

How Institutional Constraints Affected the Organization of Early U.S. Telephony

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Although a great deal of social science research now focuses on institutions, the bulk of this work attempts to explain the emergence and form of particular institutions. Many of these efforts look at the underlying interests that influence the content of, say, a law (e.g., Wilson, 1980; Fligstein, 1990), while other efforts examine properties of the institutions themselves (e.g., Williamson, 1985). With the major exception of efficiency considerations, far less research—indeed, hardly any—examines the actual behavioral consequences of institutions once they are established.

Direct investigation of institutional effects often is neglected for theoretical reasons. As Moe (1990: 215) explains, “a theory capable of explaining institutions . . . presupposes a theory of institutional effects.” This is so because, “institutions arise from the choices of individuals [who] choose among structures in light of known or presumed effects.” If an institution’s actual effects coincide with its intended effects, then an explanation of why the

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institution exists in the form it does may subsume an explanation of its effects. To the extent that institutions generate major unintended consequences, however, such a theory will have less to say.

In the spirit of March and Olsen (1984, 1989), we believe that unintended consequences are central to institutional phenomena. Accordingly, we depart from typical rationalistic approaches and look at the actual consequences of institutions, regardless of their origins, intended effects, or implications under assumptions of rationality.¹ Stated more abstractly, the approach involves replacing “the assumption that history is efficient with explicit consideration of how historical processes are affected by specific characteristics of political institutions” (March and Olsen, 1989: 55–56). Our study examines the early U.S. telephone industry to exemplify this approach because companies operating in it faced a variety of institutional constraints. These ranged from those imposed by municipalities and other local authorities, to those arising from state governments and commissions, to those emanating from the federal government. Telephone policy was not effectively coordinated among these various legal entities and thus differed substantially by geographical area. Policies and regulations also changed considerably across time at each level.

As a theoretical guide, we use the framework of organizational ecology (Hannan and Freeman, 1977, 1989). This choice means that we examine organizational change as a selection process whereby different forms of organization compete with and replace each other over time. Our analysis here centers on two conventional ecological questions. First, we seek to explain the numbers of organizations operating in different environments and at different points in time. Organizational ecologists refer to this variable as “organizational density” (Hannan and Carroll, 1992). Second, we attempt to understand the nature of interdependence between various forms of organization. By the ecological view, organizational forms compete with each other in the sense that growth in the numbers of one form diminishes the numbers of a second form. That is, negative interdependence between organizational populations is taken as competition. Positive interdependence usually is referred to as mutualism. In this analysis, we are interested in how organizational interdependencies change over time in response to institutional changes.

Several characteristics of the early telephone industry make it an especially interesting case to study. As a “mediating technology” industry, in which network coordination is the primary managerial imperative, the telephone industry would be most efficiently administered by a single, overarching organization (Thompson, 1967).² Yet literally thousands of telephone com-

1. In taking this approach, we do not abandon the idea that actors may behave rationally. We assume, as have most organization theorists since Simon (1945) and March and Simon (1958), that actors are “intendedly” rational—an assumption that makes the unintended effects of institutions especially interesting.

2. Thompson (1967) emphasized the advantages that a single organization holds in coordinating an extensive, standardized system. This idea is similar in spirit to the economic idea of “natural monopoly” in industries characterized by ever-increasing economies of scale (Baumol, Panzar, and Willig, 1982; Panzar, 1987).

panies populated the U.S. landscape. In fact, our data show that more than 30,000 independent telephone companies operated at one time or another in the mainland United States, collectively controlling more than 50 percent of the market in some states. We seek to understand why these companies existed and how competition among them developed in light of various political constraints. In particular, we focus on the effects of three types of institutions: local political boundaries, state regulations, and a major agreement between the federal government and AT&T known as the Kingsbury Commitment.

Our special interest lies in demonstrating that political institutions sometimes affected the industry in unintended ways. If *a priori* public representations could be accepted as true intentions, then such demonstrations might be a simple matter. But, of course, actors are often less than straightforward—they often disguise their intentions, occasionally base their actions on assumed cause-and-effect relations, and sometimes even conspire. Once these and other sophisticated action possibilities are admitted, then it is almost always possible in retrospect to construct a rational account for an outcome. However, the rational explanation may be very complex, especially when the context involves multiple actors. The plausibility of such accounts sometimes strains our notions of actors with only bounded rationality. Demonstrating that an outcome is an unintended consequence of an institution involves, therefore, not so much denying the possibility of a rational account but assessing such an account as implausible.³

The protean character of rational-action theories leads us to employ an unusual editorial format in attempting to explain the consequences of institutions. For each institution we study, we present first empirical evidence as to its effect on either organizational density or interdependence. That is, we present evidence before we discuss theoretical explanations. We do this (despite having deductive theoretical motivations) because it is inefficient to discuss the multitude of rational-action possibilities before it is obvious which of these might pertain. By developing the arguments after an empirical finding has been established, we are able to focus on the relevant issues and to make assessments of the relative plausibility of various theories. In order to get to the most interesting material quickly, we relegate our discussion of data sources and methods to Appendix A.

1. Historical Setting

Elisha Gray and Alexander Bell each independently developed liquid telephone transmitters in 1875, but Bell was first to patent the invention in 1876 and to apply it commercially in 1877 (MacLaren, 1943). The ensuing period was one of “patent monopoly.” Although would-be entrepreneurs attempted many times to enter the telephone business, they were met by aggressive

3. We find it reassuring that in an early analysis of similar issues Merton (1936: 897) reached a similar conclusion: “Ultimately, the final test is this: does the juxtaposition of the overt action, our general knowledge of the actor(s) and the specific situation and the inferred or avowed purpose ‘make sense.’”

litigation from the Bell companies (MacLaren, 1943). Between 1877 and 1893, Bell brought more than 600 patent suits against other telephone companies and equipment manufacturers. Usually, these efforts drove the potential competition out of business (Danielian, 1939; Phillips, 1985).

Competition eventually intensified. In 1893, Bell's transmitter patent expired and in 1894 the receiver patent did as well. With these obstacles removed, and spurred by the economic prosperity of the post-1896 era, large numbers of independent (non-Bell) telephone companies began service. Whereas in 1894 fewer than 100 independent telephone companies existed, by 1902 more than 9,000 operated nationwide (Brock, 1981). Market share of the independents increased sharply, from 5 percent in 1894, to 19 percent in 1897, to 44 percent in 1902 (Brock, 1981).

Independent telephone service providers used three general organizational forms. In some areas, profit-oriented *commercial firms* appeared. These companies had high rates of growth and often manufactured their own equipment. In rural areas, *mutual companies* were more common. These companies typically were not organized to make profits. Instead, they were often started simply to provide service to communities that Bell and the commercials had snubbed. Client-members owned, financed, managed, and worked for these companies (Fischer, 1987a). Although they often provided poor service, these "social companies," as they were known, commanded great loyalty from their members. Finally, the smallest telephone systems were operated by groups of farmers. Usually organized informally and with little capital, these *farmer lines* can be thought of as a special instance of the mutual form.

Telephone companies of the early 20th century were organized geographically. Access to a telephone system required physical connection by wire. For this reason, a company could increase the extensiveness of its service only by gaining access to subscribers in contiguous areas. Companies expanded either by introducing telephone service to unserved areas, encroaching on the territories of neighboring companies, or connecting their lines to the switchboards or central offices of other companies. The result was a landscape of geographically based parcels, each composing the service territory of a particular company, with the group as a whole containing numerous connections, overlaps, and gaps. Territorial shifts occurred frequently.

For a given large area of land, such as a county or state, these organizational forms were found in a sort of hierarchical arrangement (Atwood, 1984). Rural farmer lines connected with small mutual companies, which in turn connected with larger mutuals or commercials, and sometimes with Bell. The networks of cooperating organizational forms can be thought of as "organizational communities" (Barnett and Carroll, 1987). Internally these communities were differentiated, so the various organizational forms stood in symbiotic relation to each other (Barnett, 1990). Externally the communities competed for territory with neighboring organizational communities.

