Social Movements and Organizational Form: Cooperative Alternatives to Corporations in the American Insurance, Dairy, and Grain Industries

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How do social movements promote diversity and alternative organizational forms? We address this question by analyzing how cooperative enterprise was affected by the Grange—a leading anticorporate movement in the United States during the late nineteenth and early twentieth centuries. State-level analyses across three industries yield three findings. First, the Grange had positive effects on cooperatives and mutuals during the nineteenth-century populist struggles over corporate capitalism. Second, these effects were stronger where corporations counter-mobilized to block challengers' political efforts. Grangers pursued economic organization as an alternative to politics and in response to blocked political access. Third, the Grange continued to foster cooperatives even as populist revolts waned. It did so, however, by buffering cooperatives from problems of group heterogeneity and population change, rendering them less dependent on supportive communities and specific economic conditions. These findings advance research at the movements/organizations interface by documenting movement effects and by isolating different causal pathways through which mobilization, counter-mobilization, and political opportunity shape economic organization. The results also provide economic sociology with new evidence on how social structure moderates economic forces, and help revise institutional analyses of American capitalism by showing how cooperatives emerged as significant, rather than aberrant, elements of the U.S. economy.

How, and to what extent, do social movements promote institutional diversity and alternative organizational forms? Scholars have recently addressed this question by combining movement and organizations research (Clemens 1997; Davis and Thompson 1994; Davis et al. 2005; Fligstein 2001; Haveman, Rao, and Paruchuri 2007; Lounsbury, Ventresca, and Hirsch 2003; Minkoff 1994; Rao 1998; Schneiberg 2002; Soule forthcoming). This

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"new organizational synthesis" goes beyond studying movements as movement organizations, aiming instead to trace how movements shape organizations and fields, and vice versa. From an organizational theory perspective, this integration has great promise. Bringing movements (back) in reintroduces agency and politics into institutional analysis, shifting the explanatory focus from isomorphism and diffusion to contestation and the production of multiple logics within fields. Furthermore, by foregrounding contention and collective action, this synthesis affords new leverage for explaining organizational outcomes, such as institutionalization and deinstitutionalization, the rise of new forms, the construction of industries, and structural change (Schneiberg and Lounsbury 2008).

Yet in seeking integration, scholars have barely begun to catalog or systematically assess the effects of movements on organizations (Guigni 1998). This partly has to do with analytical strategy. One branch of the new synthesis is less interested in distinguishing phenomena and analyzing how movements affect organizations. Rather, it exploits convergences between the two, treating organizations and their processes *as if* they were social movements, and uses theories that explain movements—resource mobilization, framing, and political opportunity—to explain organizational outcomes (Campbell 2005; Davis and Zald 2005; Strang and Jung 2005; Swaminathan and Wade 2001). Moreover, research addressing movement effects on organizations is often theoretical (McAdam and Scott 2005; Rao, Morrill, and Zald 2000) or relies on qualitative studies of one or a few cases (Armstrong 2002; Clemens 1997; Lounsbury et al. 2003; Moore and Hala 2002; Rao 1998). Despite a growing body of quantitative organizational analyses that invoke movement effects (Carroll and Swaminathan 2000; Greve, Pozner, and Rao 2006; Ingram and Simons 2000; McLaughlin 1996; Ruef 2000), few studies measure movements' presence, activity, or membership (Lounsbury 2001; Rojas 2006; Schneiberg 2002; Soule forthcoming). Quantitative analyses of policy directly measure movement strength (e.g., Amenta, Carruthers, and Zylan 1992; Soule and Olzak 2004), but organizational analyses often rely on indirect proxies, measuring movement correlates or enabling conditions.

We thus have little systematic, multivariate, information about basic casual relationships, including whether movements affect organizations *directly,* by pressuring organizations, serving as carriers of new forms, or organizing challengers; *indirectly,* by creating political and institutional climates favorable to challengers or new forms; or *conditionally,* depending on the political or institutional context. Nor is there much, if any, research on how movements shape the context for organizations, acting as a *moderating influence* for the effects of economic and political factors on organizational outcomes.

We address these gaps by analyzing movement effects on three organizational forms in the late-nineteenth- and twentieth-century U.S. economy—insurance mutuals, dairy cooperatives, and grain elevator cooperatives. By pursuing this study historically, we tap into broad political struggles over U.S. economic order and see how cooperatives emerged from movements of agrarians and independent producers who opposed corporate consolidation. Institutional histories emphasize the rise of the corporation as American capitalism's central organizational tendency during this era. Yet groups like the Grange and the Farmers' Alliance repeatedly mobilized cooperatives in an effort to institute decentralized and regionally based alternatives to corporate capitalism. By pursuing a multivariate approach, we isolate movement effects on organizations and address different possible causal pathways. This is, to date, the first analysis of movement effects on organizational forms that measures movements directly and controls for economic, political, and community factors that shape the collective-action costs of creating new forms. It is also the first that addresses how movements can alter the micro-economics of organization by helping cooperators solve coordination problems and manage organizing costs associated with group diversity, mobility, and community instability. Well developed movements, we suggest, helped produce social ties and sustain cooperative forms as the United States shifted from a society of stable communities, local networks, and self-governing towns to a more diverse and impersonal society of geographically mobile strangers.

COOPERATIVES, CORPORATE CAPITALISM, AND SOCIAL MOVEMENTS

COOPERATIVES, MUTUALS, AND CORPORATE CAPITALISM

Cooperatives and mutuals are membership-based, mutual benefit associations of consumers or producers that differ in kind from for-profit corporations. Unlike corporations, cooperative forms unite the roles of owners with consumers or producers. They eliminate the independent, profit-seeking stockholder by assigning property rights in the firm to consumers or producers. Consumer- or producer-owners become the residual claimants and ultimate decision-making authorities in the firm. In effect, cooperatives replace market relations between a corporation and its consumers or producers with relations of ownership, control, and collective self-provision. They are typically organized by consumers or producers, operated by or for these groups, and return profits to members via dividends, improved compensation, and expanded or lower-cost service (Hansmann 1995; Heflebower 1980; Ware 1989). Due to these structural properties, movements have mobilized cooperatives against bureaucracies, markets, and corporations to promote community, economic self-sufficiency, local ownership, regional development, and workplace democracy (Beito 2000; Furlough and Strikwerda 1999; Haveman and Rao 1997; Ingram and Simons 2000; Rothschild-Whitt 1979; Schneiberg 2002; Whyte and Whyte 1991).

Cooperatives vary in their types and structural particulars (Aldrich and Stern 1983; Hansmann 1995; Shirom 1972; Staber 1989).[1] *Worker cooperatives* eliminate distinctions between labor and capital, but they were rare in the United States before 1960. *Mutuals and consumer cooperatives,* common in the United States, represent backward collective-vertical integration by consumers (Sichel 1966). They are strategies of collective self-supply in which consumers bypass middlemen, obtain otherwise unavailable goods, or opt out of market or state provision. *Producer cooperatives* also eliminate middlemen, but via strategies of forward collective-vertical integration in which producers seek outlets and better prices by bargaining collectively with buyers or by jointly marketing or processing their produce.

Research typically links cooperatives to idiosyncratic conditions in specific industries, such as market failure, information costs, or unemployment, or to peculiar circumstances, arguing that cooperatives appear only where stable communities or common cultures prevail (Ben-Ner 1984; Hansmann 1995; Johnson and Whyte 1977; Rao and Neilsen 1992; Rothschild and Whitt 1986; Staber 1993; Whyte and Whyte 1991). Prior work also stresses how cooperatives face hostile environments, in part because corporate interests mobilize to suppress competing alternatives, denying them credit or supplies, discrediting them in the media, and using regulations to handicap their organization (Elster 1988; Ingram and Simons 2000; Putterman 1982; Schneiberg 2002).

Indeed, analyses of U.S. capitalism often treat cooperatives and kindred forms as transitory or aberrant phenomena, focusing instead on the rise of the corporation as the U.S. economy's central organizing tendency (Berk 1994; Chandler 1977; Dobbin 1994; Fligstein 1990; Hollingsworth 1997; Perrow 2002; Roy 1997). As financial and state institutions concentrated capital and development in Northeastern urban centers after the Civil War, corporations shed their public character, gaining autonomy from the state and new charter powers, like the right to own other firms. States and municipalities abandoned public ownership. Modernizers and corporate forces mobilized institutional support, including general incorporation laws, the recognition of the corporation as a legal person, and financial machinery for underwriting mergers. They also pursued combination and consolidation, first in railroads and infrastructure sectors, then in the processing and marketing of agricultural produce, and finally in industry, institutionalizing the corporation as a general and dominant form in the U.S. economy.

Yet in subjecting whole regions of the country to predatory combinations, rate discrimina-

[1] Cooperatives and mutuals vary in terms of whether members have equal shares and votes, whether and how members can sell shares, how capital is paid in and profits allocated, whether non-owners can be members, how decisions are made, and the extent to which authority is delegated to professional managers.

tion, and credit famines, corporate consolidation also fueled political conflict, protests, populist revolts, mobilization, and counter-mobilization, including two anticorporate movements of agrarians and independent producers—the Grange, or Patrons of Husbandry, and the Farmers' Alliance (Buck 1913; Nordin 1974; Sanders 1999; Schwartz 1976). Centered in the Midwest, the Plains, and the South, both movements rejected "corporate liberal" ideals of national markets and corporations. Instead, they espoused producer or "regional republican" visions of decentralized development based on a "cooperative commonwealth" of farmers, independent producers, regional markets, and self-governing towns (Berk 1994; Goodwyn 1978; Hattam 1992; Schneiberg 2002; Voss 1996). Both articulated anti-monopoly frames that cast the heartland's woes in terms of "trusts," dependency, and tributes exacted by railroads, middlemen, and "Eastern interests." Both advocated producerist solutions that combined (1) political programs of antitrust laws, regulation, and finance reform with (2) economic self-organization via cooperatives, mutuals, and state exchanges.

