

## HOW DO ORGANIZATIONS MANAGE THEIR RELATIONS WITH OTHER ORGANIZATIONS?

### RESOURCE DEPENDENCE AND THE NEGOTIATED ENVIRONMENT

Transaction cost analysis gives a useful set of tools for analyzing the question of organizational boundaries, but there is a range of tactics beyond make or buy that organizations use to manage their organization set. Moreover, organization theorists are often dissatisfied with economic explanations that focus on the efficiency benefits of particular organizational actions. Any observer of the U.S. economy during the late 1990s Internet bubble and the corporate scandals of the early 2000s might have a hard time believing that a search for economic efficiency was behind these events—baser motivations like greed, fear, and a quest for power might seem more like it! And it is from this perspective that resource dependence theory arose. In contrast to the rational systems approach of TCE, resource dependence offers a natural system perspective that highlights the organizational politics behind choices such as the make-or-buy decision. As Pfeffer recalled, “Resource dependence was originally developed to provide an alternative perspective to economics theories of mergers and board interlocks, and to understand precisely the type of interorganizational relations that have played such a large role in recent ‘market failures’” (2003: xxv).

Resource dependence draws on three core ideas to explain how organizations manage their relationships with other organizations. First, social context matters: while observers often attribute great potency to organizational leaders, even to the point of hero worship, much of what organizations do is in response to the world of other organizations that they find themselves in, as open systems theorists emphasized. Second, organizations can draw on varied strategies to enhance their autonomy and pursue their interests. This idea is familiar from Cyert and March’s (1963) description of “the negotiated environment” and Thompson’s (1967) bridging strategies. Third, and most distinctively, power—not just rationality or efficiency—is important for understanding what goes on inside organizations and what external actions they take. The emphasis on power, and the careful analysis of the repertoires available to firms to pursue it, is the distinctive hallmark of resource dependence theory.

Virtually all of the formulations of power and exchange relations among organizations, including resource dependence theory, build on the conception of power developed by Richard Emerson (1962), as discussed in [Chapter 8](#). But whereas Emerson applied his power-dependence formulation to individual actors, Pfeffer shifted the level of analysis to organizations.

Emerson’s formulation is useful for several reasons when applied to a given organization and the set of organizations to which it relates (see Thompson, 1967). Power is not viewed as some generalized capacity, but as a function of specific needs and resources that can vary from one exchange partner to another. Thus, it is possible for an organization to have relatively little power in relation to its suppliers, but considerable power in relation to its buyers. Further, we would expect each supplier’s power to vary with the importance of the resources it supplies and the extent to which alternative suppliers are available. This approach avoids a zero-sum view of power, in which it is assumed that when one actor gains power, another must lose it. Rather, it becomes possible for two actors both to hold power over each other—through an increase in their interdependence. This theory of exchange-based power also allows the use of sophisticated network measures,

such as those developed by Ronald Burt (1983). Knowing how much organizations exchange with each other, and the extent to which they have alternatives, allows a fairly precise rendering of the power-dependence relations between any two organizations.

How is this different from transaction cost analysis? After all, the central theme of TCE is the friction between two organizations that arises when they are mutually dependent. The story of Fisher Body and GM sounds like just the sort of thing that Emerson's theory of power would predict. The difference is that resource dependence argues that organizational actions are often taken "regardless of considerations of profit or efficiency" (Pfeffer, 1987: 27). Whereas TCE assumes that selection pressures will, sooner or later, select out the weak and allow the strong to survive due to their greater efficiency in the marketplace, resource dependence assumes there is a lot more slippage out there, and that organizations—particularly large ones—have a great deal of discretion to manage their environment. And because it does not rely on arguments about market selection, it is arguably more general: "Thus, the resource dependence approach readily encompasses the explanation of behavior from organizations of any type" (Pfeffer, 1987: 30), covering businesses, nonprofits, or governmental organizations. In short, anywhere there is power, resource dependence will have something to say.

