to the NRA. This section describes the industry's structure, traces its associational history, and shows how manufacturers successfully simplified and standardized products during the 1920s. The evidence on standardization is important because, as we shall see, the NRA container code succeeded, in large part, by returning the box makers to the practice of competing through product innovation and diversity.

Origins and Organization

Commercial printers invented corrugated cardboard and simple corrugating machinery in the 1870s. In the 1880s, manufacturers devised machinery to laminate facing on corrugated materials and began to sell cardboard as a lightweight packing material. Within a decade, they had begun to manufacture boxes from corrugated sheets. The industry did not pick up steam, however, until after the turn of the century. By 1910, there were 50 firms in the U.S. using 150,000 tons of fiberboard annually. By 1920 there were 100 firms using 970,000 tons of fiberboard annually. By the dawn of the Great Depression, the number of firms reached almost 200, and the tonnage of board consumed was 1,860,000.[36]

This was a segmented industry in which production, marketing, and materials acquisition were quite diverse. There were three types of container manufacturers by the 1920s: 1) integrated firms who owned their own paperboard mills and raw materials, which they fabricated into containers; 2) unintegrated firms who fabricated boxes from purchased materials; and 3) sheet plants who bought board from the first two groups in the form of sheets cut to size, from which they manufactured boxes.[37] In 1934, there were 21 integrated firms producing 52 percent of total production, about 110 unintegrated manufacturers, and about 65 small sheet plants. Most manufacturers were relatively small, averaging less than 50 employees.[38] Moreover, although products became increasingly standardized in the 1920s, this was primarily a batch product industry, with 90 percent of its production made to order. It was also a seasonal industry, in which peaks and lulls varied increasingly with commodity cycles (such as fashion-sensitive garments or seasonal agricultural products).[39]

Despite its diversity in products and production processes, improvements in fiberboard manufacturing technology made mass production and mass marketing of boxes increasingly possible in the 1920s. In 1910, corrugated machinery was capable of producing no more than 30 feet per minute. By 1920 speeds of 55 to 60 feet per minute were common. At the dawn of the Great Depression, speeds of up to 125 to 200 feet per minute became possible. As a result, writes industry economist Grover Daly, "emphasis on continuity of operation … and maximum output per shift" in box making, as well as fiberboard production, became widespread in the 1920s.[40]

In 1929, then, the corrugated shipping container industry was an unlikely candidate for success in the NRA, because it had none of the economic features rational-choice institutionalists or economists think necessary for tacit price coordination, "spontaneous cooperation," or effective cartel enforcement: homogeneous costs and products, high entry barriers, dominant firms, and small numbers. Instead, the industry was segmented among three, or perhaps four, classes (a small group of jobbers who sold standardized products also emerged in the 1920s), each with its own production, cost, marketing, labor, and technological characteristics.[41] Indeed, as we shall

36. Browder, 1–2.

37. Corrugated and Solid Fiber Shipping Container Industry, Code History, pp. 1–2 RG 9, E. 25, Box 1686, File 13.

38. *Container News Digest*, 1(2) (Apr. 1935): 1–2.

39. Corrugated and Solid Fiber Shipping Container Industry, Code History, pp. 1–2 RG 9, E. 25, Box 1686, File 13.

40. Grover J. Daly, *The Corrugated Container Industry – A History and Analysis* (Oak Park, IL: Henry J. Bettendorf, 1971), 24.

41. Alexander and Liebcap, "The Effect of Cost Heterogeneity"; Barbara Alexander and Alexander Liebcap, "Public Choice and the Success of Government-Sponsored Cartels: The Different Experience of New Deal Agricultural and Industrial Policies," in *Public Choice Interpretations of American Economic History*, eds. J.C. Heckelman, J.C. Moorhouse, and R.M. Whaples (Boston: Kluwer, 2000), 123–46; Bowman, "The Politics of the Market."

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see in Part 4, the architects of the NRA's container code were well aware that their industry was inhospitable to tacit price coordination, "open pricing," or cartel enforcement. Instead, drawing on the resources devised by the FTC, the printing industry, the cost-accounting profession, and the U.S. Chamber of Commerce, the architects of the container code devised a method to circumvent, rather than solve, the problem of collective action.

Developmental Association in the Shipping Container Industry

Although the container industry never spawned a price cartel, trade associations were critical to its development from the turn of the century to the Great Depression. Between 1900 and 1929, there were a dozen national associations, none of which lasted longer than three years and each of which took on a new problem. In the 1900s they allocated patents, in the 1910s they negotiated with the railroads, and in the 1920s they turned their attention to product standardization and cost accounting.

In 1905, the Progress Club formed to organize access to machine patents among manufacturers of corrugated fiberboard and boxes. Four years later, the Fiber Shipping Container Association formed to negotiate the early industry's greatest hurdle overcoming resistance from the railroads. The carriers mistrusted the quality and durability of cardboard containers; and wooden crate manufacturers, fearful of competition from a lighter-weight and more adaptable product, actively resisted railroad authorization to ship products in corrugated containers. In 1912, the association appealed to the ICC to equalize rates for wooden and fiber containers. After two years of investigation, the ICC ruled in favor of the Fiber Shipping Container Association.[42] Although the "Pridham" case opened the door to the rail market, trade associations continued their efforts to overcome resistance from shippers and carriers by negotiating product standards with railroad associations and by helping box makers to simplify and standardize their products.

In 1926, the National Container Association (NCA) formed a standardization committee to work with the American Railway Association, regional freight associations, and the Division of Simplified Practice of the U.S. Department of Commerce to set standards for container size, form, and strength. The committee also worked closely with academic, industry, and trade-association engineers to develop procedures to test and certify the strength of fiber shipping containers.[43] It also collaborated with the Department of Commerce on efficiency standards for packing boxes and "systematizing" the way railroads loaded the cargo and braced boxed freight.[44]

The NCA's efforts bore fruit. As industry historian Wilbur Powell writes, after many years of "groping and development," manufacturers converted from a "multiplicity of styles" to "extreme simplicity" and standardization in the 1920s. By 1926, they settled on the "regular slotted carton"—a "one piece blank joined at one of the vertical edges and a closed top and bottom by four flaps, which were merely extensions of the four side panels." For the next decade, this style "monopolized the field."[45] Box makers also reduced the size of containers, so they could be handled by a single worker, and standardized their shape so folding and taping operations could be mechanized. Following the fashionable logic of mass production, they reasoned that simplification, standardization, and mechanization would decrease the cost of manufacturing and increase the speed by which their customers packed and loaded cardboard containers (and thereby lower the cost).[46]

However, product simplification and standardization turned out to be a double-edged sword. On the one hand, it resulted in rapid growth, as shippers and railroads learned to trust standard products and turned from wood to cardboard containers. On the other hand, as in other industries, mass production of homogeneous products resulted in cutthroat price competition. Between 1919 and 1929, the total value of wood and fiber shipping containers grew from $177,886,039 to $283,374,675. In 1919, 99

42. E.R. Hankins and Grafton Whiting, *Text Book for Corrugated Fiber Box Industry* (ER Hankins and Grafton Whiting, 1925), 7.; Wilbur F. Powell, *A History of the Corrugated Shipping Container Industry in the United States* (Camden, NJ: Samuel M. Langston Co., 1940), 23–34; Harry J. Bettendorf, *Paperboard and Paperboard Containers: A History* (Chicago: Harry J. Bettendorf, 1946), 61–77; Diana Twede, "The History of Corrugated Fiberboard Shipping Containers," *Conference on Historical Analysis and Research in Marketing*, Duke University, Durham, NC, 17–20 May 2007, 242–43.

43. *Carton Age* 7(3) (Mar. 1927): 9; *Carton Age* 7(2) (Feb. 1927): 14; *Carton Age* 6(8) (Aug. 1926): 19; *Carton Age* 6(2) (Feb. 1926): 12; Howell, *History of the Corrugated Shipping Container Industry*, 23–6.

44. See U.S. Department of Commerce, "Packing for Domestic Shipment: Fiber Containers," Domestic Commerce Series-No. 10 (Washington, DC: Government Printing Office, 1927); *Carton Age*, 4(12) (Dec. 1924): 14; *Carton Age*, 5(12) (Dec. 1925): 14; Daly, *The Corrugated Container Industry*, 22–23. On the Department of Commerce's efforts to encourage simplification and standardization as paths to efficiency in the 1920s, see Ellis Hawley, "Herbert Hoover, the Commerce Secretariat, and the Vision of an 'Associative State,' 1921–1928," *Journal of American History* 61 (1974): 116–40; Ellis Hawley, "Three Facets of Hooverian Associationalism: Lumber, Aviation, and Movies, 1921–1930," in *Regulation in Perspective*, ed. Thomas K. McCraw (Cambridge, MA: Harvard Business School Press, 1982), 95–123.

45. Howell, *History of the Corrugated Shipping Container Industry*, 35.

46. On the reduction of product variety through standardization in this period, see also U.S. Department of Labor, Bureau of Labour Statistics, *Cost Savings Through Standardization-Simplification-Specialisation in Containers* (Paris: Foreign Operations Administration, nd), 32–33; and Daly, *The Corrugated Container Industry*, 21–22. On the diversity of products before 1910, see Harry J. Bettendorf, *Paperboard and Paperboard Containers: A History* (Chicago: Harry J. Bettendorf, 1946), 76–77

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percent of that value was in wooden containers. Ten years later corrugated containers had overtaken wooden containers (47.6 percent wood and 52.4 percent fiber). Throughout the 1920s, fiber container use grew by approximately 9 percent per year. However, standardization also resulted in over capacity and cutthroat price competition, as firms scrambled to compete over increasingly uniform markets.[47] Unlike many manufacturing trade associations in the 1920s, however, the NCA had little experience with cartelization to draw on. Instead, NCA executives turned to their colleagues in the printing and paper industries and to the FTC, where they learned the techniques of developmental association and cost accounting.

The container manufacturers first learned about cost accounting from the FTC and their founders, the commercial printers. The printers were precocious innovators. As such, they were watched, supported, and evaluated by the FTC, the U.S. Chamber of Commerce, the NACA, and other trade associations. The printers' cost system was among the first to be evaluated by the FTC. It was the subject of discussion among cost accountants and other trade associations, and printing became the central node in a cluster of industries, which worked together to elaborate and diffuse developmental associations.[48]

In 1915, the FTC reviewed and approved the United Typothetae of America's (UTA) standard cost system. Commissioner Hurley held it out as a model system for other industries and wrote the president about the FTC's success in encouraging trade associations to upgrade competition through better accounting. Wilson wrote a warm letter of support, which Hurley distributed to Congress, the printers, and the public. Thus armed with a fresh sense of public purpose, the UTA launched a successful three-year organizing drive in 1917, which enlisted over one third of the 15,000 commercial printers in the U.S. to adopt the association's standard cost system. The UTA also enlisted financial support for its three-year plan from a variety of allied trades, including ink, printing machinery, photoengraving, electrotyping, paper, envelopes, boxes, shipping containers, and lithography. In return, representatives were invited to join a UTA advisory board.

