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From Pabst
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In this paper, we examine the dual role that social movement organizations can play in altering organizational landscapes by undermining existing organizations and creating opportunities for the growth of new types of organizations. Empirically, we investigate the impact of a variety of tactics employed by the Woman's Christian Temperance Union (WCTU), the leading organizational representative of the American temperance movement, on two sets of organizations: breweries and soft drink producers. By delegitimizing alcohol consumption, altering attitudes and beliefs about drinking, and promoting temperance legislation, the WCTU contributed to brewery failures. These social changes, in turn, created opportunities for entrepreneurs to found organizations producing new kinds of beverages by creating demand for alternative beverages, providing rationales for entrepreneurial action, and increasing the availability of necessary resources. ●

One of the foundational tenets of institutional theory is that in order to prosper, organizations must be congruent with their institutional environment (Meyer and Rowan, 1977; Meyer and Scott, 1983), their structures and services aligned with the "cultural-cognitive belief systems and regulatory and normative structures that prevail in a given organizational community" (Baum and Rao, 2004: 51). Such alignment promotes the success and survival of organizations by increasing the commitment of internal and external constituents to organizations and their activities, allowing them to obtain necessary resources (Stinchcombe, 1965; Meyer and Rowan, 1977). By extension, the viability of organizational populations also depends on the extent to which the structures and activities that define the population are in line with the demands and expectations of the institutional environment (Hunt and Aldrich, 1998; Lee and Pennings, 2002).

It is easy to focus on the conceptual machineries of institutions (Kraatz and Zajac, 1996; Hinings and Tolbert, 2008) and forget that definitions of reality, of how things should be done, have their foundations in the actions of individuals and groups (Berger and Luckmann, 1966; Leblebici et al., 1991; Kennedy and Fiss, 2009). Historically, social movement organizations have played a critical role in reshaping such definitions (Turner and Killian, 1987), producing some of the most significant cultural changes in the nineteenth and twentieth centuries, including the abolition of slavery, the extension of voting and other political rights to women, formal elimination of racial segregation, and the creation of protective legislation for the environment (McAdam and Scott, 2005). Research suggests that most of the enduring consequences of social movement organizations arise through their effects on organizations, either by changing policies and practices of extant organizations (Davis and Thompson, 1994; Wade, Swaminathan, and Saxon, 1998; Haveman, Rao, and Paruchuri, 2007) or by giving rise to new forms of organization (Haveman and Rao, 1997; Lounsbury, Ventresca, and Hirsch, 2003; Schneiberg, King, and Smith, 2008; Swaminathan and Wade, 2001; Rao, 2009). For example, Tolbert and Zucker (1983) showed how Progressive

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reform organizations contributed to the diffusion of civil service procedures that significantly changed municipal governments, while Sine and Lee (2009) documented the impact of environmental movement organizations on the founding of new forms of power-producing organizations.

Other recent studies have also considered how broad, large-scale social movements can facilitate the emergence of new sectors and organizational forms. Schneiberg (2002) linked social movement activity to the formation of new forms of insurance companies; Haveman, Rao, and Paruchuri (2007) demonstrated the effects of Progressive-era movement organizations on the emergence of new types of thrift organizations; and Lee (2009) examined the effects of the organic food movement on the rise of alternative forms of food production. But quantitative research in this area has often relied on proxies of general social movement effects (Haveman and Rao, 1997; Schneiberg, King, and Smith, 2008) and has not fully considered how the different tactics social movements use can destabilize extant sets of organizations, unintentionally support the founding of new types of organizations, and thus shape inter-population dynamics. Little research has directly linked particular social movement activities to changes in the institutional environment and to organizational outcomes, including the decline of existing organizational forms, the spread of new forms, and relations between new and old forms.

To understand the effects of social movement organizations' activities, it is useful to examine them in relation to the three conceptually distinct dimensions of the institutional environment—normative, cognitive, and regulative (Scott, 2001). The normative dimension refers to explicit espousals of particular organizational practices, structures, and forms by individual or collective actors who have recognized expertise or credibility (Meyer and Rowan, 1977; Scott and Davis, 2007; Sine, David, and Mitsuhashi, 2007). Most studies examining this dimension have focused on established actors, such as professional or industry associations, that provide credentials or endorsements of specific organizational arrangements (e.g., Baum and Oliver, 1991; Scott et al., 2000; Sine, Haveman, and Tolbert, 2005; see also Marquis and Lounsbury, 2007). But social movements can also be normatively powerful advocates. For example, movements for corporate social responsibility have encouraged investors to boycott companies (King, 2008), lowered investors' confidence in public corporations (King and Soule, 2007), and persuaded consumers to purchase wood from companies that use environmentally sound foresting methods (Bartley, 2007).

The cognitive dimension of the institutional environment involves taken-for-granted assumptions of the utility and thus the appropriateness of organizational practices or forms (Berger and Luckmann, 1966; Meyer and Rowan, 1977; Aldrich and Fiol, 1994; Tolbert and Zucker, 1996). As Suchman (1995: 581) noted, this dimension is the "most subtle and powerful" influence on organizations. Social movements may try to influence this dimension through "teach-ins" or other similar activities; these are particularly common among student movements (Soule, 1997; Rojas, 2006). But because

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changing this dimension involves influencing deep-rooted and often non-conscious beliefs—bringing about such change is usually a slow and intensive process—social movement organizations typically focus their efforts on changing the normative and regulative dimensions.

The regulative dimension entails “rule setting, monitoring, and sanctioning activities” by powerful actors, such as the state, that have the ability to define certain organizational practices and forms as acceptable and to enforce those definitions, often by constraining organizational resources (Scott, 1995: 35). This dimension is often the immediate target of social movement organizations (McCarthy and Zald, 1977; Clemens, 1993; McAdam and Scott, 2005; Lee, 2009), perhaps in part because it can provide a foundation for changes in the other dimensions (Edelman, 1990; Schneiberg, 2002; Haveman, Rao, and Paruchuri, 2007), but the organizational consequences of regulatory changes are not always anticipated. For example, Perrata (2007) showed that anti-discrimination legislation, by promoting the value of gender equality, led to a sharp decline in both women’s and men’s colleges, though the women’s movement often supported the former.

Thus social movement organizations can change the cognitive, normative and regulative environments of organizations in several ways: by constructing and propagating shared beliefs that make some structures and behaviors acceptable and others unthinkable (Snow et al., 1986; Klandermans, 1997); by persuading public figures to endorse and promote these structures and behaviors (Turner and Killian, 1987); and by advocating for the passage of laws and regulations that promote new values and penalize activities in conflict with them (Zald, Morrill, and Rao, 2005). Any of these activities can have intended and unintended effects.

In this paper, we investigate the intended and unintended effects of one social movement organization, the Woman’s Christian Temperance Union (WCTU), on two organizational populations in the United States, breweries and soft drink manufacturers, between 1870 and 1920. During this time the WCTU grew from a small local organization to a major force in both state and federal politics, becoming arguably *the* most powerful social movement organization in the late 1800s, creating a turbulent environment for alcoholic-beverage producers (Gusfield, 1986). As the WCTU worked to spread its anti-alcohol agenda, it had a dramatic effect on breweries, an intended target, but also, inadvertently, on soft drink manufacturers. Our paper documents the varied means through which the temperance movement of the late nineteenth century, and the WCTU in particular produced changes in social norms and beliefs about drinking, as well as in laws regulating the production and sale of alcohol, thereby deinstitutionalizing breweries and creating opportunities for entrepreneurs to found organizations producing new kinds of beverages as a substitute for beer and other alcoholic drinks. We describe the dramatic growth of the WCTU in the mid-1800s and how it challenged one of America’s most accepted and cherished social activities, the consumption of alcoholic beverages.¹

1

The historical description below draws on the *Minutes of the Convention of the National Woman’s Christian Temperance Union, 1874–1920* (Chicago: Woman’s Temperance Publication Association), the *Transactions of the American Medical Association, 1869–1882* (Philadelphia: Times Printing House), and the *Journal of the American Medical Association’s “Proceedings of the House of Delegates,” 1883–1920*.

DEINSTITUTIONALIZATION OF BREWERIES AND THE CREATION OF ENTREPRENEURIAL OPPORTUNITIES

European settlers brought customs and habits from the Old World, including regular consumption of alcohol, its customary use in social circumstances, and acceptance of the organizations that produce it (Jellinek, 1977; Gusfield, 1987). When the ship *Arabella*, carrying the settlers of what would become the Massachusetts Bay Colony, dropped anchor in 1630, its cargo included 10,000 gallons of beer, 120 hogsheads of malt for brewing more, and 12 gallons of distilled spirits (Blocker, 1989). In addition to being a regular part of social occasions, alcoholic beverages were also a useful source of calories. Because fermenting enabled American colonists to store fruits and grains in beverage form throughout the year without spoilage, alcoholic beverages were also a form of liquid nourishment. Thus both beer and hard cider were commonly drunk at meals, social gatherings, and community events.