During its first mid-1870s peak, the Grange won landmark victories with railroad regulation, setting precedents for later interventions. The Alliance, linked to the Populist party, peaked at a million members in 1890, and like the Grange, it sought antitrust laws to protect local industry. Both promoted cooperatives and public enterprise. The Grange fueled bursts of agricultural cooperatives in the 1870s, left Granges and mutuals scattered across the Midwest, and continued its work during its revival in the 1910s and 1920s, helping farmers to secure marketing federations and enabling legislation for cooperatives (Knapp 1969; Nordin 1974; Powell 1913; Saloutos and Hicks 1951). As an insurance historian notes, the Grange supported cooperatives in multiple ways:

> Profit seeking insurance companies were often linked with railroads in Granger demonology; it was explicit Granger policy to encourage the formation of cooperative mutuals. . . . These companies were often organized under the aegis of the Grange. . . . Granger bulletins published town mutual laws and advocated organization: "Patrons you cannot afford to pay these high premiums to joint stock companies. Insure yourselves and keep some money at home. Commercial companies wasted seven-tenths of the premiums: This immense sum is an annual gift from the hard work people to a set of sharpers who ridicule us for our stupidity while reveling in luxury on our hard earnings." (Kimball 1960:45)

The Alliance also supported cooperatives, leaving mutuals and elevators dotting the plains, as did the Farmers Union and Equity, which helped centralize creameries, grain pools, and regional exchanges after 1900 (Bell 1941; Filley 1929; Larson 1969). Here, too, movements against corporate capitalism made cooperative forms available across industries, institutionalizing them alongside corporations as a general organizing form.

Movements and Cooperative Forms: Hypotheses

These historical observations dovetail with core claims in organizational and economic sociology. Forms are neither chosen in a social vacuum nor simply a given in actors' organizing repertoires. Rather, they have to be assembled, theorized, disseminated, politically defended, legitimated, and made available as options for problem solving (Clemens 1997; Meyer et al. 1997; Rao 1998; Scott 1994). As research at the movements/organizations interface and studies of cooperatives would add, new forms rest critically on mobilization and social movements. Such work supports three hypotheses about movement effects on cooperatives. It also supports hypotheses that movements moderate economic forces, which makes cooperatives less dependent on specific economic conditions and sustains them as their community bases dissolve.

Direct and conditional effects. First, prior work suggests that anticorporate movements are "organization-generating organizations" (Stinchcombe 1965) that foster cooperatives in their efforts to establish alternative economic orders (Carroll and Swaminathan 2000; McAdam and Scott 2005; McLaughlin 1996; Rao et al. 2000; Rothschild and Whitt 1986; Russell and Hanneman 1995; Schneiberg 2002). In this view, movements have *direct positive effects* on cooperative forms. Movements can forge networks and coalitions for protests, lobbying efforts, and enacting laws, while providing new forms with regulatory support, legal infrastructure, and political cover. Such cover is

vital for cooperatives, as competition between forms often prompts counter-mobilization by vested corporate interests, suppression efforts, and political struggles over both the market and the range of acceptable forms (Ingram and Rao 2004; Schneiberg 2002).

Movements also operate as cultural forces and agents of theorization and framing (Snow and Benford 1988; Strang and Meyer 1994). Through pamphlets, speeches, and word of mouth, movements can spark debate and promulgate critiques, "field frames" (Lounsbury et al. 2003; Voss 1996), rhetorical discourses (Greve et al. 2006; Ruef 2000), and theories of order (Dobbin 1994; Hattam 1992) that call for, authorize, and legitimate cooperative forms. They can do this directly, or indirectly via newspapers committed to their point of view (Haveman et al. 2007; King and Haveman forthcoming). In either case, new frames provide challengers and cooperators with the means to fuel debate, subvert the taken-for-granted character of corporate capitalism, and argue for cooperatives as rational or efficient solutions.

Further, like professional associations, movements can codify, transpose, or diffuse organizing templates, providing cooperators with model by-laws, articles of organization, and technical support (Clemens 1997; Edelman 1992; Greenwood, Suddaby, and Hinings 2002; Russell and Hanneman 1995; Staber 1993). As organizations, movements can generate social capital or community foundations for cooperatives, which reduces collective-action costs by cultivating social ties, supplying selective incentives, constituting participants as already-organized collectivities, and producing members committed to the cause (Aldrich 1999; Rothschild and Whitt 1986; Schneiberg 2002; Stryjan 1994). Finally, movements can promote favorable environments or "cross form" effects (Minkoff 1994) for cooperatives by forming complementary institutions, related types of organizations, or communities of similar forms in parallel domains (Ruef 2000; Schneiberg 2007). Such organizations and communities can supply cooperatives with capital, favored trading relations, and managerial expertise, as well as networks and organized groups, vivid instantiations of alternatives, analogies, and cognitive or sociopolitical legitimacy (Barnett and Carroll 1987; Baum 1996; Ben-Ner 1984; Elster 1988; Ingram and Simons 2000; Rothschild and Whitt 1986; Whyte and Whyte 1991).

We thus expect that anticorporate movements will become more effective in fostering cooperatives as they grow in strength, scope, or organization.

Hypothesis 1: As anticorporate movements increase in membership, organization, or resources, the prevalence of cooperatives and mutuals will increase.

We also expect contemporary and historical effects. Even "defeated" movements can leave legacies like organizational systems, cooperative traditions, local chapters, newspapers, and other resources for cooperative organizing (Haveman et al. 2007; Schneiberg 2007).

Second, prior work suggests that movement effects depend on the political and institutional contexts in which groups mobilize. Opportunity structures (McAdam1996; Tarrow 1998), institutional mediation (Amenta et al. 1992), and dynamics of contention make polities more or less open to movement demands. Movements can more successfully translate strength in numbers or resources into desired policies in situations where elites are divided, elections are competitive, states rely on members for revenues, and bureaucratic governance has replaced patronage politics (Soule and King 2006; Soule and Olzak 2004; Vogus and Davis 2005). Moreover, movements often evoke counter-movements, which can blunt challengers' influence, close off opportunities, reverse initial successes, and prompt insurgents to change venues or strategies (Ingram and Rao 2004; Meyer and Staggenborg 1996; Voss 1996; Zald and Useem 1987).

In general, this work focuses on movements' conditional effects on policy outcomes, but we propose parallel arguments about movement effects on organizations. Anticorporate movements can pursue economic organization as an *alternative* to using the state against corporations, yielding *conditional positive effects* of movements for cooperative forms (Schneiberg 2002, 2007). This strategy may flow from a distrust of politics and a principled rejection of states in favor of community and local self-sufficiency. Activists often turn to cooperatives as a "third way" between markets and states or corporations, or as a way to organize outside established institutions (Rothschild-Whitt 1979;

Ware 1989). This strategy can also stem from counter-mobilization by corporations and blocked political access. Anticorporate movements may abandon politics for private strategies and organization when political victories are subverted by corporate capture of courts or commissions (Clemens 1997; Hattam 1992).

Both of the above strategic concerns affected U.S. anticorporate movements. Agrarians and independent producers fought political battles for regulation, antitrust laws, and currency reform, seeing these as vital elements for regional development. Nonetheless, they were ambivalent about politics in general, and third party politics in particular (Ostler 1993; Sanders 1999). They "oscillated between fraternalism and political organization" (Clemens 1997:143), periodically declaring their organs to be nonpolitical, and opting for *private* self-organization and cooperatives to solve the trust problem. Anticorporate movements may thus be most productive for cooperative enterprise where political access is blocked or political means are rejected, that is, in the *absence* of anticorporate politics.

Hypothesis 2: The positive effects of movement membership or organization on the prevalence of cooperatives and mutuals will increase in settings characterized by blocked political access or the absence of anticorporate political victories.

Third, prior research suggests that organizing dilemmas could prompt movement elites to oppose cooperatives, yielding a *negative effect.* Aldrich and Stern (1983), for example, find that union leaders discourage cooperatives for fear they will divide the rank and file between owners and non-owners, undermining solidarity. Similarly, Schwartz (1976) locates the failure of Alliance cotton exchanges in conflicts between movement elites, who had ties to corporations or interests in forging broader political coalitions, and rank-and-file groups, who were interested in bypassing or contesting corporations through cooperatives. Both dynamics would foster negative associations between movement mobilization and cooperatives.

Conflict among producers or between cooperatives' and movements' political aims could also foster negative associations between cooperatives and populist movements. In the 1890s, struggles over Greenback proposals, margarine, and lard pitched Midwestern dairy and hog farmers against beef interests, cotton growers, the Southern Alliance, and the Populist Party, splitting the Alliance and contributing to the Populists' defeat (Lampard 1963; Nixon 1928). Dairy farmers dissociated themselves from wheat and cotton-belt populists, opting to lobby on their own as an interest group. Conflicts between cooperative and antimonopoly programs deepened this rift. Agricultural producer cooperatives battled "trusts" in their home industries and turned to politics to contest corporations and to secure enabling legislation. Like unions, however, cooperatives faced antitrust prosecutions as they organized to bargain collectively with processors and brokers (Guth 1982; Young 1991).

Hypothesis 3: As anticorporate movements increase in membership, organization, or resources, the prevalence of cooperatives and mutuals will decrease.

MOVEMENTS AS MODERATING FORCES. Finally, beyond any political engagements or direct effects that they might bring about, movements are also social infrastructures for organization that can alter how consumers and producers respond to the incentives, collective-action costs, and trade-offs of cooperative enterprise. Movements could thus *moderate the effects of micro-economic conditions on cooperatives' forms.* Economic sociologists have shown that social structural factors, including professional associations, shifts in policy regimes, and new institutional logics, can powerfully moderate economic forces. For example, they transform how organizations understand and respond to market conditions in deciding whether to merge, which business strategies to pursue, what structures to adopt, or whether to regulate competition (Bartley and Schneiberg 2002; Dobbin and Dowd 1997, 2000; Dobbin and Sutton 1998; Thornton and Ocasio 1999). We extend this logic to consider movements as moderating social factors that can buffer cooperatives from collective-action costs associated with group diversity or community dissolution.

Research argues that, *in general,* consumers or producers turn to cooperatives to manage market failures or costs of contracting with for-profit firms (Alchian and Demsetz 1972; Ben-Ner 1984; Hansmann 1995; Williamson 1985).

When markets fail to prevent corporations from benefiting at the expense of consumers or producers, these groups have incentives to organize cooperatives. This occurs when information about products is costly, collective goods are involved, or trading partners are locked into exchanges due to monopoly or transaction-specific investments. In these cases, producers or consumers become vulnerable to exploitation by corporations and suffer "costs of contracting," such as monopoly over- or under-pricing, quality dilution, or service failure. Moreover, they can reduce conflicts of interest and contracting costs by unifying ownership with production or consumption via a cooperative or mutual firm.