As a result of their organizational ties with the printers and the printers' endorsement from the FTC, trade associations in the folding box, label making, lithography, and corrugated and solid fiber shipping container industries formed a joint cost committee in 1920 and hired the prominent cost-accounting firm—Stevenson, Jordan & Harrison—to help guide their work.[49] The connection between the cost accountants and the joint cost committee deepened the relationship between FTC, NACA, and trade associations. Partners Charles Stevenson and J.P. Jordan were founding members and officers of NACA. Their firm served both individual clients and trade associations, and in some cases, partners served not only as consultants, but also as trade-association officers.[50]

The joint committee assembled manufacturers in a deliberative forum and began work on a joint cost system. However, progress stalled until 1924 when the cost commissioners from the folding box, label, shipping container, lithography, box board, and paper box industry associations met in Cleveland with their counterparts from the printing industry. They had two goals: to learn from best practices in the printing industry and, where possible, to develop uniform principles that would apply equally well in each of these sectors.[51] By September of 1925, representatives from the Boxboard Associations, the NCA, and the Folding Box Manufacturers Association had merged into a single federation, the Paperboard Industries Association (PIA), with three internal sectors. Among its goals, the PIA hoped to facilitate common work on cost accounting, information pooling, standard setting, and business–government relations.[52]

The PIA appointed NACA cost accountant, Grafton Whiting, to head its statistics department and Whiting's collaborator, E.R. Hankin, to head the container group's accounting department. Both had been active in the movement for regulated competition through developmental associations, publishing texts, consulting with the FTC, delivering talks, and leading

47. Daly, *The Corrugated Container Industry*, 24–25, 37, 101 (Table 22).

48. On the printing industry, see Berk, *Brandeis*, 185–215.

49. Joint Cost Committee, Label Mfrs National Association, Folding Box Mfrs National Association, Nat'l Association of Employing Lithographers, *Uniform Cost System* (NY: Cost Division of Labor, Folding Box and Lithographing Industries, 1925), 8–9.

50. Charles Stevenson was typical of a new breed of management consultants, cost accountants. Stevenson graduated from Harvard with a bachelor of science degree in 1902. His first job was as an assistant metallurgical engineer at the Homestead Works of US Steel; he went on to become assistant superintendent of the US Steel Casting Corporation. From 1904 to 1911, Stevenson served as a junior partner in the accounting and engineering firm of Miller, Franklin and Stevenson. From 1911 to 1915, he became general manager of the Thomas Motor Car Company and then of the National Veneer Products Company. In 1916, he organized the Stevenson Corporation, a management-engineering firm, which was consolidated with G. Charter Harrison and Associates in 1925, to become SJ&H. Among its many clients were manufacturing trade associations. Indeed, several partners served as association secretaries, such as Stevenson, for instance, to the National Envelope Association. In 1928, he became president of the NACA. For a biography of Stevenson's career, see National Association of Cost Accountants (NACA), *NACA Year Book, 1927, Proceedings of the Eighth International Cost Conference* (New York: NACA, 1927), 20.

51. See *Container Age* 3(11) (Dec. 1924): 16; *Container Age* 4(11) (Nov. 1924): 16; *Container Age* 4(12) (Dec. 1924): 11.

52. *Container Age* 5(10) (Oct. 1925): 7–16; *Container Age* 5(12) (Dec. 1925): 10.

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discussions at U.S. Chamber of Commerce and NACA meetings.[53]

Once assembled, cost commissioners in the container group followed Hurley's lead at the FTC and renamed the cause of their distress and posed a thought experiment. Cutthroat competition, they conjectured, was not caused by exogenous economic constraints, such as high fixed-cost technology or the pressures of debt; and trade associations in the container industry had not failed to gain purchase on the problem in the past because they failed to police their members' opportunism. Instead, taken-for-granted accounting customs caused manufacturers to value volume and market share over all other criteria. As a result, firms overproduced, and competition took the form of a zero-sum rivalry over market share. If the container group reconfigured cost assumptions, manufacturers might find new ways to compete, and the association could circumvent the collective-action problem altogether.

Charles Stevenson expressed the container group's thought experiment well. Container manufacturers, he wrote, are habitually "VOLUME MINDED" in the way they conceptualize costs and production. They focus obsessively on "overhead" costs, "figuring that if they could only increase their volume they could reduce their overhead per unit." From this point of view, it makes sense to "undersell the market" in anticipation of lower costs. The result is perverse—a "vicious struggle for the division of available volume," which drives prices "to cost and below." Profits collapse, capital is impaired, and wages are debased.[54]

Somehow, added Whiting, "profit and volume" have become "inseparable in the minds" of container manufacturers. With this assumption, however, they have lost sight of a simple, but powerful, principle: it is far better to do "a little business at a profit than a large amount at cost or at a loss."[55]

Having named the volume illusion, Stevenson and Whiting followed the principles outlined in the FTC's 1916 manual on cost accounting and deconstructed it into its two primary accounting assumptions: the principle of high fixed costs and the principle of joint costs. In the first, Stevenson wrote, container manufacturers assumed that virtually all overhead costs were "fixed"; they did not vary with the level of output or the type of products manufactured. This assumption led manufacturers to believe the unit costs of overhead would decline with volume, or to put it in the vernacular of economics, they naturally faced economies of scale. According to the second assumption, Whiting wrote, when "costs … [were at once] incurred for the benefit of several types of products and several lines of goods," manufacturers falsely believed it was impossible to segregate them and that it was always profitable to produce and sell a wide variety of products, even if it meant taking a loss on some. This was a widespread problem in American manufacturing, complained the FTC's second chair, Edward Hurley, several years before. Fruit juice manufacturers kept no independent record of the costs and revenues of jams and jellies; iron and steel manufacturers failed to segregate the costs of coke and pig iron; and many firms evaluated their salesmen by the quantity, not the profitability, of their sales. The result was overproduction, underspecialization, and cutthroat price competition.[56] Whiting agreed: when box makers failed to segregate the costs of administration, debt, or rent for manufacturing different containers for apples, canned goods, or nails, they came to believe that it was always beneficial to take on work at or below cost, as long as it added revenues to pay overhead costs. However, as Commissioner Hurley instructed, more often than not the result was only to exacerbate cutthroat price competition, as firms sought to poach one another's markets.[57]

As widespread and taken-for-granted were these assumptions, Stevenson and Whiting complained they were unproven. Indeed, the container manufacturers' logic was circular. So silent were the joint- and fixed-cost conventions that container manufacturers failed to gather data to test them. They did not think to measure the use of overhead for particular jobs or classes of products, nor did they carefully segregate the costs of individual jobs or particular products.

Stevenson and Whiting concluded that the chase for volume was not driven by the constraints of technology nor the inherent cost structure of manufacturing shipping containers. So unreflective had container manufacturers become about their costs and enamored of the principles of mass production, they failed to test whether their assumptions were correct. By doing so, they cut short their inquiry and imagination for coping with cutthroat competition.

Under Stevenson and Whiting's leadership, the container cost committee designed three principles to turn volume into a hypothesis instead of an

53. *Carton Age* 6(8) (Aug. 1926): 18; *Carton Age* 7(3) (Mar. 1927): 8; *Carton Age* 7(4) (Apr. 1927): 14.

54. Stevenson, Jordan & Harrison, Management Engineers, "Brief in Explanation of the So-Called Stevenson Plan of Invoice Analysis," "MEMORANDUM OF EXPLANATION TO BE GIVEN VERBALLY TO ADMINSTRATOR PICKARD," 3–4. RG 9, E 25, Box 1689, File 22.

55. Grafton Whiting, "Price Stabilization in the Container and Paperboard Industries," *Carton Age* 6(4) (Apr. 1926): 10–14, quotation on 12.

56. Edward N. Hurley, *Awakening of Business* (New York: Doubleday, 1917), 7.

57. On the assumption of joint costs in the container industry, see Memorandum, To: Consumers' Advisory Board, From: M.S. Massel, Subject: Preliminary Rules of Cost Determination for the Corrugated and Solid Fiber Shipping Container Industry, 30 Oct. 1934, RG 9, E 25, Box 1689, File 24 (Cost Accounting).

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assumption and, in effect, to turn fixed costs into variable costs. In doing so, they recognized how economic structures were of their own making. This did not mean that they replaced material constraints with ideas. Instead, by renarrating the causes of their distress, they opened the possibility of creative imagination and practical experimentation. The first stage was to reconceptualize those constraints. The second was to try new concepts in practice. The third was to evaluate the consequences. The fourth was to adjust accordingly and begin the process all over again. Reflecting the experimental nature of the project, the container manufacturers published their cost system in a loose-leaf binder so it could be readily revised.

Like cost systems devised by the printers and the FTC before it, the Standard Cost System for Corrugated and Solid Fiber Shipping Containers outlined three principles, which were intended to reconfigure the volume illusion: departmentalization, overhead distribution, and product costing.[58]

Departmentalization

The container cost system broke the process of production down into departments or "operating centers" in which costs were incurred. Departmentalization had three goals: to ensure that all costs were counted; to make it possible to trace costs back to the place in the production, administrative or distribution process where they were incurred; and to enable continuous inquiry into and novel experiments in productivity.

The heart of the container cost system was a monthly worksheet entitled "Conversion Cost Distribution." Like today's spreadsheet, the rows on this form were broken down into departments (such as Storage and Handling, Corrugators, Slitters, Printing Press, Taping Machine, Bundling, Shipping, and Samples). The columns classified costs incurred in each department, from rent and wages to repair, power, and administrative costs.[59]

Departmentalization was meant to be a flexible process, in which box makers could define and redefine departments in response to what they wanted to learn. Suppose a manufacturer suspected a bottleneck in production caused by an inappropriate use of technology; he might "departmentalize" a single machine or a cluster of machines (a "tube taper" or a group of "corrugators"). Suppose he suspected that labor skills were deployed inefficiently in the production process; he might "departmentalize" a single class of labor (such as "stitchers" or "partition assemblers"). Or suppose he wondered whether the efficiency of operations, which supported production, could be improved; he might departmentalize "storage and handling," "bundling," "shipping," or "waste handling." To be sure, once departments were defined, they tended to remain stable so that performance could be tracked from month to month, but it was always possible to add new departments when new questions arose.

