DOWNSIZING AND THE DEINSTITUTIONALIZATION OF PERMANENT EMPLOYMENT IN JAPAN

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Abstract

This study examines the process by which the Japanese permanent employment system was increasingly deinstitutionalized and replaced by downsizing among publicly listed companies in Japan between 1990 and 1997. We found that although economic pressure triggered downsizing, social and institutional pressures shaped the pace and process by which downsizing spread. The greater a firm's legitimacy and visibility, and the more it depended on organizations and institutions that supported the institution of permanent employment , the more hesitant it was to abandon that practice, even when it had much to lose financially. Specifically, large, old, and high-reputation firms were resistant to downsizing at first, as were firms with high levels of human capital, as reflected by high wages. In contrast, firms with high levels of foreign ownership were more likely to downsize. We found that these social and institutional pressures, however, diminished as downsizing spread across the population. We argue that this is due to a "safety in numbers" effect. As downsizing became more prominent, the actions of any single firm were less likely to be noticed and criticized.

This is one of the first studies to concurrently examine social and economic influences on deinstitutionalization in a pooled data set. It responds to the call for "longitudinal studies of institutional activities under conditions of declining performance" (Oliver, 1992) and adds to the empirical research on deinstitutionalization and population level organizational change.

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INTRODUCTION

How and why do organizations abandon firmly established practices? While change has long been a central concern of organizational theory, most research focuses on the adoption of new practices; very few studies examine how organizational practices are eliminated. In particular there is a paucity of literature on deinstitutionalization, the process by which deeply entrenched practices give way to new innovations. Neoinstitutionalist theory (DiMaggio and Powell, 1983; Scott 1995) tends to concentrate on the process by which new practices become widely disseminated and persist regardless of economic rationale. Indeed, research on institutionalization often "implies that institutionalization is a once-and-for-all process" (Davis, Diekmann and Tinsley, 1994: 550). Yet processes of both institutionalization and deinstitutionalization drive change: often, new practices cannot be adopted unless the old ones are left behind. A more complete understanding of organizational and economic change requires us to understand how institutionalized practices erode and make way for the new.

Theory and empirical research have begun to illuminate the process by which organizational practices and structures are transformed through deinstitutionalization and the closely related processes of abandoning existing practices and adopting new, illegitimate ones. Recent research highlights the economic, technical, political, and social antecedents of deinstitutionalization and provides evidence that institutionalization is by no means a once-and-for-all process (Oliver, 1992). Technical and economic pressures, for example, lead organizations to adopt practices diametrically opposed to long-held organizational values, as Kraatz and Zajac (1996) found in their study of adoption of professional programs by U.S. liberal arts colleges. A changing regulatory environment and shifting dynamics of power and resources can transform even the most thoroughly entrenched notions of the corporation and its appropriate form, as evidenced by the wholesale breakup of U.S. business conglomerates, through takeover, leveraged

buyout, and investor pressure (Davis, Diekmann, and Tinsley, 1994). Social processes further hasten deinstitutionalization, as organizations seek information from those around them on the costs and benefits of abandoning existing practices and adopting new ones (Greve, 1995; Kraatz, 1997).

While existing research has begun to address factors that trigger deinstitutionalization, researchers have paid less attention to the specific social and institutional forces that impede and promote it or to how the influence of these social and institutional forces changes as deinstitutionalization gains momentum over time. A practice, after all, is institutionalized when it spreads and persists due to social factors above and beyond its technical or economic efficacy (DiMaggio and Powell, 1983; Meyer and Rowan, 1977). Deinstitutionalization implies that these social factors somehow lose their grip. But what causes these factors to fall away and by what route does deinstitutionalization spread through an organizational field?

The fate of permanent employment during the sluggish Japanese economy of the 1990's provides an excellent case in which to examine this question. During more than five decades of economic growth, permanent employment became one of the cornerstones of the post-war Japanese economic system and came to be viewed as a distinctly Japanese way of organizing employment (Abegglen, 1958; Dore, 1973; Aoki, 1988). Yet, recession in the 1990's led many executives to believe that permanent employment was incompatible with the goals of efficiency and long-term corporate survival, and downsizing among Japanese firms rose to unprecedented levels. Announcements of restructuring (usually a euphemism for downsizing) in the *Nihon Keizai Shimbun*, Japan's leading business daily, increased from 505 in 1990 to 5324 in 1994 (Nikkei Telecom on-line service). The unemployment rate in Japan increased to postwar highs. Layoffs, combined with "voluntary" early retirement programs and reductions of new hires signified to employees and to society at large that the days of guaranteed employment from graduation until retirement were numbered.

In this paper, we examine factors that hindered and promoted downsizing and the deinstitutionalization of permanent employment among large firms in the 1990's. This research has two broad objectives. The first is to complement and build on existing research on

deinstitutionalization with a comprehensive examination of the process by which downsizing became widespread and undermined the institution of permanent employment. We demonstrate that downsizing and the deinstitutionalization of permanent employment resulted from a combination of economic and social pressures that varied in importance across time and among firms. We argue that although economic factors may trigger the deinstitutionalization of a deeply held practice, social and institutional pressures play an important role in shaping the process of deinstitutionalization. The greater a firm's legitimacy and visibility, and the more it is dependent upon supporters of an institutionalized practice for resources, the more hesitant it will be to abandon that practice, even when it has much to lose financially. These institutional and social constraints, however, diminish as deinstitutionalization spreads across the population, and the chance of any single firm being singled out for censure decreases. Deinstitutionalization proceeds as firms gain safety in numbers and no longer need to refrain from downsizing until others have gone first. We examine the effect of firm size, age, reputation, investments in human capital and ownership structure, on downsizing. We further examine how the influence of these factors diminished as downsizing spread across the population.

Our second objective is to offer a rich and theoretically informed examination of how Japanese firms responded to the recessionary 1990's. There has been plenty of speculation about the response of Japanese firms to the economic crisis, and much hand wringing over the apparently glacial pace of corporate change and restructuring. This paper is one of the first studies to assess the response of Japanese firms to the economic crisis of the 1990's. However, the implications of this paper go beyond Japan. Economic crisis in a global economy has forced Japanese firms to confront the unpleasant prospect of dismantling the permanent employment system. While a country insulated from the outside world might be able to protect its domestic employment practices, those that are struggling with global competition and global markets no longer have this luxury. This dilemma is not unique to Japan and will increasingly be faced by other firms and economies heavily exposed to the international marketplace. The study of how firms address this challenge provides important insight into the processes of organizational transformation in an increasingly global economy.

CONTEXT

In the U.S., downsizing has been studied as the adoption of a new practice (Budros, 1997). We believe that downsizing in Japan is more accurately viewed as the abandonment, or deinstitutionalization, of permanent employment. The practice of permanent employment in Japan refers to "the practice whereby an employee enters a company after school graduation, receives in-company training, and remains an employee of the same company until the retirement age of fifty-five" (Cole, 1979: 11). Large Japanese firms have had an implicit contract with their employees to provide them with employment until age 55 (Abegglen, 1958; Dore, 1973). The permanent employment system was traditionally bolstered by a constant influx of lower wage and lower skilled new graduates, so that mid-career hiring was virtually unknown. While the retirement age in Japan is early, and permanent employment within a large company tended to end in an employee's mid-fifties, firms continued to honor their obligation to employees in the form of transfers to related firms.

Permanent employment developed into an institution in the first part of the twentieth century. . At the beginning of the twentieth century, workers moved frequently between factories and had little commitment to any company. The practice of permanent employment originated in the early 1920's, as a means to attract and retain employees during severe labor shortages in the aftermath of World War I and became further institutionalized in the years following World War II, when large Japanese employers responded to severe labor unrest and militant unions by assuring their employees of a decent living and a stable job in return for their cooperation (Gordon, 1985; Dore, 1973). In the tumultuous early postwar years, Japanese companies and the state legitimized the relatively new system of permanent employment by attributing to it aspects of traditional Japanese culture such as collectivism and hierarchical and paternalistic interpersonal relationships (Cole, 1979). Over time, permanent employment and other features of the Japanese employment system also increasingly took on normative dimensions, as they were transformed

from merely a distinctively Japanese way of organizing employment, to a superior way to manage employment. Economists argued that permanent employment encouraged collaboration, development of firm-specific skills, and loyalty (Aoki, 1988). Foreign scholars touted the advantages of the Japanese system for western industrialized nation, and such praise from foreigners gained wide exposure in Japan (Vogel, 1979; Dore, 1973).

By the 1980's, virtually all large Japanese firms assured permanent employment to male employees hired directly from high school or college (called *seishain*, or regular employees, to distinguish them from part-time and contract labor). Permanent employment was assured among firms listed on the first section of the Tokyo Stock Exchange (Brown et. al, 1997), and some observers of the Japanese employment system argue that permanent employment extended more deeply into smaller firms than often acknowledged (Cole, 1979; Hashimoto and Raisian, 1985).

The economic crisis of the 1990's. This positive evaluation of the permanent employment system increasingly came under question as four decades of postwar economic growth ended with the fall of the stock market and burst of the bubble economy in 1991. In the face of reduced sales, declining levels of GDP growth, increased international competition, and a weak yen, managers increasingly believed that Japanese firms were overstaffed. Estimates of excess employees reached 6 million (Eisenstodt, 1995).

Japanese firms historically dealt with declining performance through wage adjustments, reduction of overtime, and dismissal of contract laborers (Mroczkowski & Hanaoka, 1997). This is not to say that downsizing, through reduced hiring, early retirements, and dispatch of employees to affiliated firms (*shukkou*), was unknown: downsizing was widespread in the 1970's in response to the oil shocks. Downsizing during the 1970's, however, was in response to a specific price shock and occurred in the context of industrial planning and active state guidance, strong intercorporate groups, and respected main banks. It occurred through the shutdown of entire industries, and transfer of employees from troubled firms to better-performing affiliates (see

Sheard, 1991; Dore 1986). Labor force reductions during this period were not seen as a retreat from permanent employment. In the 1980's, the permanent employment system had lost none of its grip and was touted as part of a highly productive, flexible, high quality and low cost Japanese production system.

Downsizing in the 1990's, however, took on a different flavor. While firms used many of the same techniques favored in the earlier periods--dismissal of contract and part time labor, and dispatch of employees to affiliates-- there were distinct differences. Direct layoffs, though still a small proportion of total dismissals, became more common (Usui and Colignon, 1996). According to Ministry of Labor statistics, the percentage of job separations among firms with over 1000 employees due to management circumstances (as opposed to retirement and other individual circumstances) increased from 2.3% in 1980 to 9.3% in 1998 (Ministry of Labor: 521). The unemployment rate increased from approximately 2.2% in 1990 to 4.2% in early 1998 (and on to 4.8% in 2000) (Ministry of Labor, 1996, 2000).

Along the path to layoffs, firms also resorted to hiring freezes. While employers may have viewed hiring cuts as a means to protect the jobs of existing employees, hiring freezes were nevertheless threats to the permanent employment system in several ways. The permanent employment system was predicated upon successive cohorts of new employees entering each year; a hiring freeze meant a gaping hole in a firm's age and promotion hierarchy. Furthermore firms that curtailed or drastically reduced hiring risked bad publicity and poor future recruiting prospects. Firms tend to develop very close relationships with a set of schools from which they recruit, and hiring cuts violated an implicit agreement to a steady number of annual hires (Rohlen, 1983). Firms had tried hiring cuts during the oil crisis, but soon backed away as they found that hiring cuts were more costly than anticipated.