The telephone diffused rapidly during the period (Fischer and Carroll, 1988). In Table 1, we present some descriptive data on the states' markets and organizational populations (see Appendix A for a detailed discussion of the

Table 1. The Early U.S. Telephone Industry

	State Means (at Five-Year Intervals)								
	1902	1907	1912	1917	1922	1927	1932	1937	1942
Total telephones (in hundreds)	550	1,268	1,808	2,426	2,967	3,828	3,592	3,999	N.A.
Bell market share (%) ^a	N.A.	55.5	61.2	63.6	65.2	71.3	76.0	77.1	N.A.
Independent companies ^b	N.A.	251	248	163	163	174	130	136	142
Large independents ^c	N.A.	29	32	34	37	34	20	18	19
Small independents	N.A.	222	216	129	126	140	110	118	123
Systems and lines	191	479	672	1,109	1,193	1,253	932	808	N.A.
Large systems and lines ^d	N.A.	40	40	46	37	28	19	18	N.A.
Small systems and lines	N.A.	439	632	1,063	1,165	1,225	913	790	N.A.

Note: N.A. indicates data not available in sources.

^aMarket share percentages are grand means and do not correspond exactly with overall national market share percentages discussed at points in text.

^bIncluding very small companies with less than 50 subscribers raises these numbers slightly, except that in 1912 inclusion of Iowa almost doubles the average for that year.

^cDefined as independent companies with more than 450 subscribers. Small independents have 450 or less.

^dFor 1907 to 1917, defined as systems and lines with income over \$5,000. For 1922 to 1937, defined as systems and lines with incomes over \$10,000. Small systems and lines are those with less income.

variables and data sources). We show that the “average state” experienced a more than sevenfold increase in the number of telephones from 1902 to 1942. Independent companies did not necessarily flourish as a result: The average number of independents per state was cut about in half from 1907 to 1932, although after 1932 there was a slight increase. Most of this downtrend can be attributed to the small independents; although large independents also show an overall pattern of decline across the period, their numbers were generally more stable.

Systems and lines show a different pattern, probably reflecting the inclusion of smaller lines omitted from the measure of number of companies (see Appendix A). The number of systems and lines increases rapidly, levels off, then decreases. Some of this apparent difference is due to the earlier observation point, but even ignoring this point leaves the general pattern intact. As with the companies variable, most of the change in total systems and lines is attributable to the small systems and lines. Large systems and lines rise and decline, but the fluctuations are not severe.⁴

2. Number of Organizations

The functionally structured telephone industry might have expanded over the country in a more-or-less orderly way. However, extreme differences in the numbers of companies in the various states suggest otherwise. Some states—for example, Alaska, Delaware, Nevada, and Rhode Island—had fewer than 10 telephone companies in 1908. Others—including Illinois, Indiana, Iowa, New York, Wisconsin, and Ohio—were each home to more than 500 companies. What might explain these variations?

2.1 Evidence

In Table 2, we present estimates of cross-sectional regression equations for the number of telephone organizations in a state in relation to various independent variables measuring market and institutional factors.

Somewhat surprisingly, many variables measuring dimensions of the telephone market show no significant effects in Table 2. Land area and rural population, for instance, have no significant effects of any kind on the number of telephone companies. Average wage has positive effects on only the systems and lines variables, and then mainly in the earlier periods. Roughly the same pattern holds for urban population except that its effects are mainly on large systems and lines and commercial companies. On the other hand, the effects of average value of farmland and buildings are robust. In all but three of the estimated equations, this variable has a positive and significant relationship with the number of companies.

Turning to institutional factors, variables measuring a state’s internal politi-

4. We caution against inferring too much from the data in Table 1. Because they are means, these numbers mask the underlying variation across states, and, as we noted earlier, individual states showed some rather startling differences in number of telephone companies. For example, consider the figure 140 for small independents in 1927: Underlying this average is a minimum of 0, a maximum of 590, and a standard deviation of 137.

Table 2. Weighted Least Squares Estimates of the Effects of Political Boundaries on the Number of Organizations

Organizational Form	Period	Intercept	Ave. Wage	Ave. Value Farm Bldgs.	Log Urban Popn.	Log Rural Popn.	Log Land Area	Urban Incorp. Places	Rural Incorp. Places	Counties	R ²	N × T
Independent companies	1907-42	-267 (281)	-1.01 (2.27)	.583* (.091)	15.2 (16.9)	21.0 (26.5)	-17.8 (15.7)	-.726* (.306)	.665* (.078)	.587 (.377)	.465	384
Large independents	1907-42	-24.1 (31.1)	-.039 (.251)	.084* (.010)	6.95* (1.87)	-.885 (2.94)	-2.26 (1.74)	-.038 (.034)	.116* (.009)	.026 (.042)	.684	384
Small independents	1907-42	-243 (274)	-.968 (2.20)	.499* (.089)	8.26 (16.4)	21.9 (25.8)	-15.6 (15.3)	-.689* (.297)	.550* (.076)	.561 (.366)	.389	384
Systems and lines	1902-37	-1423 (1004)	30.0* (9.05)	1.17* (.350)	142* (57.8)	-4.09 (94.1)	-44.6 (56.6)	-2.52* (1.15)	1.92* (.291)	10.6* (1.35)	.584	384
Large systems and lines ^a	1907-17	-44.1 (59.8)	1.75* (.743)	.046* (.020)	10.1* (3.29)	-1.72 (5.79)	-4.36 (3.73)	.040 (.075)	.155* (.019)	.131 (.077)	.773	144
Small systems and lines	1907-17	-1167 (1486)	43.2* (18.4)	.771 (.487)	73.1 (81.7)	80.3 (144)	-157 (92.7)	-2.70 (1.86)	2.09* (.473)	9.43* (1.90)	.618	144
Large systems and lines ^b	1922-37	-30.25 (32.6)	.358 (.303)	.043* (.014)	4.42* (1.99)	-.539 (3.07)	-.646 (1.75)	.067* (.033)	.071* (.008)	-.004 (.041)	.700	192
Small systems and lines	1922-37	-1807 (1486)	3.02 (13.9)	2.52* (.616)	146 (90.7)	6.01 (140)	17.1 (80.1)	-3.60* (1.49)	1.57* (.385)	14.7* (1.89)	.656	192
Commercial systems	1902	-74.1 (152)	1.70 (1.42)	.033 (.098)	20.0* (9.64)	-3.81 (14.2)	-2.52 (8.72)	-.489* (.221)	.275* (.050)	.347 (.181)	.760	48
Mutual systems	1902	-41.6 (84.9)	.463 (.792)	.086 (.055)	8.95 (5.38)	-2.04 (7.91)	-.348 (4.86)	-.317* (.123)	.173* (.028)	-.098 (.101)	.701	48

Note: Standard errors are shown in parentheses.

^aDefined as systems and lines with income over \$5,000 per year.^bDefined as systems and lines with income over \$10,000 per year.**p* < .05.

cal differentiation show strong effects. The number of rural incorporated places has a significant positive effect in every equation. Moreover, this effect is larger for the models of the number of small companies than for the models of number of large companies. The number of counties has a less robust effect, although it too has a positive effect whenever significant. Finally, the number of urban incorporated places has a positive and significant relationship only with large systems and lines, and is negative and often significant in the other equations. In conjunction with rural incorporated places, this pattern suggests that large and small telephone companies operated in different “niches,” the large companies being organized around city boundaries and the small companies around towns and villages. To the extent that there were many cities in a state, the “niche” of the large organizational form apparently encroached on that of the small form.

The strong relationship between political differentiation and the number of telephone companies can be seen most clearly in Figure 1. The total number of independent companies is plotted on the vertical axis and a summary measure of the number of political units in a state is plotted on the horizontal axis. The political units measure is the sum of the number of counties, the number of urban incorporated places, and the number of rural incorporated places. The two variables plotted have a clearly discernible positive linear relationship with each other. The variance in the number of telephone companies also increases with the number of political units, a relationship that suggests that the degree of autonomy granted to political units may differ across states.