In summary, departmentalization ensured that manufacturers would no longer assume that volume reduced average costs by having manufacturers record all their expenses. For the first time, firms would have tools to carefully track costs to their sources, where they might locate costly bottlenecks, inappropriate materials, unproductive machinery, or misplaced labor skills. Departmentalization made it possible to invent incremental improvements to productivity, which had nothing to do with volume (scale economies), by providing manufacturers with the flexibility to experiment with novel combinations of labor and machinery and track the results.[60]

Overhead Distribution

Departmentalization also allowed container manufacturers to reconfigure overhead costs. As Grafton Whiting explained, most manufacturers overestimated fixed costs, because they assumed that it was impossible to distribute overhead expenses to the departments in which they were incurred. Rent, heat, insurance, taxes, depreciation, and clerical and management salaries, they figured, were the same regardless of how much was produced or what was produced. However, once manufacturers broke production down into operating centers, it was possible to turn this assumption into a hypothesis. Rental, heating, and depreciation costs, for example, could be readily allocated to the departments; but, even where it was impossible to allocate overhead costs to departments, the cost system outlined a method to distribute them. Manufacturers should calculate the percentage of total annual costs incurred by each department and then allocate untraceable overhead costs according to the department's contribution to overall production costs. Either way, the standard cost system provided techniques to monitor overhead costs and compare them over time and across departments. With that information, it was possible to, in effect, turn fixed costs into variable costs and subject

58. On a cost-accounting system for the container industry, more generally, see Hankins and Whiting, *Text Book for Corrugated Fiber Box Industry*. For an excellent account of the management accounting movement of the early twentieth century, of which this case was a part, and how that movement was eclipsed by financial accounting and corporate organization, see H. Thomas Johnson and Robert Kaplan, *Relevance Lost: The Rise and Fall of Management Accounting* (Boston: Harvard Business School Press, 1991).

59. Hankins and Whiting, Exhibit 9, "Conversion Cost Distribution," *Text Book for Corrugated Fiber Box Industry*, 77.

60. On departmentalization, see *Carton Age* 3(7) (July 1923): 9–10; Grafton Whiting, "Uniform Cost Accounting and its Effect Upon the Industry," *Carton Age* 4(11) (Nov. 1924): 10–12; Hankins and Whiting, *Text Book*, 67–74.

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taken-for-granted assumptions to experimentation, evaluation, and elaboration.[61]

Overhead distribution ensured that manufacturers would cease to be "volume minded," assuming that if they increased the scale of production they would reduce overhead costs per unit of production. Price wars would be abated, because container producers would no longer slash prices in anticipation of higher volume and lower costs. Indeed, Grafton Whiting reported that the initial data on the effects of distributing overhead costs were encouraging. There is "strong evidence," he wrote, that those who distribute overhead costs carefully when they estimate jobs allow their "competitors to take … undesirable orders and suffer losses while they choose the profitable [jobs] for themselves."[62] The more that overhead distribution was adopted by box makers, he concluded, the more likely that firms would focus on profits instead of volume.

Product Costing

The third aspect of the container cost system intended to overcome the volume illusion was "product costing," or tracing job costs or the costs of particular classes of products back to their origins within departments. As Whiting put it, many container manufacturers chased volume because they were unable to distinguish profitable from unprofitable work. Instead, they often assumed it was cost-effective to cross-subsidize unprofitable with profitable jobs, or take on "fillers" (work at or below cost during the slow season) in order to amortize debt and keep workers busy. The container cost system tutored manufacturers to distinguish between costs "chargeable" directly to a job and "unchargeable" costs, incurred in debt service, administration, maintenance, or idle time. In this way they could begin to develop categories and information for distinguishing more carefully profitable from unprofitable work, and they could make more informed decisions about where they had market advantages and about whether volume was profitable or not. Like overhead distribution, product costing recomposed a defining assumption of mass production, namely, that the joint costs of two or more classes of products (or jobs) were less than the sum of their individual costs. Instead, it showed container manufacturers how to segregate the costs of different types of shipping containers, compare the profitability of those products (or jobs), and specialize in markets where they had advantages. In other words, product costing provided a cognitive infrastructure for specialization and product innovation instead of mass production.

Like departmentalization and overhead distribution, the initial evidence on product costing was encouraging. One large manufacturer, Whiting wrote, introduced the association's cost system and decided he had "had enough of large volume business with little or no profit." Instead, he took on jobs at prices only where he estimated that chargeable and unchargeable costs would leave an ample profit. "The result was a reduction in volume as was to be expected, but … a substantial increase in net profits."[63]

In short, departmentalization, overhead distribution, and product costing allowed container manufacturers to test the assumption that volume reduced cost and increased profit instead of taking it for granted. The goal was to encourage product specialization and to reconfigure the measure of success from volume to profit. By encouraging individual manufacturers to pay careful attention to reducing department costs, instead of assuming volume would always reduce average costs, the standard cost system aimed to channel rivalry from cutthroat price competition over volume to improvements in productivity and products. Thus, the goal of cost accounting was to regulate, not to suppress, competition by altering the conventions by which manufacturers defined and measured success.

It would be difficult to make sense of this project with institutionalist assumptions about technology, institutions, and agency. Instead of capitulating to economic and institutional constraints, trade-association officers recomposed the narrative of their distress by naming the volume illusion, they devised experiments in novel forms of production by conceptualizing new metrics for cost, and they began to enlist manufacturers to set those experiments to work and observe the results. In doing so, they drew on a repertoire of institutional resources from the long history of artisan solidarities in printing, to the FTC's accounting project, to the work of NACA and the U.S. Chamber of Commerce with manufacturing trade associations.

The container manufacturers not only drew on the FTC's accounting project to adopt the accounting techniques of developmental associations, they turned back to the FTC for guidance, dialogue, and public purpose. In 1928, PIA officers requested a trade-practice conference before the FTC. Their goal was not only to secure a public imprimatur for their cost system, but also to set the volume illusion and the principles of cost accounting within a broader discussion of predatory and productive competition. For its part, the FTC conceived the conference as an opportunity for discovery, review, comparison, and legal clarification. Recall that the commission had created a trade-practice division

61. Whiting, "Uniform Cost Accounting," 10–12.
62. Ibid., 12.
63. Grafton Whiting, "Price Stabilization in the Container and Paperboard Industries," *Carton Age* 6(4) (Apr. 1926): 10–14, quote on 14.

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two years before whose purpose it was to run conferences and consult with the FTC's legal division to classify trade-practice rules according to their legality. (Group I rules were enforceable; Group II were unenforceable expressions of good business practice.) So important had the commission come to see trade-practice conferences to regulating competition that by 1928, they were routinely run by commissioners rather than division managers. Thus, a flattened hierarchy served innovation and inductive learning, not ad-hocracy, at the FTC.

In November 1928, FTC Commissioner Abram Meyers assembled paperboard, container, and box manufacturers in two regional conferences, one in New York and a second in Chicago. Together, participants drafted 17 rules governing a range of competitive activities from the writing of contracts, to price discrimination, deceptive advertising, threats and harassment, and predatory pricing. In consultation with FTC counsel, the trade-practice division classified 11 rules in Group I and 6 in Group II.[64]

The trade-practice division reviewed the PIA's standard cost system and found it to be sound and representative of the best practices in manufacturing. The commission, it wrote, "strongly recommends" its adoption by all manufacturers. "An accurate knowledge of costs is indispensable to intelligent and fair competition." Moreover, it was a necessary prerequisite to "correcting the various unfair practices" enumerated in Group I and II rules. In the first place, it was impossible to arbitrate charges of discriminatory or predatory pricing without accurate cost data. More important, however, the FTC acknowledged that until manufacturers stopped blindly chasing volume, the pressures to slash prices in anticipation of a larger market share would provide ongoing incentives to break trade-practice rules. "Accurate and uniform methods of cost finding and estimating," in other words, were necessary to channel rivalry from predatory tactics of all sorts into product diversity and quality and non-volume forms of productivity.[65] In essence, the trade-practice division concluded that adopting the cost-accounting principles of departmentalization, overhead distribution, and product costing would not only improve individual performance, it would make the resort to legal action and regulatory coercion less necessary by upgrading the quality of competition in the industry.

By the fall of 1928, the corrugated and solid fiber shipping container industry had gone some distance toward realizing the principles of regulated competition. The NCA had formed a cost committee, joined with ancillary industries to advance the principles of cost finding, formed a federation with the paperboard and box industries, created a cost system, and used that federation to work with the FTC to establish principles of regulated competition for the industry and test them against the law. Cost engineers, like Whiting and Hankins, had also begun implementation and evaluation, as they gathered evidence on the effects of cost accounting on individual performance and competitive conditions. However, unlike the printers, the PIA's cost work stalled on diffusion. When the stock market crashed in 1929, few container manufacturers had adopted the association's standard cost system. Before the industry could launch an organizing drive, the depression dashed the PIA's efforts to regulate competition. Total sales in corrugated and solid fiber shipping containers fell from $115 million in 1929 to less than $70 million in 1932, profits collapsed, and the industry fell into disarray. By 1932, the industry was producing at less than 35 percent of total capacity, and it appeared that the PIA's work was for naught—that is, until Congress enacted the National Industrial Recovery Act in 1933.[66]

PART 3. THE NATIONAL RECOVERY ADMINISTRATION

The National Industrial Recovery Act was intended to lift American industry from the downward spiral of declining production, prices, wages, employment, and investment. Though the particulars of the law were vague and confused, many NRA code administrators and business executives agreed that the statute's proximate goals were to reverse deflation by placing a floor on prices and relaxing antitrust law, to reemploy the unemployed through work sharing, and to raise effective demand by sanctioning trade-union wage bargaining.[67]

As institutionalists point out, realizing these ends was a tall order for American institutions. It demanded a state with sufficient legitimacy to supervise and enforce business agreements and collective bargaining, with professional capacity to evaluate and monitor those agreements, and with the authority to enforce agreements in the face of high-powered incentives to cheat. Historians and political scientists agree that these ingredients were in short supply.

In the institutionalist narrative, the NRA was a confused, internally divided agency, with little authority to sanction violations and stand up to the most

64. United States Federal Trade Commission, *Trade Practice Conferences* (Washington, DC: Government Printing Office, 1933), 19.