### **Organizational Responses to Interdependence**

The core argument of resource dependence is quite similar to what we saw with the contingency theory of organizational design, namely, that organizations should choose the least constraining approach to coordinate relations with other organizations and to reduce the dependence that their exchanges create. One of the simplest approaches is to grow big: larger size, particularly relative to one's competitors, is typically associated with increased power. Larger firms are better able to set prices, control how much they produce, and influence the decisions of related organizations, including regulators. Pfeffer and Salancik summarize the advantages of size:

Organizations that are large have more power and leverage over their environments. They are more able to resist immediate pressures for change and, moreover, have more time in which to recognize external threats and adapt to meet them. Growth enhances the organization's survival value, then, by providing a cushion, or slack, against organizational failure. (1978: 139)

A second approach is to keep one's options open by finding and maintaining alternatives. Rather than relying entirely on Fisher Body for its auto bodies, GM might instead have cultivated a set of alternative suppliers to reduce Fisher's power position. Of course, for the reasons described in the previous section, it is often difficult to do this because the resource might be too specialized.

*Bridging Mechanisms.* The other major strategies all involve some kind of bridging mechanisms: efforts to control or in some manner coordinate one's actions with those of formally independent entities. One important bridging tactic is cooptation.

*Cooptation.* As defined in [Chapter 3](#), *cooptation* is the incorporation of representatives of external groups into the decision-making or advisory structure of an organization. The significance of this practice in linking organizations with their environments was first described by Selznick (1949), who also noted its daunting costs. Selznick argued that by coopting representatives of external groups, organizations are, in effect, trading

sovereignty for support.

Most studies of cooptation have focused on boards of directors, investigating the extent of interlocking ties (directors serving on more than one board) among various types of organizations. It is argued that allowing representatives of other organizations to participate in decision making in the focal organization is an effort by the linked organizations to coordinate their activities. Such representatives may range from strong, controlling directors imposed by one organization on another to common messengers transmitting information of mutual interest. Not all board members are environmental representatives: some are there to provide specialized expertise, to oversee and augment the administrative skills of management (Mizruchi, 1996). To the extent that directorate ties function as a cooptation tactic for dealing with the interdependence of organizations, we would expect board appointments to vary with the amount and type of resource needs and flows confronting the focal organization. For instance, GM might invite an executive of Fisher Body to serve on its board, in the hopes of gaining a sympathetic ear. This idea has been widely studied. Indeed, “The structure of corporate boards and, in particular, the use of interlocks to manage resource dependence has probably been the most empirically examined form of intercorporate relation” (Pfeffer, 1987: 42).

How widely used is this tactic? The answer varies by sector, and the popularity of cooptation via board ties has probably waned. Pfeffer and Salancik (1978) find two kinds of evidence. First, the extent to which firms share directors within a broadly defined industry sector is highest at an intermediate level of industry concentration. At high levels of concentration, they argue, firms in an industry can simply observe each other’s actions to coordinate, while in highly competitive industries, ties to other industry members are unlikely to help much. At moderate levels of concentration, sharing directors might help firms to avoid damaging (for the firms) price competition. Second, the extent to which directors are shared *across* industries is positively related to the volume of exchange among these industries. Similarly, Burt (1983) finds that the prevalence of interindustry interlocks maps onto levels of interindustry constraint, consistent with the cooptation hypothesis. On the other hand, evidence at the firm level is much less compelling. Palmer (1983) found that “broken” ties (ties between companies that are lost when the shared director retires or dies) were rarely reconstituted during the 1960s, and the level of resource constraint between two firms did not affect reconstitution (Palmer, Friedland and Singh, 1986). (Ties to financial institutions, however, follow a different pattern from other interlocks—see Stearns and Mizruchi [1986].) More recent work suggests that ties within the same industry almost *never* happen—in the United States, they have been illegal since the 1914 Clayton Act (Zajac, 1988). Moreover, very few firms invite executives of powerful customers or suppliers to serve on their boards for the simple reason that it would place them at a severe disadvantage when it came to negotiating prices and terms; thus, fewer than 5 percent of large corporations in the 1990s had executives of major buyers or suppliers on the board (Davis, 1996).

In the nonprofit sector, cooptation takes on a slightly different cast. With the coming of more conservative policies in the 1980s, including the reduction in the federal role and in funding for community services, cooptation shifted from being a primarily vertical tactic to being a horizontal tactic. Community agencies employ numerous cooptation mechanisms—joint board memberships, liaison roles, interorganizational brokers—as a way to increase resources, reduce uncertainty, and increase legitimacy (Galaskiewicz and Bielefeld, 1998). Indeed, federal and state programs currently place great emphasis on coordination among community agencies, often as a condition of eligibility for funding. Whereas federal

regulations discourage or proscribe cooptation among competing organizations in the for-profit sector, they encourage or mandate it as a means of coordination among public and nonprofit agencies.