2.2 Explanations

Telephone service areas were shaped, no doubt, by many physical and social constraints. Natural physical barriers such as mountains and deserts may have constituted the reasonable stopping points for undercapitalized telephone entrepreneurs. Likewise, homogeneous ethnic communities might have formed the natural markets for telephone systems. Most of these fine-grained market factors are not measured in our analysis and thus cannot be evaluated.

More obvious but global market factors such as population size, areal size, and wealth are measured in our analysis. Typically sociologists expect these factors to increase the market's capacity to support a given form of organization, and so to be positively related to numbers of organizations (Stinchcombe, 1965; Hannan and Freeman, 1977). And, the measures of income and wealth—average wage and average value of farm buildings—do show the expected relationships.

The effects of resource variables on organizing capacity may be straightforward, but why do the numbers of political units (incorporated places and counties) within a state also show positive relationships to the number of telephone companies? We think that the political boundaries of towns, cities, and counties constrained the expansion of individual telephone companies—and so led to greater numbers of companies—for at least two institutional reasons. First, local political units must have reflected at least in part the

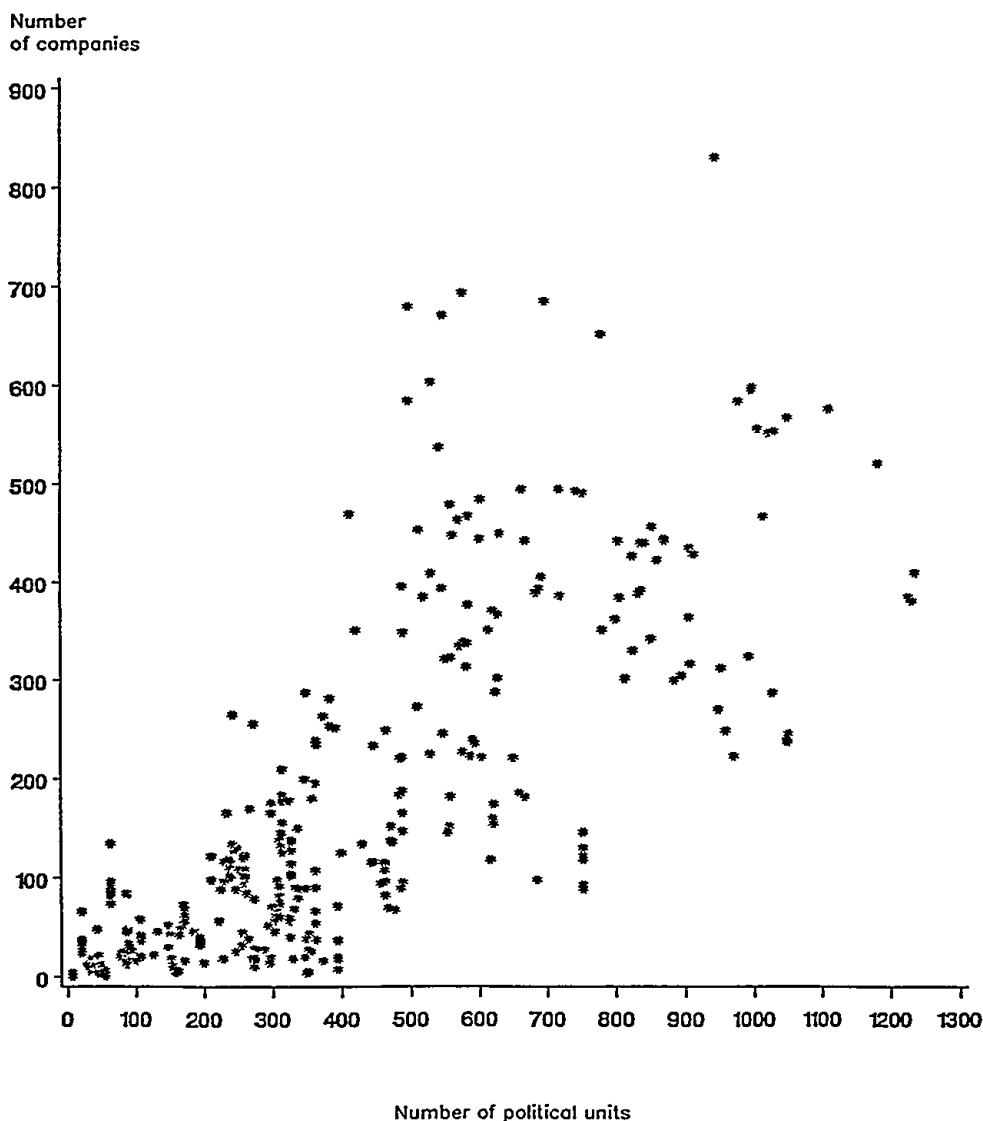


Figure 1. Political differentiation and telephone companies, 1907–1942.

taken-for-granted normative conceptions of the market; entrepreneurs would have readily adopted these boundaries when thinking of organizing telephone companies (Meyer and Rowan, 1977). This was especially likely for the mutual telephone companies, which often sprang up in populist fashion in places where Bell and the commercial independents refused to locate (Fischer, 1987b).

A second reason has to do with the fact that local governments were the first regulators of the telephone industry (Brooks, 1976). This came about because the initial proliferation of companies resulted in direct price competition in some places (Gabel, 1969). In fact, by 1902 nearly one-half of the nation's 1,051 incorporated places with telephone service had more than one company (Phillips, 1985). To attract customers in these places, companies reduced

prices—sometimes offering service at no charge⁵—which often resulted in poor-quality service (Gabel, 1969). In other cases, opportunistic entrepreneurs would enter local markets intending simply to prompt existing competitors to buy them out. Consequently, local governments began requiring telephone companies to obtain charters—often for a fee—that controlled rates, acquisitions and mergers, and rights-of-way for cable (Stehman, 1925).

The combined effect of many such local constraints creates at the state level what Meyer and Scott (1983) call “institutional fragmentation.” Empirical research in a variety of contexts has demonstrated that such fragmentation makes it difficult to design, monitor, and enforce a unified and coherent public policy (Meyer, Scott, and Strang, 1987; Carroll, Goodstein, and Gyenes, 1988). Therefore, states with greater numbers of political units would have been less capable of rationalizing the telephone industry.

Political boundaries also prevented market factors from operating freely. For example, by 1910 the Pittsburgh & Allegheny Telephone Company served most of the market in Pittsburgh, Pennsylvania. Unconstrained, one would expect that this company would also have served the entire metropolitan area surrounding Pittsburgh in Allegheny county. However, the area was very fragmented politically—including 120 distinct political units in 1910 (U.S. Bureau of the Census, 1910). In turn, this area was not dominated by the Pittsburgh & Allegheny Telephone Company, but instead was served by 11 different telephone companies at that time.

In offering these various reasons for the effects of political constraints, we emphasize the structure of the institutions involved rather than the intentions of any particular actor. While this approach helps to uncover the inadvertent ways that institutions affect organizational evolution, it downplays the possibilities that a rational-action approach might reveal. For example, telephone entrepreneurs were known to manipulate local political systems to their benefit (Stehman, 1925). Most of the time this activity involved the negotiation of favorable rates and access rights, lowballing when bidding for franchise privileges, and the like. Entrepreneurs with foresight may have staked out new territory and attempted to have political boundaries defined around it. Or, managers of telephone companies may have asked local politicians to re-district or redefine political units in ways that preserved their markets and discouraged or eliminated competitors. Such processes would have produced the observed relationship between numbers of political units and telephone companies, but as a result of purposive action by individual entrepreneurs.

Although telephone entrepreneurs may have occasionally been able to influence the drawing of political boundaries, in our view these were likely to have been rare occurrences for a variety of reasons. Telephones were but a small fraction of the local government’s domain. If local politicians were easily swayed by interests, many other more powerful groups and actors would have dominated the telephone lobby. Besides, political units and their boundaries

5. See “Telephone History by Fred DeLand,” box 1108, AT&T Corporate Archives.

were usually well established before the development of the telephone industry. This meant that established political equilibria would have had to have been upset to enact telephone entrepreneurs' wishes. Furthermore, the sheer number of political units and telephone companies implies that similar processes of political influence would have had to have been repeated thousands of times. Finally, states vary considerably in their level of internal political differentiation (counties, municipalities, townships, etc.) and previous research has shown that this variation has not been designed rationally to correspond to, say, the degree of urbanization (Anderson, 1942). Rather, subunit assignment was sparked indigenously by citizens creating their own local governments. Organizational variation in American local government is thus the result of a historical process of expansion, conditioned by technologies available at the time of settlement (Liebert, 1976).