American society's acceptance of alcoholic beverages was reflected in the social role played by the breweries' retail arm, the tavern (or saloon, in the West). These establishments became highly valued in politics, government, and business in the nineteenth century. When new towns became incorporated, the tavern was usually the only public structure and was therefore used as the city hall and courtroom as well as a place for business transactions (Asbury, 1950). Taverns served as very important settings for campaigning and lobbying as well. Political candidates and politicians frequented them, and elections were often won or lost with the free distribution of alcohol (Tyrrell, 1979). Political machines relied so heavily on taverns to keep constituents loyal to the party that in many cities it was said that the "most direct route to the city council or the state legislature [often] ran through the barroom" (Funderburg, 2002: 90). The growth of establishments selling beer and other forms of alcohol ballooned in the latter half of the nineteenth century, and in 1909, their number exceeded the total number of libraries, schools, hospitals, parks, theaters, and churches (Cashman, 1981).

The brewery industry flourished throughout the nineteenth century, peaking at the turn of the century as the fifth largest U.S. industry, with almost a billion dollars in sales (Chidsey, 1969). Part of the industry's success during this period can be attributed to increases in immigration, especially from Ireland and Germany, which led to a shift in consumers' preferences from fermented fruit beverages to those made from cereals (Sechrist, 1986). In 1865, yearly per capita consumption of beer totaled a little over three gallons, but by 1900, per capita beer consumption had increased to sixteen gallons (Blocker, 1989).

Although breweries and beer were accepted by most Americans from the time of the first European colonies, there was always a minority who objected to the use of alcohol. One of the first advocates in the U.S. of temperance was Increase Mather, who in 1673 penned the strong sermon, "Woe to Drunkards" (Mezvinsky, 1959). Widespread, systematic opposition to drinking, though, had its origins in

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the religious revivalism of the Second Great Awakening in the early 1800s. One of the common threads that tied together various expressions of Protestant religious fervor of this period was a belief in the moral perfectability of humans, and excessive drinking, as a manifestation of moral imperfection, became a target of religious reformers (Szymanski, 2003). Concern with drinking as a social problem was also fueled by the connection between drinking and immigrant identity. Growing numbers of Irish and eastern European immigrants streamed into the U.S. throughout the nineteenth century, feeding nativists' hostility. The regular use of alcohol became emblematic of these new immigrant groups; thus anti-drinking sentiment was also driven in part by the broader tensions and conflicts associated with the social assimilation of different ethnic groups (Gusfield, 1955, 1986). An additional force that fed temperance sentiments during this period was the growing industrialization of the country, which increased demand for a dependable and tractable workforce. Many employers supported limits on alcohol use because they were concerned that the consumption of alcohol undermined employees' thrift and hard work (Rumbarger, 1989).

All of these factors combined by the mid-nineteenth century to produce organized efforts to reduce the consumption of alcohol in the U.S. and several anti-drinking social movement organizations were founded in the U.S. before the Civil War. Most of these were relatively short-lived, however, as their cause was eclipsed by the more passionate debate over abolition. But because many of the same social conditions that fueled antebellum anti-drinking sentiments persisted after the war—tensions surrounding increasing rates of immigration, industrialization, concerns with the continuing improvement of society (as the religiosity of the early 1800s morphed into a more secular form, Progressivism)—the temperance movement began to grow once again in the late nineteenth century. Several social movement organizations developed to promote the aims of temperance, many of which actively collaborated and had overlapping memberships, but primary among these was the Woman's Christian Temperance Movement.

Founding of the WCTU

What was to become one of the largest and most powerful of the anti-drinking social movement organizations was formed in 1874 (Mezvinsky, 1959): the Woman's Christian Temperance Union, or the WCTU. In the spring of that year, three women—Jane Fowler Willing, Emily Huntington Miller, and Martha McClellan Brown—jointly issued a call to women at the National Sunday School Assembly in Chautauqua, New York, to attend the first planned convention of the Woman's Christian Temperance Union, aimed at mobilizing activist women to campaign for political candidates and legislation that favored temperance and women's rights. In November of the same year, 135 women representing 16 states assembled in Cleveland, Ohio, to form the WCTU. Under the seventeen-year leadership of Frances Willard, who ascended to the presidency of the WCTU in 1879, the WCTU took aim at a variety of social problems, including campaigning for eight-hour work days, universal suffrage, industrial relations education, preschool

education, prison reform, world peace, equal rights for women, and greater penalties for crimes against women. The primary focus of the organization, however, was the promotion of temperance, which was viewed as an underlying solution (at least in part) to many of the other problems of concern to members (Gusfield, 1986).

The WCTU grew rapidly under Willard's guidance. In 1879, the organization consisted of 1,118 local unions and 26,843 members in 24 states; by Willard's death at the turn of the century, it had grown to roughly 7,067 local unions with 168,324 members in 52 states and territories—a 627 percent increase, during a period in which the U.S. population grew by 198 percent. By 1921, the WCTU had 12,000 local unions with 345,949 members in 53 states and territories. Membership required pledging both total abstinence and commitment to the organization's goals. Its success in membership growth was accompanied by financial success as well. Its enormous size and wealth enabled the WCTU to employ a variety of tactics to try to achieve its primary objective, eliminating alcohol use in American society.

WCTU Tactics

Changing the normative environment. One of the WCTU's key tactics involved proselytizing temperance values and recruiting new members with an explicit commitment to abstain from alcohol use and to advocate a similar commitment among friends and family. To this end, the WCTU promoted countrywide tours by lecturers who sought to educate the public on the dangers of drinking and the benefits of abstinence and who encouraged individuals to join the organization. Each member of the WCTU was required to pay annual dues to the organization and to take "The Pledge." As written on the signed membership cards, individuals swore, "I hereby solemnly promise, God helping me, to abstain from all distilled, fermented and malt liquors, including wine, beer and cider; and to *employ all proper means to discourage the use of and traffic in the same*" [italics added]. Many members took this oath very seriously and led active personal campaigns against drinking as morally unacceptable.

Apart from the individual members' evangelizing efforts to change the values and behaviors of their friends and family members, local WCTU chapters used a variety of tactics to create a normative environment supporting alcohol abstinence. These included holding parades and soap box oratories denouncing the consumption of alcohol, gathering in front of saloons to sing hymns and to reprimand both patrons and owners, and giving away free ice water and lemonade at booths at county and state fairs—while simultaneously holding protests in front of brewery booths. Their tactics were loudly decried by opponents who claimed that the WCTU used "devices of a Methodist revival: by terrifying and rather coarsely emotional oratory from pulpit and platform; by parades of women and children drilled for the purpose; by a sort of persecution not stopping short of an actual boycott of prominent citizens inclined to vote wet" (United States Brewers' Association, 1909: 40). But their tactics were effective. According to WCTU reports, such campaigns led to

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a drop in malt liquor consumption between 1873 and 1875 of 5,599,406 gallons and contributed to the failure of 750 breweries (WCTU *Minutes*, 1885).

The promotion of temperance norms by individuals and the collective challenges to organizations that distributed alcoholic beverages created a hostile normative environment for breweries. Breweries would have faced particularly hostile normative environments in states in which there were larger proportions of WCTU members because “in general, movements with a larger presence in the local community—as indicated by a larger number of adherents with mobilizable resources and by organized presence—are likely to make more demands on organizations for change than they are when they have little support in the local community” (Zald, Morrill, and Rao, 2005: 259). Thus,

Hypothesis 1a: Increases in the proportion of WCTU members in a state will increase brewery failures.

Other normative forces may have amplified the effects of the WCTU on brewery failures (Skocpol et al., 1993). The WCTU often drew authoritative backing for its campaign from an organization culturally authorized to speak to matters of health, the American Medical Association (AMA). Not only was the AMA highly sympathetic to the temperance cause—and banned alcohol at its annual conventions beginning in 1877—but physicians at the time were in direct competition with pharmacists, who often produced folk medicines containing homemade liquor as an alternative to doctors’ allopathic treatments (Sinclair, 1962). Contention over profits from medicines became so fierce that in 1917, in response to a letter from the WCTU, the American Medical Association sent a resolution to the U.S. Senate stating that alcohol’s “use in therapeutics, as a tonic or a stimulant or as a food has no scientific basis; therefore be it resolved that the American Medical Association opposes the use of alcohol as a beverage; and be it further resolved that the use of alcohol as a therapeutic agent should be discouraged” (AMA *Transactions*, 1917: 11; quoted in Sinclair, 1962: 61). The AMA also issued many other resolutions that allowed the WCTU to weave arguments from AMA physicians about the deleterious effect of alcohol in with their own, often much more speculative assertions of the physical and moral consequences of alcohol use. Given the AMA’s status as a health authority and its support of the WCTU’s rhetoric and tactics, we predict that the WCTU’s normative effects on brewery failures will be amplified in states with more AMA physicians:

Hypothesis 1b: Increases in the number of AMA members in a state will enhance the effects of WCTU membership on brewery failure.

The WCTU’s normative influence on brewery failures is also likely to have been affected by the percentage of surrounding states that had enacted prohibition laws. Researchers have found that legal changes in adjoining jurisdictions can affect a focal state in a variety of ways (Wade, Swaminathan, and Saxon, 1998). Because laws often indicate public support of certain morals and values, as adjoining states and counties

passed prohibitory regulation, residents of the focal state may have felt pressure to conform to the apparent growing acceptance of temperance values. We predict that the normative influence associated with the passage of state and county prohibition laws in adjoining states will amplify the WCTU's normative effects on brewery failure in a focal state:

Hypothesis 1c: Increases in the percentage of adjoining states with prohibition laws will enhance the effects of WCTU membership on brewery failure in a focal state.

