

WHAT MAKES TEAMS TAKE? EMPLOYEE REACTIONS TO WORK REFORMS

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This paper examines employee reactions to the introduction of work teams, reduced job classifications, and skill-based pay as established through the Modern Operating Agreement (MOA) between Chrysler Corporation and the United Auto Workers. Survey data suggest that workers responded favorably to the MOA across six diverse manufacturing plants, despite variation in founding conditions. The authors draw on field research to assess differences in effects across individual plants. Individual attitudes were more negative in plants facing the threat of sell-off, although individuals in those plants also reported engaging in more of the team-based behaviors required by the MOA. Individual responses to the MOA also varied by demographic characteristics, and by perceptions of the MOA's impact on various individual, group, and organization-level outcomes.

The introduction of new forms of work organization became a commonplace occurrence in the 1980s and 1990s for many American unionized firms, particularly in the manufacturing sector. Evidence suggests that the implementation of teams and other flexible work practices led to im-

provements in productivity and quality in many settings. Relatively less, however, is known about how these changes affected workers.

In this paper, we directly examine employees' reactions to work reforms. The reforms were embedded in a broader effort

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to transform industrial relations at diverse manufacturing plants within the same highly unionized company. Our goal is to understand why some workers and some workplaces reacted more positively (or negatively) than others to these new ways of working.

Specifically, we study the views of employees who worked under the Modern Operating Agreement (MOA) between the Chrysler Corporation and the United Automobile Workers (UAW). Chrysler, like much of the U.S. automobile industry, had typified the traditional, New Deal approach to labor-management relationships: multiple job classifications, wages tied closely to jobs, an "obey-now-and-grieve-later" approach to shop floor conflict, and the concentration of business strategy and process improvement decisions in the hands of management. Yet in the late 1980s, Chrysler and the UAW attempted to reform industrial relations at six of their plants through the collective bargaining contract. The MOA reduced job classifications, tied pay to skills within those classifications, established joint consultation committees, and, most significantly, reorganized work into shop-floor teams.

Understanding the reactions of the Chrysler work force helps to shed light on important debates in contemporary industrial relations regarding the diffusion of new work practices and their effects on workers. Did workers prefer the MOA to the old system? Was the MOA better received in some plants than others, and if so, why? What factors influenced workers' reactions to these sweeping changes? Which workers and plants were more likely to support the new model, and which less likely to do so? We address these questions with a survey of workers who had experience under both systems.

Workers' Responses to New Work Practices

Studies demonstrating associations between new work practices and superior firm performance proliferated in the 1990s. (MacDuffie 1995; Ichniowski, Shaw, and

Prennushi 1997; Huselid 1995; Cooke 1992; Arthur 1992. For reviews, see Ichniowski et al. 1996; Becker and Gerhart 1996.) During this same period, as Godard and Delaney (2000) noted, relatively scant research attention was devoted to the question of whether changes toward the high-performance workplace paradigm truly bring about the mutual gains touted by the paradigm's proponents (for example, Kochan and Osterman 1994). In short, despite continued diffusion of these practices, we know little about how workers responded to them.

Critics of the new industrial relations and, more generally, of cooperative labor-management efforts and the team concept (Babson 1995; Compa and Riesman 1985; Parker and Slaughter 1988) argue that worker reactions are often more negative than management rhetoric would suggest. The slowness of the diffusion of new work practices across the American economy further suggests that workers, particularly unionized workers, could be skeptical as to whether changes in work practices have much to offer them (Godard and Delaney 2000). From this perspective, workers oppose work reorganization after a realistic appraisal of what is potentially lost from the traditional system—for example, seniority rights, work rule protections against arbitrary management action, clear guidelines for regulating work pace, and a vigorous grievance process. Even where new work practices are implemented, what appears to be willing adoption by workers may simply reflect compliance born of fear about job loss or punitive curtailment of pay and promotion opportunities.

On the other hand, there is some evidence that American workers are favorably inclined toward teams, joint decision-making processes, and other new work practices. Many studies at the firm level have shown that workers respond favorably to opportunities for involvement (for reviews, see Cotton 1993 or Pearce and Ravlin 1987), although such opportunities are not always linked to systemic work reforms. The 1994 Worker Representation and Participation Study (WRPS) probed the reactions of a

national sample of American workers to more fundamental changes in work organization and decision processes and found strong support for greater involvement in management decisions affecting their daily work experience (Freeman and Rogers 1999). Significantly, unionized workers in the WRPS sample strongly supported efforts to improve labor-management cooperation, while also expressing a strong preference to retain union representation. Union members saw these two avenues to employee "voice" as complementary and not contradictory. Appelbaum et al. (2000) also reported evidence that workers in jobs with more opportunities to participate in decision-making find those jobs more intrinsically rewarding and have higher levels of job satisfaction and organizational commitment, without higher stress.