Yet in choosing cooperative forms, consumers and producers are subject to costs of collective ownership, which themselves often depend on the strength of a common community or culture (Ben Ner 1984; Hansmann 1995; Rothschild and Whitt 1986). Cooperative firms rely on collective action and decision making among numerous, often diverse groups. Cooperatives may thus suffer from differences in interests, protracted deliberation, enforcement issues, and declining commitment. Furthermore, by spreading profits, losses, and decision making across consumer or producer groups, cooperatives diminish incentives for owners to monitor management, develop expertise, and invest in improvements. Such "costs of ownership" are low for stable, homogenous groups, in which long-standing relations prevail and community or common culture is strong. But as population change or influxes of new groups disrupt social relations, or as group heterogeneity increases, these bases for cooperatives dissolve. Cooperatives face growing organizing costs, internal division, and shrinking social resources for sustaining commitment, trust, and democracy (Bonin, Jones, and Putterman 1993; Hansmann 1995; Haveman and Rao 1997; Hoffman and Libecap 1991; Putterman 1982; Whyte and Whyte 1991).

We thus expect cooperatives to proliferate as contracting costs increase. They will proliferate in settings where consumers are charged high prices, where producers receive low prices, and where consumers or producers receive little or no service from for-profit firms, as when population density is low. Corporations will not find it profitable to build processing plants or distribution networks in sparsely populated areas, as these investments entail fixed costs and agglomeration economies.

Hypothesis 4a: As the prices that consumers are charged increase, the prices that producers are paid decrease, and population density decreases, the prevalence of cooperatives and mutuals will increase.

Yet the costs of collective enterprise associated with population change and declining community or commonality can undermine gains from solving market failures, leading to Hypothesis 4b:

Hypothesis 4b: As population change, residential instability, and group or community heterogeneity increase, the prevalence of cooperatives and mutuals will decrease.

These baseline hypotheses let us propose two ways in which movements can serve as social infrastructures for organization, moderating micro-economic effects on cooperative forms. First, to the extent that movements expand actors' choices by making cooperative alternatives available and legitimate, consumers and producers will turn more readily to these forms as costs of contracting with corporations become severe. Well-developed movements will *magnify* the effects of adverse pricing, failures to provide services, and population density on cooperative enterprise.

Hypothesis 5a: Increased movement membership, resources, and organization will increase the effects of adverse prices and population density on the prevalence of cooperatives and mutuals.

Second, by providing cooperatives with social ties, templates, and already-organized collectivities, movements may supplement or partly substitute for traditional community. This could reduce cooperatives' and mutuals' dependence on well-established, stable, and homogenous groups. As a dairy official noted about marketing cooperatives (cited in Knapp 1969:200), less organizing work is required when cooperatives can use already-established movement collectivities as organizing platforms:

> Wherever I found a strong Grange, I had the least difficulty in getting milk producers to join our associations. Usually I could depend on the Grange officers for help and Grange meetings were splendid opportunities to preach the doctrine of collec-

> tive bargaining. State granges endorsed and recommended the NEMPA [New England Milk Producers Association] to members and Grange halls were placed at our disposal without charge. . . . It has been the Mother Organization . . . that for over half a century has been building up the sentiment, developing the leadership and laying the foundation for the work that was to follow.

More generally, movements constitute social infrastructure that can foster broader social orientations, sustain commitment, and facilitate the communication and collaboration that cooperatives require (Rothschild and Whitt 1986). To the extent that "mother organizations" promote solidarity, they can reduce cooperatives' dependence on traditional communities, buffering them from the disruptive effects of residential instability, immigration, and group diversity.

Hypothesis 5b: Increased movement membership and organization will decrease the negative effects of population change, residential instability, and group or community heterogeneity on the prevalence of cooperatives and mutuals.

Indeed, just as movements shape policy processes differently at different points (King, Cornwall, and Dahlin 2005; Soule and King 2006), their organizational effects may also vary over time, with movements like the Grange serving mainly as moderating influences for cooperatives once highly politicized struggles over economic order begin to recede into the past.

CASE SELECTION AND INDUSTRY CONTEXT

We address movement effects on organizations by analyzing cooperatives and mutuals in the fire insurance, dairy, and grain industries. All three were leading sectors for cooperative organization in the United States. In addition, consumers or producers in all three industries fought "trusts" and "combines," turning to movements, anticorporate politics, and cooperatives to resolve their struggles. These industries are thus ideally suited for analyzing how movements, economics, and politics operate and interact to affect organizational form.

Insurance mutuals first appeared in the 1820s. They emerged as a "veritable tidal wave" from 1870 to 1900 and proliferated through 1925 as merchants, manufacturers, and farmers organized to insure themselves against fire and other hazards (Bainbridge 1952:161; Heimer 1985; Schneiberg 2002). These firms included a score or so of multistate "factory mutuals," but most were "class mutuals" in which property owners in a town, city, or industry contracted to cover one another against property damage or loss up to a specified limit. Class mutuals used a mix of assessment and advanced premium plans, and they were mainly local operations with few cash assets. Yet they were numerous, especially in the Midwest, rural Pennsylvania, and upstate New York, with more than 3,500 in business between 1903 and 1929 (see Figure 1). By the early twentieth century, mutuals wrote 11 to 12 percent of the nation's fire insurance, capturing 40 percent of the farm business and key commercial lines by 1921, and reaching 35 percent of the insurance in force in Wisconsin (Bainbridge 1952; Heflebower 1980).

Property owners formed mutuals to solve moral hazards they faced with for-profit insurers (Hansmann 1995; Heimer 1985; Schneiberg 2002). Stock insurers, for example, made money from investments rather than insurance and competed without limit for premiums to fund investments. They thus failed to accumulate reserves, eroding their capacity to pay claims and leaving policyholders unprotected after conflagrations. Insurers tempered rivalry via cartels, which subjected the insured to rate hikes and discrimination. In response, property owners pursued mutuals and anticorporate politics like anticompact laws and regulation, drawing on movements against combines in railroads and other sectors for models, techniques, and personnel (Grant 1979; Kimball 1960). Stock insurers also refused to invest in fire-prevention systems to help consumers. These investments had collective-good and consumer-specific qualities and did not become common until consumers aligned incentives via mutuals.

Dairy cooperatives first appeared in the Northeast in the 1840s and spread to the Midwest and Plains region after the Civil War (Filley 1929; Knapp 1969; Lampard 1963; Powell 1913; Young 1991). From 1860 through the 1890s, dairy farmers formed local cheese-making cooperatives, cooperative creameries (butter), and milk-marketing cooperatives to bargain collectively with city milk dealers. Followed in the twentieth century by the rise of cooperative federations like Land O' Lakes

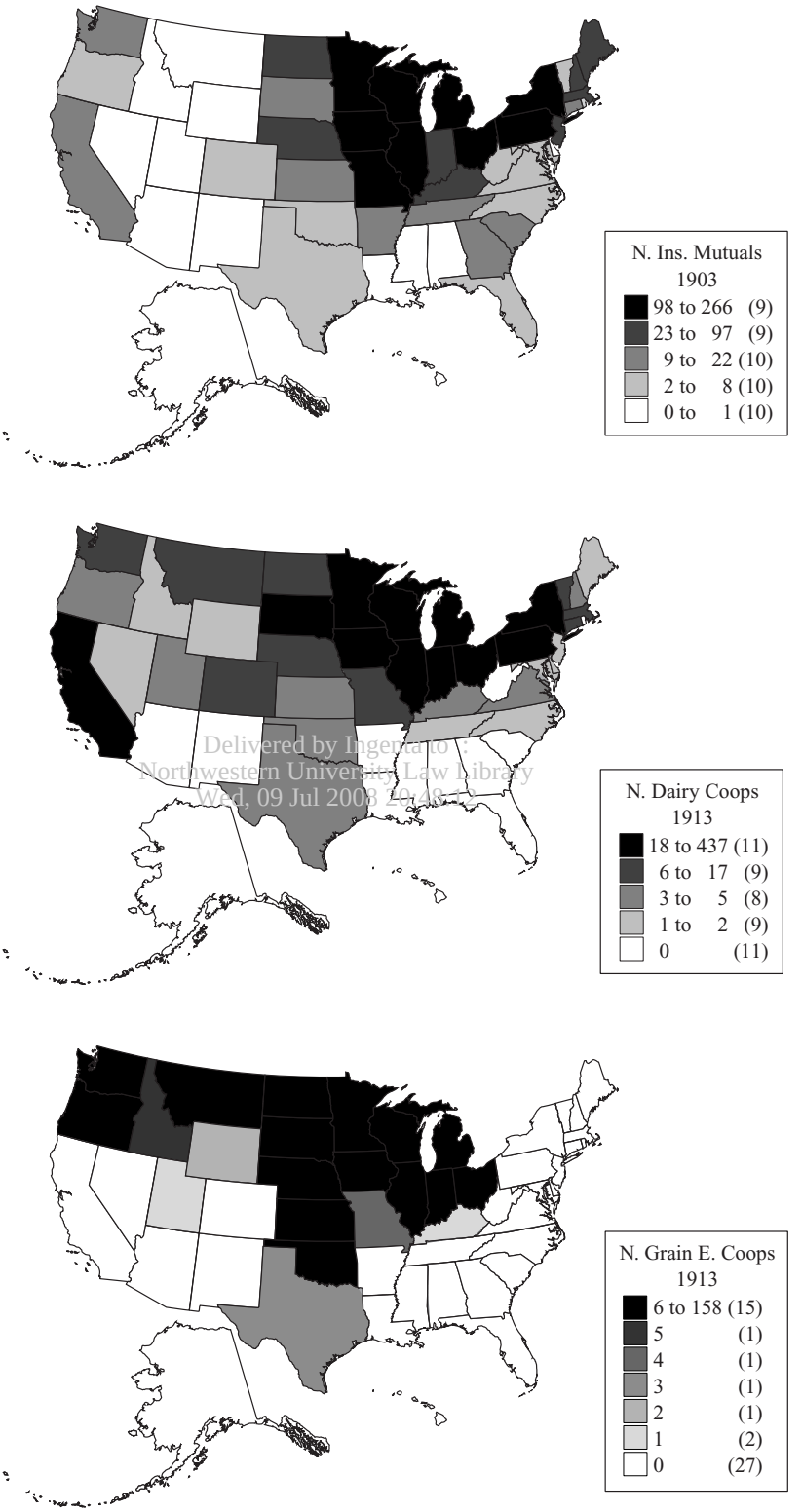

Figure 1. Geography of Cooperative Forms

Creamery, these efforts placed dairy first among agricultural sectors in terms of both establishing cooperatives and their output share. By 1909, there were more than 2,700 dairy cooperatives in the United States, concentrated, as Figure 1 shows, in many of the same places where mutuals had existed in 1903 (Elsworth 1928). By 1891, 60 percent of cheese in the United States was manufactured cooperatively; by 1936, cooperatives accounted for 40 percent of butter output; and by 1964, 65 percent of butter and 70 to 75 percent of fluid milk were produced or marketed via cooperatives (Heflebower 1980; Knapp 1969).