Changing the cognitive environment. Creating and propagating new cultural frames is a fundamental objective of social movements. If these frames are to become taken for granted, transmission mechanisms must be created that pass this knowledge to the next generation as a social fact (Berger and Luckmann, 1966; Zucker, 1977, 1986; Tolbert, 1988; Fiss and Zajac, 2006). After witnessing the defeat of most local and state prohibition referenda in the 1870s, in 1879, the WCTU adopted a strategy to inculcate beliefs about problems of alcohol consumption into the curriculum of the nation's public and private schools. Known as scientific temperance instruction (STI), the tactic called for the classroom "study of the nature of alcoholic drinks and narcotics, and their effects upon the human system, in connection with the several divisions of the subject of physiology and hygiene" (WCTU *Minutes*: 1884, p. ixv). As Mary Hunt, the creator of STI, explained: "[Since] a government of the people cannot compel majorities, . . . [voters] must first be convinced that alcohol and kindred narcotics are by nature outlaws, before they will outlaw them" (Zimmerman, 1992: 6). A subcommittee for hygiene textbooks examined and endorsed twenty-three textbooks from seven publishers for use in schools and colleges (Sinclair, 1962). The WCTU then promoted these textbooks to schools and colleges throughout the country. Some of the claims made in these books include the following:

A cat or dog may be killed by causing it to drink a small quantity of alcohol. A boy once drank whisky from a flask he had found, and died in a few hours. . . . (Brands, 1883; cited by Sinclair, 1962: 45)

It often happens that the children of those who drink have weak minds or become crazy as they grow older. . . . (Brands, 1890; cited by Sinclair, 1962: 45)

Worse than all, when alcohol is constantly used, it may slowly change the muscles of the heart into fat. Such a heart cannot be so strong as if it were all muscle. It is sometimes so soft that a finger could easily be pushed through its walls. You can think what would happen if it is made to work a little harder than usual. It is liable to stretch and stop beating and this would cause sudden death. (Brands, 1890; cited by Sinclair, 1962: 45)

The WCTU actively sought to embed this curriculum into the public school system by legal mandates at the state level (Mezvinsky, 1961). Temperance Union women campaigned for pro-temperance education candidates, bombarded legislators with petitions, and helped write proposed instruction bills in committee. Michigan was the first state to pass mandatory scientific temperance instruction in 1883; other states soon followed suit. The swift spread of STI partly reflected the fact

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that politicians and brewers did not view it as a threat—they were more concerned about prohibition laws than a trivial school course (WCTU *Minutes*, 1885; Zimmerman, 1999: 23). By the 1901–1902 academic year, over 22 million students nationwide received scientific temperance instruction (Mezvinisky, 1961). This massive education effort directly affected students but also had indirect effects on parents. As the WCTU had hoped, the instruction did not stay confined to the classroom but spread to the entire community. Pupils took their new knowledge home and related to their parents what they had learned in school. This diffusion is demonstrated in a letter from a parent to a teacher that said, “My boy tells me that when I drink beer der overcoat vrom my stummack gets to thick” (*School Physiology Journal*, 1896: 21; cited by Zimmerman, 1999: 25).

By altering general social understandings of and beliefs about the dangers and costs associated with alcohol use, insofar as STI was successful in changing the cognitive environment and thus reducing individuals’ propensity to consume alcohol, it should have had deleterious effects on organizations involved in the production and distribution of alcoholic beverages. Therefore we hypothesize:

Hypothesis 2: State adoption of scientific temperance instruction will increase brewery failures.

Changing the regulatory environment. The WCTU strongly supported anti-alcohol laws as part of its overall change efforts. Declaring, “We hold prohibition to be essential to the full triumph of this reform” (WCTU *Minutes*, 1875: 61), the organization formed the Committee on Temperance Legislation to lobby local and state legislators to enact alcohol licensing and prohibition laws. Alcohol licensing laws required alcohol producers to pay fees to operate, while state prohibition laws made the sale and transport of liquor within their state boundaries illegal. Prohibition laws clearly represented the strictest form of brewery regulation and became a tactic vigorously pursued by the WCTU at federal, state, and local levels. In an in-depth case study, Szymanski (2003) found that in Michigan the WCTU played a primary role in the passage of county and state prohibition laws. It succeeded in persuading numerous counties and states to pass such laws, and by 1918, 65 percent of the states and counties in the U.S. had banned alcoholic beverages. Temperance women’s efforts cumulated in the passage of the Eighteenth Amendment and the Volstead Act, which banned the production and sale of intoxicating beverages in the United States of America beginning January 16, 1920.

Because law enforcement varied by governmental jurisdiction, the passage of prohibition laws did not always immediately lead to the disbanding of breweries, and some breweries survived for a substantial amount of time after the passage of county and state legislation. The United States Brewers’ Association even encouraged brewers to continue operating until state or local authorities could enforce the laws: “Absolute defiance of the law by means of the wide-open saloons which exists in nearly all of the largest cities, can scarcely be classified as an evasion. It is simply a case of

public sentiment being stronger than action of Legislatures” (United States Brewers’ Association, 1911: 202). Nonetheless, regulatory change is likely to have taken a strong toll on breweries; thus we posit:

Hypothesis 3: The passage of prohibition regulation by counties and states will increase brewery failures.

Insofar as the tactics used by the WCTU produced changes in the normative, cognitive, and regulative environments of breweries, they fundamentally changed the competitive dynamics of the industry, reducing demand for breweries’ products and raising the costs of doing business. Although the manufacturers and purveyors of alcoholic drinks were direct targets of these tactics, they also had an inadvertent impact on another type of organization, one that first emerged in the U.S. in the early nineteenth century, soft drink manufacturers.

Constructing Institutional Environments and Entrepreneurial Opportunities

Social movements can affect the likelihood of the emergence of new organizational forms through at least three mechanisms. First, they can motivate a class of entrepreneurs who share the movement’s values to develop alternatives that are more consistent with the movement’s values than current products. For instance, by promulgating alternative energy frames, environmental groups like the Sierra Club and the Audubon Society inspired a set of entrepreneurs to found novel wind electric power production facilities (Sine and Lee, 2009). These entrepreneurs actively create and promote product substitutes (a market push). Second, by motivating consumers to change their consumption patterns, social movement organizations create demand, or market pull for products that are consistent with alternative values and behaviors. For example, by criticizing the agricultural industry for its extensive use of pesticides, the organic movement convinced potential customers of the benefits of and need for pesticide-free agricultural products. This led to heightened demand for such products, to which a number of entrepreneurs—including those who had relatively little concern with environmental issues but who recognized a market opportunity—responded (Lee, 2007). Third, social movement organizations can encourage entrepreneurial activity (sometimes inadvertently) by encouraging shifts in resources from one set of activities to new activities. For example, the abolition movement ultimately led to the demise of plantations as a form of agricultural production; the presence of newly freed labor created by this demise helped fuel the growth of an alternative form of agricultural organization, share-cropping (Ruef, 2004). Although the WCTU’s activities were explicitly aimed at the alcohol-producing industry, they influenced entrepreneurialism in another industry, soft drink production, through each of these mechanisms.

Origins of the Soft Drink Industry

Just as the brewery industry was reaching the height of its societal acceptance and popularity in the early to mid-nineteenth century, the genesis of a new organizational form was taking place throughout the country: the soft drink

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company. Artificial mineral water, created by adding sodium bicarbonate to water, was first mass-produced in England in 1764 by Thomas Henry, a chemist and apothecary. Henry's goal was to create a product that would aid in the treatment of such ailments as fever, scurvy, dysentery, and vomiting. A version of the product Henry created arrived in the United States in the early 1800s and was embraced by scientific and medical communities eager to experiment. An array of statesmen and scientific sympathizers, among them such notables as James Madison, John Adams, and Thomas Jefferson, promoted the beneficial properties of carbonated water in papers presented in different venues, including the American Philosophical Society, the country's first and most prestigious scientific academy.

Commercial production in America began in 1807, with apothecaries using a wide variety of techniques to generate carbon dioxide from bicarbonate powders and to infuse the water with the gas. The 1850 U.S. census revealed 64 manufacturers of carbonated water with \$760,000 in annual sales. The industry grew slowly, with herbs and spices eventually being added to the water to increase its medicinal effects. An example of entrepreneurial activity in this industry is that of Asa Candler, a successful druggist in Atlanta, Georgia, who in 1886 was introduced by a fellow pharmacist to a mineral water tonic that used Peruvian coca leaf extract and African kola nuts for flavoring. This new tonic, Coca-Cola, was touted as a pharmaceutical cure for a myriad of infirmities, including headaches, exhaustion, hysteria, and drug addiction (Pendergrast, 1993). In a letter to his brother Warren, Candler described the product:

You know how I suffer with headaches. Well some days ago, a friend suggested that I try Coca-Cola. I did and was relieved. Some days later I again tried it and was again relieved. I determined to find out about it—investigation showed that it was owned by parties unable to put it fairly before the people. I determined to put money into it and a little influence. I put \$500 of the first and am putting a goodly portion of what I have of the last. (Pendergrast, 1993: 44)

Candler bought the formula and created the Coca-Cola Company for the "buying of ingredients and appliances necessary therefore, and the sale of manufactured article, as a syrup in bulk, bottled, as a medicine, and as a nerve tonic" (Pendergrast, 1993: 43). It was not long before Candler and others began to recognize new opportunities created for them by the temperance movement.