65. Ibid., 19–21.

66. Corrugated and Solid Fiber Shipping Container Industry, Code History, RG 9, E. 25, Box 1686, File 13, p. 2.

67. Hawley, *The New Deal and the Problem of Monopoly*, 39–43; Brand, *Corporatism and the Rule of Law*; Bellush, *The Failure of the NRA*, 3–5; Eisner, *Regulatory Politics in Transition*, 77, 83–85; Lyon et al., *The National Recovery Administration*, 3–7; Schlesinger, *The Age of Roosevelt*, 87–98, 100–102; Marc Blyth, *Great Transformations: Economic Ideas and Institutional Change in the Twentieth Century* (Cambridge: Cambridge University Press, 2002), 55–56; Fligstein, *Transformation of Corporate Control*, 121; Lyon et al., *The National Recovery Administration*, 756–75.

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powerful factions in industry, and with little autonomous capacity to set regulatory standards or monitor business activity through officially sanctioned statistics. Absent a permanent civil-service staff that was trained in regulation, the NRA had little choice but to follow the precedent of the War Industries Board and the associational movement of the 1920s and to delegate policy-making authority, monitoring, and bargaining among industry factions and between labor and management to industry authorities, usually trade associations.[68]

However, as Gordon demonstrates in some detail, industry associations had little authority to overcome the vast incentives to cheat on the deals it would have taken to implement what was in effect a corporatist-style incomes policy. Although most industries saw the NRA as a license to cartelize, cartels were unstable, because the history of the state, the peak business associations, and the trade associations had set the U.S. on a course to voluntary action.[69] In the conventional narrative, this meant that the codes, which succeeded in suppressing competition, had unique structural characteristics, which reduced the likelihood of cheating. As Alexander and Liebcap demonstrate, the steel and auto codes had high levels of compliance because firms in these industries had relatively homogeneous costs. Therefore, high-cost producers had little reason to write codes to protect themselves from low-cost competition, and low-cost producers had little incentive to defect from industry rules in order to gain market share or economies of scale.[70] Political scientist Donald Brand also reports that the steel industry had high levels of compliance because of favorable structural conditions: oligopoly, high entry barriers, and a long history of price coordination.[71] However, as we've seen, these structural characteristics were absent in the shipping container industry. Firms were segmented by size, operation, and vertical integration; costs were heterogeneous; and the cost of entry into the container fabrication segment of the industry was quite low. Indeed, the Great Depression so divided the integrated and the fabricating segments that they launched separate organizations within the PIA.[72] Moreover, as we shall see, firms learned to specialize and differentiate their products in the NRA, and so another condition necessary for tacit price coordination—homogeneous products—disappeared.

These institutional and economic conditions, however, were only constraints when seen through a lens that conceptualizes the challenge for the state and associations as autonomy and outlines a limited number of policy options (coercion, voluntarism, or incentive manipulation) to suppress competition in ways that were socially responsible. Those who had organized regulated competition in the 1920s saw the opportunities, constraints, resources, and possibilities of the NRA differently. The fact that the NRA's mandate was confused and included multiple, even contradictory, logics provided space for experimentation. The fact that initiative was left to the code administrators meant that the practitioners of regulated competition could draw on their networks of experienced personnel and trade-association resources to staff their codes. The fact that NRA top administrators had little clear authority or capacity to monitor and enforce bargains and rules meant that code organizers, who had experience with deliberation and collaborative learning, could experiment in recomposing production and exchange logics with less fear that participants would use the state to authorize efforts to hold fast to taken-for-granted customs. Moreover, the fact that the industry had few of the economic conditions necessary for tacit or spontaneous coordination proved an opportunity to recompose the way that NRA planners thought about economic constraints. Thus, seen from the perspective of creative syncretism, the same conditions that caused confusion, paralysis, cheating, and intractable conflict when seen through a structuralist lens provided opportunities to draw from multiple past practices to innovate in the code.

To be sure, the NRA was hardly a utopia for the practitioners of regulated competition. Nonetheless, it was clear that the conditions described by institutionalists had no self-evident meaning for the actors involved. How participants perceived possibilities depended on the repertoire of skills, interpretive frames, interlocutors, and organizational resources they brought to the NRA. Even these factors, however, did not determine the ideas or actions of the container code's architects, because each was no more than a partial guide to action. It is equally necessary to understand how they recombined those resources by retelling the story of their distress and the opportunities the NRA presented for improvement. In other words, the methodological problem is to begin where the architects of the container code began, that is, with their perception of the codes, which were being constituted around them. Seen from this perspective, it became quickly evident that the container-code designers were drawing on a very different repertoire of resources than their counterparts in other industries.

Whereas most codes in manufacturing drew on the work of open-price associations to suppress competition, the container code drew on the experience of developmental associations to regulate competition. Institutionalists are correct that many code

68. See note 1.

69. Gordon, *New Deals*, 166–203.

70. Alexander and Liebcap, "The Effect of Cost Heterogeneity"; Alexander and Liebcap, "Public Choice and the Success of Government-Sponsored Cartels."

71. Brand, *Corporatism and the Rule of Law*, 207–26.

72. Daly, *The Corrugated Container Industry*, 66.

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designers perceived antitrust relaxation as a license to cartelize. No one thought overt price fixing had suddenly become lawful or that the president, who had Constitutional and statutory authority for approving codes, would sanction it. However, code administrators did believe that efforts of open-price associations to coordinate price fixing by pooling price and cost information provided a viable model for the NRA.

Open-price associations used three instruments to suppress competition: 1) rules against pricing below costs, 2) cost-accounting systems, which could be used to monitor compliance to those rules, and 3) submission of price information (often in the midst of bidding for open jobs) to a central agent, which would compile data and distribute them back to members. The goal of open pricing was to coordinate voluntary price coordination and by doing so to avoid antitrust prosecution. NRA economist, Enid Baird, estimated that 444 NRA codes adopted these instruments. Many added a fourth, which required firms to register all price changes with code authorities.[73]

Seen from the perspective of the practitioners of regulated competition, however, open-price associations were likely to make things worse. The architects of the container code looked on skeptically, as their counterparts in other industries adopted open-pricing schemes unreflectively. Consider their analysis of the rules governing price data pooling and registration of price changes. The container industry, they argued, was diverse: its members produced a variety of products of diverse quality on short lead times. There were also competitive inequalities among firms. In Alexander and Liebcap's language, this industry had "heterogeneous costs." Some manufacturers produced better quality, had a higher standing in the trade, a better sales organization, and higher productivity. Under ordinary conditions, these differences would show up in price differentials on different products in various markets. Moreover, each manufacturer had the freedom to adjust prices to maintain "normal" volume or market share. Under open pricing rules, however, this was no longer possible. Each company had to publish a price schedule and adhere to it. Competition and open knowledge of prices, however, drove schedules toward uniformity, but it did not stop price cutting. Those who needed differentials on particular products to maintain their "fair share" of business found that they lost volume under open pricing, and so they would reissue their price schedule all over again. In this way, the container code's architects concluded, the "vicious cycle" of market "demoralization" would begin all over again.[74]

Nor, they added, did the rule against pricing below cost check the downward spiral of prices, wage, and production in the depression. Every code had an escape valve, which allowed firms to price below cost to meet the competition. Thus, without direct attention to the volume illusion, the result of rules against pricing below cost would be to exacerbate "predatory" rivalry. In anticipation of declining overhead (and average) costs, container manufacturers would inevitably slash prices and others would follow suit. "The struggle for volume may well be intensified" under this pricing rule.[75] In short, like the rational-choice institutionalists looking back, the architects of the container code understood that open price rules were likely to fail in industries with heterogeneous costs. Unlike rational-choice institutionalists, however, they saw this condition as much as an opportunity for innovation as they saw it a constraint on action.

Indeed, as the container manufacturers saw it, until firms got hold of the volume illusion, there would be no improvements. They had long renarrated the cause of deflation from enforcing collective agreements to cost conventions that overvalued volume. This was the defining problem of the 1920s, and it had only been exacerbated by the Great Depression.

The Stevenson Plan

The container code attempted to gain leverage over the volume illusion by making the adoption of the PIA's cost plan mandatory, pooling volume data, and asking manufacturers to hold their share of the market relatively constant. The experience of the 1920s taught the code's architects that the success of uniform cost accounting depended on a time-consuming process of education, deliberation, and experimentation, but, time was in short supply in 1933. So, code organizers asked manufacturers to hold volume relatively constant and improve their profitability by innovating in products and production processes. The code provided them with information and incentives to do so.

The NCA reconstituted itself in the NRA and hired their old consultant, Stevenson, Jordan and Harrison (SJ&H), to help write and implement the industry

73. See Enid Baird, *Price Filing under NRA Codes*, Work Materials No. 76. Vols. I and II, Trade Practice Studies Section, Division of Review, Mar. 1936. For a catalog of NRA codes with open-pricing provisions, see Vol. I, Exhibit II, pp. 785–91. On the open-pricing provisions of the codes, see also Hawley, *The New Deal and the Problem of Monopoly*, 55–62; Brand, *Corporatism and the Rule of Law*, 110–12; and Lyon et al., *The National Recovery Administration*, 224–25.

74. The president of the corrugated and solid fiber shipping container code, W.W. Pickard, is quoted at length in Enid Baird, *Price Filing Under NRA Codes*, "ARGUMENTS PRESENTED AT HEARINGS OF APPLICATION FOR CODE OF FAIR COMPETITION, CORRUGATED AND SOLID FIBRE SHPPING CONTAINER INDUSTRY," Article VII - Equitable Distribution Plan, Work Materials No. 76. Vol. I, Trade Practice Studies Section, Division of Review, Mar. 1936, pp. 317–18.

75. Ibid.

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code. By 1934, the container code's unique and defining features had come to be known as the "Stevenson Plan."

Four instruments defined the Stevenson Plan. First, the container code made mandatory the adoption of the PIA's cost system. Second, it required all firms to submit volume data to a central agent (SJ&H), which converted those data into a uniform measure of market share, and then distribute the data back to participating firms. Third, the central agent was also charged to calculate and distribute an account of "normal" market shares during the previous five years of prosperity for each participating firm. Finally, as long as the industry was operating at less than seventy percent capacity, the code asked member firms to voluntarily target production to maintain normal shares. The goal of the Stevenson Plan was not to raise prices and profits by fixing market shares or to provide a tacit focus point for voluntary price fixing. Instead, it was to ask firms to hold volume relatively constant and use the tools of cost accounting to invent other means to profit.