Perhaps more striking than the actual downsizing tactics were their psychological impact. In the words of one employee commenting on an involuntary early retirement program at his firm:

"A few days ago, these managers would have been looking forward to a comfortable last few years. Now they are told the company doesn't want them. Who will be next?" (Thomson, 1993:24). Newspapers highlighted these concerns with heart-rending series on downsized employees and their struggle to retain their dignity and economic status. Increasing suicide rates were attributed to economic insecurity. A spate of newspaper articles and other publications mourned "the end of Japan" (Yamamura, 1997). Yet, despite the negative psychological impact of labor force reductions, Japanese employers increasingly believed that downsizing was necessary step, and the age of permanent employment was over. Elite business organizations called for a new era of "flexibility" in employment (e.g. Keizai Doyukai, 1994). Over 70% of the Japanese executives who responded to a 1998 poll agreed that their firms needed to revise the permanent employment system. Ninety-five per cent said that across the Japanese economy as a whole, permanent employment was changing either drastically (22.6%) or to some extent (LTCBR Consulting, 1998).

Thus, in the 1990's, a belief that labor force reductions were a prerequisite for economic renewal came face to face with the institutionalized realities of the system. Labor force reductions in the 1990's were a direct threat to the system of permanent employment. First, more than ever before, they involved direct layoffs, or, at least, strong pressure on employees to retire. Second, hiring reductions eliminated an entire cohort of young employees, and threatened the structure of age-based wage and promotion at the foundation of the permanent employment system. Third, employees, the media, and the general public associated the downsizings of the 1990's as nails in the coffin of the permanent employment system, and as bad omens for their own careers.

THEORY AND HYPOTHESES

How did Japanese firms in the 1990’s resolve this tension between the perceived benefits of labor reductions and the deeply institutionalized nature of permanent employment? Did firms

respond purely to economic pressures, even in the face of strong social and institutional constraints? Did these social and institutional pressures affect the course of downsizing? What happened to these pressures as downsizing became more prevalent over time? Our analysis examines the process by which downsizing spread across the Japanese economy of the 1990's. Our analytical emphasis is threefold. We begin by examining the degree to which economic pressures triggered downsizing. Next, we examine the effect of social and institutional constraints on downsizing. Finally, we explore the factors that caused these social and institutional constraints to diminish and allow downsizing to spread more widely.

Economic pressures as triggers to deinstitutionalization

Researchers of deinstitutionalization have demonstrated that economic and technical factors can play an important role in triggering the abandonment of deeply institutionalized practices (Oliver, 1992; Kraatz and Zajac, 1996). Though organizations are social entities, they respond to demands from the market. Changing consumer demands cause organizations to adopt practices opposed to long held principles, as in the case of adoptions of professional programs by liberal arts colleges in the U.S. (Kraatz and Zajac, 1996). Poor performance leads firms to abandon long-maintained practices, imprinted from the earliest days of founding (Boeker, 1989). Environmental stimuli, including the nature of product demand, technology, and competitive environment, transform organizational strategy and structure (Chandler, 1962; Miller and Friesen, 1980; Tushman and Anderson, 1986)

We predict that economic pressures similarly triggered the deinstitutionalization of permanent employment. Firms that faced the most immediate and pressing signals of poor performance were most likely to downsize. Several metrics signal to Japanese managers declining performance and the need to reduce headcount. First, Japanese managers pay close attention to sales growth (Abegglen and Stalk, 1985). Thus, declining sales growth is likely to indicate economic trouble, and a need to retrench and reduce costs. However, while Japanese managers may not display the same relentless concern for profit maximization that American managers do,

low profitability, as measured by return on assets, is also an important indicator of financial distress, and often triggers restructuring and reorganization (Kang and Shivdasani, 1997).

Second, downsizing is more likely to be adopted when low performance is traceable to high labor costs. Media reports of the Japanese recession of the 1990's highlighted excess labor--due in part to over hiring during the booming years of the1980's bubble economy--as a drag on the economy. Surveys of managers during this period indicate a wide consensus that firms were over-staffed (Ministry of Labor, 1995). Over-staffing and redundant employees is likely to be reflected by a low ratio of profits to employee (Budros, 1997).

H1a: The lower the performance, as measured by return on assets and sales growth, the more likely a firm is to downsize.

H1b: The lower its profit per employee, the more likely a firm is to downsize.

Social and institutional constraints

While declining performance may encourage organizational change, organizations do not abandon institutionalized practices merely because better options present themselves (DiMaggio, 1988). The social and institutional pressures that cause a practice to be institutionalized in the first place are likely to influence both the pace and direction of organizational change. Organizations adopt and maintain institutionalized practices in order to enhance their legitimacy (DiMaggio and Powell, 1983). By the same token, an organization that abandons an institutionalized practice is likely to suffer a drop in legitimacy, and incur very real costs.

Downsizing in Japan in the 1990's directly threatened the legitimate system of permanent employment. A firm that downsized and signaled to willingness to break with long-held implicit contracts of permanent employment was perceived to be a "bad company" (in the words of a government official that we interviewed) that had neglected its social responsibilities.[1] Such anti-social behavior threatened a firm's reputation with new employees and endangered future hiring prospects. Several managers and government officials that we interviewed suggested that

[1] Since 1990, we have interviewed numerous Japanese managers and government officials as part of our larger research program on change in the Japanese economy. The interviews were open-ended, and covered a range of topics concerning change and restructuring.

companies feared that downsizing would threaten sales of their product, as consumers would hesitate to buy from a company that had neglected its social responsibility. A downsizing announcement by a well-known company, they further argued, would also cause investors, customers and trading partners to question a firm's fiscal health--as such deviant behavior was seen as a desperate, last ditch measure to cut costs. A report by the Bank of Japan suggested that Japanese firms had some experience with downsizing during the oil shocks, and had learned from their experience first hand of the costs of downsizing: "Behind the fact that Japanese firms didn't make large cuts in regular employees from the second oil shock and after is that companies that carried out employment adjustments until then suffered a decline in corporate image and a worsening in relations with their unions. Many have suggested that these tangible and intangible costs were greater than anticipated" (Bank of Japan, 1994: 13).

This concern for legitimacy is not limited to Japanese firms, and is well documented as a more widespread organizational phenomenon. Legitimacy enhances access to resources ranging from financial resources and regulatory approval (Pfeffer and Salancik, 1999), customers, and public support (Elsbach and Sutton, 1992). Since organizations that have achieved high levels of legitimacy are more likely to survive (Ruef and Scott, 1998), organizations expend considerable energy in developing and enhancing their legitimacy. They do so through active management of their images to communicate an aura of legitimacy (Elsbach, 1994), as well as by adopting practices and structures that conform to prevailing norms of what an organization should look like (Pfeffer and Salancik, 1978; DiMaggio and Powell, 1983). Since an organization that deviates from widely accepted practices is likely to suffer reduced legitimacy, it is likely to weigh the costs of this decreased legitimacy against the benefits of adopting an illegitimate practice, or abandoning a deeply institutionalized one.

The costs of deviant behavior, however, are likely to differ by firm. First, firms that have achieved higher levels of legitimacy are likely to lose more by deviating from accepted practices. Second, firms that are more visible are more likely to be caught, and suffer adverse publicity, for deviating from accepted practices. These two dimensions of legitimacy and visibility are captured

by firm size, age, and reputation; and we predict that larger, older, and higher-reputation firms will be more likely to refrain from downsizing.

Firm size: A number of researchers have linked organizational size to greater legitimacy (Dobbin et. al, 1988; Deephouse, 1996). While this link between legitimacy and size has received mixed support in research in the U.S. (Deephouse, 1996; Ruef and Scott, 1998), it is difficult to dispute that in Japan, larger firms have greater legitimacy. Large firms are at the core of the Japanese political economy (Clark, 1979; Cole, 1979; Dore, 1973; Rohlen, 1974). They maintain close links to large financial institutions and have superior access to funding, they have close ties to the state, and through leadership positions in peak business organizations such as the Keidanren and trade associations, play an important role in influencing industrial and economic policy. Such core firms have much more to lose than firms at the periphery through deviant behavior--whether it is neglecting accepted, institutionalized business practices or adopting new innovations (Leblebici, Salancik, Copay, and King, 1991). Large firms are believed to most closely adhere to the Japanese employment system and best embody Japanese values (note that most books on "Japanese business practices" in both English and Japanese feature large firms as exemplars). Because they are well known, prestigious, and believed to be good, stable employers, large firms are able to recruit graduates of top schools. Large firms are also more likely to refrain from deviant behavior because they are more visible.

Large firms are often under greater scrutiny by the state and general public, due to their higher visibility. This is not unique to Japan: larger, more visible U.S. firms, for example, have been found to be more likely to respond to government demands (Salancik, 1979). Furthermore, the larger an organization, the more visible and well known it is, and the more likely its downsizing will involve large numbers of people, and thus the more likely that it will attract media coverage. At least in the early 1990's, Japanese firms were highly concerned about receiving publicity over downsizing, since they believed that the mass media would be extremely critical. In the mid-1990's, we interviewed a public relations manager of a large Japanese firm that had just been taken over by a foreign firm. He complained about the constant phone calls from the press asking when they were planning to downsize, and described his very guarded responses to them:

Any hint of downsizing, he said, would immediately be front-page news, and the coverage was not likely to be complementary. This concern about adverse media coverage is a theme that we detected in other interviews, and has been commented upon by other scholars (Sako, 1992). Japanese mass media is constantly on alert for examples of misbehavior by large firms and firms are concerned about the real impact that such negative publicity has on reputation.

H2a: The larger the firm, the less likely it is to downsize.

*Firm age***:** Older organizations are also likely to hesitate before they downsize for similar reasons. Older organizations have achieved higher decrees of legitimacy, and thus are likely to lose more by deviant behavior. As Hannan and Freeman (1984: 158) note: "Nothing legitimates both individual organizations and forms more than longevity. Old organizations tend to develop dense webs of exchange, to affiliate with centers of power, and to acquire an aura of inevitability." Older firms in Japan are also more closely associated with the Japanese employment system and with preserving Japanese values. Newer firms, such as Sony and Honda (not so new by American standards, but still considered relative newcomers in Japan), tend to be less associated with the existing system. To some extent, this may because newcomers were forced to rely to a greater extent on international markets in the face of strongly entrenched domestic competition--as was the case of Sony, Honda, and Kyocera. In fact, it is often said of Sony: "Sony is not a Japanese company" (see for example, Shinagawa and Ushio, 2000:133). Such firms, already seen as deviants, or outsiders, have less to lose by defying normatively accepted practices.

H2b: The older the firm, the less likely it is to downsize.

*Firm reputation***.** Organizations also enhance their legitimacy through endorsements through regulatory bodies or associations (Ruef and Scott, 1998). Such endorsements signify that an organization has conformed to normatively appropriate practices, and is thus legitimate. In Japan, one of the most watched endorsements is the annual rankings of prestigious firms put out

by Recruit, a Japanese business publisher and job agency, based upon perceptions of recent graduates. The annual results of the Recruit rankings are widely covered in the mass media, and well known and remarked upon in the business community and among the general public. Firms that have rated highly in these rankings are unlikely to compromise their reputation through behavior such as downsizing.

H2c: Firms that rank highly in the annual Recruit rankings will be less likely to downsize.

Wages and human capital. Firms strive to maintain legitimacy to assure a steady stream of necessary resources (DiMaggio and Powell, 1983). Thus, the degree to which an organization conforms to legitimate, normatively accepted behaviors is likely to depend upon its patterns of resource dependencies. A firm that is dependent upon stakeholders that strongly support an institutionalized practice is less likely to abandon it. Conversely, a firm that is dependent on proponents of a new order is likely to show more enthusiasm for change.