*Alliances.* Another approach to dealing with interdependence is to form alliances or joint ventures. Alliances involve agreements between two or more organizations to pursue joint objectives through a coordination of activities or sharing of knowledge or resources. A joint venture occurs when two or more firms create a new organization to pursue some common purpose. From a resource dependence perspective, both of these are potentially useful tools for managing interdependence. Pfeffer and Salancik (1978: 152–61) find that joint ventures are most common in industries at intermediate levels of concentration, as was true of interlocks. We go into further details on alliances in [Chapter 11](#).

*Mergers and acquisitions.* Yet another, and the most resource-intensive means of managing interdependence, is the one emphasized by TCE, namely, to merge or acquire. Three major types of mergers have been identified:

1. *Vertical integration* occurs when organizations at adjacent stages in the value chain merge with one another. Vertical integration, of course, takes place between actual or potential exchange partners. For example, furniture manufacturers may merge (backward) with lumber companies or (forward) with furniture distributors or showrooms.
2. *Horizontal mergers* occur when organizations performing similar functions merge to increase the scale of their operation. For example, two or more hospitals may merge, forming a hospital “chain.” Economies of scale are often realized, such as in housekeeping, laundries, or specialized therapeutic or managerial services.
3. *Diversification* involves one organization acquiring one or more other organizations that are neither exchange partners nor competitors, but organizations operating in different domains. For example, in the 1960s ITT, an electronics-manufacturing company, acquired a rent-a-car company, a major hotel chain, a home-building company, a baking company, a producer of glass and sand, a consumer-lending firm, and a data-processing organization. The product of extreme diversification is the *conglomerate*.

Pfeffer and Salancik argue that

vertical integration represents a method of extending organizational control over exchanges vital to its operation; that horizontal expansion represents a method for attaining dominance to increase the organization’s power in exchange relationships and to reduce uncertainty generated from competition; and that diversification represents a method for decreasing the organization’s dependence on other, dominant organizations. (1978: 114)

Each type, in short, represents a method of managing organizational interdependence.

Most of the evidence on resource dependence theory comes from the study of mergers and acquisitions. This is a particularly useful context because the predictions arising out of TCE and resource dependence are to some extent in conflict: TCE emphasizes the efficiency benefits of “appropriate” vertical integration, while resource dependence argues that merger “is undertaken to accomplish a restructuring of the organization’s interdependence and to achieve stability in the organization’s environment, rather than for reasons of profitability or efficiency” (Pfeffer and Salancik, 1978: 114). On the face of it, the weight of evidence would seem to favor resource dependence, as most acquisitions either do not increase organizational performance, or actually decrease it—share prices of acquiring firms frequently decline upon the announcements of acquisitions (Morck, Shleifer, and Vishny, 1990), suggesting that the stock market generally views them as a bad idea. The verdict on diversifying mergers is especially negative: “The evidence that corporate diversification reduces company value is consistent and collectively damning” (Black, 1992: 903), and Porter

(1987) finds that firms that diversified ended up disposing of three-quarters of their acquisitions. But what about the causes of mergers?

Early evidence on merger activity came from industry-level studies of the link between exchange relations and the propensity of mergers. As with interlocks, the expectation is that the greater the exchanges between industries, the more likely are mergers between members of those industries. There was indeed a link between the volume of interindustry exchange (at the level of highly aggregated industries) and the tendency to merge. Evidence on horizontal mergers is similar to the findings on interlocks: firms in an industry were most likely to merge when the industry was at an intermediate level of concentration. The evidence on diversification was rather indirect, suggesting that firms in industries that did more business with the government (i.e., those with greater exchange-based dependence on one customer) were more likely to diversify into other industries that were not as constrained.

*Collective Action.* While the tactics we have described thus far involve dyadic ties with particular members of the organization set, organizations can also engage in collective action to help manage their environment. We consider two options.

*Associations.* These are arrangements that allow collections of organizations to work in concert to pursue mutually desired objectives. They operate under many names, including trade associations, cartels, leagues, coordinating councils, and coalitions. Both similar and dissimilar organizations enter into associations at the community or local level. We find many associations of similar organizations—for example, hospital councils and associations of retail merchants—as well as associations of diverse organizations—such as the Community Chest and Chamber of Commerce. Individual organizations join associations in order, variously, to garner resources, secure information, exercise influence, or obtain legitimacy and acceptance. The structure and strength of associations vary greatly: some are informal and weak, others are formally structured and exercise great power over their members. (Warren [1967] provides a useful typology.)