Taken together, these observations suggest to us a compelling case that political fragmentation should be considered an exogenous constraint that led unintentionally to increased organizational fragmentation in the telephone industry.

3. Effects of State Interconnection Laws on Organizational Interdependence

With idiosyncratic local regulation rampant, the telephone industry became increasingly chaotic (Brooks, 1976). Neighboring telephone companies often refused to connect their systems because of feuds over operating areas and methods (Atwood, 1984). In other cases, incompatible technologies sometimes made it difficult to connect, even if the companies were willing (Barnett, 1990). Meanwhile, 630 areas found commercial independents competing directly with mutual companies. The telephone industry thus developed into sets of sometimes overlapping, sometimes fragmented systems through which subscribers frequently could not connect to subscribers of other companies.

As a result of these and other service delivery problems, public discontent with the telephone industry grew. In response, 40 state governments formed commissions for telephone regulation or expanded existing regulatory commissions to cover the telephone industry. Generally, these commissions were charged with controlling local telephone rates, assuring fair interfirm connection contracts, and resolving consumer grievances (Federal Communications Commission, 1938, 1939).⁶

The states also enacted legislation dealing with specific problems in the industry. From 1904 to 1919, 34 states passed laws mandating interconnection among telephone companies (FCC, 1939: 137). These laws typically required adjacent companies to connect their systems, and ensured that network access charges among companies were fair (see, for example, Pennsylvania State

6. Federal regulatory jurisdiction over the industry also began during this period, with the passage of the Mann-Elkins Act of 1910. Technically this law gave the Interstate Commerce Commission (ICC) regulatory authority over rates and accounting methods, but the ICC effectively limited its involvement in the industry to the latter. Not until the establishment of the Federal Communications Commission (FCC) in 1934 was there effective national regulation of competition in the industry, (FCC, 1938; Danielian, 1939).

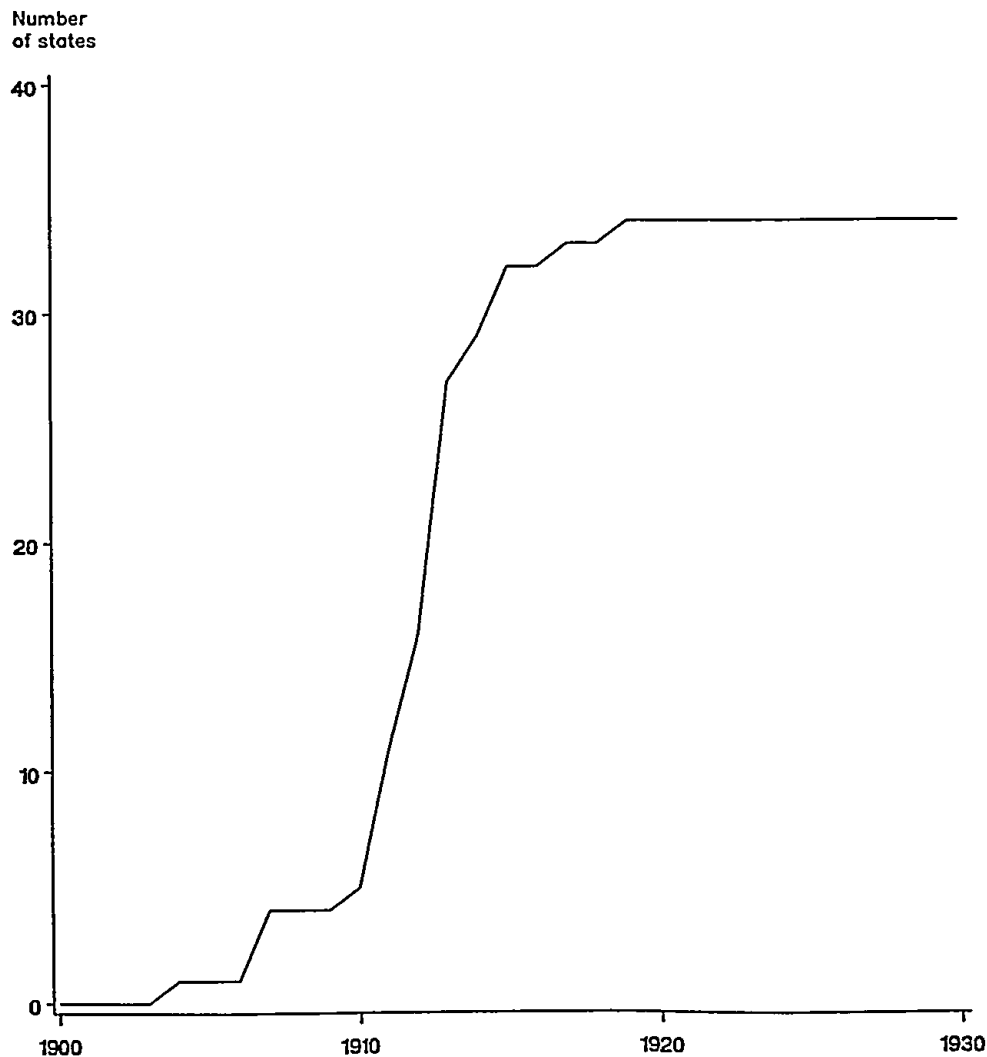


Figure 2. Diffusion of interconnection laws.

Department of Internal Affairs, 1913). They also often included requirements for the issue of local monopoly franchises (Panzar, 1987). The diffusion of these laws over time, which begins gradually and then accelerates rapidly after 1910, is shown in Figure 2. How did these laws affect competition in the industry?

3.1 Evidence

In Table 3, we present Zellner (1962) estimates of difference equations for growth and decline in the number of each type of organization before and after passage of interconnection laws. Before passage of interconnect laws, the Bell System apparently competed with large independent companies. Meanwhile Bell's relationship with small independents was apparently mutualistic, although this result is not significant. The competitive effect of Bell on the large independents disappears after interconnect laws are passed, perhaps turning mutualistic (but it is not significant).

Table 3. Zellner Models of Organizational Form Interdependence, According to State Interconnection Law Status

Dependent Variable	Constant	Bell System Market Share	ρ	R^2	$N \times T$
Pre-law period					
Δ Large independents	8.628* (3.663)	-.1185* (.0520)	.019	.022	152
Δ Small independents	-95.63 (60.34)	1.057 (.8560)			
Law period					
Δ Large independents	-5.792 (3.248)	.0357 (.0460)	.245	.003	184
Δ Small independents	-12.64 (11.13)	.1174 (.1575)			

Note: $\Delta\rho$ between law and pre-law periods is statistically significant in a one-tailed test, $p < .05$. Standard errors are shown in parentheses.

* $p < .05$.

We also show the correlation between the residuals of the large and small company models, indicated by ρ , in Table 3. This parameter allows us to assess whether the small and large organizational forms grew and declined together or in opposing directions (see Appendix A for further discussion and justification of this technique). When ρ is positive, the forms appear to be mutualistic; when it is negative, they are competitive. Comparing the estimate of ρ in the periods before and after the passage of interconnect laws suggests that this institutional constraint increased mutualism among the telephone company forms. The estimate of ρ changes statistically significantly from a weak positive relationship before the laws to a strong positive relationship after passage of the laws.

To see whether this finding is robust, the models in Table 3 were reestimated with additional control variables included. Because of collinearity problems, each control variable alone was included in a separate model along with Bell market share. In Table 4, we report the estimated correlations between the large-company and small-company residuals for these specifications, in the absence and presence of an interconnect law. In every case, interconnect laws generated a statistically significant increase in the positive relationship between these organizational forms.