We predict that a firm's dependence upon human capital is likely to affect its likelihood of downsizing. The greater the extent to which a firm relies on highly trained employees with firm specific skills to solve problems and manage complex tasks and interactions with others, the less likely it will be to downsize. A firm will be unwilling to dismiss such employees because they are likely to have valuable firm-specific assets. Furthermore, such employees may also have trouble finding equivalent employment elsewhere, and may incur high severance costs (Greenhalgh, Lawrence, and Sutton, 1988). This reluctance to downsize among firms with high levels of human capital is likely to be particularly pronounced in Japan. Human capital in Japanese firms tends to be highly firm-specific, to take many years to develop, and to be difficult, if not impossible to transfer between firms (Aoki, 1988; Becker, 1964; Koike, 1988).

Firms that rely upon employees with high levels of human capital are also likely to be reluctant to downsize out of concern for the effect on remaining employees. Downsizing has been found to have a detrimental effect upon surviving employees and their attitudes towards their employer (Brockner, 1990). This detrimental effect is likely to be even stronger within a Japanese

firm, in which employees believed that they had a job for life. Remaining employees are likely to view the company as disloyal, worry whether or not they believe that they are "next," and decrease their own level of commitment and loyalty accordingly. Anecdotal evidence suggests that widespread downsizing has altered employee commitment for the worse. For example, accounts in the Japanese press suggest that a spate of corporate scandals surrounding product liability were exposed by disgruntled employees, getting back at their companies for the disloyalty toward employees they had demonstrated through downsizing and restructuring (e.g. Tanaka, 2000: 129). Even if employees do not resort to such strong retribution, the perception of disloyalty is likely to cause employees to lower their contribution level. Researchers have noted that the permanent employment system encourages strong levels of cooperation and sharing of learning, because employees perceive their contracts to be long term (Aoki, 1988). This level of commitment and cooperation, it is argued, led to the impressive performance of Japanese firms, particularly in manufacturing, up until the late 1980's. A firm that reneges on this assurance of permanent employment may lose employee commitment and cooperation, and thus, lose a source of competitive advantage.

The degree to which a firm has invested in high levels of human capital is likely to be reflected in its wage levels. A firm that pays higher than average wages is likely to have recruited employees from top universities, and put them through rigorous, long-term, training programs. High wage firms are likely to have more male employees, in whose training and development firms tend to invest more. Since wages in Japanese firms are largely set according to the *nenko*, or age-based system, firms whose wages exceed those of their industry are likely to have older employees, who have developed greater levels of firm-specific human capital over their long careers. The costs of a decline in worker commitment are likely to be higher in firms that invest in higher levels of human capital. Higher levels of human capital are likely to be reflected in higher wages. Thus,

H2d: The higher the wages a firm pays, the less likely it is to downsize.

Foreign ownership. Research on institutionalization highlights the fact that legitimacy is often in the eye of the beholder--and that different actors in an organizational field are likely to have different conceptions of legitimacy (Suchman, 1995). These competing notions of legitimacy were very visible in Japanese capital markets during the 1990's. One of the most noticeable trends in the Japanese stock market during this period was the increasing presence and increasing profile, of foreign investors--specifically, U.S. and European financial institutions. While permanent employment may have been legitimate and appropriate to most of the Japanese financial institutions and corporations that held shares in publicly traded firms, it was far less so for these foreign investors.

In the 1980's in the United States, shareholder activism led to a transformation in the rhetoric of corporate governance. Corporations were increasingly seen as having the fundamental purpose of the creation of shareholder value, even at the expense of other stakeholders such as employees (Davis and Robbins, 1999). The 1980's saw a wave of downsizing in the United States. By the 1990's, downsizing was seen as a strategic tool, and had become an established and accepted part of normal corporate strategy (Useem, 1996). While this movement towards "investor capitalism" originated in the United States, American institutional investors were hastening its diffusion to other economies as well (Useem, 1998). Large foreign investors, usually U.S. or European institutional investors and corporations, brought these notions of "shareholder capitalism" to their investments in Japan. In their publicly circulated reports, major American investment banks regularly singled out Japanese companies that had announced their intention to reduce workforce for praise. Less constrained by conceptions of permanent employment and the Japanese system, foreign shareholders were likely to demand immediate attention to shareholder value, even at the expense of jobs and preserving the Japanese system.

Thus,

> *H2e: The greater a percentage of a firm's shares held by foreigners, the more likely it is to downsize.*

Safety in numbers and population level effects

An important focus of this paper is the question of what causes institutional and social constraints to fall away and allow deinstitutionalization to spread across a population of organizations. Understanding how and why institutional and social pressures eventually diminish and allow organizations respond more directly to economic and technical pressures for change is critical to further development of the concept of deinstitutionalization. However, little to no research to date has documented the relative influence of social and institutional pressures over time, and little to no research addresses the question of just what causes these pressures to diminish.

We argue that the social and institutional constraints against abandoning an institutionalized practice are likely to fade as firms are increasingly convinced that the social costs of deviating from a widely accepted, legitimate practice are outweighed by the benefits. We further submit that this occurred in the Japanese economy of the 1990's through a process of "safety in numbers." As more firms downsized across the population, the social costs of downsizing for any single firm decreased. If a single firm downsizes, its deviant behavior is likely to draw much attention and social censure. When many other firms commit the same deviant act, however, it is less likely that any individual firm will be singled out for criticism, or, if it is criticized, it will have plenty of company, and its own anti-social behavior is unlikely to stand out. Furthermore, as downsizing became more widespread, a firm was more likely to get away with the time-honored explanation of "everyone else is doing it" to justify its behavior to employees, the general public, and other important stakeholders. Thus, increasing downsizing across the population provided a measure of "safety in numbers" and reduced the risk that a firm is censured for its deviant behavior.

In 1993, Pioneer learned the importance of seeking safety in numbers the hard way, when it gave 35 senior employees a choice between retirement and dismissal (Thomson, 1993). This announcement was featured prominently in the mass media as a harbinger of the end of permanent employment. Several weeks later, Pioneer retracted its decision, allegedly due to concern about unfavorable publicity, and pressure from its labor union. Several years later, however, similar announcements of downsizing by other firms went unremarked. By the mid-1990's, mentions of

downsizings in the business press reached thousands per year--and there was less change that any single firm would stand out and be criticized for deviant and anti-social behavior.

The concept of safety in numbers leads to the proposition that firms follow the lead of other firms in the population: the more other firms downsized, the more likely any single firm to downsize. We predict, however, that some firms were more likely to seek safety in numbers than others. As we noted earlier, some firms felt the institutional and social constraints that discouraged downsizing more acutely than others. The more legitimacy a firm had to lose, and the more visible it was in the mass media, the more likely it was to seek safety in numbers and refrain from downsizing until others have gone first. Thus, large, old, and high reputation firms were more likely to downsize as downsizing became more widespread across the population. Firms with high investments in human capital were also likely to seek safety in numbers, in this case, to better justify their behavior to employees. Employees are more likely to accept a firm's downsizing decision if they conclude that this decision is fair and necessary (Brockner, 1990). The more that a firm was able to justify its downsizing by pointing out that competitors and business associates are doing the same, the less likely it was to lose employee commitment.

We predict that firm characteristics reflecting social and institutional constraints on downsizing will moderate the effect of population downsizing on firm downsizing.

H3: The more firms in the population that downsize, the less likely social and institutional pressures (as reflected by size, age, reputation, and wage) are to constrain downsizing.

DATA AND METHODS

The data set consists of all companies listed either on the first or second section of the Tokyo stock exchange or on one of Japan's regional stock exchanges in 18 selected industries (see appendix) between 1990 and 1997, a total of 1638 firms. We included in our sample only firms that were publicly listed in all years from 1990 to 1997. This omits 32 firms that were listed in 1990 but exited from the sample during that period. Exits were almost all due to merger or acquisition or delisting rather than bankruptcy. Since only a very small percentage of the firms of the sample exited during this period, selection bias is unlikely to be a problem.

Variables

Dependent variable. The dependent variable measures a downsizing event. We define downsizing as a decrease in number of employees of 5% or more between year t-1 and year t. Research on downsizing has measured downsizing in a variety of ways. For example, researchers on downsizing in the United States have gathered reports of downsizing events from the mass media (Budros, 1997). Although this technique has also been used to study downsizing in Japan (Lee, 1997), public announcements of downsizing in Japan do not necessarily capture actual downsizing. Close scrutiny of the *Nihon Keizai Shimbun*, Japan's leading economic newspaper, reveals announcements of proposed large labor force reductions rather than details of actual downsizings that have occurred. We believe that actual downsizing is best reflected in real reductions in labor force rather than announcements.

We define downsizing as a dichotomous variable, primarily to capture the firm's decision to downsize or not. There are several additional advantages to defining downsizing as a dichotomous variable. First, relatively large changes in employment are most likely to violate social norms around permanent employment. Changes of -5% or more are more likely to be publicized. Changes of this magnitude are also more likely to occur through concentrated efforts to reduce workforce, rather than through attrition. A dichotomous measure of downsizing is also easier to interpret than a continuous measure that captures both increase and decrease in employment. In order to check for robustness of this measure of downsizing, we conducted similar analyses measuring downsizing at changes of –10% and -2% or more.

Freeman and Cameron (1993: 12) define downsizing in the United States as "…a set of activities, undertaken on the part of the management of an organization, designed to improve organizational efficiency, productivity, and/or competitiveness. It represents strategy implemented by managers that affects the size of the firm's work and the work processes used." Consistent with this definition, downsizing in the 1990's in Japan was a result of conscious managerial decisions to reduce employment, and was accomplished through reductions in hiring, early retirements, sending employees to affiliates, and, in some cases, layoffs. We do not distinguish

between these different means of downsizing: as we discussed earlier, all four represent breakage of the norms around permanent employment.

Independent variables. *Return on assets* is profits before taxes and extraordinary items divided by total assets. *Sales growth* is the percentage growth in sales between year t-1 and year t. *Losses over previous 5 years* are the sum of years in the previous 5 years that a firm experiences losses. *Profits per employee* is the deviation from industry mean of the ratio of a firm's operation profits to total employees. All performance measures, except for sales growth, which measures change over the previous year, are lagged by one year.

Firm size is the log of total assets. *Firm age* is the number of years between a firm's founding and 1990. *Recruit endorsement* is the sum of the number of times that a firm appeared in Recruit's annual listing of the most attractive 50 firms for new graduates during the 1980's. We use data from the 1980's for several reasons. First, frequent appearance in past rankings indicates that a firm had established a substantial reputation as an employer. Second, since it is likely that downsizing behavior influenced Recruit rankings, we believe that rankings from the 1980's are a better measure of reputation, pre-downsizing.

Wage is the deviation from industry mean of a firm's payroll expense divided by the total number of employees. *Foreign ownership* is the percentage of shares held by non-Japanese shareholders. The Nikkei NEEDS data set does not distinguish between the nationalities of foreign owners. However, hard copy volumes of corporate reports, found in *Nikkei Kaisha Nenkan*, report the top 10 shareholders for publicly listed firms. We examined the identities of these shareholders for a subset of about 700 firms, and found that foreign shareholders are almost exclusively large American, European, or Australian corporations or institutional investors.

Population downsizing is the sum of downsizings of all firms in the population, minus the focal firm, over the three previous years. We divided this by the total number of firms in the population, minus the focal firm, multiplied by three (this measures the total number of potential downsizing events within the population during this period). Thus, this measure can be thought of as the percentage of firm years in which a downsizing occurred, over the previous three years.