The Effects of the WCTU on Entrepreneurial Activity

The WCTU's efforts to delegitimize alcohol production and consumption through grassroots proselytization, scientific temperance instruction, and prohibitory regulation spurred soft drink entrepreneurial foundings in at least three ways. First, proselytizing by WCTU members created both a normative environment in which individuals felt pressure to provide alternatives to alcohol (a market pull) and one in which some entrepreneurs who subscribed to temperance values were inspired to promote them by providing such alternatives (an ideological push). Second, by both educating individuals about

the harmful effects of alcohol and legislatively restricting its availability, the WCTU's strategies generated a market for alternative drinks, thereby attracting entrepreneurs who did not necessarily share the temperance movement's values but who recognized a financial opportunity (a market pull). Third, by delegitimizing breweries and instigating their failures, the WCTU transformed the competitive landscape, thereby making resources available to both classes of entrepreneurs.

Ideological push. Some early soft drink producers identified themselves from the start as temperance movement sympathizers. Driven by their ideologies, these entrepreneurs foresaw opportunities in untapped market segments that would fulfill their goals of enacting societal change while at the same time forming a profitable business venture. Moving forward, they successfully created an emerging market for temperance drinks using a number of techniques, such as advertising the beverages' temperance qualities and distributing free samples of the new temperance-friendly products. The founding of the Hires Root Beer Company provides one example. The founder, Charles Elmer Hires, opened a drugstore in Philadelphia, Pennsylvania, shortly after graduating from pharmacy and medical school. A devout Quaker and teetotaler, Hires wanted to develop a drink that would replace beer, the typical beverage of hard-drinking Pennsylvania miners (Funderburg, 2002). After discovering a recipe for a new drink while on his honeymoon, Hires returned to his pharmacy to experiment with 16 roots, herbs, and berries. Initially called root tea, the drink had little appeal among his target audience. Russell Conwell, then the president of Temple University, advised Hires that miners were more likely to drink a manly beer than an effeminate tea. Accordingly, Hires changed the name of the product from root tea to root beer and began marketing 25-cent packages of powder that yielded five gallons of root beer when mixed with water, yeast, and sugar. After Hires gave out free glasses of root beer at the 1876 Centennial Exposition, consumers responded very positively, giving high marks to the robust flavor. By 1884, he began selling his root beer in kegs, which became very popular as drink dispensers. Six years later, the Charles E. Hires Company was incorporated.

Market pull. As the nascent soft drink segment began to be seen as a lucrative opportunity, another kind of entrepreneur entered the scene, one who was not motivated by temperance values per se but, instead, was drawn into the emerging market by opportunities associated with changes in beverage consumption practices (Eckhardt and Ciuchta, 2008). As beer and other alcohol products became less desirable and/or harder to obtain, entrepreneurs saw an opportunity to change their marketing strategies and produce replacement beverages that could fill the void left by beer's disappearance.

Though the WCTU enjoyed notable success in its efforts to reduce individuals' consumption of alcohol (Feldman, 1927), the rituals and symbols associated with drinking were deeply entrenched in American society and did not disappear. Sharing alcoholic beverages was (and remains) a well-established part of marking special social occasions and signifying social solidarity and friendship. The key role of alcohol in social life is not easy to

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quantify, but general evidence of this role can be found in a wide array of sources. For example, in Horace Greeley's childhood memoirs, he notes that early nineteenth-century funerals were not considered adequate without the dispensing of "spiritual consolation," and most gatherings of two or three neighbors for an evening's chat normally involved the hospitable provision of beer or other alcoholic beverages (Greeley et al., 1868: 99–100). Even the ordination of ministers often entailed sharing a drink, sometimes denoted as "ordination brew" (Tyler, 1944). The social role of alcohol is also suggested in various fictional works, ranging from Burns' annually celebrated admonition to "take a cup o' kindness for auld lang syne," to a scene from Louisa May Alcott's novel, *Little Women*, written during the years of the temperance movement, which portrays a well-intended neighbor bringing bottles of wine to a wedding celebration. Thus both historical and fictional accounts demonstrate the deeply entrenched social significance of sharing a drink in a range of social situations, from casual interactions among friends, and weddings and celebrations, to ritual religious activities. For special moments, water (or coffee or tea) was not enough; if the event was exceptional, then the drink had to be exceptional as well.

The social void created by the WCTU's efforts to delegitimize alcoholic beverages created opportunities for products that could be used as alternatives to alcohol, and entrepreneurs quickly began to address that opportunity. That soft drinks were indeed used to fill the void is suggested by commentary from soft drink manufacturers at the time. For example, the chief executive officer of Hires Root Beer noted, "As nearly as we can estimate, the sales of root beer have increased three to four times over since the advent of prohibition . . ." (Feldman, 1927: 79). Similarly, a study by Feldman (1927) on the effects of prohibition on soft drink manufacturers found that several manufacturers of ginger ale indicated that sales of their product more than doubled between 1913 and 1925, years during which the individual consumption of alcohol dropped markedly.

A good example of entrepreneurial efforts to capitalize on opportunities provided by the temperance movement is provided again by Asa Candler, the owner of the Coca-Cola Company. A few years after he founded the company, the temperance movement in Georgia pushed through the early enactment of STI and passage of local prohibition option laws. Candler recognized that Coca-Cola could increase its sales by altering its organizational identity from a pharmaceutical company to a producer of temperance-consistent leisure drinks. In 1895, he began running advertisements in newspapers that said "Drink Coca-Cola, the Great National Temperance Drink, Delicious and Refreshing" (Pendergrast, 1993: 66, 111). Candler used the term "soft drink" to distinguish Coca-Cola and other mineral water leisure drinks from drinks containing alcohol (hard drinks) (Pendergrast, 1993). The company's transformation paid off handsomely: Coca-Cola sales increased immensely by the turn of the twentieth century.

As the temperance movement gained strength in the early twentieth century, soft drink entrepreneurs, including the founders of Dr. Pepper, Pepsi-Cola, and Moxie, continued to vaunt their products' wholesome image, on one hand, while

trying to tap the demands of former drinkers, on the other. Thus, the *Soda Fountain*, a soft drink industry trade journal, suggested that drink dispensers add a dash of pepper sauce and a sprinkling of salt, stir the drink, and then add a pinch of cayenne. The drink would produce “a rather considerable sting and an after-effect of warmth” that saloon patrons craved (*Soda Fountain*, 1919: 39).

Altered Competitive Landscape

As social movement organizations deinstitutionalize existing organizational forms by altering the normative, cognitive, and regulative environments, they inadvertently reduce barriers to entry for new entrepreneurial forms by (a) increasing the availability of needed resources, (b) changing the nature of relations between sets of organizations, and (c) diminishing the ability of competitors to compete. First, when existing organizations are deinstitutionalized and fail, the resource space associated with the failed firms—land, labor, machinery, employees, and so forth—becomes available to entrepreneurs, typically at a reduced cost. For example, when high-technology firms failed in the Silicon Valley in the 1980s, displaced engineers were quickly hired by surrounding competitors or new startups (Saxenian, 1994). As the temperance movement succeeded in delegitimizing breweries and thus spurring their failure, disbanded breweries released resources—employees, equipment, assets, supplies, and patrons—back into the environment, allowing soft drink entrepreneurs to exploit them. Many breweries that closed sold their assets to soft drink entrepreneurs at reduced prices—ten cents to the dollar in some cases (Feldman, 1927: 315)—while a very few closed and underwent metamorphic changes to convert their machinery and later reopen as soft drink producers themselves. For example, the Galveston Brewing Company of Galveston, Texas, after sales plummeted and local and state temperance regulation intensified, closed in 1916. During the next two years, the brewing equipment was converted to produce soft drinks, and in 1918, the Southern Beverage Company opened its doors with its new product, Triple XXX Root Beer (Ehresman and Ehresman, 2006).

Second, as organizational forms are deinstitutionalized, the boundaries defining competitive relations and separate resource niches between organizational populations often blur (Hannan and Freeman, 1989), which can cause a shift in how existing and emerging forms compete for resources (Aldrich and Ruef, 2006). Because the soft drink industry was initially identified with pharmacological remedies for everyday maladies, many effervescent products could have been viewed as complements to beer and other alcoholic drinks as cures for the next-day hangover. As breweries became deinstitutionalized, however, soft drink producers sought opportunities to encroach upon breweries’ markets, thereby changing their relationship from symbiotic to competitive. This is exemplified by Charles Hires changing the name of his product from “root tea” to “root beer” and packaging the product in kegs in an attempt to lure away beer consumers (Zott and Huy, 2007).

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Third, as organizational forms are deinstitutionalized, their ability to defend their product space is severely weakened. When a form and the industry associations that support and promote that form become less legitimate, they are less able to persuade potential and current customers, investors, or retailers of the value, utility, and overall quality of the product. In this case, once alcohol was deemed and accepted to be a health and moral concern, both individual beer manufacturers and the national brewers association had difficulty convincing the public that beer was a higher quality beverage (i.e., healthier) than soft drinks. As breweries lost their legitimacy, they also lost the ability to make credible defensive arguments to protect their product space.