3.2 Interpretation

In its demands that the telephone system be made more user-oriented and rational, the public provided the impetus for most interconnect laws. Legislatures and regulatory agencies heeded their calls and put into place laws and regulations requiring telephone companies to connect—in effect, to cooperate with each other in providing customer service. The primary intent behind

Table 4. ρ Estimates From Zellner Models with Additional Control Variables, According to State Interconnection Law Status

Additional Control Variable	Pre-Law ($N \times T = 152$)	Law ($N \times T = 184$)
Indexed average wage per worker	.019	.250
Indexed average value of farm buildings	.044	.247
Natural logarithm of urban population	.022	.220
Natural logarithm of rural population	.017	.233
Natural logarithm of state land area	.020	.246
Number of urban incorporated places	.015	.229
Number of rural incorporated places	.030	.237
Number of counties	.018	.252

Note: In every case, $\Delta\rho$ between law and pre-law periods is statistically significant in a one-tailed test, $p < .05$.

these laws was to rationalize the telephone delivery system, which at the time was characterized simultaneously by numerous service gaps and unnecessary overlaps.

As far as we can tell from the historical record, little thought was given to the organizational consequences of the interconnect laws. This does not necessarily imply, however, that the mutualism such laws generated was an unintended consequence. To the extent that interdependence figured into the design and enactment of interconnect laws, it would have only been natural to think that connecting companies, already loosely organized into functionally based communities, would become more tightly coupled. Such increased interdependence was consistent with the independent movement's belief that companies needed to band together to compete against Bell and would explain why the independent companies supported this legislation. Independents saw interconnect laws as a good thing, deserving of their support, while Bell opposed such requirements (MacMeal, 1934).

4. Effects of the Kingsbury Commitment on Organizational Interdependence

After 1896, when attempts to establish new patent protection failed, Bell engaged in price competition and refused to sell its equipment to independent companies (Gabel, 1969). The difficulty in obtaining good telephone equipment was exacerbated by a program of acquisition, whereby Bell bought out other equipment manufacturers. Some potential long-distance providers were purchased as well (Danielian, 1939).

Price competition did not work to Bell's advantage. Although Bell retained the lucrative urban markets, in many of them the presence of direct competitors kept profit margins low. Moreover, as the market expanded rapidly nationwide, Bell lost many of the new areas to competition. Bell profits, which had been 46 percent during the patent protection period, dropped to 8 percent for the period around 1906 (Brock, 1981). Yet even this competitive pressure was not enough to eliminate the independent companies.

In 1907, Theodore Vail, who had resigned as president of AT&T in 1887, was restored to office by a group of New York bankers holding substantial financial interest in the company. In response to the success of the independent telephone movement, Vail ordered an end to price competition and designed an aggressive new set of policies, which included denying interconnections for long distance and actively purchasing and merging the telephone systems of competitors. The strategy worked. From 1907 to 1912, national market share of the independents dropped from 49 percent to 42 percent. Nevertheless, Bell's tactics created much resentment when many independents lost long-distance capabilities as their previous partners were acquired by Bell. Complaints against the trust ran loud and high; Bell was frequently referred to with disdain as "the monopoly."

In response, the Department of Justice prepared to initiate antitrust proceedings against the Bell System. To prevent this, AT&T vice president N. C. Kingsbury reached an agreement in 1913 with the U.S. attorney general. In what is known as the "Kingsbury Commitment," the Bell companies agreed to stop acquiring directly competing independent companies (see Appendix B). The Commitment also guaranteed long-distance toll service to any independent company that conformed to fair and reasonable hookup procedures. In the independent telephone movement, the Commitment was lauded as a major victory over Bell, and entrepreneurs throughout the movement were described as "jubilant" (MacMeal, 1934).

As expected, the Kingsbury Commitment decreased competition from Bell. At the time of the Kingsbury Commitment, Bell and the independent companies competed directly in 1,234 places in the United States. Although acquisitions of direct competitors were technically not allowed under the commitment, interpretation provided for such actions as long as a property of equal size was sold to an independent company elsewhere. Consequently, mergers continued (although at a much reduced rate) in such a way as to establish geographical monopolies for both Bell and the independents. The decline in geographical rivalry reduced price competition significantly (Brock, 1981).

However, the ultimate effects of the Kingsbury Commitment proved disappointing to the independent telephone companies. Coordination attempts by the independents were often ineffective, despite the formation of a single, national industry association during the period (MacMeal, 1934). Atwood (1984) notes that early hopes to form a united system in Southeast Iowa broke down during the period, as conflicts among the various types of companies left the independent systems technically fragmented and organizationally divided. The FCC (1939) reports a similar development nationally, with some companies concluding that a viable independent movement was not possible. Accordingly, many large independents decided to sell out to the Bell System. Meanwhile, service problems during World War I (when all companies were at least formally under national control) topped off by significant postwar rate increases (thought to be due to national control), rendered illegitimate the status quo under Kingsbury, and softened public opposition to Bell System

expansion (Danielian, 1939). These shifts culminated in the Willis–Graham Act of 1921, which effectively ended the pledges of the Kingsbury Commitment by exempting the telephone industry from antitrust review. After the passage of this act, Bell returned to its earlier policy of aggressive acquisition (FCC, 1939: 142). For the remaining independents, competing against Bell during the post-Kingsbury period proved to be as hazardous as it was pre-Kingsbury. Their plight was summarized by the FCC (1939: 143):

The vigorous opposition of the independent telephone companies and the United States Independent Telephone Association to the Bell System's acquisition policy . . . availed them nothing. They insisted that Bell System sales to independents must equal Bell System purchases in order that a strong system of independents might remain. The Bell System refused to accede to such demands.

As a result of these developments and rapid expansion into new areas, Bell attained during the 1920s the position of dominance it would hold for nearly half the century. By 1932, Bell's national market share was up to 79 percent (in 1970 it was roughly 83 percent). Bell also emerged from the period with the nation's only significant long-distance network.

4.1 Evidence

What effect did the Kingsbury Commitment have on the relationships between the various organizational forms operating in the industry? In Figure 3, we show how the prevalence of these forms changed during and then after the period of the Commitment. The number of small independents declined dramatically during this period and the number of large independents increased slightly. Nonetheless, the effects of Kingsbury are not obvious and require statistical analysis.

This analysis is reported in Table 5. Again, the critical estimate is given by ρ , the correlation of residuals across equations. By this evidence, the small and large companies were symbiotically related both before and after the Commitment, while they were competitive during the Kingsbury period. That is, the Kingsbury Commitment apparently unleashed competition among the non-Bell companies.

This result was tested for robustness by sequentially controlling for the additional independent variables, as reported in Table 6. In every specification, ρ changed from positive to negative during the Kingsbury period, and in each case this change was statistically significant.

4.2 Explanations

To explain the effects of the Kingsbury Commitment, we found useful the sociological distinction between “universalistic” and “particularistic” institutional orientations (Parsons, 1951). Universalistic orientations are those that apply similarly to all social actors; particularistic orientations apply only to certain sets of actors. The state interconnection laws were universalistic in that they aimed at all companies; the Kingsbury Commitment was particularistic. The Kingsbury Commitment was designed to constrain the competitive ac-