The trade association is an important form operating at the field or industry, national, and even international level. It is “a coalition of firms or business persons who come together in a formal organization to cope with forces and demands to which they are similarly exposed” (Staber and Aldrich, 1983: 163). There is evidence that trade associations are more likely to form in less highly concentrated sectors where too many firms are present to permit more tacit coordination (Pfeffer and Salancik, 1978: 179). The power of trade associations varies markedly from society to society. Trade associations in the United States are more numerous, more specialized, and much less influential than those in most Western European countries, Japan, and Korea (Gerlach and Lincoln, 1992; Granovetter, 1994). Most trade associations in the United States are not sufficiently strong or organized to serve as vehicles for centralizing and representing the interests of industries, as do trade associations in more corporatist states (see Berger, 1981; Streeck and Schmitter, 1985). Institutional theorists attend to these structures as important examples of governance systems at the organizational field level (see Campbell, Hollingsworth, and Lindberg, 1991; Scott, 2001a).

*Turning to the state.* A final approach to managing interdependence is to draw on the powers of the state to change the profile of dependencies. Lindblom has pointed out that “an easy way to acknowledge the special

character of government as an organization is simply to say that governments exercise authority over other organizations” (1977: 21). Governments set the rules of the game that shape what organizations can do, and even what will count as an “organization” (as opposed to another kind of actor). Different governmental bodies in China have different standards for what counts as a firm, and thus the simple question “How do we know when an enterprise exists?” cannot be answered definitively (Clarke, 2003). In the United States, the Sherman Act of 1890 was created to limit the ability of organizations to form cartels (or “trusts,” hence the name “antitrust”), which encouraged competitors to merge instead, forming large national enterprises such as US Steel and General Electric (GE). The Clayton Act of 1914 was intended to limit collusion, including by banning interlocks among firms in the same industry. The Celler-Kefauver Act of 1950 limited both vertical and horizontal mergers, which encouraged firms seeking to grow through acquisition to pursue strategies of diversification. But organizations are not simply passive recipients of laws handed down from above: they have resources of their own to shape governmental policies. Through political contributions, lobbying, cooptation, and the exchange of personnel with government agencies such as regulators, organizations can shape their political environment in ways that reduce their constraint. Mizruchi (1992) argues that the ability of companies to coordinate their political actions, and thus to be more effective, hinges on some of the same factors identified by resource dependence theory, namely, that firms with substantial exchange relations—particularly those connected by shared directors or ownership ties—are more prone to cooperate, for example, giving to the same political candidates via their political action committees (PACs—which are legally separate from the company itself). Moreover, sometimes these tactics work: Vogus and Davis (2005) find that states in which locally headquartered companies were densely tied by shared directors were quick to adopt laws regulating hostile takeovers, which the executives of those companies favored.

### **Choosing Among Tactics**

How do those who run organizations decide which of these tactics to pursue in order to manage their interdependence? Organizations face a dilemma: “On the one hand, future adaptation requires the ability to change and the discretion to modify actions. On the other hand, the requirements for certainty and stability necessitate the development of interorganizational structures of coordinated behaviors—interorganizational organizations. The price for inclusion in any collective structure is the loss of discretion and control over one’s activities” (Pfeffer and Salancik, 1978: 261). This suggests that each strategy implies a trade-off between autonomy and adaptability, on one hand, and stability and certainty on the other. Mergers are both costly and constraining, and at some times legally proscribed, so merger is likely to be a strategy of last resort. When merger is either illegal or too costly in terms of resources and potential lost autonomy, organizations will seek to use cooptation, such as by appointing outsiders to the board or engaging in associations (Pfeffer and Salancik, 1978: 167). The array of strategies can thus be seen as a kind of continuum from maintaining alternatives and seeking to hold outside actors at arm’s length, to cooptation through board ties, alliances, or associations, to outright acquisition (see [Figure 9-1](#)).