We experimented with different length periods over which to measure population downsizing. Various measures, including cumulative downsizing from 1990, downsizing over the past 4 years, downsizing over the past 2 years, and downsizing in the previous 1 year rendered similar patterns of results. While research on adoptions of new practices often examines the cumulative number of adopters, or percentage of adoptions, this is less appropriate in this case. We argued that population level downsizing is likely to be influential due to a safety in numbers effect--when large numbers of downsizings in the recent past will make any given firm's downsizing less visible. Thus, a measure relatively recent downsizings, rather than cumulative downsizings, is likely to be more appropriate.

Control variables. R*eal GDP growth* between t-1 and t measures macroeconomic conditions. A continuous measures of calendar year controls for the passage of time. We control for exposure to foreign markets with a measure of *exports divided by sales* for the previous year. Finally, we include a set of dummy variables for each industry to control for inter-industry differences in propensity to downsize.

Analytical approach

Our data consists of a panel of 1638 firms observed over 8 years. Downsizing is an event that may or may not occur in any given year, and may occur in multiple years. We employed a variation of discrete time event history methodology (Allison, 1984; Yamaguchi, 1991). We used a panel probit model to estimate the hazard of a downsizing event in a given year in a pooled sample of each organization observed during each of the 8 years.

$$P(t)= \Phi(a + b_1x_1 + b_2x_2(t) + \varepsilon)$$

P(t) is the probability of a downsizing event occurring at time t. $_1$ is a set of time invariant covariates while x_2 is a set of time-varying covariates. The discrete time model is

appropriate when information on the exact timing of an event is not available, and multiple organizations report the same event as occurring at the same time (i.e. in the same year).[2]

FINDINGS

Table 1 shows the number of downsizings per year across the sample. In 1990, 5.9% of the firms in the sample reduced employment by 5% or more, while in 1997, 24% downsized by 5% or more. Figure 1 illustrates the rising number of firms that downsized at least once between 1990 and 1997. In 1991, 10% of the firms in the sample reduced their employment by 5% or more. By 1997, over 50% of the firms had downsized at least once. Larger downsizings, of 10% or more, though more rare, also gained momentum over time. By 1997, over 20% of all firms had downsized by 10% or more.

Table 2 presents descriptive statistics and Table 3 presents bivariate correlations. Table 4 reports results of random effects panel probit analyses of downsizings of 5% or more. Model 1 includes measures of economic pressures and controls. Consistent with hypothesis H1a, firms downsized in response to low return on assets and low sales growth. Mounting years of poor performance further increased the likelihood of downsizing. Contrary to hypothesis H1b, low profits per employee did not increase a firm's likelihood of downsizing. In additional analyses, we examined an alternative measure of excess employment, sales per employee. However, we found no significant relationship between sales per employee and downsizing.

Model 2 adds size, age, Recruit endorsement, wages, and percentage foreign ownership. Although Model 2 suggests that larger firms were not significantly less likely to downsize, the

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[2] In most cases, discrete and continuous time models produce similar results (Allison, 1984). We use STATA's xtprobit routine, which uses a generalized estimating equation approach to estimate random effects probit models STATA, 1997 (Liang and Zeger 1986; STATA, 1997). We employ random effects models to address unobserved heterogeneity due to repeated observations on the same firm across years, and among firms in any given year. It is particularly important to control for unobserved heterogeneity between firms since downsizing is a repeated event. Some firms downsize more than others, and if these different propensities to downsize are due to unmeasured firm-specific factors, statistical tests of resulting coefficient estimates may be inaccurate.

We further addressed this potential problem of unobserved heterogeneity among firms in several ways. First, following the recommendation of Allison (1984), we include a variable that measures each firm's cumulative history of downsizing since 1985. Second, we report standard errors derived from the Huber/White/sandwich robust estimator of variance. This estimator allows us to obtain consistent standard errors even when the correlation structure assumed by a probit model is violated. Using this estimator allows us to relax the assumption that observations within the same cluster (in our case, the same firm observed across the 8 years) are uncorrelated (White 1980; STATA, 1997).

main effect of size on downsizing became significant with the addition of an interaction between size and population downsizing as shown in Model 4. Thus, we conclude that, consistent with hypothesis H2a, size constrained downsizing. Accordingly, when population downsizing was rare, large firms were hesitant to downsize. As downsizing became more prevalent, the effect of size diminished. (In supplemental analyses, we substituted the log of number of employees in the previous year for assets, and found a similar negative and significant relationship between size and downsizing.) In supplementary analyses we also experimented with including a squared term for assets, which would suggest that firm size had a curvilinear relationship to change, but found that logged assets offered the best fit.

Older firms were less likely to downsize, consistent with hypothesis H2b. As predicted by hypothesis H2c, Recruit endorsement decreased the probability of a firm's downsizing (although as in the case of firm size, significance levels increased in models containing and interaction between Recruit endorsement and population downsizing). Consistent with hypothesis H2d, high wage firms were less likely to downsize. The greater the percentage of a firm's shares held by foreigners, the more likely it was to downsize, consistent with hypothesis H2e.

Hypothesis 3 predicts that the effect of social and institutional constraints on downsizing diminished as downsizing increases across the population. To test this hypothesis, we added to our model population downsizing, and interaction terms between population downsizing and each of the institutional and social constraints examined above. Model 3 includes population downsizing, and shows that the main effect of population downsizing, absent the interaction terms, was positive.

Model 4 adds an interaction term between assets and population downsizing. Consistent with hypothesis H3, the more downsizing in the population, the less a firm's size hindered a firm's propensity to downsize. Put another way, the larger the firm, the more likely it was to wait till others have downsized before it went itself. Figure 2 illustrates this interaction effect at three size levels: the mean, and two standard deviations above and below the mean. The curve depicting the relationship between population downsizing (the x axis) and the probability of a firm downsizing (y axis) is much steeper for larger firms than for small firms.

Model 4 also includes an interaction term between years of negative ROA and assets. This is in order to rule out an alternative explanation for the diminishing effect of firm size over time: that large firms had deeper pockets, and could withstand more years of poor performance before they are forced to take action. This interaction is positive and significant, indicating that the larger the firm, the more years of poor performance it suffers before downsizing. However, even when this interaction is included, the interaction between size and population downsizing remains strong and significant.

Model 5 examines the interaction between age and population downsizing, similarly controlling for the interaction between age and years of poor performance. The older the firm, the more likely it was to wait until others in the population have gone first before downsizing itself. Figure 3 demonstrates this interaction effect, at mean age, and 2 standard deviations above and below the mean. Again, the curve for older firms is steeper than for younger firms, indicating a closer relationship between population downsizing and firm downsizing for older firms. Model 6 demonstrates that firms with Recruit endorsements were similarly more likely to follow population downsizing, as are high wage firms, as shown in Model 7. Figures 4 and 5 demonstrate these interaction effects, again, at mean levels and two standard deviations above and below. Model 8 includes an interaction between population downsizing and foreign ownership. The coefficient estimate for this interaction is positive and significant, suggesting that firms with foreign ownership become more likely to downsize, as downsizing increases across the population.

Model 9 includes all of the interactions between population downsizing and social and institutional constraints, as well as the interaction between years of poor performance and assets. While the size and significance of these interaction effects drop somewhat when all are included in the same model, they remain consistent in direction with their effects when entered in the model separately.

Control variables. Several control variables rendered significant results. Year had a positive effect on downsizing, even controlling for population downsizing, indicating that

propensity to downsize increased with the passage of time. The estimate of GDP growth is also positive and significant. The positive relationship between growth and downsizing probably reflects the fact that the Japanese economy began to grow again after 1994, just as downsizing began to spread widely.

Firms with a large percentage of exports were less likely to downsize. One explanation is that exporters faced considerable cost pressure in 1985 after the yen jumped in value as a result of the Plaza Accord. Accordingly, they made adjustments in their labor forces before the 1990's recession, and were less likely to have over-hired during the bubble years of the late 1980's. In contrast, domestic firms, long insulated from foreign competition, were most badly hit by the 1990's recession.

Strong and significant effects for industry dummies indicate that the propensity to downsize differed across industries. This may reflect either differing economic conditions across industries (separate from firm specific or macro-economic circumstances). It may also reflect intra-industry contagion. Further research on the source of inter-industry differences in downsizing is necessary.

Finally, the more a firm downsized in the past, the more likely it was to downsize again. Researchers have found that change builds momentum within organizations, as they persist in familiar and well-rehearsed routines (Amburgey, Kelly and Barnett, 1993). Downsizing is also likely to build momentum within a firm, once it has executed its first downsizing. Once resistance to downsizing is overcome, it opens an opportunity for continuous or radical transformation (Tushman and Romanelli, 1985; Greenwood and Hinings, 1988). The effect of past downsizing on a firm's propensity to downsize may also mean that firms downsized in increments. If this were the case, and the effect of past downsizing was due to firms spreading downsizing over multiple years, we should observe differences across the dependent variable: past downsizing should have a greater effect on 2% downsizing, the smallest increment, than on 5% or 10% downsizing. This, however, is not the case, supporting our argument in favor of momentum.

Additional analyses with alternative specifications of downsizing. Tables 5 and 6 test alternative specifications of downsizing to examine the robustness of our models. Table 5 presents

analyses of downsizings of 10% or more. Consistent with the previous analyses, performance and foreign ownership trigger downsizing, while firm age, Recruit endorsement, and wage levels all inhibit it. Although firm size at first appears to have a positive effect on downsizing, Model 3 indicates that the coefficient estimate becomes negative when the interaction between population downsizing and years of poor performance is included. This suggests that large firms used their greater resources to avoid having to carry out large downsizings, but downsized as losses mounted.

There is less evidence in the case of 10% or greater downsizing that population downsizing reduced institutional and social constraints on downsizing. While the signs of the coefficient estimates are in the predicted direction, they lose significance, with the exception of reputation. We interpret this to reflect the relative scarcity of downsizings of this magnitude. Even when other firms were downsizing, a labor force reduction of 10% or more was likely to stand out. We predict that that as downsizings become even more prevalent, and large downsizings become more common, the interactions between population downsizing and institutional and social constraints will become larger and more significant.

Table 6 operationalizes downsizing as changes in employment of -2% or more. We find very similar results to the -5% case, suggesting further that our findings are robust to different specifications of the model and the dependent variable.

DISCUSSION AND CONCLUSION

The economic crisis experienced by Japan in the 1990's offers researchers a valuable opportunity to examine change in highly institutionalized management practices. This paper examined the fate of one of these practices, permanent employment, in an analysis of the spread of downsizing among publicly listed Japanese firms. Our objective was to provide a comprehensive examination of how firms resolved the tension between economic pressures to abandon a highly institutionalized practice and social pressures to retain it. We found that poor performance encouraged downsizing, while concerns for maintaining legitimacy hindered it, particularly among

more legitimate and more visible firms. We further found that resource dependencies on employees with high levels of human capital decreased a firm's likelihood of downsizing, while dependence on foreign capital increased it. Social and institutional concerns, however, gave way to economic pressures as downsizing became increasingly widespread across the population and firms found safety in numbers.

Economic pressures trigger downsizing. Consistent with existing research, we found that economic pressures triggered deinstitutionalization. The lower a firm's profits and sales growth, the more likely it was to downsize. This result supports Kraatz and Zajac's (1996) admonishment to organizational researchers to seek economic and technical as well as social explanations of organizational change. We must acknowledge here that we are agnostic on the question of whether or not downsizing actually improved performance. Studies of U.S. firms demonstrate that downsizing is not the panacea that it is often made out to be and the effect of downsizing on long term is questionable at best (Cascio, 1993; Budros, 1997). The findings in this paper, however, do not hinge upon the question of whether downsizing was truly effective or not for Japanese firms. The important point is that Japanese managers believed that downsizing was a necessary and effective means to respond to economic pressures.