Thus the issue of worker responses to work reorganization goes to the heart of debates about the merits, flaws, and sustainability of these transformation initiatives. The mixed findings of earlier research further underscore the necessity of understanding the contexts in which workers respond to changes in traditional industrial relations; for example, Appelbaum et al. (2000) identified significant differences across industries in workers' responses to new work systems. We therefore apply a "meso-level" perspective to the study of worker attitudes toward the MOA (Cappelli and Sherer 1991; House, Rousseau, and Thomas-Hunt 1995). We seek to explain workers' responses to change by developing an account of the plant-level context surrounding the MOA, focusing on two factors: the plant's competitive position vis-à-vis the broader business environment; and the implementation strategy for the MOA. First, we compare those plants whose competitive position was especially precarious with those whose future with Chrysler was more secure. Second, we compare plants whose workers initially rejected the agreement with plants whose workers approved the agreement on their first vote. We also use the attitude data to probe workers' perceptions about the various effects of the MOA, examining the connections

between these perceptions and workers' overall reactions to this work reform initiative.

The Modern Operating Agreements between Chrysler and the UAW

We begin with background information on the Modern Operating Agreements (MOAs); a full description of the labor-management context surrounding the creation of the MOAs, and of early MOA implementation at different plants, is reported in Lovell et al. (1991).¹ MOA implementation began at six plants at various times between 1987 and 1991. The attitude data reported here were gathered in January 1993, when all the plants had at least a year of MOA experience.

Top officials of Chrysler and the UAW established the general terms of the MOA in early 1986, with local contracts containing specific MOA provisions negotiated and ratified in late 1986 and 1987. By this time, Chrysler had fully recovered from its brush with near-bankruptcy in the late 1970s and had achieved record-breaking economic performance in 1984–85. This gave both parties the stability and sense of security to

¹We worked as part of a team of researchers from George Washington University (GWU) and the Massachusetts Institute of Technology (MIT) that was invited to study the implementation of MOAs by the top-ranking officials at Chrysler and the UAW. This team (identified in the acknowledgments) received funding from the Department of Labor for this research. Planning meetings for the project began in the summer of 1987, just after all six MOA plants had ratified the agreement. After initial interviews with senior management and union officials involved in the negotiations, researchers began tracking implementation efforts at each of the six plants, primarily through periodic plant visits and interviews but also with an initial attitude survey that did not investigate the MOA directly but sought to identify key aspects of worker satisfaction and the nature of the labor-management climate. Lovell et al. (1991) is a report to the Department of Labor that summarizes the findings and recommendations of the full research team to that point. The attitude survey that provides the data for this paper was one of a number of follow-up activities carried out by the research team in 1993 and 1994 at the request of Chrysler and the UAW.

Table 1. Characteristics of Plants.

Characteristic	Plant (State)					
	New Castle (IN)	Indianapolis (IN)	Huntsville (AL)	Trenton (MI)	Newark (DL)	Jefferson Avenue (MI)
Product	Steering and suspension parts	Engine castings	Electronic components	Engine machining and assembly	Auto assembly	Auto assembly
Impetus for MOA Agree- ments	Performance concerns	Introducing new process technology	Starting production in a new plant	Receiving a new engine product	Receiving a new vehicle product line	Starting production of a new product in a new plant
Year Plant(s) Built	1906	1901	1952, 1965, 1977, 1988	1952	1951	1907; 1991 (Jefferson North)
Number of Hourly Employees 1/1/91, including Temp. Layoff	1,100	990	2,663	2,524	3,859	3,375
Average Age	47.7	43.4	41.4	43.2	43.2	48.6
Average Seniority (years)	23.6	15.6	10.1	18.8	16.6	24
Date of MOA Contract	12/22/86	10/20/86	8/10/86	8/28/86	7/25/87	7/25/86
MOA Kickoff	8/26/87	11/9/87	11/12/87	7/27/88	2/5/88	12/14/87
Teams Designated	Winter 87-88	Summer 88	8/5/88	3/28/91	12/88- 1/89	Winter 1991-92

pursue the MOA. Each believed that these plant-level changes would improve productivity and quality still further and hence preserve jobs and employee earnings.

Prior to introducing the MOA, Chrysler was the only one of the Big Three U.S. auto makers not to have attempted company-wide work reform in the early 1980s. General Motors had initiated Quality of Work Life programs; at Ford, the reforms were known as Employee Involvement. UAW officials leading the Chrysler department were eager to promote "industrial democracy" through the MOA. Chrysler management, for its part, anticipated that forthcoming plant-level capital investments could be used as leverage to promote changes toward flexible work organization.