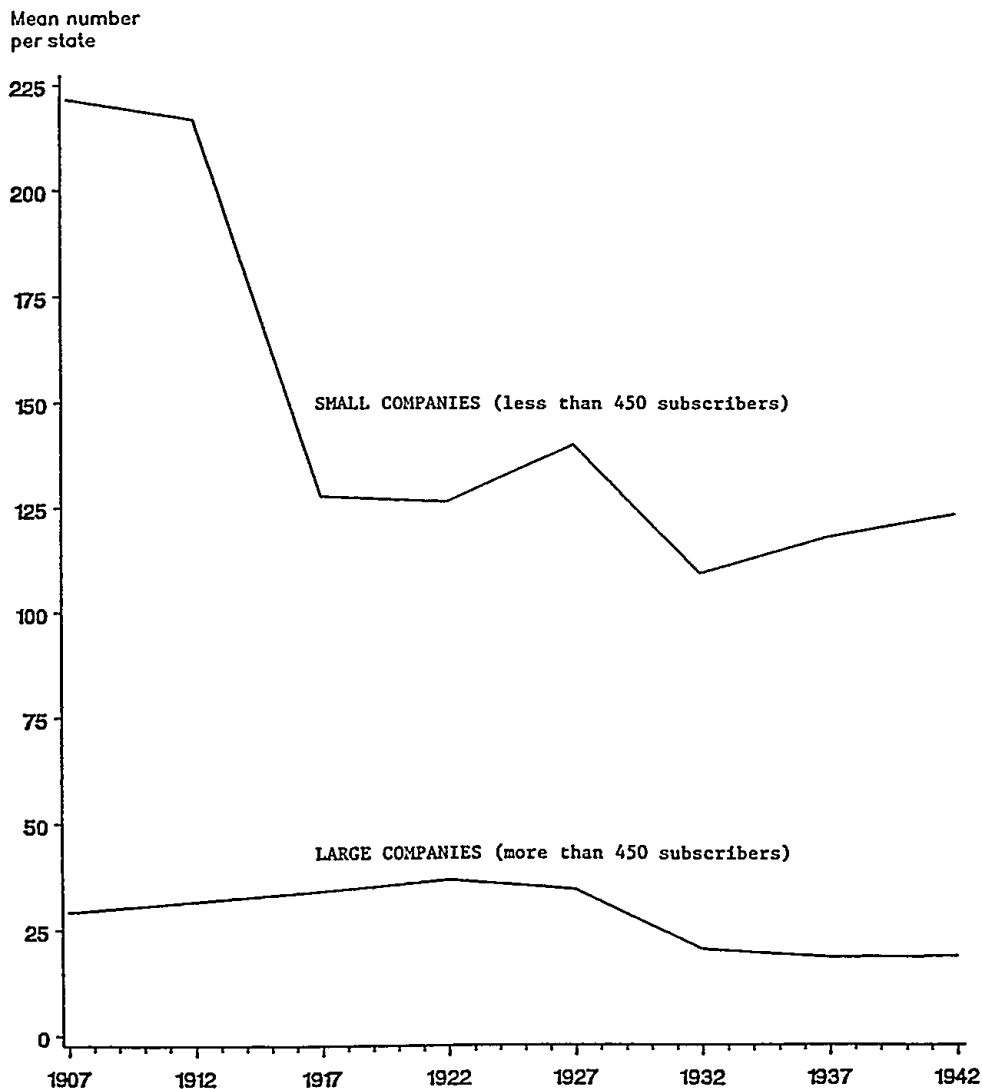


Figure 3. Telephone companies per state by size class, 1907–1942.

tivity of Bell but not of the independents. By constraining only Bell, we suspect that the Commitment led to an unexpected or unintended “competitive release” (Cody and Diamond, 1975; Strong et al., 1984) among the independents, which prevented them from uniting into a single system. By calming the war between Bell and the large independents, the Kingsbury Commitment had, in fact, started another one between the large and small independents.

This competitive release should have been especially strong for two reasons. First, large independents were essentially in the middle of the market and as long as Bell battled them aggressively for the lucrative urban markets, they had little choice but to fight back. The power of their aggressor meant, no doubt, that most of their energies were absorbed in the process. During Kingsbury, however, the Bell threat was reduced and managers of large independents could turn their attention to the remaining markets held by the small

Table 5. Zellner Models of Organizational Form Interdependence, According to Kingsbury Agreement Period

Dependent Variable	Constant	Bell System Market Share	ρ	R^2	$N \times T$
Pre-Kingsbury period					
Δ Large independents	20.43* (8.792)	-.3239* (.1470)	.140	.059	48
Δ Small Independents	58.21 (54.47)	-1.138 (.9108)			
Kingsbury period					
Δ Large independents	9.704* (2.038)	-.1154* (3.083)	-.098	.079	96
Δ Small independents	-197.0* (90.50)	2.433 (1.369)			
Post-Kingsbury period					
Δ Large independents	-16.50* (3.338)	.1656* (.0445)	.483	.056	192
Δ Small independents	6.176 (9.259)	-.0960 (.1233)			

Note: $\Delta \rho$ between Kingsbury and combined non-Kingsbury periods is statistically significant in a one-tailed test, $p < .05$. Standard errors are shown in parentheses.

* $p < .05$.

Table 6. ρ Estimates from Zellner Models with Additional Control Variables, According to Kingsbury Agreement Period

Additional Control Variable	Pre-Kingsbury ($N \times T = 48$)	Kingsbury ($N \times T = 96$)	Post-Kingsbury ($N \times T = 192$)
Indexed average wage per worker	.138	-.098	.485
Indexed average value of farm buildings	.074	-.059	.499
Natural logarithm of urban population	.147	-.087	.465
Natural logarithm of rural population	.130	-.097	.474
Natural logarithm of state land area	.138	-.100	.483
Number of urban incorporated places	.131	-.095	.463
Number of rural incorporated places	.120	-.046	.482
Number of counties	.124	-.101	.479

Note: In every case $\Delta \rho$ between Kingsbury and combined non-Kingsbury periods is statistically significant in a one-tailed test, $p < .05$.

and mutual independents. Since the companies holding these markets were informally managed and staffed, the competition must have appeared easy. In any case, the relationship between large and small independents became competitive during the period of the Kingsbury Commitment. By contrast, like the period before the Commitment, the post-Kingsbury period was characterized by symbiosis between the large and small organizational forms. In these periods, the large independents were busy battling Bell, and their fates were again shared by the smaller independents.

A second reason to see the Kingsbury period as a competitive release is that large and small independents had distinctly different relationships with Bell during this time. Bell was most concerned with the competition that came from the large independents. These companies were located in the cities, had ample capital and technology, and sought the same customers as Bell. By contrast, the small independents served the more isolated rural markets in which the profit-seeking companies seemed to have only a secondary interest. There is also some historical evidence that Bell actually aided the smallest of this organizational form, the farmer lines, by providing technical assistance (Fischer, 1987a). Apparently, Bell thought that encouraging these sorts of operations would prove an annoying obstacle to their real competitors, the commercial independents, who would be caught in a competitive squeeze. Consequently, there is reason to believe that the potential for strong competition existed among the small and large independent companies—competition that was released by the protections of the Kingsbury Commitment.

The idea of competitive release emphasizes the unanticipated effects unleashed by the Commitment. However, it is possible instead to rationalize the effects of the Kingsbury Commitment. If Bell executives understood that the Kingsbury Commitment would fuel competition among large and small independents, then entering into the agreement was a subtle and powerful way to cripple the movement. It was subtle because the independents were weakened considerably by no direct actions of Bell but by their fellow travelers. It was powerful because ultimately it led to the collapse of the independent movement. Furthermore, the Commitment was a clear way to cool out hostile political forces yearning for antitrust action or nationalization.

We judge such a rationalization to be implausible. For present theoretical purposes, the most important question about the Kingsbury Commitment is whether it was advocated by Bell primarily because of its expected negative consequence on the independent movement. Three reasons lead us to think otherwise. First, given a choice, the most effective policy for Bell's growth was direct acquisition of large and growing independents. Bell had ample capital reserves to continue this policy and there was no advantage in trying a trickier, more indirect strategy. Second, the independents themselves advocated a restraining agreement of this kind and rejoiced in its enactment. The Kingsbury Commitment was widely regarded as a major victory for the independent movement. Third, the independents that suffered the most under Kingsbury were the smaller ones, not the large urban companies that Bell worried about. If Bell's managers understood the cause-and-effect relation

inherent in the Commitment, then why would they support it, given that in many instances the strength of large independents—their primary competitors—was enhanced?

Based on these arguments, we believe that it is implausible to contend, as an unvarnished rational-action explanation of this institution might hold, that the reason for the adoption of the Kingsbury Commitment was its eventual major effect on the independent movement. From Bell's point of view, there were many more effective ways of dealing with the independents.