### **Recent Empirical Applications**

The early evidence reported in Pfeffer and Salancik (1978) was highly appealing but often relied on relatively underdeveloped empirical methods. Finkelstein (1997) replicated the studies on mergers using a

longer time frame and more precise measures of interindustry resource constraint, examining acquisitions by fifty-one manufacturing industries from 1947 to 1982 at five-year intervals, finding evidence that the effects were substantially larger in the late 1970s and 1980s (i.e., after the original studies). This suggests that when firms make acquisitions, they have a preference for buying constraining suppliers rather than unrelated firms. Notably, the effect was weaker when “industry” was defined more finely (at a four-digit SIC level rather than a two-digit level, as in the original study). Finkelstein notes that this may reflect the difficulty of testing a firm-level theory using industry-level data. Indeed, this is an important point: the research evidence on mergers, interlocks, and joint ventures was all at the industry level, but the theory is about organizations, not industries. This is an instance of the “ecological fallacy” described by Robinson (1950).<sup>1</sup>

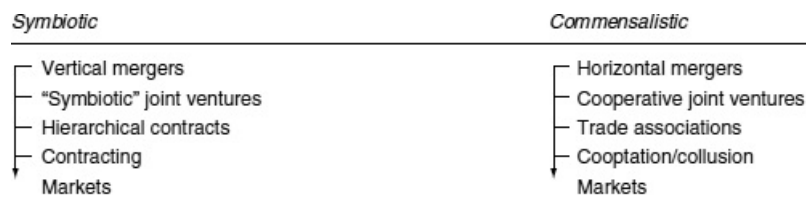


FIGURE 9-1 Symbiotic and Commensalistic Bridging Strategies.

Source: Adapted from Davis, Kahn, and Zald (1990: Figures 2.1 and 2.2, pp. 34–35).

More recent studies have examined organization-level power relations and found important links between an organization’s power position and its tactics for maneuvering in its environment. Baker (1990) examined the decline in the traditional system of ties between companies and their investment banks and found that the effect was more pronounced among powerful firms: such firms were able to weaken ties to their main investment banks and cultivate a set of alternative “suppliers,” as resource dependence would advise, whereas weaker companies were compelled to maintain strong primary ties to particular banks. Conversely, large commercial banks, which traditionally recruited “celebrity” directors such as major CEOs and former government officials to serve on their board, have substantially retrenched as their traditional business of lending to corporations has faced increased competition from markets (Davis and Mizruchi, 1999). The result is that banks’ level of network centrality has declined substantially from their previous glory days. By the same token, interorganizational alliances, which grew substantially during the 1980s and particularly the 1990s, tend to follow patterns of resource interdependence (Gulati and Gargiulo, 1999). Pfeffer (2003) quotes Christensen and Bower (1996: 212): “a firm’s scope for strategic change is strongly bounded by the interests of external entities (customers, in this case) who provide the resources a firm needs to survive.” Power, in short, seems to have continuing value in explaining why organizations do what they do.

### Challenges

Resource dependence has been a widely influential theory of organizations, providing a parsimonious yet provocative power-based explanation of organizational actions such as why organizations make the acquisitions they do, and whom they recruit for their boards of directors. It also provided substantive questions that prompted the development of network analyses of organizational relations, such as Burt’s (1983) work specifying how networks of exchange relations among industries produce either autonomy or

constraint for firms in those industries. One of the theory's great strengths, however—its focus on highly topical strategies such as mergers and interlocks—has also posed some limitations, as the prevalence of these different forms has changed substantially since the 1970s along with broader economic shifts. Indeed, the kinds of firms that followed the prescriptions of resource dependence theory in the 1970s, by diversifying into unrelated industries in order to avoid dependence on any one, were highly likely to be taken over and “busted up” during the 1980s de-conglomeration wave. About one-third of the largest manufacturers in the United States were acquired or merged during the 1980s, usually through a “hostile takeover” in which outsiders buy the company's stock against the wishes of the company's board of directors and then installs its own management team. Most diversified companies were broken back up into more “focused” parts, and often resold to competitors in those same industries. By the second half of the decade, almost all firms had abandoned the tactic of diversification, and very few did vertical acquisitions; rather, freed from antitrust concerns by the Reagan-era Justice Department, most mergers were with competitors large and small (Davis, Diekmann, and Tinsley, 1994).

By the 1990s, the manufacturing conglomerate had largely disappeared in the United States (with a few exceptions, such as GE), and firms increasingly sought greater flexibility by selling off parts of their operations and laying off permanent employees in favor of contingent workers (“downsizing”). Sara Lee, formerly a diversified manufacturer of foods (such as Ball Park Franks) and clothing (Champion, Hanes), announced plans in 1997 to sell off most of its manufacturing capability (regrettably labeled “de-verticalization”) in order to focus on design and marketing. This followed a model pioneered by Nike, which does almost none of its own manufacturing but rather subcontracts to firms in East Asia. Where size had been a primal source of power in resource dependence theory, being “lean” was more valued in the 1990s, and the measure of size that mattered most was market capitalization (that is, the value of the company's outstanding shares on the stock market). And vertical integration, once a way to stabilize exchange relations, had become a source of constraint, a topic we take up in more detail in [Chapter 11](#).