The soft drink industry grew rapidly as the WCTU grew in size and influence. By 1900, there were 2,763 soft drink manufacturers collecting more than \$23 million dollars in revenues (Riley, 1958). These firms offered a variety of new soft drinks, such as birch beer, spruce beer, hop beer, ginger beer, and colas (*Beverage World*, 1982). By 1919, total sales revenues surpassed \$135 million (Riley, 1958). Thus, as the WCTU's strategies succeeded in creating demand for substitutes to alcohol, inspiring both value-driven and more purely opportunistic entrepreneurs to create new products and in causing breweries to fail (thereby making resources available to both sets of entrepreneurs), they created a competitive environment favorable to the founding of soft drink firms. Increases in the presence of WCTU members in a state, who were pledged not only to refrain from drink themselves but also to proselytize such abstention among others, should create increasing normative pressure on individuals to at least have substitutes for alcoholic beverages available (a market pull). Such environments were also more likely to foster value-driven entry into the soft drink industry by entrepreneurs (an ideological push). Thus we posit:

Hypothesis 4: Increases in the proportion of WCTU members in a state will increase soft drink firm foundings.

Similarly, insofar as scientific temperance instruction was effective in its efforts to persuade people of the social and physical harms that were associated with drinking, its cumulative effects should be the creation of a relatively large number of individuals who were unlikely to consume alcohol and therefore would be receptive to alternative beverages for celebratory and social occasions. The presence of such a market would be likely to encourage more opportunistic entrepreneurs to enter the soft drink industry (a market pull).

Hypothesis 5: State adoption of scientific temperance instruction will increase soft drink firm foundings.

The reduced availability of alcoholic beverages that accompanied the passage of prohibitory regulation should also increase the number of individuals who would seek an alternative, legal drink to replace alcohol. Like scientific temperance instruction, this could be expected to encourage entrepreneurs to enter the soft drink industry to meet demand (again, market pull).

Hypothesis 6: The passage of prohibition regulation by counties and states will increase soft drink firm foundings.

Finally, the failure of breweries could be expected to result both in making additional resources available to soft drink entrepreneurs and opening up new markets for their products (altered competitive landscape). Thus we hypothesize:

Hypothesis 7: Net of the effects of the proportion of WCTU membership, scientific temperance instruction programs, and prohibition regulation, brewery failures will increase soft drink firm foundings in a focal state.

METHODS

We focused on the intended and unintended effects of different WCTU tactics on breweries and soft drink organizations at the state level. The window of observation is 1870 to 1920. We used 1870 as the base year because that was the decade in which soft drink producers began to distinguish themselves from mineral water producers, and 1920 is the end year because that is the year U.S. federal law prohibiting the sale of alcohol for individual consumption (a WCTU triumph) went into effect. Although there were other contemporary temperance social movement organizations such as the Anti-Saloon League and the Prohibition Party, we focused on the WCTU for three key reasons. First, it was by far the largest and most powerful. In addition, it employed a variety of tactics in its efforts to stop the consumption of alcohol, allowing us to compare their relative effects; the other temperance organizations concentrated largely on legislative strategies (see Donovan, 1994). And, finally, data on the other social movement organizations are much more limited, perhaps because they were smaller and/or less long-lived than the WCTU.

Data and Measures

Dependent variables. We obtained data on soft drink producers from Fewless and Weide's (2009) *Soft Drink Bottlers of the United States*, which provides information on over 20,000 soft drink bottlers, including the founding date, address, ownership, date of failure, and products. From this dataset, we were able to calculate for each state-year the number of soft drink manufacturer foundings and the number of soft drink manufacturers in operation. Although all of the bottlers during our study's time period were independently owned and operated, roughly 13 percent of the bottlers in our sample were manufacturing soft drinks under franchise contracts. During the industry's early years, major companies such as Pepsi-Cola, Coca-Cola, Chero-Cola, Moxie, and Hires signed franchise agreements with independent bottlers to manufacture their product. Both because franchise firms constitute a very small part of our sample, and because there is no evidence that they differed systematically from others, we included them in our analyses. In the 10 states for which we had sufficiently detailed data to identify transitions from brewery to soft drink manufacturer, the transition rate was 3.1 percent.

Data on American breweries came from Van Wieren's (1995) *American Breweries II*, which lists the year of founding and

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failure for each brewery, and have been used in previous research on the American brewery industry (Barnett, 1997; Wade, Swaminathan, and Saxon, 1998). The brewery dataset contains the name of the company, the date it was founded, its address, and the date of failure. We assigned each brewery a value of 1 for each year that it was in operation, and 0 for the year that it failed, if this occurred. Because our period of analysis begins in 1870 and the first brewery was founded in 1633, the data in our event history analysis are left-censored. To verify that left-censoring was not an issue, we ran the hazard model with a dummy variable for all breweries that were left-censored and found that it did not change the results.

Key predictor variables. To measure regulatory effects, we obtained information on the passage of county- and state-level prohibition laws between 1801 and 1920 from a public-use dataset compiled by Sechrist (1985). For states that had not passed statewide laws, we measured the proportion of counties that had passed such laws; when states passed laws applying to all counties, this measure became coded as 1. We measured the normative pressures created by the WCTU using the annual number of dues-paying members of local chapters (unions) in each state divided by the total state population.² These data came from the *Minutes of the Convention of the National Woman's Christian Temperance Union* (1874–1920). To assess the interactive effects of other sources of normative pressure for temperance, such as prohibition laws in surrounding states and the American Medical Association, we included a measure of the percentage of all counties in adjoining states that had enacted state and county prohibition laws as well as a measure of the number of American Medical Association members per state.³ Unlike the WCTU membership proportion measure, which gauged normative influence, we used counts of AMA members in order to capture the amount of resources available for lobbying and temperance endorsement.⁴ Information on AMA state membership and WCTU support came from the *Transactions of the American Medical Association* (1869–1920).

We captured cognitive institutional effects by measuring the number of years a state had in place mandatory scientific temperance instruction (STI). Once a state mandated STI, the passage of time should result in a progressively larger proportion of the population that had received pro-temperance instruction (Collins, 1994). Following past research on individual learning (Epple, Argote, and Devadas, 1991), we measured STI using a variable that measures the logged accumulative time in each state since STI was enacted. Data on STI came from the *Minutes of the Convention of the National Woman's Christian Temperance Union* (1874–1920).

Control variables. We controlled for the demand for beer using the number of Irish and German immigrants in each state. For cultural reasons, these groups generally consumed more beer than other ethnic groups; they also opposed temperance (Sechrist, 1986). Furthermore, WCTU ideologies in many cases resounded best with Protestant doctrine

2

In analyses not reported here, we also used the raw number of WCTU members and found similar results.

3

We also examined other kinds of interstate dynamics, such as the percentage of WCTU members and scientific temperance instruction in surrounding states, but these did not alter the main effects.

4

The AMA's potent influence on individual beliefs and state policy was very much a product of its ability to harness revenue in the form of dues from its members. In line with this, in analyses not reported here, we also interacted the proportion of AMA members with the proportion of WCTU members and found no significant impact.

(Gusfield, 1986; Mezvinsky, 1959), and “most Irish immigrants and a large percentage of German immigrants were Catholic” (Miller, 1995: 19). To address possible social class effects, we controlled for state taxable wealth, which includes all taxable individual and organizational property and assets. We also controlled for the number of manufacturing establishments per state. Temperance women considered manufacturing firms to be a key contributor to alcohol consumption because they paid employee wages on Saturdays and created strenuous and dangerous work environments (WCTU *Minutes*, 1874). We also controlled for state population. We obtained data on population, immigrants, state wealth, and manufacturing firms from the U.S. decennial censuses (1870–1920) and assumed a constant yearly compound growth rate over each decade to make annual estimates. Because not all of the states in our analysis were formed as states at the start of the analysis, we included a dummy variable to distinguish between states and territories in supplementary analyses. The territory dummy variable was not significant, nor did it change the models’ results.

We also controlled for the effects of suffrage laws by including a dummy variable coded 1 in states passing such laws. The temperance movement was closely affiliated with the suffrage movement (McCammon and Campbell, 2002), and women who were able to convince male voters to enact suffrage laws in a state may have also had enough support and power to close brewery doors. Information on state suffrage laws came from the National American Woman Suffrage Association (1940).

In addition, we included state-level brewery density measures in the analysis of brewery failures as well as the change in brewery density in the analysis of the soft drink foundings to control for beer demand. Correspondingly, the analysis of soft drink foundings included density measures for soft drink producers. Following previous work (e.g., Wade, Swaminathan, and Saxon, 1998), we included measures of industry and organizational age as well. We modeled brewery industry age as the time since the first brewery was founded in the American colonies in 1633, and soft drink industry age was modeled as the time from when the first “soft drink” (as opposed to effervescent) producer was founded in the United States in 1876. We modeled brewery organizational age as the time from when an individual brewery was founded. These variables control for other changes that may have occurred linearly with the passage of time.

Finally, we controlled for the enactment of the Pure Food and Drug Act of 1906 by including a dummy variable, coded 0 before this time period, and 1 thereafter. This act forbade interstate and foreign commerce of adulterated and misbranded food and drugs and, prior to 1906, many soft drink producers were still claiming medicinal benefits for their products, some lacing their products with unproven and untested chemicals. Thus the act’s passage could be expected to have a negative impact on soft drink producers. Descriptive statistics and bivariate correlations are provided in table 1.