In our opinion, a better explanation for the Kingsbury Commitment lies in the political realm. The progressive Wilson administration had just assumed power, and public sentiment against large and aggressive corporations was negative. In order to preempt more aggressive political action, Bell executives searched for a compromise that would take them out of the political limelight with minimal losses. The Kingsbury Commitment did so and provided the progressives an early modest victory against a visible large corporation. That Bell executives understood the agreement harmed them little seems obvious. They may even have understood or projected that it would fuel competition among the independents. But that understanding or projection was not plausibly their primary reason for entering into the agreement. Accordingly, the increased competition among the large and small independents, which the Commitment unleashed, must be viewed as, at best, a minor expected consequence (but not one capable of explaining the emergence of the institution). Moreover, given the celebrations among independents and progressives, as well as the enhanced strength of some large independents, we think it is most plausible to view the actual outcome for the independent movement as a whole as an unexpected consequence.

5. Discussion

We began by noting that few social science studies investigate the consequences of institutions, and by suggesting that it may not be advisable to assume that rationally intended effects obtain. Instead, we look for the unanticipated consequences that institutions generate (March and Olsen, 1984). This general approach follows a rich tradition in institutional sociology. Most notably, Merton's (1936) early essay identified the importance of the unanticipated consequences of purposive action, setting the agenda for empirical studies that sought to uncover such effects systematically (e.g., Selznick, 1953; Gouldner, 1954).

We, too, seek a systematic approach to revealing the unanticipated effects of institutional action. However, we part from earlier approaches of this kind by taking an ecological perspective—one that looks at how patterns of selection for and against organizational forms are shaped by institutional constraints. Our analysis of the early U.S. telephone industry demonstrates the value of this approach. We found that the Kingsbury Commitment, ostensibly a constraint only on Bell and intended to aid the independents, prompted a competitive release whereby the decline in pressure from Bell prompted the large independents to compete more intensively with their smaller counter-

parts. The result was on the whole not beneficial to the independent telephone movement. By contrast, our analysis of the effects of state interconnect laws suggested that the anticipated result of increasing mutualism among companies did, in fact, occur. Interconnection laws apparently intensified an existing symbiotic relationship between populations of large and small telephone companies. The difference between this outcome and that of the Kingsbury Commitment is, we speculate, a result of the universalistic nature of the interconnect laws. Rather than being aimed at only a segment of the interdependent organizational community, as was the Kingsbury Commitment, the interconnect laws were applicable to all segments and organizations.

This comparison suggests an obvious hypothesis for further research, namely, that within an interdependent organizational community, unintended effects are more likely to result from particularistic than universalistic regulations. For example, these ideas imply that tariff protections, a form of particularistic regulation aimed at firms based outside a nation's markets, should increase competition among domestic organizations. Depending on the strength of this competitive release, tariffs may have significant consequences for the growth, performance, and survival of firms—but consequences that would be revealed only by an approach similar to that used in this study.

We also found that something as mundane as the structural form of an institutional constraint may generate organizational effects. Previous theory and research in organizational sociology predicted that the more distinct authority constraints there were in an environment, the more organizations would be present. In our application of this argument to the telephone industry, where local political units were viewed as increasing the number and variety of constraints, this argument was strongly supported. States with greater local political differentiation showed more telephone companies, even when variables related to the size and wealth of the market were controlled.

Taken as a whole, our analysis of the telephone industry suggests that institutions might often have unexpected and unusual consequences. This conclusion should not be considered a setback for institutional research. Rather, it challenges researchers to turn their attention to the actual consequences that emerge from institutional action.

Appendix A: Data and Methods

The data we use come from a variety of governmental and industrial sources. As with much historical material, the counting rules used by some of the sources changed over time. Other sources are available only for short periods of time. Piecing together disparate types of data for longitudinal analysis is always tedious, and this case was no exception. Nonetheless, after substantial effort we were able to assemble a panel data set of variables spanning the period 1902 to 1942.⁷

7. The ideal time for observation to begin would be 1894, when the original Bell patents expired. Unfortunately, we have been unable to locate complete national data spanning to that date. Little is lost by ending observation in 1942 since most analysts agree that industry structure was stabilized by then.

The two basic sources for these variables are the industry reports for the U.S. Census (U.S. Bureau of the Census, 1906, 1910, 1915, 1920, 1924, 1930, 1934, 1939) and an industry directory titled *Telephony's Directory* (Independent Telephone Association, various years).

The census reports contain data on telephone companies every five years for the period 1902 to 1937. In the earliest panel, 1902, data are given on the total systems and lines in a state, and this total is broken down into commercial systems and mutual systems. From 1907 onward, the total is again given at every five-year data point, but the breakdown is by size of system based on annual income. Moreover, the breakpoint for classifying large and small systems changed in 1922 from \$5,000 of income to \$10,000. Thus only total systems-and-lines is available in the same form across the entire series. There are eight waves of data on this variable, equally spaced at five years apart. For counts of the commercial and mutual systems, there is only one wave, dated 1902. And for the large and small systems there are three waves for the \$5,000 cutpoint (1907 through 1917) and four waves for the \$10,000 cutpoint (running from 1922 to 1937).

Telephony's Directory contains similar information obtained from an independent enumeration sponsored by the trade publication *Telephony*. In the explanatory section of the 1908 edition of the *Directory*, the claim is made that it "presents, immediately following, what is believed to be the only *complete* list of operating telephone companies published." The *Directory* listings give some limited information about each individual company, including a size classification based on the number of telephone instruments within the system. For analysis, we use the *Directory* tabulations of the number of independent telephone companies by size class and by state. Because the *Directory* stopped counting companies with fewer than 25 subscribers and those with no exchanges at about 1914, to obtain comparability in the series we disregarded the 1912 category labeled "unknown size." There are thus some discrepancies between the *Directory's* count and the Census Bureau's, although they can be plausibly accounted for by these very small operations.

Although some editions of the *Directory* were apparently published earlier, the first edition we could obtain with the relevant information covers the year 1907.⁸ To match the timing imposed by the Census reports, we supplemented these data with comparable information from later directories at every five-year interval up to 1942. The coded data, then, contain eight equally spaced waves spanning the period 1907 to 1942. Because of its apparently superior quality and greater availability, we use this information for the dependent variables in most of the analyses. In preliminary analysis we have found that a useful division of large and small companies centers on 450 subscribers. Therefore, we call large independents those with more than 450 subscribers; small independents have 450 or less.

The dependent variables used in the analysis measure the number of telephone companies by type and by size class for each state in a given year.

8. Two separate visits to the publisher in Chicago failed to turn up the earlier editions. No copies are known to exist.

Although such data do not contain the detail of event-history data, the design advantage of panel data here is that it captures efficiently the full range of temporal and cross-sectional variation. Panel data also allow us to model competition between organizational forms as well as the factors that increase or decrease numbers of different types of organizations (for other examples, see Carroll, 1981; Brittain and Wholey, 1988).

The independent variables used come from a variety of governmental and scholarly sources. The internal political differentiation of a state is measured by three indicators: number of counties, number of urban incorporated places, and number of rural incorporated places. The sum of the three counts most of the important political boundaries within a state. These variables are taken from census reports and an earlier researcher's attempt to refine and improve the census enumerations (Anderson, 1942). For some years, these indicators were interpolated or extrapolated in order to cover the entire period.⁹

For state interconnect laws, the critical independent variable is the date of a state's adoption of the law. These range from 1904 for South Carolina to 1919 for New York. Complete data can be found in the FCC report (1939). In modeling, this information is represented by a time-varying, state-specific dummy variable, which takes the value of unity after a state has passed an interconnection law and zero otherwise.

The Kingsbury Commitment was in effect from 1913 until 1922 (the Willis–Graham Act was passed in 1921). Thus two of the seven panels in the data—those running from 1912 to 1917 and 1917 to 1922—are defined as falling under the Kingsbury Commitment; all other panels do not. Unlike laws for interconnection, this variable applies uniformly across all states.

A number of state-level control variables were also collected and used in the analysis. These include urban population, rural population, land area, indexed average wage, and indexed average value of farmland and buildings. Although they originally came from many sources, we drew upon the U.S.