Dairymen also combined cooperative self-organization and politics to contest corporations. At first, markets underproduced butter and cheese factories, leaving milk producers who needed manufacturing facilities to their own cooperative devices. For-profit factories subsequently appeared, but they paid one price for all milk grades. This practice, farmers felt, discriminated unfairly between quality producers and those who watered their milk, and appropriated investments that farmers made in feed, animal care, and equipment to produce high-fat milk (Heflebower 1980; Lampard 1963). For fluid milk producers, the problem involved concentrated distribution, which left farmers facing "the milk trust"—urban milk dealers who colluded to cut prices (Filley 1929; Knapp 1969; Young 1991). Dairy farmers were vulnerable in this transaction because seasonal surpluses and the perishable nature of their goods made it impossible to withhold produce strategically. To protect themselves, farmers organized marketing cooperatives and sought trust-busting measures against dealers (Powell 1913). The use of antitrust mechanisms against marketing cooperatives, though, left dairymen ambivalent toward radical agrarian politics.

Grain elevator cooperatives appeared in Wisconsin, Iowa, and Minnesota in the late 1850s and 1860s and spread east, south, and west in two waves (Fetrow and Elsworth 1947; Filley 1929; Larson 1969). Both waves produced local associations that built elevators; purchased, sorted, and graded grain; and shipped it to terminal markets for storage or sale. Growers also formed state associations, terminal marketing agencies, cooperative exchanges, and wheat pools in a failed bid to control markets. On the local level, however, and particularly in the upper Midwest and Plains states, growers were successful (see Figure 1). The number of elevator cooperatives reached 1,000 by 1907 and peaked at more than 4,000 in the 1920s, settling down to 2,614 by 1936 (Elsworth 1928). By 1925, grain cooperatives held 38 percent of the market, making them first in dollar volume in agriculture (Heflebower 1980).

Grain farmers pursued cooperatives to overcome market concentration among "line elevator" companies (Filley 1929; Saloutos and Hicks 1951). Line companies were syndicates of commission firms, grain dealers, and exporters that owned up to 800 or 900 elevators, monopolized distribution along a railroad line, and densely interlocked with railroads and terminal elevators. Line companies received favorable terms from railroads and warehouses, and they sought to eliminate independent elevators. They paid farmers high rates for grain in places where competition existed, and low rates where it did not. Line companies also "docked" growers for mixtures of grain, required bushels over legal weight standards, and paid farmers for lower-grade grain, which they then repacked and sold as higher grade. In response, growers organized their own grain elevators and mobilized politically against line companies. They obtained laws to force railroads to provide sites for elevators, antitrust prosecutions, antidiscrimination laws to prevent overbidding by line elevators, and a 1906 ICC investigation that ended railroads' opposition to the farmers' elevator movement (Filley 1929).

METHODS AND DATA

METHODS AND DEPENDENT VARIABLES

We analyze movement effects on cooperatives in two stages. First, we conduct cross-sectional analyses of the number, per state, of insurance mutuals in 1903, and dairy and grain cooperatives in 1913. In this stage we ask, to what extent did the anticorporate movements and constitutional struggles over economic order in the late nineteenth century shape the initial distribution of cooperatives in these industries? We then conduct pooled, time-series analyses of the number of insurance mutuals from 1903 to 1929, and dairy and grain cooperatives from 1913 to 1927. In this stage we ask, to what extent did movements continue to shape cooperatives and mutuals beyond the Populist-era

struggles over trusts and combines by moderating the economic and community dynamics of organization?

We chose this strategy based on historical considerations and data availability. The years 1903 and 1913 are the earliest for which systematic data exist, respectively, on insurance mutuals and agricultural cooperatives. The 1903 to 1929 and 1913 to 1927 periods also cover key periods of cooperative organization. Yet the earliest waves of anticorporate movement mobilization and the fiercest political struggles over corporations predated 1900. Indeed, cooperatives first emerged in force together with Granger railroad laws and antitrust and Populist politics in the last quarter of the nineteenth century. Moreover, anticorporate mobilization occurred in cycles. The first wave occurred in the Populist era, with the Grange and Farmers' Alliance peaking, respectively, in the mid-1870s and 1890. Both movements participated directly in political struggles over the emerging corporate order. The second wave occurred during the Progressive decades of the early twentieth century and was marked by the resurgence of the Grange and the rise of other groups, like the Farmers' Union. Such groups seemed more committed to sectoral agendas than to the wholesale reconstitution of economic order through political means.

These historical shifts warrant a two-part analytical strategy. We first examine how anticorporate movements engaged in the late nineteenth-century political struggles shaped the early distributions of cooperatives and mutuals. We use the earliest available cross-sectional data on those forms, and exploit the Populist-era conjunction of movements and anticorporate politics to examine the direct and conditional effects of movements on organizational form. We then analyze the second wave, using data on cooperatives, mutuals, and movements in the first three decades of the twentieth century. Here, we exploit time-series data to see if movements moderated the organizational effects of economic and community conditions, shaping cooperatives in an ongoing fashion while wholesale struggles over the corporation receded into the past and the economy settled into its "modern" form.

We conduct state-level analyses as states are key sites for regulating agricultural finance and trade (Ingram and Rao 2004; Schneiberg and Bartley 2001). States are arenas, "attractors," and targets for movement mobilization and political activity. We focus on the *number* of cooperatives and mutuals per state because we are interested in their prevalence and persistence across states and over time. We use negative binomial regressions because they are suitable for count data and, unlike Poisson models, they do not assume that the means and variances of the dependent variables are equal (Long 1997).

Data on insurance mutuals per state come from Best's *Insurance Report* and Spectator's *Insurance Year Book*—annual censuses of insurers—and have been compiled into seven state-level panels for 1903, 1905, 1909, 1914, 1919, 1924, and 1929. Spectator changed its reporting method in this period, so we include a dummy variable to control for this shift. Data on cooperatives come from the U.S. Department of Agriculture's *Agricultural Cooperative Associations, Marketing and Purchasing* (Elsworth 1928) and *Cooperative Purchasing and Marketing* (Elsworth 1930). These reports list the number of dairy cooperatives in operation per state for five panels (1913, 1915, 1922, 1925, and 1927) and grain elevator cooperatives for four panels (1913, 1915, 1925, and 1927).

Independent Variables

Unless noted, data for the independent variables come from the U.S. Census reports on Population, Agriculture, and Manufacturers for 1900, 1919, 1920, 1930, and 1940. For the cross-sectional analyses, we measure economic factors and controls using 1900 data, and social movements and political factors at their dates of occurrence.[2] For time-series analyses,

[2] We considered measuring independent variables—economic factors and controls—as early as 1870 or 1880, since the first cooperative waves predated 1900. Yet the earliest years for which cooperative data exist are 1903 and 1913, which leaves too great a time span between independent and dependent variables and suggests instead that we should use 1900 or 1910 data for independent variables. Further, the historical record indicates that the three forms have common social and political roots, hence using the same time period for economic factors and controls for the three forms would be appropriate. We chose 1900 as a considered compromise. Fortunately, independent variables correlated very strongly (typically .90 or higher) across decades from 1880 to 1910.

we use decennial data, time-varying independent variables, and linear interpolation for panel years, lagging independent variables for one year.

SOCIAL MOVEMENTS. To analyze movement effects in the cross-sectional analyses, we use four measures of Grange strength: (1) the number of national Grange family members per state in 1875, (2) national Grange family members in 1876, (3) the number of members per state Grange in 1875, and (4) the number of Grange organizations in 1875. All four measurements were taken at the height of the first Granger mobilization and come from Tonz (1964) and Buck (1913). We use peak years because we are interested in the effects of the Grange on cooperative organization during its heyday, and whether its organization-promoting effects were conditional on political forces. We also use peak years because four measures of Grange strength are available, and membership declined precipitously in the 1880s and 1890s, although we obtained similar results with 1880 and 1890 data. We also considered including a variable for the Farmers' Alliance using members per state in 1890, reported in *Appleton's Annual Cylcopedia and Register* (see Sanders 1999), but membership is reported for only 25 states and no figures appear for key Alliance states. We therefore focus solely on the Grange.

We retain this focus on the Grange in the time-series analyses, examining its effects during its twentieth-century resurgence, and measuring its strength using national Grange members per state from 1900 to 1940, as reported by Tonz (1964).

POLITICAL FACTORS. We include measures of anticorporate politics both to control for potential confounds and to analyze interactions between movements and politics during the Populist era. We measure the strength of populist forces using the Populist and Democratic–Populist vote per state in the 1892 and 1896 presidential elections from the Congressional Quarterly's *Presidential Elections, 1789–1992.* We measure anticorporate political victories in three ways, creating dummy variables for whether a state enacted (1) a Granger-railroad regulation law during the 1870s, (2) a general antitrust law up through 1896, or (3) an anticompact law for insurance before 1903. A watershed in the struggles over corporate order, the Granger laws subjected the railroads to public controls of rates, bans on discrimination, and strong, as opposed to advisory, regulatory commissions (Berk 1994; Buck 1913; Dobbin 1994; Kanazawa and Noll 1994). These laws were a decisive political victory for agrarians and producers over corporate forces. They also left important legacies, generating arguments and models for struggles against corporations in other sectors at the state and national levels. Antitrust laws likewise reflected decisive victories against corporations, both generally (James 1999; Sanders 1999) and in insurance, where "anti-compact" laws targeted insurers (Grant 1979; Schneiberg 1999). We code states for Granger laws using Buck (1913), for general antitrust laws using James (1999), and for anticompact laws using Spectator's *Fire Insurance: Laws, Taxes, Fees* (Schneiberg and Bartley 2001).