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Table 1

Bivariate Correlations and Variable Summary											
Variable	Mean	S. D.	1	2	3	4	5	6	7	8	9
1. State population	3174956	2371451									
2. German and Irish immigrants	288564	266536	.744								
3. Number of manufacturing establishments	17738	18007	.639	.855							
4. State taxable wealth	4920000000	5260000000	.888	.521	.368						
5. State suffrage	0.061	0.239	.023	-.130	-.117	.290					
6. Pure Food and Drug Act	0.234	0.423	.276	-.136	-.339	.513	.358				
7. AMA membership	867.161	1042.825	.837	.395	.279	.950	.238	.552			
8. Prohibition percentage of surrounding states	0.235	0.236	.118	-.098	-.148	.293	.405	.541	.268		
9. Soft drink producer density	49.485	68.923	.209	.020	-.110	.313	.117	.386	.372	.273	
10. Brewery density	143.578	104.372	.555	.741	.698	.290	-.224	-.258	.150	-.138	.078
11. Soft drink industry age	17.226	13.673	.336	-.111	-.170	.549	.369	.789	.672	.432	.430
12. Brewery industry age	259.863	14.170	.335	-.108	-.164	.544	.362	.776	.667	.416	.426
13. Brewery organizational age	18.628	13.487	.290	-.004	-.062	.417	.188	.530	.507	.240	.350
14. Brewery failures	5.720	9.169	.234	.258	.278	.167	-.007	-.089	.074	.036	.041
15. Soft drink foundings	5.908	17.117	.151	.032	.021	.210	.088	.152	.225	.213	.622
16. WCTU proportion	0.195	0.372	.330	.014	.008	.449	.179	.491	.568	.227	.238
17. Scientific temperance instruction	1.290	1.401	.436	.046	.046	.574	.273	.582	.679	.288	.082
18. Prohibition percentage (focal state)	0.163	0.334	-.047	-.251	-.191	.081	.287	.285	.050	.338	.028
Variable	10	11	12	13	14	15	16	17			
11. Soft drink industry age	-.350										
12. Brewery industry age	-.341	.997									
13. Brewery organizational age	-.192	.698	.701								
14. Brewery failures	.490	-.156	-.149	-.115							
15. Soft drink foundings	.042	.171	.170	.106	.138						
16. WCTU proportion	-.206	.722	.725	.536	-.090	.118					
17. Scientific temperance instruction	-.224	.800	.796	.525	-.117	.074	.658				
18. Prohibition percentage (focal state)	-.261	.176	.166	.080	.028	.134	.070	.096			

Analysis

In the analysis of failures, our unit of analysis is the individual brewery. To assess the effects of the predictor variables on rates of failure, we used piecewise exponential hazards models. These models do not require strong parametric

assumptions of a constant failure rate over the entire study's span but, instead, allow the hazard rate to change at multiple intervals, allowing for greater flexibility (Blossfeld and Rohwer, 1995). The model has the following general form:

$$r(t) = \exp(\alpha_i + \beta\alpha)$$

where α_i is a constant coefficient associated with the i th time interval, β is a row vector of covariates, and α is an associated vector of coefficients. We estimated our piecewise failure model with period effects in five-year intervals. In determining the time periods, it is important to choose time segments that are short enough to capture changes in the baseline hazard rate but long enough to capture enough failure events (Blossfeld, Golsch, and Rohwer, 2007). We chose five-year time periods because we felt they were best for approximating changes in the baseline rate as well as avoiding estimation problems that may occur from too few ending episodes within the time period. The piecewise exponential model generates a period-specific constant (a γ -intercept) for each designated time piece of the model. We used maximum likelihood estimation and the Huber-White-sandwich estimator of variance, which clusters observations on organizations, to produce robust standard errors.

In the analysis of foundings, the dependent variable is the number of soft drink producer foundings in a state in a given year. Because the dependent variable is a count measure, and because tests indicated that our measure was characterized by overdispersion (making the use of a Poisson model inappropriate), we used a fixed-effects negative binomial model, which addresses the problem of unobserved heterogeneity as well as overdispersion (Hausman, Hall, and Griliches, 1984). The model we estimated with the *xtnbreg* command in Stata has the following form:

$$\lambda_{ij}(\theta_i) = \exp(x_{ij}\beta) \theta_i$$

where λ_{ij} is the predicted foundings in state i in year j , x_{ij} is the vector of independent variables and coefficients for state i and year j , and θ_i is a constant dispersion parameter within the group.

Some of our variables, such as brewery density and brewery density squared, were highly correlated, and such multicollinearity inflates standard errors and makes regression coefficients unstable. To address this, we used the Gram-Schmidt procedure for orthogonalizing highly correlated variables (Cohen and Cohen, 1983; Saville and Wood, 1991), which partials out the common variance and creates transformed variables that are uncorrelated with each other. Using the *orthog* command in Stata, we generated orthogonalized measures for the highly correlated interaction variables of WCTU proportion and prohibition percentage in surrounding states, and WCTU proportion and AMA membership. We also generated an orthogonalized variable of brewery density to reduce correlation with brewery density squared and an orthogonalized variable of soft drink density

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squared to reduce correlation with soft drink density. We then tested for multicollinearity and found that all variance-inflation factors in the survival analysis were less than 8.35 and that the majority were less than 3.36, while in the negative binomial analysis, variance-inflation factors were less than 8.52, and the majority were less than 3.56, indicating an acceptable level of multicollinearity (Afifi, Clark, and May, 2004).

RESULTS

The results of the hazard models predicting brewery failure are provided in table 2. The first model contains only the control variables; the second adds the proportion of WCTU members in a state; the third model includes the STI measure with the control variables; the fourth model contains the measure of prohibition laws in a state with the control variables, and the fifth model includes all of the tactic measures with the controls. Models 6 and 7 include, respectively, all measures plus the interaction term for WCTU proportion and prohibition percentage of surrounding states, and all measures plus the interaction between WCTU proportion and AMA membership. Model 8 includes all the variables plus the interaction terms.

Across models, several control variables had a significant effect on breweries' survival. The rate of brewery failure was lower in states with more manufacturing establishments and greater taxable wealth, suggesting that demand for alcohol was more resilient in more industrialized and wealthier areas, all else being equal. The rate was also lower in states in which a large percentage of surrounding counties and states had enacted prohibitory laws, consistent with previous research positing positive spillover effects of freed-up resources and lessened competitive pressure (Wade, Swaminathan, and Saxon, 1998). Although this is inconsistent with our speculations on the normative influences of adjoining state legislation, it is possible that such legislation had both resource spillover and normative effects on breweries in a focal state, the former enhancing survival but the latter weakening it. If the resource spillover effects are stronger, the overall effect on breweries would be positive, as these results suggest. This interpretation is consistent with the interactive effects of this variable, as discussed below. Our indicator of progressive state environments, the presence of state suffrage laws, is associated with increased brewery failure. In accordance with density-dependence arguments, increases in brewery density decreased failure up to a point, after which increasing density increased failure rates. Organizational age also decreased the hazard rate.

Turning to our main interest, the effects of the measures of WCTU tactics, the positive coefficients for the measure of proportion of WCTU members provide support for hypothesis 1a: increases in the proportion of WCTU members in a state significantly increased the failure rate for breweries. In models 6 and 7, both the interaction between the proportion of WCTU members in a state and the percentage of surrounding states with prohibition laws, and that between