9. Number of incorporated places per state comes directly from Anderson (1942) for 1932 and 1942. Values for 1937 were interpolated from the 1932 and 1942 panels by simple arithmetic averaging. Pre-1932 values were extrapolated in the following way. First the number of incorporated places per capita was computed for each state for 1932 and 1937. The linear rate of change in this measure between 1932 and 1937 was assumed to continue backward in time for each state. The extrapolation of this per-capita measure was then used in combination with earlier census data on state population to estimate the number of incorporated places in a state for earlier years, except the number was not allowed to increase as time goes backward (at most it is held constant with the 1932 value).

The number of urban incorporated places is known only for 1942, when it is reported in the census. From this figure, we computed the urban proportion of the population in each state. We assumed this ratio holds across time and used it along with earlier census data on population and the extrapolated data on number of incorporated places to estimate the number of urban incorporated places. Rural incorporated places were calculated as the total number of incorporated places less the number of urban incorporated places.

For counties, we used the 1932 value found in Anderson (1942) for all panels. As a check on this procedure we compared the number of counties for each state in 1932 with an independent estimate for 1892 found in the Women's Christian Temperance Union (WCTU) annual report (WCTU, 1893). Anderson 1932 counties and WCTU 1892 counties are correlated .92.

Census (1975) *Historical Statistics* volume for these data. Since their timing coincides with the decennial census dates, most of these variables were interpolated linearly to conform with the dates of the telephone censuses, around which the panels were organized. Because many of these variables have skewed distributions, we often use logarithmic transformations.

To make full use of panel data, ordinarily one combines the several cross sections into a single data set that then includes all measured variance—both cross-sectional and temporal. Conventionally, data of this form are used to estimate linear panel models, an approach that assumes that cross-sectional and temporal variance reflect a similar underlying process (see Tuma and Hannan, 1984). This means that if a variable is positively associated with the number of telephone companies cross-sectionally, it should also be positively associated with change over time in the number of companies. In that case, the single parameter estimate for the variable would represent both the cross-sectional and temporal associations.

Unfortunately, this pattern did not hold for our data. In many cases, factors positively associated with the number of companies in the cross sections were negatively associated with temporal changes in the number of companies. Although this problem could arise for various reasons,¹⁰ the institutional history of the industry leads us to suspect that the cause is competitive disequilibrium over time. For example, if, say, rural states were populated by very large numbers of companies, and then experienced very strong competition, the numbers of companies in these states would fall over time. This would lead to an apparently negative temporal effect for rural population, despite its positive cross-sectional association.

To overcome this problem, we analyzed the cross-sectional and temporal variations in the data separately. Accordingly, we report estimates of cross-sectional models predicting the number and type of telephone companies found in a state in a given year. The pattern shown in Figure 1 suggests that ordinary least squares (OLS) estimates of these models would be inefficient because of heteroscedasticity, and so we estimated the models using a two-stage approach where the residual variances from an OLS estimate were used to obtain weighted least squares (WLS) estimates (Judge et al., 1980).

We then modeled temporal variation using difference equations of the form

$$\Delta S = \alpha_{SB}B + \beta_S'X + \varepsilon_S,$$

$$\Delta L = \alpha_{LB}B + \beta_L'X + \varepsilon_L,$$

where L and S refer to the numbers of large and small companies in a given state and Δ refers to change over a given five-year period, B refers to the Bell System's market share in each state at the start of each period, α captures the

10. For example, such relationships might be the result of a nonlinear process. Unfortunately, the data used here are not rich enough to allow us to explore adequately this complicated class of models.

effects of Bell's presence in a state on changes in L or S , and the X 's are control variables.

These equations explicitly model the effects of Bell on the organizational ecology of the industry, with $\alpha < 0$ indicating competition from the Bell System and $\alpha > 0$ indicating mutualism. However, this approach does not parameterize interdependence between the large and small organizational forms, since difference equations of this kind do not allow the identification of the separate and reciprocal influences of change variables on each other. Nonetheless, the residuals obtained when estimating these equations can tell us about the degree to which the small and large forms grew or declined together after controlling for the effects of Bell. Using Zellner's (1962) technique for "seemingly unrelated" regression, we estimated ρ , the correlation between ε_S and ε_L , which represents the nondirectional relationship between the large and small telephone company populations. When $\rho < 0$, the evidence suggests competition between the large and small forms, while $\rho > 0$ indicates mutualism.

Comparing estimates of α_{SB} , α_{LB} , and ρ from period-specific models constitutes a test of whether and how competition and mutualism were affected by the Kingsbury agreement or the state interconnect laws.

Appendix B: Text of the Kingsbury Commitment

(Source: MacMeal, 1934: 204–7)

December 19, 1913

The Attorney General
Washington, D.C.

Sir:

Wishing to put their affairs beyond criticism and in compliance with your suggestions, formulated as a result of a number of interviews between us during the last sixty days, the American Telephone & Telegraph Company and other companies in what is known as the Bell system, have determined upon the following course of action:

First: The American Telephone & Telegraph Company will dispose promptly of its holdings of stock of the Western Union Telegraph Company in such way that the control and management of the latter will be entirely independent of the former and of any other company in the Bell system.

Second: Neither the American Telephone & Telegraph Company nor any other company in the Bell system will hereafter acquire, directly or indirectly, through purchase of its physical property or of its securities, or otherwise exercise dominion or control over any other telephone company owning, controlling or operating any exchange or line which is or may be operated in competition with any exchange or line included in the Bell system or which constitutes or may constitute a line or portion of any system so operated or which may be so operated in competition with any exchange or line included

in the Bell system. Provided, however, that where control of the properties or securities of any other telephone company heretofore has been acquired and is now held by or in the interest of any company in the Bell system and no physical union or consolidation has been affected, or where binding obligations for the acquisition of the properties or securities of any other telephone company heretofore have been entered into by or in the interest of any company in the Bell system and no physical union or consolidation has been effected, the question as to the course to be pursued in such cases will be submitted to your department and to the Interstate Commerce Commission for such advice and directions, if any, as either may think proper to give, due regard being had to public convenience and to the rulings of the local tribunals.

Third: Arrangements will be made promptly under which all other telephone companies may secure for their subscribers toll service over the lines of the companies in the Bell system in the ways and under the conditions following:

(1) Where an Independent company desires connection with the toll lines of the Bell system, it may secure such connection by supplying standard trunk lines between its exchanges and the toll board of the nearest exchange of the Bell operating company.

(2) When the physical connection has been made by means of standard trunk lines, the employees of the Bell system will make the toll line connections desired but in order to render efficient service, it will be necessary that the entire toll circuit involved in establishing the connection shall be operated by and under the control of the employees of the Bell system.

(3) Under the conditions outlined above, any subscriber of an Independent company will be given connection with any subscriber of any company in the Bell system or with any subscriber of any Independent company with which the Bell system is connected, who is served by an exchange which is more than fifty miles distant from the exchange in which the call originates.

(4) The subscribers of the Independent company having toll connections described above shall pay for such connections the regular toll charge of the Bell company and in addition thereto, except as hereinafter provided, a connection charge of ten cents for each message which originates on its lines and is carried in whole or in part, over the lines of the Bell system. The charges incident to such service shall be made by the Bell company against the Independent company whose subscriber makes the call and such charges shall be accepted by the Independent company as legal and just claims.

(5) Under this arrangement, the lines of the Bell system shall be used for the entire distance between the two exchanges thus connected provided the Bell system has lines connecting the two exchanges. Where the Bell system has no such lines, arrangements can be made for connecting the lines of the Bell system with the lines of some

Independent company in order to make up the circuit, but such connections will not be made where the Bell system has a through circuit between the two exchanges.

(6) Any business of the kind commonly known and described as "long lines" business, offered for transmission over the lines of the American Telephone & Telegraph Company, shall be accepted for any distance; that is, on such "long lines" business calls shall be accepted where the point of destination is less than fifty miles from the exchange where the call originates as well as where the point of destination is greater than fifty miles therefrom.

(7) Any business of the kind commonly known as "long lines" business offered for transmission over the lines of the American Telephone & Telegraph Company shall be accepted at the regular toll rates and no connecting charge shall be required. But such calls shall be handled under the same operating rules and conditions as apply to calls over the local toll lines.

Very Respectfully Yours,
(Signed) N. C. Kingsbury,
Vice President

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