Social and institutional constraints hinder deinstitutionalization. This paper extends existing research on deinstitutionalization by paying particular attention to the social and institutional pressures that hindered downsizing, and the factors that caused these pressures to diminish. We found evidence of these pressures at work: size, age, reputation, and wage levels all decreased propensity to downsize. Foreign ownership, in contrast, promoted downsizing.

There are alternative explanations for the finding that large and old firms were less likely to downsize. A vast literature illustrates large firms' resistance to change (Haveman, 1993). Because they are highly bureaucratized and settled into familiar and successful routines, large firms possess higher levels of inertia. For these firms, change is difficult to negotiate--and even threatening to well-being and survival (Hannan and Freeman, 1989). Large firms also have deeper pockets and can withstand declining performance for a longer period before seeking change. Older firms tend to resist change for similar reasons: they have settled into comfortable routines

and stable relationships with the external stakeholders. Our results, however, indicate that the relationship between size and age and downsizing is due to more than inertia. Size and age depressed downsizing rates even when we added interactions between size and age and years of negative performances, capturing the degree to which a firm tended to wait for overwhelming bad news before downsizing. Furthermore, inertia alone does not explain why size and age became less likely to hinder downsizing as population downsizing increased.

Our finding that large firms in Japan initially resisted downsizing highlights the different institutional environments in which Japanese and U.S. firms are embedded. In his research into downsizing in the U.S., Budros (1997) found that the larger the firm, the more likely it was to downsize. Budros argued that large firms were more visible, and thus are more likely to attract unwanted scrutiny by shareholders if they did not downsize. The greater visibility of large firms in Japan led to just the opposite outcome: large firms avoided downsizing to avoid unwanted scrutiny for adopting an illegitimate practice. While U.S. firms faced a very clear incentive to downsize--shareholders rewarded downsizing with a boost in share price-- in Japan, even large institutional shareholders were ambivalent about downsizing and its social impact.

Foreign investors, on the other hand, were less ambivalent than Japanese investors about downsizing. The positive relationship between foreign share ownership and downsizing suggests an important role of global capital markets in spreading new conceptions of management. This finding is also consistent with research that suggests that organizational change comes from players from the outside or at the periphery who hold different notions of how business is done and are less concerned with preserving the status quo (Leblebici et al. 1991; Fligstein, 1996). It is interesting to note that although firms with high levels of foreign ownership were more likely than domestic-owned firms to downsize, our finding that population downsizing increased the effect of foreign ownership on downsizing suggests that foreign-owned firms also sought safety in numbers. This suggests that even firms with high levels of foreign ownership wanted to reduce adverse publicity from downsizing by waiting for others to go first.

More research is merited into how foreign shareholders exerted their influence. One possibility is that the relationship between foreign ownership and increased downsizing occurred

only within foreign-controlled firms--in firms with one foreign institution holding 33.4% or more (a de facto controlling stake according to the Japanese commercial code). Another is that foreigners exerted influence even without a controlling stake. Because our data summarizes only the total amount of foreign ownership and not whether a single foreign shareholder has a controlling stake, we cannot distinguish between a foreign-owned firm, such as Mazda, and a firm with a large proportion of foreign ownership, though no single owner, such as Sony. However, since foreigners had controlling stakes in only a few publicly listed Japanese companies during this period, it is likely that foreigners exerted their influence through other means than direct control.

Our findings that size, age, reputation, and investments in human capital constrained downsizing, while foreign ownership promoted it, offer insight into the social and institutional pressures that maintain an institutionalized practice. Neoinstitutional theory has been criticized for over-emphasizing the cognitive aspects of institutionalization and neglecting issues of power, politics, and resource dependencies (Hirsch, 1997), and the normative and coercive pressures that keep an institutionalized practice in place (Mizruchi and Fein, 1999). Our findings similarly suggest that institutionalization is not simply a state of mind: permanent employment persisted not only because it was taken-for-granted, but also because it was consistent with the interests of important stakeholders. The pace and process of downsizing reflected firms' attempts to manage legitimacy and preserve their reputation and corporate image in the face of opposition of important stakeholders. Studies of deinstitutionalization must take into account the fact that deeply institutionalized practices are often not only taken for granted on a cognitive level, but are actively maintained and supported by important stakeholders who find those practices consistent with their own interests.

Safety in numbers. An important emphasis of this research was to discover how and why the social and institutional constraints that hindered downsizing fell away and allowed downsizing to spread more rapidly across the population. We found that population downsizing moderated the effect of social and institutional constraints on downsizing. The more downsizing in the population over the previous three years, the less likely it was that size, age, reputation, and high investments in human capital hindered downsizing. We argue that this reflects a "safety in

numbers" effect, as firms waited until others go first to avoid criticism for deviant behavior. The more other firms downsized, the less likely any firm would be singled out for criticism, the less visible its downsizing would be, and the better it could argue that "everyone else is doing it" to legitimate its behavior to important constituencies.

An alternative explanation of our finding that population downsizing increases a firm's propensity to downsize is that increasing adoption rates reflect downsizing's increased legitimacy. Organization theorists have argued that firms interpret increasingly widespread adoption of a new practice as a sign of its legitimacy, and adopt the practice themselves to conform to accepted standards of behavior (DiMaggio and Powell, 1983). There is, however, reason to believe that legitimacy is not the main impetus for population-level imitation in downsizing. While firms seek to appear legitimate to appeal to sources of capital, regulators, or the general public, in 1990's Japan, however, it is not clear that downsizing was considered legitimate by any of these constituencies, save foreign investors, a relatively minor stakeholder. As we noted previously, downsizing and the potential demise of the permanent employment system was of great concern to the general public and to the state, which saw it as a threat to social stability. In the face of this resistance to downsizing among important constituencies, it is difficult to argue that firms would imitate each other to enhance their own legitimacy.

We further tested the possibility that the increasing legitimacy of downsizing explains the effect of population level downsizing, by examining the relationship of downsizing to performance over time. Neo-institutional theorists argue that as practices become institutionalized, they become increasingly decoupled with economic and technical necessity, and organizations adopt them in order to appear legitimate rather than to solve specific business problems (Tolbert and Zucker, 1983). Downsizing among U.S. firms appears to have been driven by legitimacy concerns, as firms increasingly appeared to downsize to please shareholders and appear up to date with popular business practices, regardless of necessity (Budros, 1997). As a result, the business press began to condemn firms for "corporate anorexia" due to over-aggressive downsizing programs (New York Time, June 18, 1996:C1, as cited in Budros, 1997). If Japanese firms followed the downsizing behavior of others in the population in search of legitimacy, we should

observe that as downsizing increased across the population, it became less related to performance. Supplementary analyses, available from the authors, find no evidence of this. From the early 1990's to 1997, downsizing remained closely coupled with poor profits and sales growth. Thus, we conclude that safety in numbers, rather than increased legitimacy of downsizing, is the more likely explanation for population level effects.

The safety in numbers effect implies that large, old, high reputation, and high wage firms only downsize once their smaller, newer, more peripheral counterparts have. Large firms downsize not through a desire to increase their legitimacy, but rather, to avoid adverse publicity and damage to their image as good corporate citizens, and justify their actions to important stakeholders. The safety in numbers effect stands in contrast with studies that demonstrate that organizations imitate larger, higher status firms (e.g. Haveman, 1993; Podolny, 1994). This contrast may reflect the fact that processes of interorganizational contagion depend upon a practice's legitimacy. While organizations imitate larger, higher status firms when a practice's legitimacy and efficacy are uncertain, a practice that is considered illegitimate and deviant is likely to spread by other paths (Rogers, 1995). Davis and Greve (1997), for example, attributed strikingly different diffusion patterns between the poison pill and the golden parachute among American firms to different levels of legitimacy. However, while these authors suggest that illegitimate practices are less likely to diffuse through social processes and spread based upon immediate necessity, or for firm-specific, idiosyncratic factors, our research suggests that even illegitimate practices spread through social processes. Practices deemed illegitimate by important stakeholders are likely to spread via a safety in numbers effect, as firms wait for others to go first and to allow negative publicity to subside, before they act themselves.

Our research into the process by which downsizing spread and gained momentum suggests both parallels and points of divergence between deinstitutionalization and institutionalization. Similar to institutionalization, deinstitutionalization unfolds over time, and reflects the interplay of social and economic pressures. In the course of institutionalization, however, technical and social pressures increasingly become decoupled as organizations adopt practices for social reasons, rather than technical or economic exigencies (Tolbert and Zucker, 1983; DiMaggio and Powell,

1983), while deinstitutionalization moves in reverse. As a practice erodes throughout a population, institutional and social constraints fall away, and corporate behavior becomes more closely coupled to economic pressures. Yet deinstitutionalization is not simply institutionalization's converse. Our research suggests that while institutionalization progresses as organizations strive for legitimacy, deinstitutionalization progresses as organizations try to balance the perceived benefits of casting aside an institutionalized practice with the social costs of illegitimate behavior. Safety in numbers may not be the only way that organizations seek to balance these costs. Our findings, however, suggest that far more research is warranted into deinstitutionalization--as a process that is both similar to, and distinct from, institutionalization.

Our research leaves a puzzle for further research. In one of the only other studies that trace the progress of deinstitutionalization over time, Kraatz and Zajac (1996) found little evidence that social and institutional constraints slowed the pace of deinstitutionalization, and little evidence of population-level influence. Several factors may explain the differences between our studies. While the liberal arts colleges studied by Kraatz and Zajac could adopt professional programs while maintaining their technical core of liberal arts education, downsizing in Japan presented a direct threat to the existing system of permanent employment. The nature of the organizational fields examined in these two studies may also explain the lack of population influence in Kraatz and Zajac's research: liberal arts colleges may look less to the population than to their own peer group of selected schools, as Kraatz's (1997) later research suggested. At the very least, the unexplained differences between these two studies attest to the need for more research on deinstitutionalization across a greater range of phenomena and in a greater range of settings.

Alternative explanations. The safety in numbers effect hinges around our finding that population downsizing increased a firm's propensity to downsize, and decreased the effect of social and institutional pressures on downsizing. Since a population level measure of downsizing is important to our analysis, it is important to establish that it is a real effect and does not simply capture omitted variables that similarly vary with time. While it is impossible to rule out beyond any doubt the possibility of omitted variables, we can eliminate some obvious alternatives.

One possibility is that downsizing rates increased with deepening pessimism about the economy. We controlled for the possibility that worsening macroeconomic conditions were responsible for increased downsizing by including GDP growth in our models. Contrary to expectation, GDP growth had a positive effect on downsizing. With improving economic growth after 1994, optimism about the state of the Japanese economy increased. Surveys of business sentiment conducted by the Japan's Economic Planning Agency indicated that 1994 was the low point in sentiment for prospects for growth. Optimism about the prospects for the Japanese economy actually increased between 1994 and 1995, again experiencing a distinct drop in 1998 and an even sharper one in 1999 (EPA, 1998). Thus, there is no evidence that pessimism about the future of the Japanese economy led to increasing downsizing, at least until 1997.

Increasing downsizing over time may also be due to factors external to Japan--for example, a worldwide downsizing boom. However, during this period, downsizing among developed economies was largely limited to the U.S., due to very strict constraints on layoffs in Europe. We controlled for two obvious points of international influence: foreign ownership and exports. We also examined headlines of articles on downsizing and restructuring in the Japanese business press during this period (through the Nikkei telecom news service) to determine whether reports of U.S. downsizing in the business press also influenced Japanese firms. We found, however, that while downsizing among American companies attracted attention in the late 1980's, by the 1990's, these reports were overwhelmed by reports of downsizing within Japanese firms. Thus, it is unlikely that increasing reports of downsizing activity in the U.S. stimulated rising downsizing in Japan.