Table 2

Hazard Rate Models of Individual Brewery Failures, 1870–1920*

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
1870–1875†	-51.753 (2.959)	-51.706 (2.959)	-50.702 (2.973)	-51.126 (2.962)	-50.136 (2.974)	-49.694 (2.979)	-49.418 (3.001)	-49.4021 (3.000)
1876–1880	-53.098 (3.021)	-53.051 (3.020)	-52.034 (3.034)	-52.429 (3.024)	-51.429 (3.036)	-50.988 (3.040)	-50.689 (3.063)	-50.6783 (3.063)
1881–1885	-53.516 (3.078)	-53.473 (3.077)	-52.436 (3.092)	-52.812 (3.081)	-51.802 (3.093)	-51.355 (3.098)	-51.047 (3.122)	-51.0378 (3.121)
1886–1890	-54.767 (3.142)	-54.738 (3.141)	-53.752 (3.155)	-54.019 (3.144)	-53.083 (3.156)	-52.642 (3.160)	-52.350 (3.183)	-52.338 (3.183)
1891–1895	-55.734 (3.214)	-55.716 (3.213)	-54.770 (3.225)	-54.936 (3.217)	-54.058 (3.226)	-53.603 (3.230)	-53.310 (3.253)	-53.2959 (3.253)
1896–1900	-56.921 (3.268)	-56.896 (3.267)	-55.983 (3.278)	-56.081 (3.271)	-55.223 (3.280)	-54.750 (3.284)	-54.451 (3.308)	-54.4351 (3.307)
1901–1905	-57.763 (3.328)	-57.731 (3.327)	-56.858 (3.337)	-56.929 (3.332)	-56.094 (3.340)	-55.611 (3.345)	-55.303 (3.369)	-55.2866 (3.369)
1906–1910	-58.696 (3.386)	-58.667 (3.385)	-57.813 (3.395)	-57.917 (3.390)	-57.104 (3.398)	-56.626 (3.403)	-56.316 (3.427)	-56.3019 (3.426)
1911–1915	-59.440 (3.442)	-59.416 (3.441)	-58.524 (3.451)	-58.680 (3.445)	-57.839 (3.452)	-57.379 (3.456)	-57.063 (3.479)	-57.0532 (3.479)
1916–1920	-59.773 (3.491)	-59.754 (3.490)	-58.787 (3.502)	-59.069 (3.495)	-58.164 (3.504)	-57.726 (3.507)	-57.396 (3.531)	-57.3935 (3.531)
State population/ 1,000,000	0.002 (0.003)	0.002 (0.003)	0.003 (0.003)	0.000 (0.003)	0.002 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
German and Irish immigrants/ 1,000,000	-0.225 (0.179)	-0.231 (0.179)	-0.100 (0.181)	-0.065 (0.181)	0.037 (0.183)	0.077 (0.185)	0.074 (0.185)	0.083 (0.185)
Number of manufacturing establishments/ 10,000	-0.054* (0.032)	-0.053* (0.032)	-0.086*** (0.033)	-0.075** (0.032)	-0.102*** (0.033)	-0.104*** (0.033)	-0.104*** (0.033)	-0.104*** (0.033)
State taxable wealth	-2.649* (1.363)	-2.699** (1.364)	-4.097*** (1.430)	-1.797 (1.361)	-3.203** (1.429)	-2.994** (1.448)	-3.373** (1.446)	-3.244** (1.452)
State suffrage	0.313*** (0.085)	0.313*** (0.084)	0.321*** (0.085)	0.283*** (0.085)	0.294*** (0.085)	0.293*** (0.085)	0.305*** (0.085)	0.302*** (0.084)
AMA membership by state (log)	0.010 (0.022)	0.011 (0.022)	0.020 (0.022)	-0.005 (0.022)	0.006 (0.023)	0.008 (0.023)	0.028 (0.025)	0.023 (0.026)
Prohibition laws in adjoining states	-0.375*** (0.108)	-0.365*** (0.108)	-0.417*** (0.108)	-0.360*** (0.108)	-0.390*** (0.108)	-0.320*** (0.119)	-0.374*** (0.109)	-0.349*** (0.121)
Brewery density	-0.098*** (0.020)	-0.099*** (0.020)	-0.083*** (0.020)	-0.104*** (0.020)	-0.091*** (0.020)	-0.094*** (0.020)	-0.101*** (0.020)	-0.100*** (0.021)
Brewery density squared	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Industry age	0.205*** (0.012)	0.204*** (0.012)	0.200*** (0.012)	0.202*** (0.012)	0.198*** (0.012)	0.196*** (0.012)	0.194*** (0.013)	0.194*** (0.013)
Organizational age	-0.032*** (0.002)	-0.032*** (0.002)	-0.031*** (0.002)	-0.033*** (0.002)	-0.032*** (0.002)	-0.032*** (0.002)	-0.032*** (0.002)	-0.032*** (0.002)
WCTU member proportion × 1000		0.071*** (0.027)			0.064** (0.028)	0.096*** (0.040)	0.098*** (0.035)	0.104*** (0.038)

(continued)

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Table 2 (continued)

Hazard Rate Models of Individual Brewery Failures, 1870–1920*								
Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Scientific temperance instruction			0.111*** (0.027)		0.102*** (0.027)	0.096*** (0.027)	0.095*** (0.027)	0.095*** (0.027)
State prohibition				0.294*** (0.055)	0.283*** (0.055)	0.280*** (0.055)	0.297*** (0.055)	0.293*** (0.056)
WCTU member proportion × Prohibition laws in adjoining states						0.038* (0.022)		0.053* (0.030)
WCTU member proportion × AMA membership							0.045** (0.022)	0.061** (0.030)
Wald chi squared	36266.18***	36267.75***	36221.11***	36456.75***	36383.81***	36490.25***	36413.49***	36493.53***

* $p < .10$; ** $p < .05$; *** $p < .01$.

* Standard errors are in parentheses.

† Estimates of significance are not shown for the time-period dummies because those coefficients are not tested for significance.

the proportion of WCTU members and the number of AMA members are significant and positive, indicating that the normative power of the WCTU was further enhanced under these conditions, consistent with hypotheses 1b and 1c. Using a standard conversion formula— $\text{Exp}(\text{S.D. coefficient})$ —and the coefficient from model 5, we estimate that an increase of one standard deviation in the proportion of WCTU members in a state increased the likelihood of brewery failure by 3.9 percent. Similarly, a one standard deviation increase in the log of AMA membership interacting with the effect of WCTU membership increased the likelihood of failure by 6.3 percent. And as surrounding states increased their adoption of prohibition laws, the normative effect of WCTU membership proportion also grew; a one standard deviation increase in surrounding states' adoption of prohibition laws strengthened the normative effect of the WCTU on brewery failures by 5.4 percent.

Hypothesis 2 predicted that scientific temperance instruction would also increase the rate of brewery failures; in line with this, the coefficient for this measure is significant and positive across models. Using the coefficient from model 5, we estimate that a one standard deviation increase in the length of time that STI was mandated increased the probability of brewery failure by 14.2 percent.

Similarly, hypothesis 3, predicting that having a greater number of counties with prohibition laws would increase brewery failures in a state, receives strong support across the models. Based on the coefficient in model 5, a one standard deviation increase in the proportion of counties with prohibition laws in a state augmented brewery failures by

10.3 percent. Despite the relatively high correlation between the proportion of WCTU members in a state and the time of STI implementation ($r = .66$), all three tactic measures have significant independent effects. Given the standard deviation increase calculations, it appears that STI and WCTU membership had the strongest direct net effect on brewery failures.⁵

Table 3 shows the results from the negative binomial regressions predicting the foundings of soft drink producers. The first model contains only control variables, models 2–5 each add separate measures of WCTU effects, and the final model contains all variables. As in the preceding analysis, there are a few notable effects of the control variables. States with full suffrage rights and those that were surrounded by other states with prohibition laws experienced more soft drink producer foundings, while states with larger populations, larger numbers of Irish and German immigrants, and more AMA members had fewer soft drink foundings. Given that the AMA was extremely antagonistic toward “patent medicines,” many of which were marketed as or eventually became known as soft drinks (see AMA, 1920: 8), the negative effect of this measure on soft drink foundings is not surprising. Generally, increases in the density of soft drink firms increased foundings, though the negative quadratic term suggests that at some point, competitive pressures began to take their toll on foundings; this is consistent with standard ecological arguments. The passage of the Pure Food and Drug Act had a strong negative impact on foundings. This is also unsurprising, because ingredients used by many soft drink experimenters were banned with the passage of this law.

Net of these influences, two of the three measures of WCTU influence—the length of STI in a state and the proportion of counties with prohibition laws—had significant, positive effects on the rates of foundings. In line with hypothesis 5, the longer a state had had STI in its educational curriculum, the greater the number of foundings. Similarly, as posited by hypothesis 6, states with a greater proportion of counties with prohibition laws were likely to have significantly more foundings. A one standard deviation increase in the proportion of prohibition laws in a state amplified soft drink foundings by 12.6 percent. Likewise, as posited in hypothesis 5, an increase of one standard deviation in the length of STI implementation augmented the founding rate by 12.3 percent. In combination, these results support the general argument that the potential market for alcohol substitutes created both by persuading individuals of the evils of drinking and by regulation helped inspire entrepreneurs to found soft drink companies. And in line with hypothesis 7, brewery failures also had a significant impact on the founding rate of soft drink bottlers. Our data suggest that a one standard deviation increase in brewery failure raised soft drink foundings by 14.7 percent.

Contrary to expectations, the proportion of WCTU members did not have a significant impact on soft drink foundings in a state. Hence, the direct effect of the WCTU on soft drink foundings was negligible. Nevertheless, by causing breweries to fail and by creating a demand for substitutes for alcoholic

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These strategies are apt to be causally related (e.g., the size of the WCTU's membership at early time points may have affected the timing of adoption of scientific temperance instruction as well as the passage of prohibition legislation). We did not assess these relationships here because our main concern was with understanding how the different strategies affected both the intended and unintended outcomes—the demise of breweries and the creation of soft drink firms—rather than the interrelations among the strategies per se.