As we have already described, the use of board interlocks as tools of cooptation also lost favor during the 1980s and 1990s. Board ties among competitors had been illegal since 1914, so to the extent that interlocks mapped onto industry concentration, it was only at a very highly aggregated level. And by 1994, the number of firms that invited executives of firms in major buyer or supplier industries to serve on their boards had reached a minimal level: an examination of 786 firms that included members of the *Fortune* 500 largest manufacturers, 100 largest banks, 50 largest service firms, 50 largest diversified financials, 50 largest retailers, and 50 largest transportation firms revealed that no more than 4 percent of manufacturers had a significant buyer or supplier executive on their board, and only one in twelve had an executive from one of the 100 largest banks (Davis, 1996). Surveys of directors revealed great hesitancy at the prospect of having a supplier on the board, with the exception of the company's law firm. The cost of cooptation, it seems, is too great for most firms to bear.

Changing economic times and regulatory regimes, in short, lead to changes in the repertoires that organizations use to manage their interdependence. While achieving greater size and stabilizing dependencies through mergers may have been the preferred tactic of the 1960s and 1970s, business organizations now draw on a different set of tools. These include legal tactics such as re-incorporation and housing subsidiaries in tax havens, changing industries and identities, and using ties to financial institutions to exercise power and



achieve legitimacy in the eyes of the institutional investors that now own the preponderance of corporate America. We explore some of these newer tactics in [Chapter 13](#).

Our two theories, transaction cost economics and resource dependence theory, have described alternative means of assessing which dyadic relations are especially important and varying sets of tactics organizations can use to manage their relations with their organization set. They point to different sources of change—TCE, as a rational systems approach, highlights the economic functions served by different organizational structure, while resource dependence focuses on the power dynamics behind much organizational action. But in combination, they provide a rich language and set of tools for analyzing the changing nature of interorganizational relations.

## SUMMARY

A primary task facing organizations is to manage their relationships with other organizations. First, organizations face the problem of which tasks to do inside their own boundary, and which to leave to outside suppliers. Transaction cost analysts describe this as the “make-or-buy” question and argue that understanding this choice is essential to understanding why there are firms at all, and how they come to look the way they do. Goods and services pass through a series of steps—from raw material to final consumption—known as the value chain. By describing the relations among the separate steps of production in terms of more-or-less costly contracts, transaction cost economics provides tools for analyzing where the boundaries around organizations arise. When two adjacent steps have relationship-specific assets—that is, the two are more valuable to each other than they are to other partners—their relationship is vulnerable and therefore more likely to justify the expense of protecting it within an organization or other, intermediate structure (such as a hierarchical contract). Critics argue that transaction cost reasoning fails to take culture and social structure into account and focuses too much on “economic” factors, but the theory has shown itself to be a useful starting point for understanding organizational boundaries.

A second problem organizations face is how to manage relations with those organizations that remain outside their boundaries. Exchanges of resources create power/dependence relations that can leave organizations vulnerable to the demands of resource providers. Resource dependence theory describes the tactics that organizations use to manage this interdependence, from developing and maintaining alternatives, to coopting representatives of outside groups by placing them in positions of power (e.g., on the board of directors), to forming joint ventures and alliances, to pooling their influence via associations, to outright merger intended to bring the problematic dependencies inside the organization’s boundary. Broadly speaking, organizations adopt the least constraining structures from among this set sufficient to maintain autonomy and ensure access to critical resources. By focusing on generic resource exchange relations, this approach seeks to provide a general theory applicable to all kinds of organizations, including businesses, non-profits, and government agencies.

<sup>1</sup>This fallacy involves taking statistical relationships at the group level (industry) and treating them as if they applied at the individual level (organization). Robinson famously showed that on a state-by-state level, there was a very high positive correlation between the rate of literacy and the percentage of the state’s population that was foreign-born, yet on an individual-by-individual level the true relationship between literacy and being foreign-born was negative, as one might expect. Interested readers can read how this happens mathematically in Robinson’s original article (1950). Similar examples are rife: states with higher average incomes tended to go for Kerry in the 2004 presidential election, while the link between individual-level income and voting for Kerry was much more complicated.