As we noted earlier, we also added a variable (year) that measured the passage of time. The coefficient estimate of year was positive and significant, even when population downsizing was included. This suggests that there was an increasing propensity towards downsizing over time. However, the positive and significant estimate of population downsizing suggests that even in the presence of a temporal trend towards more downsizing, population downsizing had a separate effect.

Downsizing and the Japanese economy. This paper had dual objectives: 1) to illuminate processes of deinstitutionalization, and 2) to better understand change in the Japanese economy during the 1990's. Based upon this research, we draw several conclusions about the response of Japanese firms to the 1990's recession. First, Japanese firms did downsize in response to poor performance. While foreign investors and journalists have criticized Japanese firms for not responding quickly enough to economic pressure for change, our analyses suggest that Japanese firms responded to declining profits by reducing their permanent labor forces, and that these cuts increased throughout the 1990's. These cuts may not have been as large as believed necessary by some observers; nevertheless, downsizing gradually increased momentum over time.

Second, we predict that even when economic conditions improve, and even when an aging population reverses the problem of excess labor to one of labor shortage, Japanese firms will not revert back to the permanent employment system as it existed in the 1980's. While Japanese firms may never develop a taste for American style mass layoffs, and while many employees may continue to enjoy long-term careers with the same firm, we believe that downsizing in the 1990's effectively deinstitutionalized permanent employment. As we noted earlier, downsizings affected the loyalty of remaining employees, and it is difficult to see how firms can enjoy the same level of employee commitment that they enjoyed under the permanent employment system. Downsizings have also affected the loyalty of new hires: a young generation of employees, raised on a diet of news reports of firms reconsidering the permanent employment system, may think twice before committing to a lifetime at a company. Even if firms are able to win back employee loyalty, curtailment of new hires in many firms has eliminated a whole cohort of new employees, and when this hole in the career ladder hits middle management levels, firms may be forced to resort to mid-career hiring.

As downsizings have become more widespread across the population, firms are able to downsize more easily, with less fear of criticism, and managers are more likely to consider downsizing as a bona fide managerial practice. Particularly telling is our finding that downsizing appears to gain momentum within firms. Once a firm has downsized once, the resistance to downsizing appears to fade. While we see no evidence that downsizing in Japan as of 1997 had

become a legitimate business practice that firms adopted regardless of performance, the fading of the social and institutional constraints to downsizing over size are evidence that firms hesitate less before taking this action. In fact, many companies have taken to telling their new recruits, in the traditional April welcoming ceremony that they should no longer expect a job for life.

We believe that our findings also offer insight into the apparently slow pace of other types of change among Japanese firms in the 1990's. In the case of downsizing, change was slow at first, and rare among the larger, older, high reputation, and high wage firms. However, change gained momentum over time, as firms looked to each other for safety in numbers. We predict that other aspects of change among Japanese firms--from promotion of women managers, to adoption of new wage and bonus systems, to a winding down of cross-shareholdings, are likely to follow a similar pattern.

CONCLUSION

Organization theory has historically had little to say about how organizations abandon highly legitimate, institutionalized practices. This research on the deinstitutionalization of permanent employment in Japan provides just the type of longitudinal study called for by Oliver (1992): "Longitudinal studies of institutionalized organizational activities under conditions of declining performance would provide particularly appropriate contexts within which to examine the destabilization of institutionalized practices." This paper traced the process by which downsizing spread among large Japanese firms in the 1990's. We argued that although economic factors play a role in triggering deinstitutionalization, social and institutional factors shape its pace and direction. These social and institutional constraints, however, give way, as downsizing becomes more widespread across the population, and any given firm is less likely to be singled out for censure.

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Table 1: Percent of firms downsizing per year, 1683 listed firms, 1990-1997

Size of downsizing	1990	1991	1992	1993	1994	1995	1996	1997
2% or more	.175	.126	.142	.191	.311	.438	.513	.518
5% or more	.059	.038	.049	.106	.159	.205	.240	.222
10% or more	.027	.016	.015	.042	.074	.085	.071	.075

Table 2: Descriptive statistics, 1638 firms, 1990-1997

Variable name	Mean	Standard deviation	Minimum	Maximum
2% or greater employment decrease	.302	.459	0	1
5% or greater employment decrease	.138	.342	0	1
10% or greater employment decrease	.047	.213	0	1
Roa(t-1)	.038	.043	-.472	.250
Change in sales	.030	.116	-.675	2.114
Years negative ROA in previous 5 years	2.379	1.089	0	5
Profits/employee (t-1) standardized to industry	0	1	-10.957	10.984
Total assets (ln)	1.940	1.364	6.836	16.008
Firm age	48.619	14.780	9	109

Top 50 Recruit ranking	.104	.896	0	10
Wages (t-1) standardized to industry wage	0	1	-5.244	4.468
Foreign ownership (t-1)	.041	.068	0	.777
Downsizing in population (previous 3 years)	.106	.042	.057	.194
Real GDP growth	2.112	2.007	-.4	5.5
Exports/sales (t-1)	.085	.142	0	.996
Sum of downsizings for firm x, 1985-t-1	.996	1.404	0	11

Table 3: Bivariate correlations, 1638 firms, 1990-1997

	Variable name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	5% or greater employment decrease	1															
2	10% or greater employment decrease	.56	1														
3	Roa(t-1)	-.30	-.26	1													
4	Change in sales	-.15	-.12	.11	1												
5	Years negative ROA in previous 5 years	.21	.16	-.39	-.03	1											
6	Profits/employee (t-1) standardized to industry	-.13	-.11	.57	.01	-.20	1										
7	Total assets (ln)	-.06	.06	.04	.04	-.03	.24	1									
8	Firm age	.02	.004	-.14	-.07	.03	-.09	.12	1								
9	Top 50 Recruit ranking	-.01	-.01	-.01	-.06	-.01	.10	.32	.06	1							
10	Wages (t-1) standardized to industry wage	-.01	-.007	.03	-.02	-.07	.20	.24	.02	.11	1						
11	Foreign ownership (t-1)	-.02	-.006	.13	.04	.002	.19	.32	.00	.09	.11	1					
12	Downsizing in population (previous 3 years)	.13	.05	-.09	.19	.17	.0004	.009	.03	.0001	.00	.09	1				
13	Real GDP growth	-.01	-.003	.06	.21	.008	.00	-.02	.00	.00	.00	-.03	.14	1			
14	Exports/sales (t-1)	.01	.05	-.12	-.003	.10	.02	.18	.01	.12	-.01	.18	.02	-.01	1		
15	Sum of downsizings for firm x, 1985-t-1	.27	.23	-29	-.07	.15	-.11	.009	-.0001	-.04	.01	.08	.14	.14	.01	1	
16	Year	.20	.10	-.28	-.17	.28	.00	.03	.00	.00	.00	.12	.51	.14	.03	.18	1

Table 4: Panel probit analyses with robust standard errors, 1990-1997, 1638 firms, downsizings of 5% or more

MODEL	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
ROA(t-1)	-7.934***	-8.267***	-8.880***	-9.637***	-8.888***	-8.915***	-9.019***	-8.871**
	(.839)	(.852)	(.885)	(.891)	(.886)	(.886)	(.904)	(.884)
Change in sales	-1.900***	-1.917***	-2.258***	-2.222***	-2.267***	-2.253***	-2.249***	-2.261**
	(.195)	(.197)	(.223)	(.222)	(.223)	(.223)	(.223)	(.223)
Years negative ROA in previous 5 years	.107***	.103***	.102***	-.553***	.103*	.101***	.100***	.102***
	(.019)	(.019)	(.019)	(.147)	(.060)	(.019)	(.019)	(.019)
Profits/employee (t-1) (standardized to industry)	.014	.024	.037	.059*	.037	.038	.043✞	.037
	(.031)	(.031)	(.030)	(.029)	(.030)	(.030)	(.030)	(.030)
Total assets (ln)		-.0008	.001	-.255***	.001	.001	.0006	.0008
		(.017)	(.017)	(.049)	(.017)	(.017)	(.017)	(.017)
Firm age		-.004***	-.004***	-.004***	-.011**	-.004***	-.004***	-.004***
		(.001)	(.001)	(.001)	(.004)	(.001)	(.001)	(.001)
Top 50 Recruit ranking		-.022	-.024✞	-.023	-.025✞	-.230**	-.026*	-.024✞
		(.018)	(.018)	(.018)	(.018)	(.091)	(.018)	(.018)
Log of wage (standardized to industry)		-.031✞	-.035*	-.036*	-.035*	-.036*	-.215***	-.035*
		(.019)	(.019)	(.019)	(.019)	(.019)	(.066)	(.019)
Foreign ownership (t-1)		.518*	.513*	.400	.518*	.492✞	.503*	-.606
		(.294)	(.301)	(.316)	(.302)	(.303)	(.303)	(.745)
Downsizing in population			3.057***	-5.302*	.186	2.977***	3.085***	3.374**
			(.509)	(2.928)	(1.282)	(.510)	(.509)	(1.401)
Pop. downsizing * ln assets				.774**				
				(.264)				
Assets * years negative ROA				.060***				
				(.013)				
Pop. downsizing * age					.058**			
					(.025)			
Age * years negative ROA					-.00002			
					(.001)			

Table 4 (cont'd): Panel probit analyses with robust standard errors, 1990-1997, 1638 firms, downsizings o more

MODEL	1	2	3	4	5	6	7	8	9
Pop. downsizing * recruit ranking						1.068** (.384)		
Recruit ranking * years negative ROA						.026 (.025)		
Pop. downsizing * wage							1.201*** (.353)	
Wage * years negative ROA							.014 (.019)	
Pop. downsizing * foreign ownership								8.908* (4.779)
Year	.098*** (.009)	.097*** (.009)	.052*** (.011)	.048*** (.011)	.052*** (.011)	.052*** (.011)	.052*** (.011)	.053*** (.011)
Real GDP growth	.055*** (.007)	.055*** (.007)	.044*** (.007)	.042*** (.007)	.044*** (.007)	.044*** (.007)	.044*** (.007)	.045*** (.007)
Exports/sales (t-1)	-.342*** (.152)	-.342* (.155)	-.355* (.156)	-.369** (.156)	-.353* (.156)	-.355* (.156)	-.337* (.156)	-.359* (.156)
Industry dummies	***	***	***	***	***	***	***	***
Number of downsizings since 1985 for firm x	.230*** (.028)	.234*** (.027)	.227*** (.028)	.224*** (.028)	.230*** (.028)	.227*** (.028)	.230*** (.028)	.227*** (.028)
Downsizings since 1985 squared	-.018*** (.005)	-.018*** (.005)	-.018*** (.005)	-.018*** (.005)	-.019*** (.005)	-.018*** (.005)	-.019*** (.005)	-.018*** (.005)
Constant	-10.870*** (.875)	-10.637*** (.915)	-6.732*** (1.106)	-3.244*** (1.212)	-6.401*** (1.129)	-6.520*** (1.106)	-6.497*** (1.110)	-6.715** (1.110)
N	1638	1638	1638	1638	1638	1638	1638	1638
Chi2	1141.77 (26)	1188.32 (31)	1223.79 (32)	1262.99 (34)	1244.42 (34)	1224.28 (34)	1246.02 (34)	1232.82 (33)

✞p<.10; *p<.05; **p<.01; ***p<.001 (robust standard errors)

Table 5: Panel probit analyses with robust standard errors, 1990-1997, 1638 firms, downsizings of 10% or more