As Stevenson and others noted, the challenge of regulated competition and developmental associations throughout the 1920s was to reconfigure "volume mindedness." This became even more of a challenge in the midst of depression, when firms, who assumed economies of scale, maintained production in the hope of undercutting the costs and prices of their competitors. During the 1920s, the container manufacturers' mentors, commercial printers, had demonstrated that painstaking attention to organization and education over a three-year period fostered a trebling of productivity; an increase in product diversity, quality, and service; a revolution in technology; and measurable improvement in profitability. However, the pressing conditions of depression and the limited statutory time frame of the NRA meant that the architects of the container code had little time for organizing and education. As they saw it, the problem was to accelerate the process of experimentation so that firms could see how they could do better by holding volume relatively constant and using the standard cost system to invent new ways to profit from incremental gains in productivity and product specialization and innovation. Although the code had both voluntary and coercive elements, its success was premised on education, experimentation, self-monitoring, and learning more than it was on compliance. If firms could see that they did better by shifting production from volume to specialization, then the incentives to cheat on code rules governing labor, marketing, and contracts would ebb, and NRA authorities would circumvent the need for enforcement.

The PIA had been working with SJ&H for some time on a method to compare the diversity of shipping-container products with a single metric, but it was not until the NRA that they settled on a method to convert individual company invoices to a single measure of volume. Each participating firm submitted all invoices for work completed in a two-week period. Acting as the code's "confidential agent," SJ&H then calculated total volume for that period, the portion enjoyed by each company, and the increase or decrease for the previous two weeks. Then, in a bi-weekly publication, the consultants reported a list of market shares for every participating firm. (In order to assure anonymity and ensure trust in SJ&H's disinterestedness, code numbers replaced firm names.) In acknowledgement of the fact that the much of container trade was regional, SJ&H broke the nation into fourteen markets and reported on each. In principle, then, every container manufacturer could monitor their regional market share on a bi-weekly basis.

Volume and market-share data had two purposes. First, it was the basis for a voluntary market-sharing plan. Second, coupled with cost data, it allowed manufacturers to raise management questions that were unthinkable without it. Together, these proximate goals became the means to realize the end of regulated competition—to channel activity from destructive rivalry over volume into competition over product and process improvement.

Consider first the voluntary market-sharing plan. NCA officials asked SJ&H to establish "normal market shares" for every participating firm by surveying average market shares between 1929 and 1932. Once every firm had data on its normal share, code administrators asked firms to monitor their changing market shares every two weeks and, as long as the industry was operating at seventy percent capacity or below, to make an effort to adjust production to maintain their normal share of the market.

At first blush, the Stevenson Plan looks like a classic voluntary scheme to restrict output and raise prices, that is, to suppress competition. Instead of asking firms to raise prices and profits by restricting volume, it asked them to monitor their market share and adjust price and output to maintain the approximate share (normal) during nondepression conditions. However, this voluntary market-sharing scheme was unlike other voluntary schemes whose goal was to stabilize prices and profits. The idea, instead, was to increase the pressure on firms to specialize and innovate by suppressing the desire to compete over volume. In normal times, the code's designers reasoned, firms would use better product and departmental cost data to find incremental ways to improve productivity and specialize in profitable product lines. Departmental costs, remember, showed container makers how to find leaks in the deployment of materials, to match machinery more efficiently to products, to reduce overhead costs (for example, heat and light) incurred in production, or how to deploy appropriate classes of labor for particular products; whereas product costs showed firms

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which products (for example, specialty cartons for flowers or general-use cartons for cereal boxes) were incurring losses and which were making good profits. In depression, however, the temptation to target volume by slashing prices below costs in anticipation of scale economies or cross-subsidizing unprofitable with profitable products was so powerful that it was necessary to ask manufacturers to hold market share constant and then to use the cost system to invent other means to profit. Code administrators were well aware that any effort to enforce such market-sharing provisions would run afoul of the Sherman Act, so they were careful to signal the voluntary nature of the Stevenson Plan.

Code administrators also believed that pooling data on volume and market share would provide firms with information unavailable from the market or within the firm about how to improve. It would allow container manufacturers to pose questions about production and pricing that were unthinkable without it. For example, how did a change in relative market share effect profit? Did greater volume augment or decrease profits? Did a change in relative market share occur because of a change in pricing policy or because of improvements in product quality, service, or the speed of delivery? Thus, monitoring market shares on a biweekly basis allowed firms to pose penetrating questions about the relationship between volume and other aspects of production, marketing, and pricing.

In summary, the Stevenson Plan asked all participating members of the container code to submit invoices for completed work to SJ&H every two weeks and receive in return a running account of their changing share of regional and national markets. They were encouraged to adjust production to maintain, as near as possible, their "normal" share of the market. Coupled with detailed department, overhead, and product cost data, the code organizers hoped that the more manufacturers held their volume constant, the more they would focus on product, departmental, and overhead costs to improve production, production quality, and profits. Accordingly, the more participants who did so, the more likely they would realize the ends of the NRA: increased volume, better profits, higher wages, and re-employment.

Performance

The Corrugated and Solid Fiber Shipping Container Industry Code was approved on 1 February 1934 and went into effect on 12 February 1934.[76] Despite the legal ending of the NRA in the spring of 1935, the NCA continued code activities until 1940.[77] The code performed well in the NRA. Compliance was high. Conflict among firms and between business and labor was low. Economic performance was good. As its administrators and accountants predicted, the industry emerged from the NRA with a far more diverse and innovative product line.

Compliance with the reporting requirements of the code was high. With the exception of one controversial case, in which a company's affiliation with the code was stripped for violating reporting rules, virtually 100 percent of manufacturers submitted proper data to SJ&H.[78]

Compliance with labor provisions—such as working hours, wages, conditions of employment, and contract provisions—was also high. I present data on compliance with labor regulations because they are a good measure of how well the Stevenson Plan succeeded in reducing the pressures to foist the cost of declining profits onto workers. Moreover, compliance with labor regulations was notoriously weak in the NRA. As Bernstein, Tomlins, Bellush, and others demonstrate, employers ignored or actively opposed labor provisions, and the NRA's legal division and the Department of Justice failed to investigate or sanction such infractions.[79] By contrast, compliance with labor regulations was quite high in the shipping container industry. There were 38 labor complaints during the life of the code; 25 were voluntarily adjusted, and the remaining 13 were resolved through administrative (not legal) action.[80]

Similarly, the shipping container code included all Group I trade-practice rules relevant to the industry from the PIA's 1929 trade-practice conference with the FTC. Compliance with these rules was also good. In all there were only 8 trade-practice complaints registered with the state and regional offices of the NRA during the life of the code. One went to litigation, and the rest were resolved through administrative action.[81] The *Container News Digest* reported that compliance with trade-practice rules in force since the FTC conference had greatly increased under the NRA because of its effective machinery for complaint, resolution, and enforcement.[82]

76. Corrugated and Solid Fiber Shipping Container Industry, Code History, RG 69, E. 25, Box 1686, File 13, p. 3.

77. Daly, *The Corrugated Container Industry*, 68–70.

78. Corrugated and Solid Fiber Shipping Container Industry, Code History, RG 9, E. 25, Box 1686, File 13. p. 4–5, 17

79. Christopher Tomlins, *The State and the Unions: Labor Relations, Law and the Organized Labor Movement in America, 1880–1960* (Cambridge: Cambridge University Press, 1985), 111–15; Schlesinger, *The Age of Roosevelt*, 149–51; David Plotke, *Building a Democratic Majority* (Cambridge: Cambridge University Press), 93–95; Irving Bernstein, *The New Deal Collective Bargaining Policy* (Berkeley: University of California Press, 1950), 57–62; Bellush, *Failure of the NRA*, 85–135.

80. Code of Fair Competition for the Corrugated and Solid Fiber Shipping Container Industry, *Code History*, 12–14.

81. Code of Fair Competition for the Corrugated and Solid Fiber Shipping Container Industry, *Code History*, 12–14.

82. *Container News Digest* 1(2) (Apr. 1935): 1. See also that the trade-practice complaint rules included uniform cost accounting.

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The industry performed well under the NRA code and afterward. Volume, productivity, working hours, and wages all increased. Volume increased under the container code from 18,067,000 square feet in 1932 to 21,250,000 in 1934.[83] In 1935, production increased to 23,708,600 square feet.[84] The dollar value of shipments increased from a ten-year low in 1932 of $89,511,200 to $145,982,800 in 1934 and $156,901,800 in 1935.[85] The total amount of raw materials used in production of all corrugated and solid fiber boxes increased from 1,639,800 tons in 1932 to 1,991,1000 in 1934 and 2,255,500 in 1935.[86]

By 1935, the *Container News Digest* reported that, measured by region, volume increased substantially from the first two months of 1934 to the first two months of 1935: 18 percent in the East, 11 percent in the central region, 20 percent in the South, 12 percent in the Midwest, and 15 percent on the Pacific coast.[87]

Employment and wages also improved. Under the container code, working hours were held at 40 hours per week. Prior to the NRA, they were as high as 55 hours per week—in some instances higher. The average workweek in 1929 was 49.8 hours. Reduction to a 40-hour workweek under the code increased employment by about 30.7 percent. Moreover, wages increased measurably under the code. Before the NRA, 72 percent of all northern companies, employing 77 percent of all unskilled labor, paid rates below 37 1/2 cents per hour. The average wage scale for the worst companies was 19 cents, and the average for the 77 percent of northern employers was 30.6 cents. The minimum wage paid under the code was 40 cents, that is, a one-third increase over the average of the lowest paying companies before the NRA.[88] The NCA reported that total employment had increased from 11,823 before the code to 16,746 in 1935.[89] Average employment per plant also increased during the code from 48 to 72. Finally, total annual payroll increased by 58.8 percent, from $8,997,776 in April 1933 to $14,264,016 in August of the same year (edging back toward $15,573,021 in April of 1929).[90]

Code administrators estimated that 90 percent of the industry now belonged to the NCA and participated actively in the code provisions. A survey by SJ&H found 90 percent of those participating in code provisions to be supportive of the labor provisions. Furthermore, code administrators estimated that 100 percent of the NCA members adopted uniform cost-accounting principles during the NRA.