ECONOMIC CONDITIONS. We include economic factors as controls and to analyze whether movements moderated economic forces. To tap contracting costs, we use Census data on the average price per gallon of milk that was paid to dairy farmers, the average price per bushel paid for wheat, and population density. Producers and consumers have greater incentives to form cooperatives when corporate consolidation yields high prices for key inputs (like insurance) or low prices for outputs (like farm goods), and in sparsely populated areas, as these are often underserved by for-profit firms.

We develop five measures for the collective-action costs and community bases of cooperative forms. For residential instability, we calculate the absolute value of the percent population change over the prior decade and the percent foreign born. Including both measures lets us tap two dimensions of community disruption—change from immigration and instability due to change and migration within the United States.

To measure the heterogeneity of producer and consumer communities, we use Census data on states' racial compositions and the distribution of farms and manufacturing establishments by size. We calculate the percent non-white population to tap ethnic and racial heterogeneity, as racial divisions might hamper coopera-

tion. We use the size distributions to calculate two measures of economic heterogeneity—one for farmers and one for manufacturing groups. The Census lists the number of farms in each of seven to eight categories, measured by acres per farm, and the number of manufacturing establishments in eight to ten categories, measured by employees per establishment. We use these data to calculate an index of qualitative variation for each group:

$$IQV = \frac{(1 - \sum_{i=1}^{k} p_i^2)}{(k-1)/k}$$

This is a standardized measure of heterogeneity, which varies from 0, when all units are in one category (complete where k = the number of categories homogeneity), increases as units become more heterogeneous, and reaches 1 when all units are equally distributed across categories. We use both measures of economic heterogeneity for insurance because farmers and manufacturers organized mutuals, but we use only the farm measure for dairy and grain cooperatives, which were organized only by farmers. We expect to find cooperatives in stable, homogenous communities. Increasing population change, immigration, racial diversity, farm heterogeneity, and manufacturing should all decrease cooperative and mutual organization.

Controls, Models, and Estimation

All models control for state size and the geographical distribution of the sector. We control for state population to eliminate the confounding effects of the size of a state and its economy. We control for the distribution of industries across states by including gallons of milk produced per capita in dairy models, bushels of wheat produced per capita in grain models, and manufacturing value added per capita (as a proxy for insurable values) in insurance models.

To assess conditional effects of movements on cooperatives in the cross-sectional models, we create interaction terms by multiplying movement strength measures by the dummy variable for whether a state passed a Granger railroad law. We expect movement effects to be stronger (or positive) in the absence of anticorporate politics or victories. Movements may opt for economic self-organization as an alternative to politics, or they might turn to cooperatives with particular force if political access is blocked.

To determine whether movements moderate the effects of economic or community factors in time-series models, we create interaction terms by multiplying the movement strength variable by each economic variable. Movements might ease the turn to cooperatives in response to monopoly or market failure, amplifying the effects of prices or population density on organization. They might also buffer cooperatives from problems posed by community instability and heterogeneity, reducing these negative effects.

We pursue parallel strategies for all three industries, with minor modifications where suitable. In the cross-sectional analyses, we focus on the direct and conditional effects of movements on organizational forms. We fit main-effects models with controls, economic factors, and the anticorporate politics variables. We then add movement measures to assess direct effects and interaction terms to consider conditional effects. In the time-series analyses, we focus on movements as moderating influences. We begin with main-effects models for economic and community bases pertaining to cooperatives and mutuals, add our movement measure, and then add interaction terms to assess whether movements moderate the organizational effects of economic and community factors.

We estimate cross-sectional models with the nbreg routine in STATA version 9.2, using robust standard errors. We estimate time-series models with the nbreg routine, specifying cluster robust option to correct for heteroskedasticity and correlations of observations within a state over time. This routine uses both differences across states and changes within states over time to estimate effects.

RESULTS

Cross-Sectional Analyses

We mainly focus here on movements' direct (Hypotheses 1 and 3) and conditional effects (Hypothesis 2) on organization. We first consider movement effects for each sector, and then other factors. Descriptive statistics and correlations are in the Appendix, Tables A1 to A4.

Table 1. Effects of Social Movements on Insurance Mutuals per State, 1903

	Model 1	Model 2	Model 3
Controls			
Population (000,000)	.533**	.499*	.480**
	(.0593)	(.062)	(.067)
Value added	–17.8**	–15.4**	–13.7**
	(4.92)	(4.70)	(4.84)
Economics Organization			
Population density (000)	5.29 **	4.14**	4.32**
	(1.51)	(1.61)	(1.57)
Percent population change	–.035**	–.037**	–.036**
	(.0075)	(.0076)	(.0077)
Percent foreign-born white	.063**	.079**	.073**
	(.013)	(.012)	(.013)
Percent non-white	–.023*	–.015	–.014
	(.0092)	(.0089)	(.0092)
Farmer diversity	–4.81**	–5.24**	–5.37**
	(1.18)	(1.144)	(1.09)
Manufacturer diversity	6.61*	5.06*	4.89*
	(2.67)	(2.38)	(2.36)
Anticorporate Politics			
Percent populist vote	–.029**	–.030**	–.028**
	(.0075)	(.0074)	(.0077)
Granger railroad law	.850**	.623**	.982**
	(.173)	(.164)	(.252)
General antitrust law	–.511**	–.571**	–.537**
	(.193)	(.181)	(.1821)
Anticompact law	.659**	.580*	.610**
	(.212)	(.225)	(.221)
Social Movements			
National Grange members (000)		.019*	.025*
		(.0088)	(.010)
Members by railroad law			–.019†
			(.011)
Constant	1.796	3	3.07
	(2.316)	(2.22)	(2.19)
Observations	42	39	39

Note: Robust standard errors in parentheses.
† $p \leq .10$; * $p < .05$; ** $p < .01$ (two-tailed tests).

INSURANCE. Table 1 shows models of the number of insurance mutuals per state in 1903. Model 1 includes controls, economic factors, and anticorporate politics. Model 2 adds national Grange membership in its peak year to assess movement effects. Model 3 adds an interaction term to assess conditional effects. Results for other Grange measures appear in the Appendix, Table A5.

Model 2 confirms Hypothesis 1 over Hypothesis 3. Grange membership has a *positive,* significant effect on mutuals, controlling for state size, economic and community conditions, and anticorporate politics. These results are consistent across movement measures, supporting a view of movements as "organization-generating organizations."[3] Further, the significant, negative interaction term in Model 3 shows that this effect is conditional on the political context. Positive movement effects are weaker in states where the Grangers won hallmark political victories against railroads. These results are also consistent across measures and confirm Hypothesis 2.[4] In its heyday, the Grange

[3] The coefficients for all Grange strength measures are positive; all but the state member measures are statistically significant (see the Appendix, Table A5).

[4] The pattern of (1) positive coefficients for movement strength coupled with (2) negative and small-

Table 2. Effects of Social Movements on Dairy and Grain Elevator Cooperatives per State, 1913

	Dairy Cooperatives			Grain Elevator Cooperatives		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Controls						
Population	.272**	.179**	.159*	.814**	.474	.629
	(.091)	(.068)	(.065)	(.269)	(.296)	(.561)
Milk produced/grain sold (000)	.634	1.72	2.35	13.9†	6.51	1.30
	(2.60)	(1.963)	(1.77)	(7.81)	(5.31)	(6.46)
Economics of Organization						
Population density	–7.55**	–6.49**	–5.05**	–20.1	–11.8	–21.9
	(2.10)	(1.70)	(1.66)	(20.0)	(12.2)	(28.0)
Price milk/grain	–12.9*	–11.1*	–8.47*	–11.4**	–11.8*	–11.5**
	(5.71)	(5.12)	(4.03)	(3.67)	(5.390)	(3.73)
Percent population change	.0016	.0050	.0059	.0011	.0097	.022
	(.012)	(.0094)	(.0086)	(.017)	(.021)	(.026)
Percent foreign-born white	.067**	.114**	.098**	–.124	–.033	–.112
	(.002)	(.027)	(.026)	(.095)	(.065)	(.075)
Percent non-white	–.039*	–.018	–.027	–.226**	–.198**	–.277*
	(.019)	(.023)	(.025)	(.070)	(.058)	(.109)
Farmer diversity	–.303	–.110	.027	–8.50*	–6.80	–7.02*
	(1.43)	(1.643)	(1.45)	(3.80)	(4.61)	(3.33)
Anticorporate Politics						
Percent populist vote	–.036**	–.029**	–.026**	–.039	–.0082	–.021
	(.011)	(.0092)	(.0087)	(.034)	(.035)	(.030)
Granger railroad law	1.15**	.853	1.94**	.469	.642	3.55**
	(.385)	(.560)	(.690)	(.902)	(1.01)	(1.16)
General antitrust measure	–.051	–.285	–.125	1.39*	1.35*	1.98**
	(.240)	(.251)	(.275)	(.601)	(.596)	(5.57)
Social Movements						
National Grange members		.050*	.060**		.079	.092*
		(.022)	(.017)		(.048)	(.036)
Grange members × railroad law			–.058**			–1.95**
			(.022)			(.046)
Constant	3.29†	1.5	1.05	16.9**	13.2†	14.1**
	(1.89)	(1.70)	(1.53)	(5.35)	(6.77)	(4.40)
Observations	42	39	39	42	39	39

Note: Robust standard errors in parentheses.
† $p \leq .10$; * $p < .05$; ** $p < .01$ (two-tailed tests).

fueled mutual self-organization in insurance, but it did so either as an alternative to politics or in response to blocked political access.

DAIRY AND GRAIN. Table 2 shows models for dairy and grain cooperatives in 1913. Results from the second models in each set show that increasing Grange strength increased cooperatives in both sectors, supporting Hypothesis 1. For dairy, the coefficients for all four movement measures are positive and significant. For grain too, the coefficients for all measures are positive (coefficients for national members in 1876 and state members are significant, see Table A5 in the Appendix). Moreover, movement effects in both sectors are again conditional on the political context. In the interaction-effect models, movement coefficients are positive and significant, while the interaction terms are negative and significant. This result occurs for all measures in both sectors, supporting Hypothesis 2. Finally, robustness checks using zero-inflat-

er coefficients for the interaction term emerged for all movement measures, reaching statistical significance both for National Grange membership and number of Granges.