MODEL	1 >10% downsizing	2 >10% downsizing	3 >10% downsizing	4 >10% downsizing	5 >10% downsizing	6 >10% downsizing	7 >10% downsizing
ROA(t-1)	-9.329*** (.956)	-9.779*** (.980)	10.359*** (1.009)	-9.770*** (.978)	-9.794*** (.982)	-9.897*** (.988)	-10.363*** (1.010)
Change in sales	-1.828*** (.326)	-2.06*** (.366)	-2.045*** (.362)	-2.067*** (.366)	-2.061*** (.365)	-2.064*** (.367)	-2.045*** (.362)
Years negative ROA in previous 5 years	.115*** (.027)	.114*** (.027)	-.451*** (.193)	.163* (.084)	.113*** (.027)	.114*** (.027)	-.468** (.193)
Profits/employee (t-1) (standardized to industry)	.049✞ (.036)	.058* (.034)	.075* (.032)	.059* (.034)	.058* (.034)	.064* (.034)	.075* (.032)
Total assets (ln)	.027✞ (.020)	.031✞ (.020)	-.139** (.057)	.030✞ (.020)	.031✞ (.020)	.030✞ (.020)	-.127* (.060)
Firm age	-.005*** (.001)	-.006*** (.001)	-.006*** (.001)	-.004 (.006)	-.006*** (.001)	-.006** (.001)	-.007✞ (.004)
Top 50 Recruit ranking	-.062* (.031)	-.065* (.030)	-.061* (.032)	-.065* (.030)	-.326** (.121)	-.065* (.031)	-.216** (.082)
Log of wage (standardized to industry)	-.037✞ (.027)	-.040✞ (.027)	-.0418✞ (.027)	-.041✞ (.027)	-.040✞ (.027)	-.113 (.095)	-.043 (.072)
Foreign ownership (t-1)	.709* (.365)	.701* (.372)	.671* (.373)	.702* (.374)	.689* (.375)	.704* (.374)	.672✞ (.372)
Downsizing in population		2.539*** (.720)	.0002 (.0007)	.0003 (.0003)	.0005*** (.0001)	2.549*** (.718)	2.027 (3.842)
Pop. downsizing * ln assets			.141 (.325)				-.001 (.333)
Assets * years negative ROA			.052** (.017)				.053** (.017)
Pop. downsizing * age				.013 (.036)			.013 (.036)
Age * years negative ROA				-.0009 (.001)			
Pop. downsizing * recruit ranking					1.217* (.548)		1.120* (.632)
Recruit ranking * years negative ROA					.033 (.042)		
Pop. downsizing * wage						.081 (.561)	.014 (.558)
Wage * years negative ROA						.021 (.029)	
Year	.021* (.012)	-.014 (.015)	-.019 (.015)	-.014 (.015)	-.014 (.015)	-.015 (.015)	-.019 (.015)

Table 5 (cont'd) : Panel probit analyses with robust standard errors, 1990-1997, 1638 firms, downsizings of 10% or more

Real GDP growth	.040*** (.011)	.030** (.011)	.027** (.011)	.030** (.011)	.030*** (.011)	.030** (.011)	.028** (.011)
Exports/sales (t-1)	-.122 (.167)	-.132 (.167)	-.144 (.168)	-.132 (.167)	-.131 (.167)	-.132 (.167)	-.144 (.168)
Industry dummies	***	***	***	***	***	***	***
Number of downsizings since 1985 for firm x	.209*** (.035)	.203*** (.035)	.199*** (.035)	.203*** (.035)	.203*** (.035)	.203*** (.035)	.200*** (.035)
Downsizings since 1985 squared	-.009✞ (.005)	-.009✞ (.005)	-.009✞ (.005)	-.009✞ (.005)	-.009✞ (.005)	-009✞ (.005)	-.009✞ (.005)
Constant	-4.013*** (1.209)	-1.294 (1.498)	1.458 (1.620)	-.983 (1.490)	-.866 (1.459)	-.793 (1.462)	1.406 (1.638)
N	1638	1638	1638	1638	1638	1638	1638
Chi2	731.30 (31)	771.95 (32)	751.16 (34)	780.07 (34)	766.20 (34)	769.09 (34)	753.62 (37)

✞p<.10; *p<.05; **p<.01; ***p<.001 (robust standard errors)

Table 6: Panel probit analyses with robust standard errors, 1990-1997, 1638 firms, downsizings of 2% or more

MODEL	1 < -2% downsizing	2 < -2% downsizing	3 < -2% downsizing	4 < -2% downsizing	5 < -2% downsizing	6 < -2% downsizing	7 < -2% downsizing
ROA(t-1)	-7.813*** (.771)	-8.577*** (.795)	-9.504*** (.777)	-8.541*** (.799)	-8.628*** (.795)	-8.718*** (.803)	-9.728*** (.835)
Change in sales	-1.830*** (.179)	-2.314*** (.213)	-2.290*** (.215)	-2.320*** (.213)	-2.313*** (213)	-2.306*** (.213)	-2.302*** (.218)
Years negative ROA in previous 5 years	.085*** (.016)	.085*** (.016)	-.475*** (.132)	.132** (.047)	.084*** (.016)	.084*** (.016)	-.463*** (.140)
Profits/employee (t-1) (standardized to industry)	-.051✞ (.031)	-.032 (.029)	-.013 (.028)	-.032 (.029)	-.031 (.029)	-.029 (.029)	-.007 (.029)
Total assets (ln)	-.008 (.014)	-.007 (.014)	-.309*** (.042)	-.007 (.014)	-.007 (.014)	-.007 (.015)	-.275*** (.047)
Firm age	-.0005 (.001)	-.0007 (.001)	-.001 (.001)	-.005* (.003)	-.0007 (.001)	-.0007 (.001)	-.006** (.002)
Top 50 Recruit ranking	.0007 (.014)	-.001 (.014)	.001 (.017)	-.002 (.014)	-.146** (.058)	-.001 (.015)	.002 (.050)
Log of wage (standardized to industry)	-.050** (.021)	-.054** (.021)	-.065* (.029)	-.052** (.020)	-.055** (.021)	-.228*** (.054)	-.233* (.116)
Foreign ownership (t-1)	.514* (.260)	.498* (.264)	.370✞ (.277)	.499* (.265)	.483* (.264)	.490* (.267)	.423✞ (.292)
Pop. downsizing * ln assets			1.541*** (.251)				1.237*** (.283)
Assets * years negative ROA			.051*** (.011)				.050*** (.012)
Pop. downsizing * age				.068*** (.020)			.050** (.020)
Age * years negative ROA				-.0009 (.0008)			
Pop. downsizing * recruit ranking					.837* (.368)		.835* .(384)
Recruit ranking * years negative ROA					.020✞ (.013)		
Pop. downsizing * wage						.163*** (.029)	1.383* (.714)
Wage * years negative ROA						-.017*** (.004)	
Year	.159*** (.008)	.104*** (.011)	.096*** (.011)	.104*** (.010)	.103*** (.010)	.102*** (.010)	.091*** (.015)
Real GDP growth	.084*** (.006)	.064*** (.006)	.063*** (.007)	.064*** (.006)	.064*** (.006)	.064*** (.007)	.061*** (.008)

Table 6 (cont'd): Panel probit analyses with robust standard errors, 1990-1997, 1638 firms, downsizings of 2% or more

MODEL	**1** **< -2% downsizing**	**2** **< -2% downsizing**	**3** **< -2% downsizing**	**4** **< -2% downsizing**	**5** **< -2% downsizing**	**6** **< -2% downsizing**	**7** **< -2% downsizing**
Exports/sales (t-1)	-.034 (.135)	-.050 (.136)	-.079 (.142)	-.044 (.135)	-.051 (.136)	-.038 (.136)	-.083 (.149)
Industry dummies	***	***	***	***	***	***	***
Number of downsizings since 1985 for firm x	.164*** (.027)	.158*** (.027)	.161*** (.031)	.161*** (.027)	.158*** (.027)	.163*** (.029)	.175*** (.038)
Downsizings since 1985 squared	-.017*** (.004)	-.017*** (.004)	-.016*** (.004)	-.017*** (.004)	-.017*** (.004)	-.017*** (.004)	-.017*** (.005)
Constant	-15.486*** (.835)	-10.610*** (.976)	-6.532*** (1.186)	-10.420*** (.985)	-10.541*** (.982)	-10.468*** (1.007)	-6.141*** (1.408)
N	1638	1638	1638	1638	1638	1638	1638
Chi2	1576.92 (31)	1569.62 (32)	1712.75 (34)	1587.93 (34)	1580.44 (34)	1568.54 (34)	1680.83 (37)

✞p<.10; *p<.05; **p<.01; ***p<.001 (robust standard errors)

Figure 1: Cumulative percentage of firms that have downsized at least once since 1990

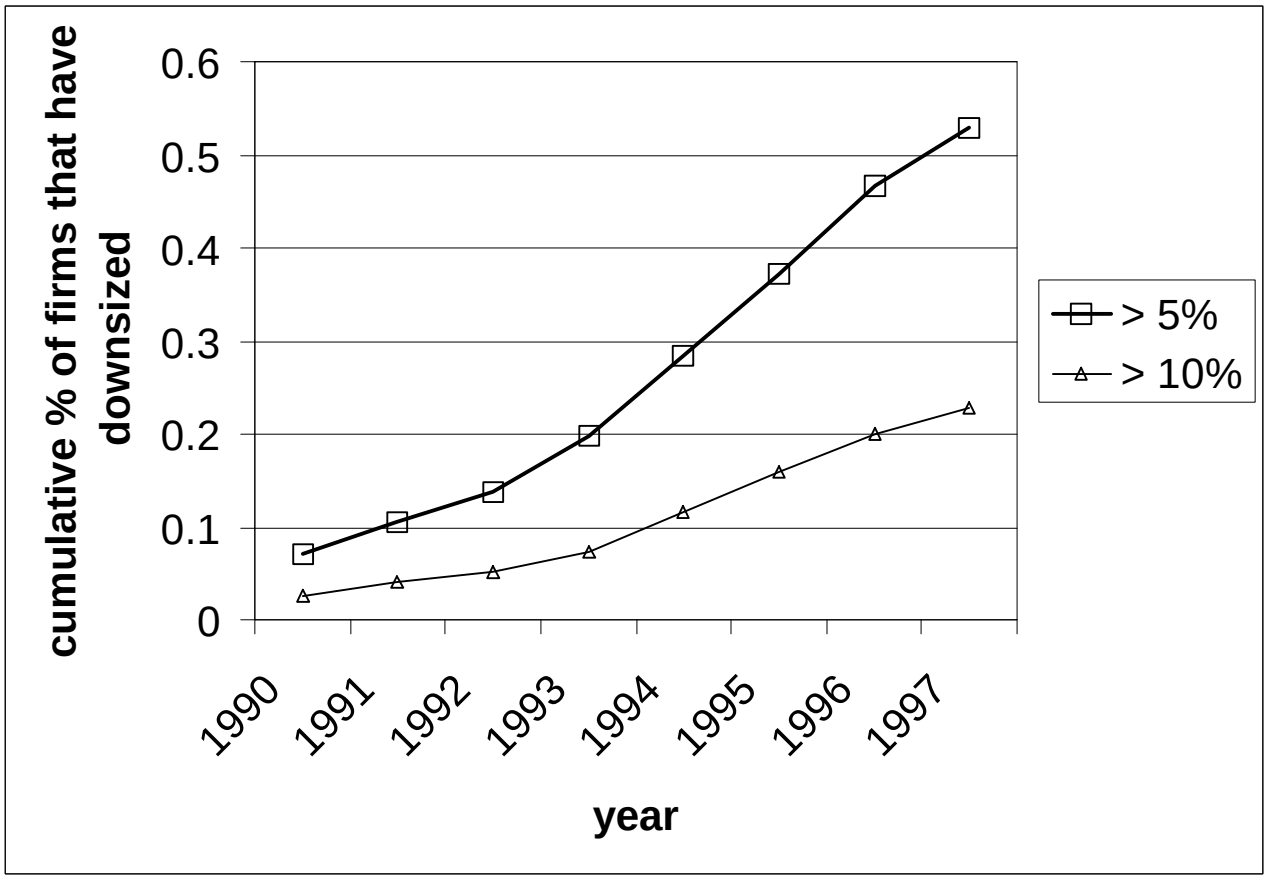

Figure 2: Interaction between population downsizing in the previous three years and size