Moreover, as Stevenson, Whiting, Hankins, and the printers predicted, once manufacturers learned the techniques of product costing, overhead distribution, and departmental analysis, they would turn from volume to product specialization and innovation. Or, as the FTC's third chief commissioner, Nelson Gaskill, put it, firms who learned better cost accounting would shift their strategy from "displacement competition" to rivalry over new products and manufacturing processes. "There are two methods of finding new outlets for a product," noted a prominent box maker who employed the Stevenson Plan, "one is to take business away from your competitor by cutting his price, and the other is to develop entirely new uses of your product." The container code pointed the way to the latter.[91]

Specialization became an individual and an associational project in the NRA. As industry economist Grover Daly reports, firms who learned to measure product costs directed their sales staffs to cultivate customers in the most profitable merchandise. They also directed sales representatives to work closely with "structural designers, graphic designers, machine designers, and product managers" to develop new products and accounts. Even "top management" became "commonly available for sales duty." As a result, the time devoted to "routine handling of orders" shrank in comparison to "time devoted to potential new business—to the redesign of existing boxes, to the development of packaging for new products … and to the conversion of competitive packaging to corrugated." Marketing staffs grew. Furthermore, "as packaging systems [became] more advanced and box makers' knowledge of their market more definitive, marketing effort [was] directed increasingly via the salesman to the target account."[92]

Moreover, code administrators, who were also the officers in the NCA, directed the NCA's department of marketing to redouble its efforts to expand product diversity through publicity and research during the NRA. In 1935, the department completed

83. Memo From Code Authority of Corrugated and Solid Fiber Shipping Container Industry to R&P Division, re: Information Requested by John T. Lynch of R&P Division, 22 Feb. 1935, RG 9, E 25, Box 1689, file 24. On production control provisions in the codes, see Lyon et al., *The National Recovery Administration*, 623–50.

84. *Fibre Box Industry Statistics, 1958* (Chicago: Fiber Box Association, 1959), 5.

85. Ibid.

86. Ibid., 19, 23.

87. "National Container Assn Urges Continuance of NRA" *Container News Digest* 1(2) (Apr. 1935): 1–2.

88. Address Delivered Before the Container Division of The National Association of Purchasing Agents, Cleveland – 19 June 1934 by James B. Fenton, Chairman, Container Code Authority, 9.

89. *Container News Digest* 1(2) (Apr. 1935): 3.

90. "ARGUMENTS PRESENTED AT HEARINGS OF APPLICATION FOR CODE OF FAIR COMPETITION, CORRUGATED AND SOLID FIBRE SHPPING CONTAINER INDUSTRY," 2-Article III - Hours of Labor, Article IV - Wages, Article V - General Labor Provisions, Presented by Mr. V. Young, of Robert Gaylord, Inc, Hearing, 17 Nov. 1933, 5.

91. Howell, *A History of The Corrugated Shipping Container Industry*, 35–36, 49.

92. Daly, *The Corrugated Container Industry*, 46–48.

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a series of studies of commodities, which were ripe for shipping in cardboard containers, among them "canned goods, fresh fruits and vegetables, . . . furniture, . . . rice, . . . tacks, tinplate, firebrick, whiskey, chinaware, and explosives." Code administrators also directed the NCA to augment its efforts to disseminate the results of engineering studies of new materials and production processes to increase the strength, flexibility, water resistance, and malleability, while simultaneously reducing the weight, of shipping containers.[93]

The cumulative result of cost accounting, the Stevenson Plan, and efforts to improve marketing was a vast increase in product diversity, specialization, and quality. The container industry witnessed the introduction of a wide range of new products during and shortly after the NRA. Manufacturers introduced shipping containers that could be converted into display stands, boxes with handles for easy consumer use, specialty containers for disposable bottles, insulating boxes, shipping coops for specialty fowl and baby chicks, waterproof boxes for cut flowers, odd-shaped specialty containers, and specialized containers for shipping fragile agricultural products (such as tomatoes, citrus fruits, and pears). Moreover, manufacturers turned more and more to specialty materials tailored to the needs of particular products, such as jute for rigidity, sulphate kraft for toughness and flexibility, wooden bases and tops for strength, and many new kinds of adhesives and sealing materials, which were appropriate for different applications (such as several kinds of tape, metal stitching, and wire or metal strapping). Box makers added specialty printing, including glossy inks, colored board, pastel colors, good registry, and high-quality design. As a result, shipping containers came to be marketed not merely for their utilitarian function, but also as "traveling billboards" in the 1930s; and with advertising prominently displayed, more and more shipping containers were utilized by retailers for display purposes.[94]

As container manufacturers shifted their attention from maximizing the volume of standardized products to specialty production and innovation, they also learned to consult customers about what to produce and how to produce it. As J.D. Malcomson, head of the container division for the prestigious Robert Gair Company, told participants at the 1935 Packaging Exposition and Conference of the American Management Association:

> At first we box makers resented very much our customers telling us how we should make our boxes. That was our job and we had always made them the same way . . . [More recently] we [have taken] the broader perspective [and] learned a lot of new things and we now realize that this new knowledge has benefited all our customers. Our inks are now different, our printing plates have been improved, our methods of printing have changed radically, and many box makers are fashioning the same materials into a 1935 model container which is no more like the containers of the past than a Zephyr is like the spur line rattler, even though both trains are made of metal and wood.[95]

Specialization, Malcomson added, forced manufacturers to become more and more nimble in responding to new and changing markets. We have learned that "goods must be manufactured in comparatively small quantities and must be made and delivered in intervals of time so short as to have been considered impossible a few years ago."[96]

In 1939, industry analyst Wilbur Howell looked back on the changes in products and production processes since the NRA. "Today's *return* to a larger variety of styles," he wrote, "is not a matter of improving on the [standardized container developed in the 1920s]." It is rather the result of a concerted and collective effort to "expand the use of [the industry's] basic material: containerboard" and the efforts of individual firms to specialize. "This is resulted in [a wide variety] of styles suited for specific purposes."[97]

The aggregate consequences of these and other efforts associated with the NRA was a steady growth in the corrugated shipping container industry's share of national income. During the 1920s, as standardized shipping containers displaced wooden containers and created new markets for shipping by train, the industry's share of national income grew from .06 percent in 1921 to .17 percent in 1927. When the industry fell into depression in 1930, that number decreased to .1 percent. With the implementation of the NRA's container code, the industry's share of national income grew steadily to .27 percent in 1935 and .29 percent in 1937. As corrugated and solid fiber shipping container manufacturers learned to innovate and specialize, they no longer took market share from the wooden container manufacturers whose annual share of national income stabilized in the 1930s at approximately .11 percent of national income.[98]

93. Daly, *The Corrugated Container Industry*, 48.

94. Howell, *A History of The Corrugated Shipping Container Industry*, 35–36, 48–49.

95. J.D. Malcomson, "Opportunities and Problems in Packing and Shipping," in *Problems in Packing and Shipping* (New York: American Management Association, 1935), 8.

96. Ibid., 3.

97. Howell, *A History of The Corrugated Shipping Container Industry*, 35.

98. These figures are calculated from *Fiber Box Industry Statistics*, 5; U.S. Department of Commerce, *Census of Manufactures, 1931* (Washington, D.C.: Government Printing Office, 1935), 394; U.S. Department of Commerce, *Biennial Census of Manufactures, 1935* (Washington, D.C.: Government Printing Office, 1938), 432; U.S.

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In short, the corrugated and solid fiber shipping container code successfully realized the ends of the National Industrial Recovery Act. Despite poor overall macro-economic performance, the container code demonstrated that it was possible to outgrow the economy as a whole, and by doing so, to contribute to the recovery of employment, wages, and investment. Indeed, the total number of plants in the industry grew from 249 in 1930 to 355 in 1940.[99] Measurable increases in product diversity, quality, and innovation indicate that coupled with nearly 100 percent adoption of the NCA's cost-accounting system and the FTC's trade-practice rules, the adoption of the Stevenson Plan succeeded in channeling rivalry in the container industry from cutthroat competition over volume into product diversity and quality.

Controversy

The container code sparked a controversy, because professionals disagreed over how to conceptualize and evaluate competition. Situated in diverse institutional locations, economists, trade-association executives, lawyers, and cost accountants disagreed over how to make sense of the codes. When they trained their sights on the container code, they saw very different phenomena. Economists, who gazed on the container code through the categories of perfect competition and artificial monopoly, saw a scheme to suppress competition and inhibit recovery. The cost accountants and trade-association executives, who had cultivated the principles and practices of developmental association for fifteen years, saw a scheme to regulate competition and enhance recovery. Although the economists and their allies in the Department of Justice won the conflict over the container code, many of the features of regulated competition and developmental association survived. The architects of the container code left a distinct imprint on American institutions.

No sooner were the codes in place than they came under attack for suppressing competition. Economists, consumer advocates, and members of Congress criticized the codes for raising prices, lowering output, fleecing consumers, and undermining recovery. Under increasing pressure, President Roosevelt appointed a review committee in 1934 to assess the effects of NRA codes on small business and consumers. Meanwhile, three NRA staff divisions launched research efforts to understand and evaluate the codes: the Consumers Advisory Board, the Division of Research and Planning, and the Division of Review. Staffed almost exclusively by professional economists, these departments scrutinized the codes for their anticompetitive provisions.[100]

The container code came under scrutiny by the Division of Review. Headed by Brookings economist, Leon C. Marshall, the Division of Review enlisted NYU economist Corwin Edwards to head its most extensive project: a detailed study of the trade-practice provisions of the codes. Also a member of the Consumer Advisory Board, Edwards became one of the NRA's leading critics of the open-price plans in the codes. As head of the trade practice project, Edwards enlisted a third economist, Enid Baird, to oversee a massive study of the open-price provisions of the codes. It was this study, which trained its lens on the container code.[101]

Baird's report criticized all open-price plans for "managing" prices, harming consumer welfare, protecting inefficiency, and slowing economic recovery and progress. Recall that open-price plans had three main provisions: 1) rules against pricing below costs, 2) cost-accounting systems, which could be used to monitor compliance to those rules, and 3) submission of price information (often in the midst of bidding for open jobs) to a central agent, which would compile data and distribute it back to members. The report singled out cost accounting for particular criticism. Most codes with open-price plans, it charged, inflated prices by adopting industry-wide accounting rules to pad total costs. Although the NRA's accounting division tried to reign in such abuses, the report found they were widespread. Seen as an instrument of open pricing, then, cost accounting was necessary to "manage" industry-wide prices.

Turning to the container code, Baird conceded that box makers had rejected the open-price plans, which governed most codes. Although the written code included the typical open-price provisions, investigation revealed that code administrators "made no attempt to put them into effect." Instead, the container manufacturers instituted a "volume sharing" plan to suppress price competition. As Baird saw it, the Stevenson Plan was little different than an open-price plan. Its goal was to replace "competitive" with "managed prices" by restricting production. By asking firms to "share" volume and

Department of Commerce, *Census of Manufactures, 1937*, Part I (Washington, D.C.: Government Printing Office, 1939), 467; *Historical Statistics of the United States, Millennial Edition Online* (Cambridge: Cambridge University Press, 2006), Table Ca 20-27, "National Income by Type of Income, 1929–2002," and Table Ca 208-212, "Gross National Product, 1869–1929."