Table 3. Effects of Grange Membership on the Number of Insurance Mutuals, Dairy, and Grain Elevator Cooperatives per State

Industry	Unconditional Effect	Effect with No Granger Law	Effect with Granger Law
Insurance	21.4%	28.9%	5.9%
Dairy	65.6%	83.8%	1.6%
Grain	124.1%	154.2%	–64.9%

Note: Figures tabled are the predicted percent change in the number of mutuals or cooperatives per state for a standard deviation increase in national Grange members.

ed, negative binomial models to account for the numbers of zeros in the data generate virtually identical results for all three sectors (available from the authors on request).

Table 3 gives the sizes of these movement effects. The *unconditional* effects come from the second main-effect models for each sector. They give the predicted percent change in the number of mutuals and cooperatives for a one standard deviation increase in national Grange membership.[5] All show substantial effects. Increasing the number of Grange members by a standard deviation generates a 21.4 percent increase in the number of insurance mutuals per state, and a 65.6 and 124.1 percent increase, respectively, in dairy and grain cooperatives.

The *conditional* effects come from the models with interaction effects. They give the size of movement effects in each sector for states with and without Granger laws. They come from the interaction effects in Tables 1 and 2 and show effects that are largely as expected. Consistent with Hypothesis 2, the positive effects of movements are weaker in politicized settings where the Grange pursued politics. In insurance, increasing Grange strength one standard deviation increases mutuals by 28.9 percent in states *without* Granger laws, but only 5.9 percent in states *with* such laws. In dairy, Grange strength increases cooperatives by 83.8 percent in states without laws, but only 1.6 percent in states with Granger laws. The interaction effect is much larger, however, for grain. Increasing Grange strength a standard deviation increases grain cooperatives by 154 percent in states without Granger laws, but decreases their number by 65 percent in states with Granger laws.

In sum, we find that the late nineteenth-century agrarian-producerist movements fueled cooperative forms. They did so, however, as an alternative to political attacks on corporations, or in response to corporate counter-mobilization and blocked political access. Moreover, these movements may have thwarted cooperative enterprise in grain as they mobilized politically against corporations.

ECONOMIC, COMMUNITY, AND POLITICAL CONDITIONS. Consistent with Hypothesis 4a, agricultural cooperatives proliferated where farmers received low prices for produce, and in sparsely populated places where corporations lacked incentives to invest in processing, distribution, or supply networks. The coefficients in Table 2 for prices and population density are all negative, although population density in grain is not significant. Moreover, consistent with Hypothesis 4b, residential instability, heterogeneity, and racial divisions made cooperative enterprises more costly, decreasing their prevalence. Population change reduced the number of insurance mutuals. Heterogeneity among farmers decreased the number of insurance mutuals and grain cooperatives. Racial diversity lowered the number of mutuals and cooperatives in all three sectors.

Surprisingly, population density and manufacturing diversity had positive effects on insurance mutuals. Mutuals may have benefited from critical-mass dynamics: heterogeneity in densely settled areas increased the chance that some subgroup would shoulder the costs of collective

[5] These figures were calculated using the standard formula for the magnitude of effects for negative binomial models: (exp [b * s] – 1) × 100%, where b is the regression coefficient, and s is the standard deviation of the independent variable (Long 1997).

action (Marwell and Oliver 1993). The prevalence of foreign-born whites also had positive effects in insurance and dairy, suggesting that immigration promoted, rather than suppressed, cooperatives. This might reflect economic self-organization in immigrant communities, which resulted from dense networks, scarce resources, and exclusion from mainstream economies (Bonacich and Modell 1980; Gamm and Putnam 1999; Portes and Manning 1986). Or, immigration could have been a conduit for organizing templates. Rochdale cooperatives in England produced models that diffused across mid-nineteenth-century Europe, which were then imported to the Midwest by immigrants from Germany and the Nordic countries (Ford 1913; Furlough and Strikwerda 1999; Knapp 1969; Schneiberg 2002).

Anticorporate politics also affected cooperatives, but differently across sectors. Insurance mutuals and dairy cooperatives were associated with early anticorporate politics, notably the Granger victories of the 1870s, and mutuals were associated with anticompact laws that targeted insurance cartels. Yet in both sectors, cooperatives were negatively associated with the Populist vote and antitrust laws favored by Populists and the Alliance. This may reflect discomfort among the propertied insured and dairy farmers with the radical Populist politics of the 1890s. In contrast, grain farmers seemed to draw sustenance and political cover from Populists and their trust-busting programs, as general antitrust measures had positive effects on elevator cooperatives.

Time-Series Analysis

INSURANCE. Table 4 shows models of insurance mutuals per state from 1903 to 1929. Model 1 provides a baseline for how economic and community factors affect mutuals. Model 2 adds the time-varying Grange strength measure, and Model 3 adds interaction terms to see if movements moderate economic forces. Three findings emerge.

First, results from Models 1 and 2 are consistent with Hypothesis 4b: mutuals depend on stable, homogenous, and supportive communities. Population change and farm heterogeneity have significant, negative effects. The racial diversity coefficient is also consistently negative, although not significant. The foreign-born white coefficient is positive, but only significant in Model 3.

Second, Model 2 shows a negative "main" effect of Grange strength on mutuals. Model 3, however, shows that the Grange in this period acted mainly as a moderating influence for the effects of economic and community conditions on mutuals. A significant negative effect for *population change* is coupled with a smaller, positive, and significant coefficient for the interaction between population change and Grange strength. Increasing movement strength decreases the negative effect of population change. This confirms Hypothesis 5b. Movements can buffer mutuals from the disruptive effect of residential instability, reducing their dependence on stable communities.

Third, the positive coefficient for *foreign-born white* is coupled with a smaller, negative coefficient for its interaction term. Increasing movement strength decreases the positive effect of foreign-born whites on mutuals. This is not quite consistent with Hypothesis 5b, which assumes a negative immigration effect, but it does indicate that movements reduced mutuals' dependence on immigrant communities or the templates they imported. Here, too, movements serve as a functional substitute for supportive communities.

DAIRY. Table 5 analyzes dairy cooperatives from 1913 to 1927. Baseline Models 1 and 2 are also largely consistent with Hypotheses 4a and 4b. Coefficients are positive for foreign-born whites and negative for non-whites; both are significant. Coefficients for heterogeneity, population density, and change are all negative, but only reach significance in Model 3. The effect of milk price is negative and significant. Dairy cooperatives proliferated in communities with few racial divisions and many European immigrants, and where farmers received low prices for milk.

Models 2 and 3 show movement effects, but indicate again that the Grange was mainly a moderating force. Model 3 pairs a significant negative coefficient for *population change* with a smaller, positive coefficient for its interaction term. It also pairs a positive coefficient for *foreign-born whites* with a smaller, negative coefficient for its interaction term. Increasing movement strength decreased the effects of both population change and foreign-born whites on

Table 4. Negative Binomial Models of the Number of Insurance Mutuals per State, 1903 to 1929

	Model 1	Model 2	Model 3
Controls			
Population (000,000)	.297**	.386**	.408**
	(.072)	(.063)	(.089)
Value added	.743	1.09	.585
	(1.02)	(.895)	(.916)
Economics of Organization			
Population density (000)	.661	–.216	.592
	(1.22)	(1.29)	(1.57)
Percent population change	–.029**	–.033**	–.046*
	(.010)	(.011)	(.013)
Percent foreign-born white	.022	.027	.051*
	(.025)	(.025)	(.023)
Percent non-white	–.029	–.041	–.017
	(.032)	(.032)	(.030)
Farm diversity	–4.86†	–3.96†	–2.73
	(2.53)	(2.22)	(2.20)
Manufacturer diversity	–.190	1.60	–.463
	(1.95)	(1.61)	(1.80)
Social Movements			
National Grange members (000)		–.035**	.199
		(.013)	(.282)
Members × Population density			–.054
			(.085)
Members × Percent population change			.0032**
			–.0012
Members × Percent foreign born			–.0033**
			(.00094)
Members × Percent non-white			–.0074
			(.0061)
Members × Farmer diversity			–.201
			(.224)
Members × Manufacture diversity			.083
			(.196)
Reporting Change	–1.45**	–1.35**	–1.50**
	(.187)	(.181)	(.188)
Constant	7.64**	5.52*	5.70*
	(2.64)	(2.34)	(2.54)
Observations	195	195	195
Log likelihood	–777.76	–767.85	–754.76

Note: Robust standard errors in parentheses.
† $p \leq .10$; * $p < .05$; ** $p < .01$ (two-tailed tests).

cooperatives. As in insurance, the Grange reduced dairy cooperatives' dependence on stable and European immigrant communities. Model 3 also pairs a negative coefficient for the *milk price* with a positive interaction. Movements moderate economic incentives; but rather than boosting organization in response to monopoly, the Grange reduced cooperatives' dependence on adverse pricing.

GRAIN COOPERATIVES. Table 6 shows models of grain cooperatives, with Models 1 and 2 yielding results consistent with Hypotheses 4a and 4b. Coefficients for population density, non-whites, heterogeneity, and prices are all negative and significant. The coefficient for population change is negative but not significant. Grain cooperatives proliferated in sparsely populated areas, in homogenous and perhaps stable communities with few economic and

Table 5. Negative Binomial Models of the Number of Dairy Cooperatives per State, 1913 to 1927

	Model 1	Model 2	Model 3
Controls			
Population (000,000)	.278**	.417**	.372*
	(.076)	(.118)	(.146)
Gallons of milk produced	.010**	.0091**	.0083**
	(.0027)	(.0026)	(.0022)
Economics of Organization			
Price of milk per gallon	–6.52*	–4.68	–7.18*
	(3.20)	(2.99)	(2.92)
Population density (000)	–2.591	–3.21	–6.18*
	(2.05)	(1.95)	(2.57)
Percent population change	–.0051	–.0074	–.028**
	(.0085)	(.0077)	(.0096)
Percent foreign-born white	.062*	.066*	.100**
	(.031)	(.030)	(.030)
Percent non-white	–.071†	–.104*	–.073
	(.038)	(.052)	(.053)
Farm diversity	–7.59	–5.95	–4.30
	(6.08)	(5.54)	(5.69)
Social Movements			
National Grange members (000)		–.032	–.109
		(.021)	(.414)
Members × Price of milk			.535**
			(.193)
Members × Population Density			.226
			(.147)
Members × Percent population change			.0049**
			(.0014)
Members × Percent foreign born			–.0044**
			(.0016)
Members × Percent non-white			–.0098
			(.0076)
Members × Farmer diversity			–.061
			(.439)
Constant	9.32†	7.56	6.79
	(5.66)	(5.03)	(5.38)
Observations	143	143	143
Log likelihood	–581.56	–576.99	–560.44

Note: Robust standard errors in parentheses.
† $p \leq .10$; * $p < .05$; ** $p < .01$ (two-tailed tests).

racial divisions, and where farmers faced low prices.