By 1987, six plants, representing 25% of Chrysler's manufacturing operations, had ratified MOA agreements. Table 1 shows

key characteristics of these six plants, including the event that served as the impetus for each plant being selected as a candidate for the MOA.² From the start, MOAs were designed to function under joint labor-management steering committees at both the plant and national levels. Chrysler and the UAW appointed equal numbers of facilitators, at both levels, to oversee MOA implementation, under the oversight of the steering committees and the (also jointly run) National Training Center.

The central feature of the MOA was the reliance on work teams as the fundamental unit for work organization. Teams were groups of 15-20 employees, formed based

²See Lovell et al. (1991) for more details on the events that precipitated the MOA.

on what the agreement called “logical groupings of jobs.” Teams were to take responsibility for performance outcomes, and to oversee effort, skill acquisition, and performance. Each team elected a team coordinator who took on some responsibilities formerly assigned to supervisors and received an extra 10 cents per hour in pay. The MOA contract specified a list of 20 duties that teams were required to perform on a daily or weekly basis (see the appendix); all team members were trained in these duties. Industrial engineers in each plant initially set team boundaries, but then workers chose which team to be on, bidding into team positions in order of seniority on a special “Sadie Hawkins Day.”

To achieve greater flexibility in the allocation of labor, the MOA collapsed a huge number of job classifications into a few broader categories. For example, at the Jefferson assembly plant, 87 semi-skilled job classes were reduced to three technician positions. The wage structure changed correspondingly. No longer did each job carry its own pay level. Rather, team members received Capability Progression Pay (CPP), which allowed them to add to their base wage by demonstrating mastery of additional tasks on their team or adjacent teams.

Other changes included a reduction in managerial overhead by increasing the ratio of first-line supervisors to workers; the elimination of many status markers (such as neckties, management cafeterias, and reserved parking); and encouragement of a participative culture, in which ideas and suggestions could be raised freely. These work reforms were typical of the late 1980s, when the influence of Japanese-type production systems was strongly felt in the U.S. auto industry (Katz and MacDuffie 1994). But the use of the collective bargaining process to establish the MOA meant that structural changes in the organization of work—the construction of teams, the reduction of job classes, and the new pay system—could be carried out systematically, with full backing from the national union and with the help of the joint steering committees and the matched sets of labor

and management MOA facilitators. Although this approach was also being tried during this period in other industries, such as steel, it was rare in the auto industry.

The promises about what the MOA could achieve appealed to many workers, but a majority were clearly skeptical as implementation began, and some greeted the changes with anger and overt resistance.³ Generally, the high-seniority, experienced workers at these plants did not initiate or embrace this work reform initiative; rather, it was thrust upon them.

Reactions to the MOA: Plant-Level Factors

The MOA represented an attempt to implement sweeping changes in work systems across six plants that differed in their products, production processes, competitive business environment, and labor relations history. In this section, we consider the plant-level factors affecting worker responses to these changes, paying attention to where these factors might influence worker attitudes (their affective responses) and activities (their behavioral responses) similarly or differently across plants. Our data on worker behaviors are self-reported, as described below; nevertheless, we believe the distinction between attitudes and behaviors is conceptually important, and we will show below that there are different patterns in the data for these two outcomes.

Business Environment

We consider the business environment facing each plant in order to understand

³These impressions are based on interviews at the MOA plants that began shortly after the ratification votes for the MOA contract (1987–88) and continued through the period of early implementation (1989–91) and up to the time of the attitude survey in early 1993. One of the best examples of successful resistance to the initial MOA contract involves skilled trades workers. As far as we know, planned efforts to collapse job classes for maintenance workers and to cross-train them for rotation across a variety of maintenance jobs were never implemented.

how much the sense of competitive threat to the plant's survival might have affected worker reactions to the MOA. Chrysler, like many U.S. corporations during this period (Kochan, Katz, and McKersie 1994), was articulating a strategy of outsourcing all non-core activities. This strategy affected two of the MOA plants (New Castle and Huntsville) directly because they were affiliated with Chrysler's independent parts division, Acustar. In March 1991, a Chrysler senior officer announced that Acustar plants were likely to be sold. The UAW had not been informed of this decision before the announcement, and responded immediately with angry statements to the press and a cessation of MOA activities at all six plants. After a few months of negotiations, this issue was resolved, with a decision to sell four non-MOA Acustar plants and a pledge by Chrysler not to sell the remaining Acustar plants except in dire economic conditions.