99. Daly, *The Corrugated Container Industry*, "Table 5: Number of Sheet Plants and Converters, 1915–1970," 94.

100. Lyon et al., *The National Recovery Administration*, 117–140; Hawley, *The New Deal and the Problem of Monopoly*, 72–90.

101. Hawley, *The New Deal and the Problem of Monopoly*, 85–86. For Marshall's Brookings credentials, see his co-authorship of Lyon et al., *The National Recovery Administration*; Baird, *Price Filing Under NRA Codes*, Work Materials No. 76. Vol. I, Trade Practice Studies Section, Division of Review, Mar. 1936; Baird, *Price Filing Under NRA Codes*, Work Materials No. 76. Vol. II, Trade Practice Studies Section, Division of Review, Mar. 1936.

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"refrain from lowering prices," the code's architects hoped to raise profits and protect the "status quo." The Stevenson Plan assumed that "there was nothing to be gained by lowering that price, either individually or for the industry as a whole." Instead, its architects hoped to protect incumbent manufacturers from "liquidation," even if this meant "supporting" widespread "excess capacity."

It was not at all clear, Baird went on, that the assumptions underlying the Stevenson Plan served "the public welfare." To the contrary: the goal of the "volume-sharing plan" was to restrict production, raise prices, and entrench the "status quo." Instead of promoting recovery, it "protected" inefficient producers, "excess capacity," and high "capital charges." Moreover, in the absence of government price regulation, which was necessary to prevent "prices at an unnecessarily high level," the Stevenson Plan placed undue burdens on consumers and economic recovery. In short, evaluated from the economist's standard of perfect competition, the container code's short-term effects were to restrict production and raise prices; its long-term effect was to slow recovery.[102]

Charles Stevenson and James Fenton, the president of the NCA, defended their work. The economists, they responded, had misunderstood the container code's intention, which was to regulate, not suppress, competition. The evidence on industry performance, Fenton replied, belied Baird's concerns: profits, wages, volume, and employment improved under the NRA. Moreover, the evidence on market shares indicated a great deal of variation under the Stevenson Plan. Although box makers targeted historic market shares, competition over innovation ensured constant changes in the status quo.

Both Stevenson and Fenton explained how the container code improved performance by placing limits on volume competition and providing manufacturers with ongoing incentives to upgrade products and production. Fenton explained:

> The objective of an industry ... operated [according to an equitable volume sharing plan] would be to secure a price level that would show a reasonable spread in relation to good cost performance. This would mean, then, that companies with particularly efficient management would earn better than the average margin of profit, whereas the less well-managed companies would secure a lower rate to a point on the fringe where there undoubtedly would be a number of companies with little if any profit. There would always, then, be the incentive for companies to try to lower their costs, to improve quality and to secure a better selection of accounts so as to secure a better than average rate of return. This would bring about a constant striving for lowering of costs and better operation, which should reflect in the growing improvement of the industry as a whole. Also, under such an operation the law of the survival of the fittest still operates to a degree in that companies that do not keep up with the procession will gradually be weeded out.[103]

Or, as Stevenson put it: suppose each firm targeted its normal market share from the past. It is clear that some firms would "make more than normal profit and [others] would make less." The incentive to improve would remain. "In a desire to make more than normal profit, constant efforts to increase ... efficiency ... would be made. Individual initiative would be served, and a fair industry price would be gradually reduced so that the public would be able to buy more of the products ... at a lower price. Inefficient companies would be gradually forced out of business or compelled to ... improve their own efficiency, which, in turn would further reduce the industry price level."[104]

In Stevenson's view, the economists had it wrong. The goal of cost accounting, information pooling, and the volume-sharing plan was to improve the quality of competition, not to fix prices. Building on more than a decade of work with cost accountants, developmental associations, the U.S. Chamber of Commerce, and the FTC, the container code showed manufacturers how to shift production, marketing, and administration from mass to specialty production. In doing so, they succeeded in replacing cutthroat pricing over volume with competition over nonscale forms of productivity and product innovation.

Observing the debate over the container code, the NRA's deputy administrator for the paper and paper products industries, W.W. Pickard, noted, "Voluntary sharing of business has worked. Furthermore, it is the only one of the plans submitted to the NRA which has worked."[105] Pickard joined Secretary Fenton in 1934 to plan a lobbying campaign before Congress to

102. Baird, *Price Filing Under NRA Codes*, Vol. 1, 316–20; Baird, *Price Filing Under NRA Codes*, Vol. II, 472–73. For a good example of the influence of the economist's concept of "perfect competition" in this report, see Baird, *Price Filing Under NRA Codes*, Vol. I, 121–22.

103. "ARGUMENTS PRESENTED AT HEARINGS OF APPLICATION FOR CODE OF FAIR COMPETITION, CORRUGATED AND SOLID FIBRE SHPPING CONTAINER INDUSTRY," Article VII - Equitable Distribution Plan, 3–4. On the economists' criticisms of the price-fixing provisions in the codes more generally, see Brand, *Corporatism and the Rule of Law*, 112–16; and Hawley, *The New Deal and the Problem of Monopoly*, 72–90.

104. National Association of Cost Accountants (NACA), *National Association of Cost Accountants Yearbook, 1934* (Chicago: NACA, 1934), 63–64.

105. Pickard is quoted at length in Baird, *Price Filing Under NRA Codes*, Work Materials No. 76. Vol. I, Trade Practice Studies Section, Division of Review, Mar. 1936, 318. See also "ARGUMENTS PRESENTED AT HEARINGS OF APPLICATION FOR CODE OF FAIR COMPETITION, CORRUGATED AND SOLID FIBRE SHPPING CONTAINER INDUSTRY," Article VII - Equitable Distribution Plan.

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re-authorize the NRA and restructure the codes, with the container industry as a model.[106] However, the Supreme Court dashed their efforts on 27 May 1935 when it declared the NRA unconstitutional.

Despite the collapse of the NRA, the NCA continued to administer the Stevenson Plan, FTC trade-practice rules, and the association's marketing and engineering studies. The NCA also continued to work with manufacturers to upgrade their accounting systems and to improve the association's standard cost system. In 1938, however, the NCA came under scrutiny by a reinvigorated antitrust division in the Justice Department for violations of the Sherman Act. The government charged the NCA with using its cost system to fix prices and the Stevenson Plan to allocate markets. On 23 April 1939, the NCA entered into a consent decree in which it agreed to cease collecting and disseminating market share or cost data. The Justice Department agreed to leave the association's cost-accounting, marketing, and product-development work intact.[107]

Thus, even though the container code died with the NRA and the Stevenson Plan was killed by antitrust law, key provisions of regulated competition remained intact. The NCA continued to tutor manufacturers in cost accounting, engineering, product specialization and innovation, and productivity. As the industry emerged from the Great Depression, box makers introduced a flood of new products: containers made of cheap recycled materials; durable containers better suited to trucking; containers with nonskid coatings to facilitate stacking; and specialty containers for many new commodities, such as internally partitioned cartons for fragile produce and single-use glass containers (for example, beer and lubricating oil), weatherproof boxes for military use, and packaging for heavy home appliances. Box makers also introduced high-speed "compact corrugators" to exploit low-volume, regional markets in the 1940s. While at the other end of the market, they began to open the export trade to American products.[108]

The cost accountants did not disappear from industrial and public life after their losses in the New Deal. Instead, as business historian Christopher McKenna demonstrates, firms like SJ&H went on to found the "world's newest profession": business consulting. Like the trade associations they served in the 1920s and 1930s, business consultants served their individual clients by pooling industrial information and drawing analogies between the experiences of individual firms. Moreover, as McKenna demonstrates, in the 1950s consultants expanded their clientele to include the public sector.[109]

In short, although regulated competition did not survive the New Deal in its original design, many of its features continued, and American institutions, in an age we typically associate with Fordism and mass production, remained heterogeneous.

The NRA Reconsidered

The architects of the container code accomplished a lot. Drawing on the personnel, regulatory instruments, associational resources, and accounting innovations of the 1910s and 1920s, they mounted a cogent critique of cartelization in the NRA and crafted an alternative. They asked container manufacturers to pool data on volume and to voluntarily hold their market shares relatively constant for the duration of the depression, without resorting to jawboning, incentive manipulation, or coercion. However, voluntarism was not meant as self-restraint—the resolve to discipline one's desires for competitive advantage through cheating or guile. After all, another part of the code—its accounting provisions—was mandatory. The code's architects hoped that voluntary efforts to hold market shares constant and mandatory changes in cost accounting would compress the time it took managers to learn how to profit from specialization and innovation instead of volume. To put it in the vernacular of the FTC, the container code showed box makers how to "regulate competition."

Their efforts worked: production, profits, employment, and wages rebounded. The corrugated and solid fiber shipping container industry emerged from the NRA with a more diverse and higher-quality product line, poised for further innovation. It became a precocious sector, one among a choice group of industries, such as food and tobacco products, which economic historian Michael Bernstein has identified, whose innovations helped pull the American economy out of the Great Depression.[110]

This case reveals several insights about American political development and the way we study it. It also raises new research questions about the NRA.

Like recent studies of "hidden" welfare, regulatory, and industrial policy, the container code and its

106. See Jacques B. Fenton, Chairman Code Committee, National Container Association to Ward W. Pickard, Deputy Administrator, National Recovery Administration, 11 Dec. 1933, with "New State Ice Co. v. Liebmann, Dissenting Opinion of Justice Brandeis," NARA, RG 9, E 25, Box 1689, Folder 25.

107. Daly, *The Corrugated Shipping Container Industry*, 68–71.

108. Howell, *A History of the Corrugated Shipping Container Industry*, 47–4; Daly, *The Corrugated Shipping Container Industry*, 42, 51–54, 60–63.

109. Christopher D. McKenna, "The Origins of Modern Management Consulting," *Business and Economic History* 24(1) (Fall 1995): 51–58; Christopher D. McKenna, "The World's Newest Profession: Management Consulting in the Twentieth Century," *Enterprise & Society* 2(4) (Dec. 2001): 673–79; Christopher D. McKenna, *The World's Newest Profession: Management Consulting in the Twentieth Century* (Cambridge: Cambridge University Press, 2006).

110. Michael A. Bernstein, *The Great Depression: Delayed Recovery and Economic Change in America, 1929–1939* (Cambridge: Cambridge University Press, 1989), 121–43.