Here, too, Models 2 and 3 show that the Grange moderated economic and community forces. Model 3 pairs a negative coefficient for *population change* with a positive coefficient for the interaction term. As above, the Grange reduced the negative effect of population change, buffering grain cooperatives from residential instability. Model 3 also yields a negative coefficient for the interaction of *foreign-born whites* and Grange strength, and a negative, but not significant, coefficient for foreign-born whites.

Table 7 charts the magnitude of movements' moderating influences by listing the size of the effects of economic and community factors across three levels of Grange strength—low (25th percentile), medium (50th percentile), and high (75th percentile). The table first gives the predicted change in the number of mutuals, dairy, and grain cooperatives per state for a standard deviation increase in *population change* for each level of Grange strength. In insurance, the negative effect of population

Table 6. Negative Binomial Models of the Number of Grain Elevator Cooperatives per State, 1913 to 1927

	Model 1	Model 2	Model 3
Controls			
Population (000,000)	.537**	.668**	.640**
	(.195)	(.139)	(.105)
Bushels of grain sold	.031**	.030**	.031**
	(.011)	(.0089)	(.0073)
Economics of Organization			
Price of wheat per bushel	–3.88**	–3.75**	–3.06**
	(.648)	(.603)	(.725)
Population density (000)	–1.13**	–8.58**	–12.5**
	(3.21)	(3.14)	(3.60)
Percent population change	–.0029	.0051	–.046**
	(.013)	(.013)	(.011)
Percent foreign-born white	–.038	–.071	–.00020
	(.041)	(.050)	(.031)
Percent non-white	–.163*	–.213**	–.183†
	(.066)	(.073)	(.101)
Farm diversity	–20.5**	–19.2**	–11.9†
	(7.87)	(7.01)	(6.80)
Social Movements			
National Grange members (000)		–.065**	–.236
		(.021)	(.720)
Members × Price of wheat			.013
			(.093)
Members × Population density			.423
			(.397)
Members × Percent population change			.0091**
			(.0021)
Members × Percent foreign born			–.0095*
			(.0047)
Members × Percent non-white			–.0075
			(.034)
Members × Farmer diversity			.134
			(.809)
Constant	27.6**	26.6**	18.9**
	(7.80)	(7.06)	(6.36)
Observations	114	114	114
Log likelihood	–438.88	–430.08	–411.18

Note: Robust standard errors in parentheses.
† $p \leq .10$; * $p < .05$; ** $p < .01$ (two-tailed tests).

change on mutuals consistently falls as Grange strength increases. Where Grange strength is low, a standard deviation increase in population change decreases the number of mutuals by 50.0 percent; where Grange strength is at the median, that change decreases mutuals by 46.2 percent; where Grange strength is high, it decreases mutuals by 22.5 percent. The negative effect of population change on dairy and grain cooperatives also falls as Grange strength goes from low to median. Where Grange strength is low, a standard deviation increase in population change decreases the number of dairy cooperatives by 32.9 percent; where Grange strength is at the median, that change decreases dairy cooperatives by only 22.6 percent. Similarly, where Grange strength is low, the increase in population change decreases the number of grain cooperatives by 49.8 percent; where Grange strength is at the median, it decreases grain cooperatives by only 32.5 percent. Movements buffered cooperatives from the

Table 7. Effects of Economic and Community Factors on the Number of Mutuals and Cooperatives per State, by Level of Grange Strength

	Level of Grange Strength		
	Low	Median	High
		Effects of Population Change	
Insurance	–50.0%	–46.2%	–22.5%
Dairy	–32.9%	–22.6%	39.7%
Grain	–49.8%	–32.5%	112.6%
		Effects of Foreign-Born Whites	
Insurance	49.4%	43.6%	17.9%
Dairy	104.8%	93.2%	52.0%
		Effects of Price Paid for Milk	
Dairy	26.1%	23.0%	8.5%

Note: Figures tabled are the predicted percent change in the number of mutuals or cooperatives per state for a one standard deviation increase in population change or foreign-born whites, and a one standard deviation decrease in milk prices.

adverse effects of population change, reducing their dependence on stable communities. Yet, raising Grange strength to high levels reversed the effects of population change in dairy and grain. At high Grange strength, population change *increased* cooperatives. Highly organized movements may have helped cooperatives harness new ideas or members produced by population growth.

Table 7 also shows how the effects of foreign-born whites and milk price vary by movement strength. The effects consistently fall as Grange strength increases. Where the Grange is weak, a standard deviation increase in *foreign-born whites* increases the number of mutuals by 49.4 percent and dairy cooperatives by 104.8 percent. Where the Grange is strong, that increase has smaller effects, increasing mutuals by 17.9 percent and cooperatives by 52.0 percent. Similarly, where the Grange is weak, the drop in *milk prices* increases the number of dairy cooperatives by 26.1 percent; where the Grange is strong, the effect is only 8.5 percent.

In sum, the Grange substantially moderated the effects on organization of micro-economic forces and community dynamics during the early twentieth century. The movement buffered cooperatives and mutuals from population instability, substituted for supportive communities, and reduced cooperatives' dependence on adverse market conditions.

To assess the robustness of these results, we added (1) lagged dependent variables, (2) anti-corporate politics variables to capture time-invariant, state-level effects, and (3) both. We did this to minimize autocorrelation and unobserved heterogeneity bias due to omitted time-invariant, state-level factors (Halaby 2004). We also wanted to see if movements similarly affected the number and change in number of cooperatives over time. These analyses all yield results virtually identical to those reported (available from the authors on request). Results for population change are robust across all specifications for all sectors. Results for foreign-born whites in insurance hold up with a lagged dependent variable, losing significance after that. Results for foreign-born whites and prices for dairy persist across all models. Not surprisingly, our results fare less well in fixed-effect models, given our short but wide data sets. Even here, though, we could replicate results for population change and the number of foreign-born whites in the dairy industry.

We also fit zero-inflated negative binomial models with and without lagged dependent variables to see if the number of zeros affected our findings. This yields virtually identical results as those tabled here for insurance and dairy. The grain data contain more zeros, but zero-inflated models produce stronger results for that industry. In models of non-zero counts, the coefficients for interactions between the Grange and price, population change, and percent non-whites are all positive and significant. In this industry, the Grange buffered cooperatives from the adverse effects of both population instability and racial divisions. As in dairy, the Grange

also reduced grain cooperatives' dependence on particular economic (price) conditions.

DISCUSSION AND CONCLUSION

How do social movements promote new organizational forms and alternatives to for-profit corporations? Recent scholarship reemphasizes how contestation and collective action play critical roles in the development of institutions and organizational forms, generating new syntheses of movements and organizations research (Clemens and Minkoff 2004; Davis et al. 2005; Hargrave and Van de Ven 2006; Schneiberg and Lounsbury 2008). Yet few studies combine multivariate methods and direct measures of movements to catalog and assess movement effects on organizations.

We advance research at the movements/organizations interface by analyzing movement effects on cooperative enterprise in three U.S. industries over three decades. Using multivariate techniques to consider various causal relationships, we found that anticorporate movements were "organization-generating organizations" (Stinchcombe 1965) during the late nineteenth century. Increasing Grange strength had positive effects in all three sectors on the prevalence of cooperative alternatives to corporations. These effects were conditional on the political context, with the Grange fueling cooperative forms most vigorously as either an alternative to politics or a response to blocked political access. Further, we found that movements continued to foster cooperatives beyond the nineteenth-century populist revolts, serving as social infrastructure that moderated the organizational effects of economic forces. The Grange partly substituted for community supports, insulating cooperatives from ownership costs associated with population change, and reducing their dependence on immigrant communities or carriers. In effect, the Grange helped sustain cooperative forms as the United States shifted from a society of stable, local communities to a diverse and impersonal society of geographically mobile strangers.

Further work is needed to clarify these causal relations. We propose multiple mechanisms for movement effects. Moreover, Haveman and colleagues (2007) and Schneiberg (2007) argue that movements have *indirect* effects on forms. Movements may produce outcomes—newspapers, new discourses, or communities of similar forms in nearby domains—that in turn foster new forms in a sector. Yet neither those works nor the current study measure both movements and their intermediate organizational or discursive outcomes, leaving it to future researchers to sort out direct and indirect movement effects (but see King and Haveman forthcoming). Fortunately, we have abundant resources for that work, including possibilities identified by Minkoff (1994), Ruef (2000), and Greve and colleagues (2006) for integrating analyses of movement effects on forms with discourse analysis and ecological work on organizational communities.

Our analyses also contribute to movement research. Until recently, movement scholars focused on the emergence of movements, leaving outcomes largely unanalyzed (Guigni 1998). We join efforts to close this gap with new evidence that movements have important—organizational—effects. We also extend movement analyses of political opportunity, mobilization, and counter-mobilization. Scholars have documented features of political systems that render them more or less open to movements' demands, generating conditional movement effects on policy outcomes (Amenta et al. 1992; Soule and King 2006; Soule and Olzak 2004). Scholars argue further that mobilization and its outcomes emerge from interactions in which movements and counter-movements shape the environment and political opportunities for one another (Meyer and Staggenborg 1996; Vogus and Davis 2005; Zald and Useem 1987). Movements evoke counter-mobilization, which can blunt challengers' efficacy, reverse gains, create or close off opportunities, and prompt challengers to shift venues or tactics. We develop this reasoning by documenting conditional movement effects on organizations and rooting this finding in the dynamics of contention. Counter-mobilization by corporate forces prompted producer movements to shift from politics and anticorporate policies to private strategies of economic self-organization.