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Table 3

Negative Binomial Regression Models of State-level Soft Drink Foundings, 1870–1920*						
Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
State population (log)	-0.464*** (0.127)	-0.445*** (0.127)	-0.476*** (0.130)	-0.535*** (0.134)	-0.509*** (0.126)	-0.553*** (0.136)
German and Irish immigrants (counts)/ 1,000,000	-2.355*** (0.513)	-2.636*** (0.520)	-2.254*** (0.520)	-2.231*** (0.515)	-2.136*** (0.512)	-2.286*** (0.526)
Number of manufacturing establishments/ 10,000	-0.019 (0.048)	-0.036 (0.048)	-0.019 (0.048)	0.001 (0.048)	-0.041 (0.047)	-0.032 (0.048)
State taxable wealth	-0.019* (0.010)	-0.012 (0.010)	-0.018* (0.010)	-0.022** (0.010)	-0.013 (0.009)	-0.010 (0.010)
State suffrage	0.692*** (0.091)	0.668*** (0.092)	0.696*** (0.092)	0.689*** (0.091)	0.638*** (0.092)	0.619*** (0.093)
Pure Food and Drug Act	-0.560*** (0.052)	-0.569*** (0.052)	-0.559*** (0.052)	-0.565*** (0.052)	-0.594*** (0.052)	-0.611*** (0.053)
AMA membership by state (log)	-0.355*** (0.069)	-0.340*** (0.070)	-0.381*** (0.073)	-0.364*** (0.070)	-0.332*** (0.069)	-0.360*** (0.074)
Prohibition laws in adjoining states	0.433*** (0.119)	0.430*** (0.119)	0.389*** (0.119)	0.395*** (0.119)	0.242* (0.127)	0.177 (0.127)
Change in brewery density	0.000 (0.001)	-0.001 (0.001)	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	-0.000 (0.001)
Soft drink density (log)	1.737*** (0.042)	1.719*** (0.043)	1.740*** (0.043)	1.762*** (0.043)	1.727*** (0.043)	1.734*** (0.044)
Soft drink density squared (log)	-0.016* (0.008)	-0.016* (0.008)	-0.016** (0.008)	-0.016* (0.008)	-0.018** (0.008)	-0.018** (0.008)
Industry age (log)	0.128* (0.072)	0.121* (0.073)	0.213*** (0.076)	0.092 (0.073)	0.113 (0.071)	0.148* (0.078)
Brewery failure		0.013*** (0.003)				0.015*** (0.004)
WCTU member proportion × 1000			-0.154 (0.206)			-0.015 (0.211)
Scientific temperance instruction				0.091*** (0.035)		0.089** (0.038)
State prohibition					0.377*** (0.092)	0.354*** (0.093)
Constant	3.986** (1.603)	3.704** (1.600)	4.082** (1.643)	4.909*** (1.698)	4.570*** (1.599)	5.082*** (1.724)
Wald chi squared	2002.04***	2098.32***	2022.47***	2010.35***	2012.40***	2123.97***

* $p < .10$; ** $p < .05$; *** $p < .01$.

* Standard errors are in parentheses.

beverages, WCTU members' tactics inadvertently and indirectly fostered soft drink foundings. We also searched for effects of soft drink foundings on brewery failures but did not find any. This suggests that soft drink firms simply moved into the void created by lessened alcohol use and its outright ban. Thus the direct influence of soft drink firms on the brewery industry was insignificant compared with that of the WCTU.

DISCUSSION

In this paper, we examined both the intended and unintended consequences of social movement tactics for organizations.

By attacking the normative, regulative, and cognitive basis of the brewery industry, the WCTU intentionally instigated its demise. The decline of the industry, in conjunction with changing norms and attitudes cultivated by the WCTU, produced an additional outcome that was *not* intended, the creation of new entrepreneurial opportunities, resulting in the emergence and growth of the soft drink industry. The demand for alternatives to alcohol created by the WCTU's activities led entrepreneurs with varying motivations to exploit this opportunity. Interestingly, our analyses indicate that the WCTU's cognitive and normative efforts to delegitimize breweries were most fruitful in causing brewery failures, suggesting that such tactics can be very effective for social movement organizations.

This paper makes several key theoretical contributions. First, few empirical studies have analyzed the mechanisms by which social movement organizations both directly and indirectly affect rates of organizational failure and formation. A number of recent studies have investigated how general cultural shifts produced by social movements can affect the growth or decline of specific organizational forms (Carroll and Swaminathan, 2000; Ingram and Rao, 2004; Ruef, 2004; Haveman, Rao, and Parachuri, 2007; Schneiberg, King, and Smith, 2008), but none have compared the effects of different tactics that movements use in bringing about these shifts. In this analysis, we investigated three tactics that social movement organizations can use to change different dimensions of institutional environments—promoting behavioral norms, educating the populace, and lobbying for regulation—and their effects on rates of organizational failures and foundings. Unlike some work at the intersection of social movement and organizational theory, our study treats movement mobilization not simply as a function of opportunity structures or industry characteristics (Carroll and Swaminathan, 2000; Soule and Olzak, 2004; Meyer and Minkoff, 2004), but as an independent force for institutional change. Thus social movement organizations not only respond to political and economic opportunities, they can also create them.

Our analysis considers the effectiveness of different types of tactics in a particular industry at a particular point in time; it does not address how the effectiveness of social movement organizations might be moderated by characteristics of the targets (e.g., industries or organizations) of social movement activity. For example, in the late 1880s, the brewery industry was composed of thousands of small, independent businesses. This fragmentation of the industry may account for its lack of success in refuting the WCTU's attacks. In contrast, multiple attacks by anti-smoking advocates such as the American Cancer Society on the tobacco industry—a consolidated industry with a few very large players—have had limited success in recent decades. Research that probes the moderating effects of industry structure on the ability of social movements to instigate change is needed.

Second, our study contributes to the institutional and entrepreneurship literatures by examining the role of changes

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in culture, values, and norms in generating new markets and creating entrepreneurial opportunities. Traditionally, the entrepreneurship literature has focused on the effects of exogenous technological innovation "shocks" in producing new markets, thus generating entrepreneurial activity (Schumpeter, 1934; Tushman and Anderson, 1986; Garud and Kumaraswamy, 1995; Sine and David, 2003; Lavie, 2006), and has largely ignored disruptive social shocks instigated by social movement organizations as a source of entrepreneurial opportunities. By focusing on the efforts of social movement organizations to delegitimize certain practices, policies, and forms of organization, and on the effects of such efforts on the creation of new entrepreneurial opportunities (David, Sine, and Haveman, 2009), this research suggests new potential lines of research on how such opportunities can be created. Emphasizing the cultural change resulting from the delegitimation of existing institutions as a source of entrepreneurial opportunities draws attention to an important, albeit understudied force that can shape the emergence and growth of new industries.

Future research can build on these findings by examining other sources of institutional change that destabilize existing organizations and result in entrepreneurial opportunities. For example, the spread of evangelical Protestantism or radical Islam may alter normative environments in ways that adversely affect standard financial institutions and foster the proliferation of Christian investment funds and Islamic banks. Changing social cognitions about the level and effects of contaminants in water from household taps, generated partly by claims and concerns of environmental movement organizations, can adversely affect the market for some firms, such as manufacturers of traditional water-coolers, and create opportunities for new firms, such as producers of allegedly pure bottled water. Consideration of such influences can significantly expand entrepreneurship research, which has conventionally focused on how individual entrepreneurs seize existing opportunities, neglecting the effects of institutional entrepreneurs that disrupt the environment of existing organizations and simultaneously create new avenues for entrepreneurial activity (Eckhardt and Shane, 2003).

A third contribution lies in our investigation of the unintended consequences of social movement activity for broad-based shifts in organizational populations (Giugni, 1999; Haveman, Rao, and Parachuri, 2007; Van Dyke, Soule, and Taylor, 2004). Most studies examining the outcome of social movements have focused on legislative and policy changes (e.g., Amenta and Caren, 2004; Soule and King, 2006; Johnson, 2008), while the organizational mechanisms and changes entailed in implementing legislation and policy have been largely ignored. The few studies that have focused on movements' effects on organizations have been concerned primarily with intended changes such as the growth of the grass-fed beef market, the creation of insurance cooperatives, and the formation and survival of alternative energy producers (e.g., Weber, Heinze,

and DeSoucey, 2008; Schneiberg, King, and Smith, 2008; Sine and Lee, 2009). By examining the broader cultural and institutional changes instigated by movements, we highlight how social movements can produce organizational outcomes that were not anticipated or intended.

The results from this study suggest that the consequences of social movements or social movement-like organizations are often so expansive that the movement's members and observers cannot foresee their possible adverse effects. Though it has long been recognized that social movement organizations themselves may be unintentionally transformed as a result of their success (Michels, 1962; Tolbert and Hiatt, 2009), little attention has been given to the idea that the achievement of social movement organizations' goals may produce results not at all intended by members. The WCTU actively lobbied and promoted values that eventually led to, among other things, universal suffrage, child labor laws, and reductions in alcoholism (Miron and Zwiebel, 1991; Dills, 2004). Yet our study suggests that in its efforts to do away with the "societal evils" of alcohol, the WCTU ironically and inadvertently fostered the emergence of soft drinks, which, as a result of successful and sophisticated marketing tactics, are now widely consumed by children and have become a key contribution to obesity, another problem affecting children around the world some seventy years later (Schulze et al., 2004). This is an adverse consequence that neither Frances Willard nor any contemporary WCTU figure would have wanted or imagined.

Although social movements have a variety of both intended and unintended effects on organizational populations and entrepreneurial opportunities, the longevity and evolving nature of these effects remains largely unexplored. In the case of breweries, the industry rebounded with vigor after the repeal of Prohibition. Both the inoculating effect of failed regulation and the subsequent centralization of power within the industry make it unlikely that a contemporary social movement organization, such as Mothers Against Drunk Driving (MADD), could ever seriously affect these organizations as the WCTU did. But in other sectors, such as alternative energy, the impacts of environmental groups on the incumbent industry seem to be more long-lived, perhaps because of efforts by environmental groups to provide and advocate specific solutions that both new ventures and incumbent utilities could adopt. Important remaining questions are why some institutional changes are more durable than others, how social movement organizations affect the persistence and growth of new industries, and whether unintended consequences are more likely when social movements fail to offer and promote solutions to the problems they attack. Answers to these questions are critical to understanding both the long-term intended consequences and the unintended consequences of social movements on organizations and society.

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