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antecedents demonstrate that there was a plurality of institutional paths to effective regulatory development in the United States. There are far greater resources for institutional innovation than a good deal of recent research has suggested. As Brian Balogh, Jacob Hacker, Christopher Howard, William Novak and others have written, many of those resources lie hidden, because all too often we fail to look at indirect policy instruments and the mobilization of private actors for public purposes.[111] Although comparative and comparatively informed institutionalist studies of regulation have taught us a great deal about why autonomous bureaucracy, corporatist business associations, and sectoral incomes policy were usually impossible in the United States, they focus on a limited range of institutional possibilities in the U.S. This is partially because research on state building in the U.S. usually holds twentieth-century governance to a single set of standards, namely, those of Weberian (or Prussian) bureaucracy: autonomy, hierarchy, legitimate authority, professionalism, and the capacity to monitor and control economic behavior. It is also because historical and rational-choice institutionalists approach research with assumptions about structure and agency, which tend to hide innovations like the FTC's project on regulated competition, developmental associations in the 1920s, and the corrugated and solid fiber shipping container code.

The goal of this study has not been to disprove the historical institutionalist account of the failure of the NRA or to develop a more abstract, comprehensive, and generalizable theory of institutions and institutional change. Like the pragmatist approach to institutions developed in this essay, a pragmatist approach to theory insists that theories are multiple and partial. No theory explains everything; most theories explain some phenomena better than others; and all theories should be judged by how useful they are in illuminating particular empirical problems.[112] My goals in posing a theory of creative syncretism to make sense of the container code were twofold: to expand the range of research into regulatory forms that have succeeded in the U.S. and to test the plausibility of an alternative account of institutional innovation and learning. The method was to comprehend a successful innovation in an institutional setting where the current state of knowledge—both theory and evidence—demonstrates it is likely to fail, or what case study researchers call a "hard," "critical," or "crucial case."[113] On this criterion, the NRA is a good site, and the container code is a good case. Macrohistorical institutionalist assumptions about structure and agency have produced interpretations of the NRA—and of the FTC before it—which crowd out the innovations described in this essay: regulated competition, developmental associations, and the container code. Microbehavioral assumptions about business rationality under institutional and economic constraints have led to interpretations of trade associations in the 1920s and NRA codes in the 1930s, which make it impossible to understand the sorts of reflexivity, experimentation, and continuous learning that characterized the container code and its antecedents.

The success of the container code and of the theory of creative syncretism in illuminating it opens two new lines of research about the NRA. First, we need to know much more about the codes. Did other codes attempt to nurture growth by teaching firms how to innovate? Second, we need to know more about the constitutive struggles over economic ideas in the NRA. Did the NRA fail because policy makers and administrators were so focused on the trade offs between stability and price fixing that they failed to pay attention to innovation? Economic historian Michael Bernstein has posed similar questions about the NRA but come up short. On the one hand, he identifies a number of industries, which outgrew the American economy as a whole during the Great Depression through product and process innovation. On the other hand, he concludes prematurely that all

111. Christopher Howard, *The Hidden Welfare State: Tax Expenditure and Social Policy in the United States* (Princeton: Princeton University Press, 1999); Stanley S. Surrey and Paul R. McDaniel, *Tax Expenditures* (Cambridge, MA: Harvard University Press, 1985); Dennis S. Ippolito, *Hidden Spending: The Politics of Federal Credit Programs* (Chapel Hill, NC: University Of North Carolina Press, 1984); Fred Block, "Swimming Against the Current: The Rise of a Hidden Developmental State in the United States," *Politics and Society* 36(2) (June 2008): 169–206; Jacob S. Hacker, "The Historical Logic of National Health Insurance: Structure and Sequence in the Development of British, Canadian and U.S. Medical Policy," *Studies in American Political Development* 12 (Spring 1998): 129–30; Brian Balogh, "Reorganizing the Organizational Synthesis: Federal-Professional Relations in Modern America," *Studies in American Political Development* 5(1) (1991): 119–72. *A Government Out of Sight: The Mystery of National Authority in Nineteenth-Century America* (Cambridge: Cambridge University Press, 2009); William J. Novak, *The People's Welfare: Law and Regulation in Nineteenth Century American* (Chapel Hill: University of North Carolina, 1996).

112. See for example Richard Rorty, "Thomas Kuhn, Rocks and the Laws of Physics," *Philosophy and Social Hope*, Richard Rorty (London: Penguin, 1999), 175–89.

113. Although I draw from Gerring, who defines "crucial" cases as "cases most- or least-likely to exhibit a given outcome," I do not see this case as an example of Popper's "black swan," that is, a single well-chosen case, which disproves a theory. For one thing, the institutionalist assumptions, which inform the conventional historical interpretation of the NRA, are not a tightly predictive theory. For another, as I indicate in the text, the pragmatist approach to theory to which I am committed in this article insists that social science is inescapably populated by multiple, partial theories, which are better for some uses than others. On the concept of a "crucial case," see John Gerring, *Case Study Research: Principles and Practices* (Cambridge: Cambridge University Press, 2007), 115–22. For a view of case-study research closer to the one taken here, see Bent Flyvberg, "Five Misunderstandings in Case Study Research," *Qualitative Inquiry* 12(2) (Apr. 2006): 219–45.

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decisions to innovate were made by firms, not industries, and that policy makers failed to learn how to cultivate growth through innovation. The theory and evidence presented in this paper make it possible to reconsider Bernstein's findings in two ways. First, it is hard to know how many other cases like the container code existed within and after the NRA, because we haven't generally conducted research on trade associations or industry codes with the sorts of hypotheses that guided the research for this article. That is, we have not considered professionals, manufacturers, trade-association officials, and public administrators as agents who might be capable of reflexivity, learning, and imagining novel possibilities by renarrating the causes of their distress. Nor have we systematically explored the way actors in and out of the NRA attempted to forge new experiments in economic governance and production by recomposing existing institutional instruments. Finally, we have not systematically asked whether actors learned from their collective and individual experiences by devising new methods to monitor, evaluate, and discuss their performance. With these hypotheses in mind, however, it becomes possible to investigate the codes anew.

The second way the container code and the theory of creative syncretism allows us to reconsider Bernstein's conclusion is by expanding the criteria by which we choose codes to investigate. Historical institutionalists, economic historians, and rational-choice theorists have drawn on theories that point us toward a narrow catalog of economic features necessary for success (for example, small numbers, homogeneous products, and homogenous costs). By contrast, the theory and evidence presented in this essay ask us to look for the conditions of success in the history of the social or organizational networks forged by firms and industries. (Whom were firms or industries connected to? rather than, What were their defining economic features?) In other words, the evidence presented in this article indicates that case studies should be chosen by historically contextualized social, rather than naturalized economic, structure. Successful codes should be more likely in industries that forged organizational relations with the container manufacturers in the 1920s. Printing, paper, lithography, set-up boxes, envelopes, ink, and the manufacturers of machinery for these industries are likely candidates, because they collaborated with the PIA and the NCA in the 1920s. Tanning, casting, millwork, and plywood are also potentially good candidates, because they participated in the collaborative forums to conceptualize and diffuse developmental associations, which were sponsored by the FTC, the U.S. Chamber of Commerce, and the NACA in the 1920s.[114]

The success of the container code also challenges us to reconsider the failure of the NRA. Instead of focusing on the way historical legacies bequeathed Americans with weak regulatory agencies and business associations, which were unable to solve collective-action problems in the public interest, the evidence presented here should encourage us to shift our attention to the constitutive struggles over economic logic and practice in the NRA. By calling into question the accounting assumptions of mass production, the architects of developmental associations and the container code unlocked a pathway to economic prosperity through endless inquiry and experimentation. In doing so, they circumvented, rather than solved, the collective-action problem associated with overcapacity by recomposing the way manufacturers conceptualized and practiced competition. As international relations theorist, Andrew Wendt, writes of nation states, "anarchy" is what actors in competitive situations "make of it." Firms, like states in the international system, are not autarkic actors in a naturally "anarchistic" or Hobbesian economic order; instead, the capacity to engage in collective-action or collaborative problem solving depends on how firms conceptualize the nature and quality of competition and their place in it. When container manufacturers joined together to recompose competition from volume and market share (mass production) to specialization and innovation, the "market" came to look quite different to its participants, and they behaved accordingly.[115]

Therefore, once we begin to recognize how it was possible for firms, regulators, and professionals to work together to recompose the terms of competition, we can also begin to pose new questions about the failure of the NRA. Of course, some of those questions reconsider the questions raised by Ellis Hawley in his pathbreaking study of policy responses to the Great Depression fifty years ago.[116] For example, how did the professional and conceptual logics, which economists, cost accountants, and financial accountants brought to the NRA, inform debate over how to lift the economy out of depression? However, the theory of creative syncretism and the case of the container code ask us to push those questions further. How did participants stretch, recompose, or deepen those logics in practice? Was compromise or accommodation between perspectives possible? More specifically, how, if at all, was Deputy Administrator Pickard's entreaty to learn from the container code received in the administrative and staff divisions of the NRA? Were any of the professionals with cost-accounting experience from the FTC, the U.S. Chamber of Commerce's

114. See Berk and Schneiberg, "Varieties *in* Capitalism, Varieties *of* Association," for a catalog of potential cases.

115. Alexander Wendt, "Anarchy is What States Make of It: The Social Construction of Power Politics," *International Organization* 46(2) (Spring, 1992): 391–425.

116. Hawley, *The New Deal and the Problem of Monopoly.*

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manufacturing division, or the NACA represented in administrative or staff positions within the agency? If so, did they broach debate with the economists in the Division of Research and the Consumer Advisory Board? Did those charged with crafting a legal defense of the NRA consider the success of the container code, of developmental associations, or the FTC's trade-practice conferences in regulating competition? Why or why not? Did the experience of developmental associations in the 1920s or of the container code inform legislative debates within Congress or the Roosevelt administration? How, if at all, did the problem of sectoral innovation inform the debate over policy responses to the Great Depression?

Notice just how different are these questions from the ones historical and rational choice institutionalists ask about the NRA and its antecedents. Where institutionalists ask how historical legacies constrained, enabled, and channeled responses to the depression, the theory of creative syncretism asks us to pay attention to the ways in which institutionally situated actors innovated. Where rational-choice institutionalists ask how economic structure shaped collective action, the theory of creative syncretism asks us to pay attention to the ways in which people circumvent collective-action dilemmas and intractable policy problems by recomposing the institutional resources bequeathed to them. Where historical and rational-choice institutionalists find exceptions to the failure to enforce and regulate depression cartels in the structural fortunes of the steel industry, the container code provides us with evidence to see how public officials, professionals, and manufacturers altered the conditions of their action within the NRA. In other words, the container code and the theory of creative syncretism provide us with good reasons to reconsider the NRA.

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