Our study relies on crude proxies for corporate counter-mobilization and blocked political access; with our data, we cannot rule out the possibility that agrarians rejected politics on principled rather than pragmatic grounds. Our study does suggest, though, that research on

opportunity, mobilization, and counter-mobilization can be fruitfully extended beyond postwar movements and policy outcomes to consider new periods and movements, organizational outcomes, and shifts in movement agendas from policy to independent organization. It suggests further that these dynamics of contention can produce historical, path-dependent trajectories and a sequence over time of different movement effects (King et al. 2005; Soule and King 2006). Agrarians and independent producers mobilized against corporations in the nineteenth century, realizing early political and organizational victories as they grew in strength (Schneiberg and Soule 2005). As corporations counter-mobilized, though, they could sometimes deny their opponents political access, prompting agrarians to work outside the state and build alternative orders through cooperative enterprise. Further, as politicized national struggles over the corporate order receded into the past, agrarian-producerist movements served increasingly as social infrastructure for cooperatives, moderating economic forces and buffering these forms from adverse economic and community conditions.

Finally, we contribute to core agendas in economic sociology by analyzing how social structures moderate economic forces, facilitate market development, and shape economic organization. Economic sociologists have shown how social structural factors—policy regimes, institutional logics, and professional associations—condition the effects of economic forces on institutions and organizations. They transform, for example, how organizations and industries understand and respond to market conditions, such as deciding whether to merge, which structures and strategies to adopt, and how to regulate competition (Bartley and Schneiberg 2002; Dobbin and Dowd 2000; Dobbin and Sutton 1998; Lounsbury 2007; Mizurchi, Stearns, and Marquis 2006; Thornton and Ocasio 1999). We add that movements likewise qualify as moderating social factors. As producers of social ties, templates, and already-formed collectivities, movements can alter the micro-economics of organizational choice, mitigating costs of cooperative ownership and rendering forms less dependent on specific economic conditions.

Economic sociologists and others also show how social factors, networks, and collective mobilization are critical in creating markets, industries, and economic institutions (Abolafia 1996; Aldrich and Fiol 1994; Fligstein 2001; Hargrave and Van de Ven 2006; Scott et al. 2000; Van de Ven and Garud 1993). To this work, we add hypotheses that movements can also aid market creation as both organization-generating organizations and social infrastructure. By contesting existing arrangements and providing entrepreneurs with political support, field frames, standards, and organizing templates, movements carve out space for new markets, generate institutional supports for industry development, and populate markets with new forms of enterprise. Moreover, as social infrastructures, movements help institutionalize key forms and market supports, buffering them from adverse or short-term economic forces.

Our findings about movement effects during the "age of corporate consolidation" suggest that cooperative alternatives to corporations emerged as integral and enduring, rather than aberrant or transitory, elements of U.S. capitalism during the early twentieth century (Schneiberg 2007). Economic sociologists and institutionalists rightly take the rise to dominance of the corporation as a key tendency in the late-nineteenth- and early-twentieth-century U.S. economy. Our work suggests, though, that corporate consolidation was a continuously contested historical process. Reformers and anticorporate movements successfully promoted and sustained cooperative enterprises across industries with very different economic characteristics, rendering them less dependent on peculiar economic forces, common cultures, and other idiosyncratic local conditions. In so doing, movements like the Grange helped institutionalize cooperatives and mutuals alongside corporations, fostering substantial and lasting organizational diversity within American corporate capitalism.

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APPENDIX

Table A1. Descriptive Statistics for Cross-Sectional Analyses

Variable	Obs	Mean	SD	Min.	Max.
Population	48	1,578,164	1,545,227	42,335	7,268,894
Manufacturing value added	48	.062	.050	.003	.205
Milk output (gals per cap)	48	98.0	70.6	17.3	405.3
Wheat output (bush per cap)	48	15.6	33.6	.001	205.5
Population density	48	58.2	84.8	.4	401.6
Price of milk per gallon	48	.123	.047	.056	.262
Price of wheat per bushel	48	.679	.124	.473	.952
Percent population change	48	27.9	30.9	.343	205.6
Farm heterogeneity	48	.774	.140	.362	.932
Percent foreign-born white	48	13.5	9.95	.232	35.3
Percent non-white	48	13.2	16.8	.194	58.7
Percent populist vote	42	14.1	16.7	.069	70.4
Granger railroad law	48	.104	.309	0	1
General antitrust law	48	.417	.498	0	1
Anticompact law	48	.458	.503	0	1
National Grange members	42	9,519	10,152	199	42,136
Number of Granges	41	463	466	15	1,901

Table A2. Correlation Matrix for Cross-Sectional Analyses

	Pop	Value Added	Milk Output	Wheat Output	Population Density	Price Milk	Price Wheat	Pop Change	Foreign born	Non-white	Farm het	Plst Vote	RR law	Antitrust	Anticomp	Grange Member
M value added	.268															
Milk output	–.059	–.087														
Wheat output	–.214	–.266	.319													
Population density	.311	.785	–.240	–.232												
Price of milk	–.271	.016	–.647	–.299	.012											
Price of wheat	.132	.312	–.246	–.391	.406	.350										
Percent pop. change	–.180	–.182	–.117	.242	–.144	.106	–.334									
Farm heterogeneity	.209	.305	–.514	–.670	.344	.412	.494	–.549								
Percent foreign-born	–.006	.584	.276	.389	.355	–.261	–.210	.039	–.256							
Percent non-white	–.072	–.424	–.463	–.229	–.188	.447	.451	–.032	.316	–.675						
Percent populist vote	–.390	–.533	.041	.375	–.452	–.030	–.390	.209	–.423	–.001	.106					
Granger railroad law	.272	.011	.305	–.000	–.049	–.344	–.234	–.056	–.187	.186	–.233	–.207				
General antitrust	.223	–.290	.133	.272	–.237	–.191	–.193	–.043	–.332	.032	.041	.255	.265			
Anticompact law	.044	–.372	.170	–.025	–.285	–.224	–.006	–.048	–.133	–.367	.296	.087	.097	.240		
Grange members	.468	–.194	.082	–.136	–.047	–.211	–.124	–.308	.083	–.341	–.039	–.190	.401	.369	.349	
Number of Granges	.441	–.280	–.009	–.172	–.086	–.143	–.122	–.264	.178	–.417	.046	–.234	.400	.360	.308	.945

Table A3. Descriptive Statistics for Time-Series Analyses

Variable	Obs	Mean	SD	Min.	Max.
Population	192	2,048,183	2,040,070	42,335	12,400,000
Manufacturing value added	192	.125	.114	.003	.509
Milk output (gals per cap)	144	85.9	67.5	10.8	405.3
Wheat output (bush per cap)	144	13.9	29.0	.000	205.5
Population density	192	75.0	115.3	.400	641.5
Price milk per gallon	144	.211	.094	.056	.473
Price wheat per bushel	144	1.36	.619	.473	2.50
Percent population change	192	22.7	24.2	.317	205.6
Percent foreign-born	192	11.7	9.1	.232	35.3
Percent non-white	192	12.5	15.5	.155	58.7
Farm heterogeneity	192	.865	.095	.362	.990
Manufacturer heterogeneity	192	.742	.082	.464	.886
Percent populist vote	168	14.1	16.6	.069	70.4
Granger railroad law	192	.104	.306	0	1
General antitrust	192	.417	.494	0	1
Anticompact law	192	.458	.5	0	1
National Grange members	124	6,951	11,895	23	69,092

Table A4. Correlation Matrix of Independent Variables for Time-Series Analysis

	Pop	Value Added	Milk Output	Wheat Output	Population Density	Price Milk	Price Wheat	Pop Change	Foreign born	Non-white	Farm het	Man het	Plst Vote	RR law	Antitrust	Anticomp
Man. value added	.421															
Milk output	–.121	–.092														
Wheat output	–.195	–.244	.326													
Population density	.318	.689	–.275	–.224												
Price milk gallon	.004	.330	–.334	–.143	.111											
Price wheat bushel	.150	.507	–.071	–.144	.177	.846										
Percent pop. change	–.141	–.182	–.130	.241	–.124	–.128	–.272									
Percent foreign born	.104	.414	.235	.259	.461	–.285	–.127	.157								
Percent non-white	–.077	–.342	–.439	–.251	–.199	.294	.068	–.025	–.662							
Farm heterogeneity	.092	.265	–.333	–.450	.150	.422	.470	–.320	–.121	.002						
Manu heterogeneity	.328	.543	–.263	–.433	.535	–.058	–.085	–.233	.179	.029	.046					
Percent populist vote	–.367	–.437	.064	.425	–.426	–.003	–.094	.231	–.101	.081	–.123	–.592				
Granger railroad law	.209	.047	.331	–.022	–.061	–.196	–.035	–.130	.142	–.230	–.108	–.033	–.207			
General antitrust	.191	–.199	.126	.295	–.233	–.081	–.055	–.072	–.032	.023	–.239	–.270	.255	.265		
Anticompact law	.009	–.200	.127	.000	–.286	–.015	.027	–.147	–.354	.269	–.140	–.092	.087	.097	.240	
N Grange members	.664	.432	–.126	–.238	.244	.073	.179	–.081	.304	–.206	.120	.311	–.287	–.220	–.053	.027

Table A5. Direct and Conditional Effects of Movements on the Number of Mutuals and Cooperatives Using Alternative Measures of Movement Strength

	Main Effect Models			Interaction Effect Models		
	Insurance Mutuals 1903					
National members 1876	.023†			.027*		
State membership		.0023			.0033	
Number of granges			.065*			.080**
Grange strength × law				–.026	–.0049	–.050*
	Dairy Cooperatives 1913					
National members 1876	.084**			.087***		
State membership		.020*			.022*	
Number of granges			.13**			.14**
Grange strength × law				–.055	–.025*	–.14**
	Grain Elevator Cooperatives 1913					
National members 1876	.12*			.14**		
State membership		.040†			.048*	
Number of granges			.13			.16†
Grange strength × law				–.34**	–.10**	–.40**

Note: All models include the controls, economic and community conditions, and political variables included in the corresponding models in Tables 1 and 2.
† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$ (two-tailed tests).

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