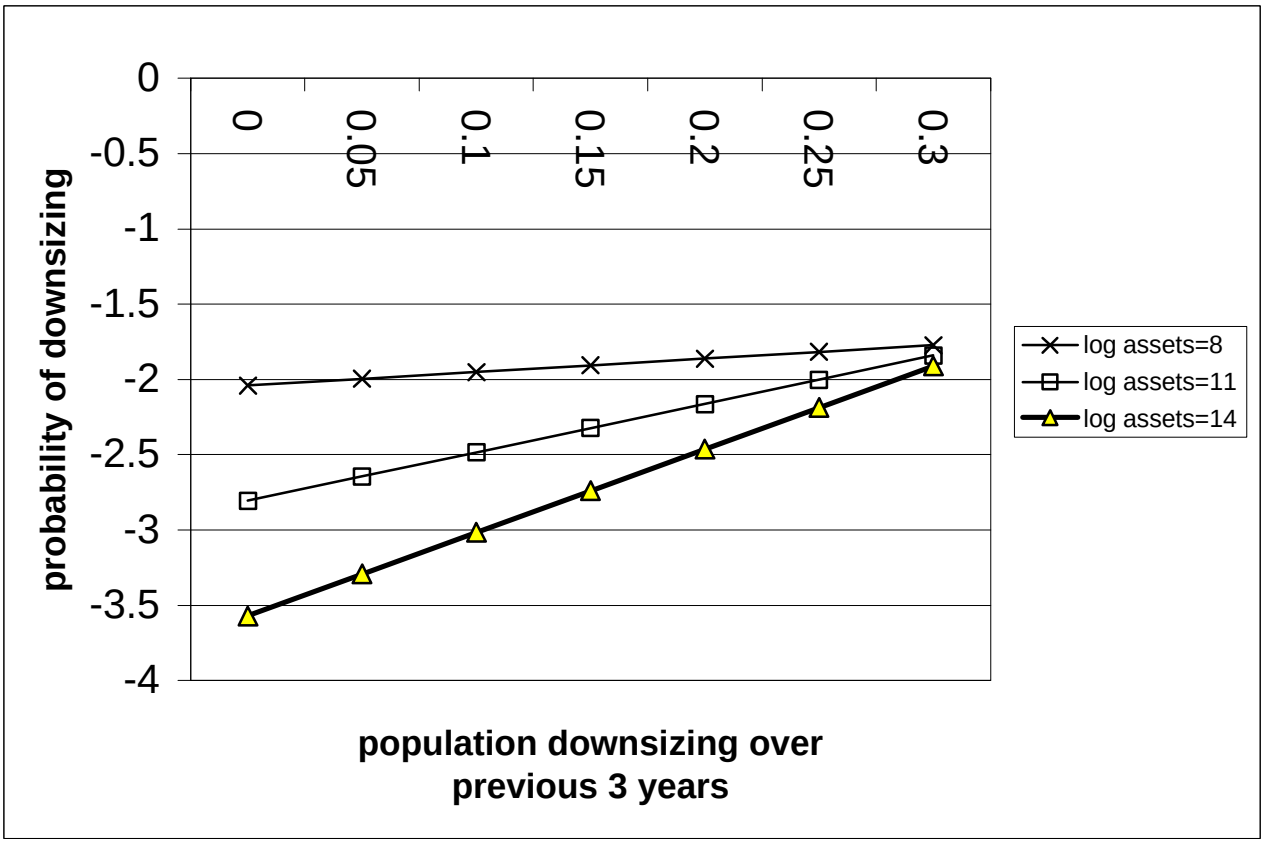

Figure 3: Interaction between population downsizing in the previous three years and age

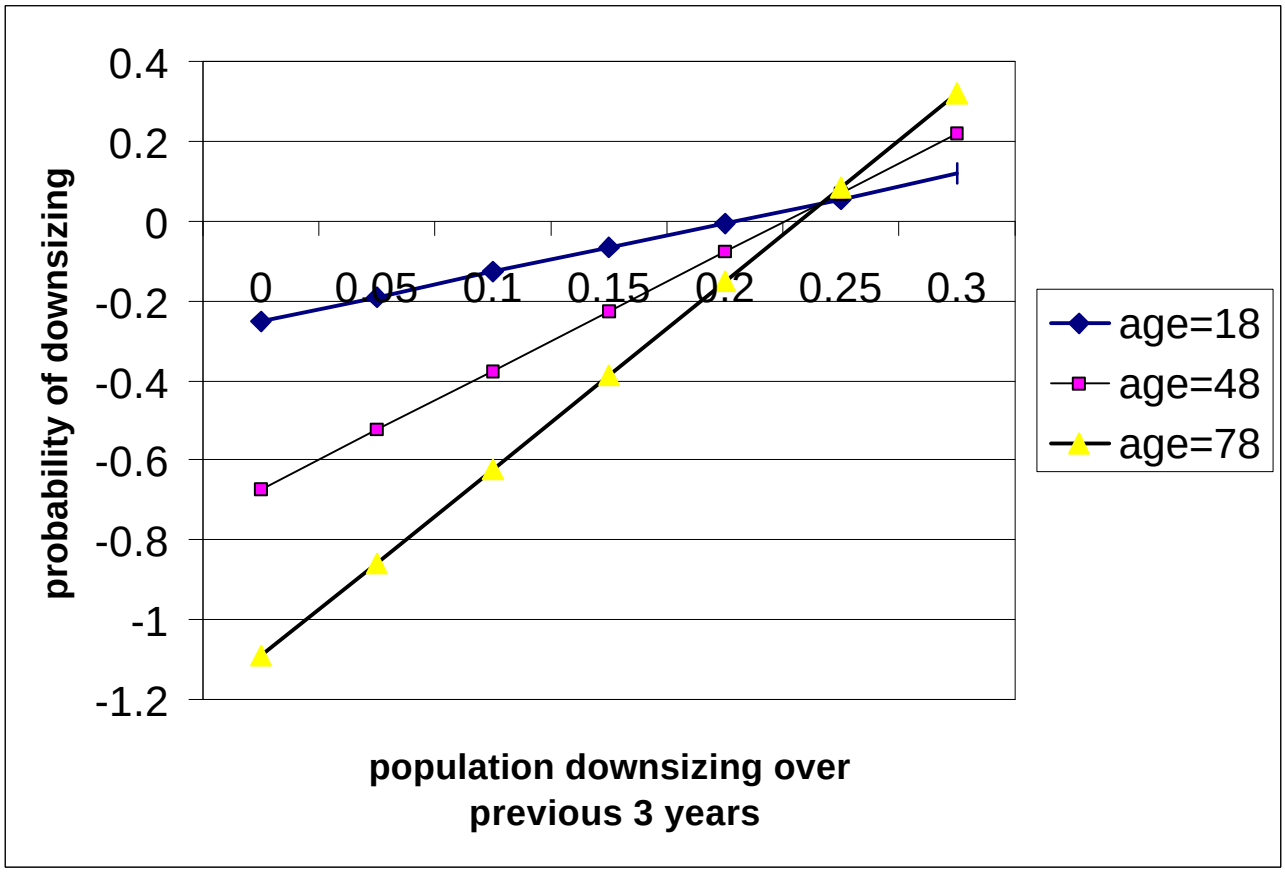

Figure 4: Interaction between population downsizing in the previous three years and Recruit ranking

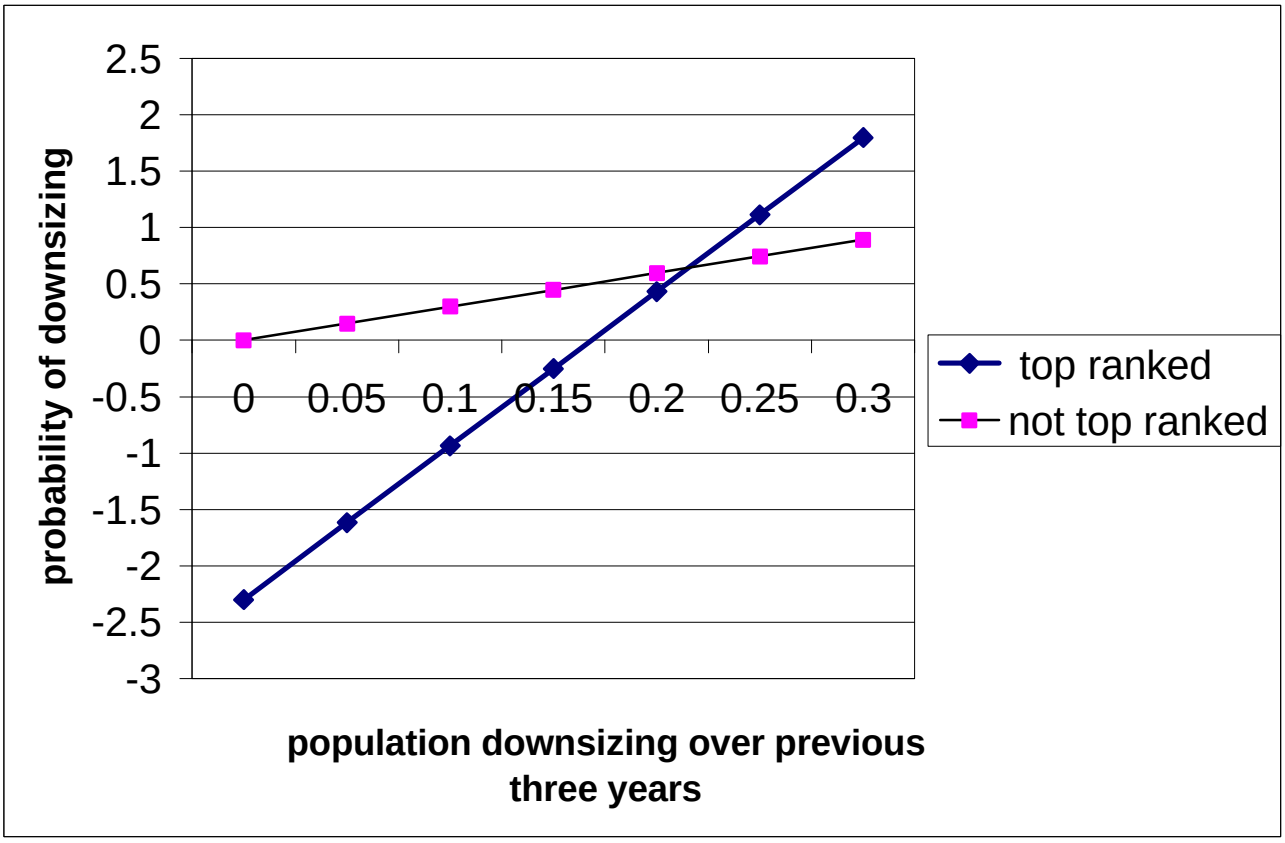

Figure 5: Interaction between population downsizing in the previous three years and wage