Despite the reassurances won by the UAW for their plants, workers at New Castle and Huntsville may have subsequently felt less secure about Chrysler's commitment to their plants and about the long-term prospects for their jobs. What effect might this have had on their reactions to the MOA? Konzelmann Smith (1996) suggested that managerial initiatives focused on outsourcing may undermine labor-management cooperation. Jacoby (1983), similarly, suggested that while some competitive pressures may be necessary to motivate cooperation, high levels of insecurity may undermine workers' acceptance of new work practices. On the other hand, while high levels of job insecurity may undermine workers' expressed enthusiasm for new work practices, such competitive threats may also increase the feeling of urgency about making such practices work effectively and hence boost workers' effort levels. Cappelli (1999) noted that even where workers have low trust in their employing organizations, they may display high levels of workplace effort and commitment to their teammates. Drago (1996), similarly, identified two approaches to participatory management: "transformed" workplaces

offering assurances of continued employment to workers; and "disposable" workplaces motivating employee participation through fear of layoff or plant closure.

Workers' compliance with participatory programs driven by competitive threat may not always yield the benefits anticipated by a "mutual gains" approach. In fact, there is no evidence that participatory practices are, on average, coupled with employment security (Osterman 2000), and Eaton (1994) found no link between union leaders' perceptions of security and the survival of participation programs. Workers' affective responses to innovative work practices may be negative if they perceive that competitive conditions have made for a "disposable" work force; nevertheless, those same competitive conditions may provide more powerful incentives for actual participation.

At all six Chrysler plants, the adoption of the MOA was driven in part by pressures arising from the broader competitive environment. However, while the rhetoric of competitiveness surrounded the entire MOA effort, workers at the regular (non-Acustar) Chrysler plants had multiple reasons to believe that their plants' immediate future was secure, particularly once they ratified the local MOA agreement. The Acustar plants could feel no such assurance. We suggest that in these plants, workers may have been less satisfied with the MOA, but more compliant with the rules of the new contract. More formally, the hypotheses are

H1a: Workers in plants threatened with a sell-off will express more negative attitudes toward the MOA than will workers in non-threatened plants.

H1b: Workers in plants threatened with a sell-off will display higher levels of effort in MOA-related activities than will workers in non-threatened plants.

Implementation Process

Walton, Cutcher-Gershenfeld, and McKersie (1994) drew a distinction between "fostering" and "forcing" strategies for implementing workplace changes affect-

ing labor-management relations. The implementation process for the MOA varied across the six plants with respect to these strategies. At the national level, cooperation between the UAW and Chrysler in establishing the overall contract language and governance structure for the MOA could be characterized as a "fostering" strategy. Yet some elements of a "forcing" strategy were also required, with both Chrysler management and national UAW leaders placing pressure on local union leaders and workers to adopt the MOA. Given the evidence that sustaining work reforms in unionized settings requires the commitment of both labor and management and a positive labor relations climate (Eaton 1994; Kochan and Osterman 1994), it is important to understand the effect of this mix of fostering and forcing strategies.

New Castle Machining in Indiana was the only plant to volunteer for the MOA, and it did so well before the threatened Acustar closings. Local plant managers and union officials agreed to respond proactively to this provision in the national contract, and New Castle was the first plant to establish its work teams, just one year after approving the MOA. In three other plants (Jefferson Assembly in Detroit, Huntsville Electronics in Alabama, and Indianapolis Foundry), the initial response to corporate-level inquiries about interest in the MOA was tentative and apprehensive, but the workers voted to adopt the new agreement. At two plants (Newark Assembly in Delaware, and Michigan's Trenton Engine plant), however, opposition to the MOA was strong and immediate. At both of these plants, when the MOA contract was brought up for approval, local union members voted it down. Following these votes, Chrysler management made it clear, in strongly worded statements (and with support from national UAW officials), that adoption of the MOA was a prerequisite for corporate investments in new technology and new products. Subsequently, workers at these plants voted again and narrowly approved the MOA.

The initial voting down of the MOA agreement at Newark and Trenton could, for

several reasons, have presaged negative worker reaction to the new work practices. Such a vote could have been an indicator that relatively low levels of trust already existed between labor and management; Cappelli and Sterling (1988) found that poor labor relations were a significant predictor of failure to ratify labor contracts in the auto industry in the early 1980s. Further, the "forcing" strategy itself may have led to decreased trust between the parties (Birecree 1993; Walton, Cuthcher-Gershenfeld, and McKersie 1994).

The plants that responded more positively to the MOA from the beginning, on the other hand, may have had a more positive labor relations climate. The initial positive vote may also have created a higher level of commitment to making the MOA work. Kim (1999), for example, showed that a majority vote in favor of a gain-sharing program is positively associated with its subsequent performance and survival, and argued that stronger initial commitments make programs more robust (Goodman and Dean 1982) and may even lead to "escalation of commitment" (Staw and Ross 1978) should the program falter initially. In both situations, we expect the implementation process for the MOA to have similar effects on worker attitudes and worker behaviors. Hence our hypotheses for the implementation process are as follows:

H2a: Workers in plants that experienced a more extensive "forcing" strategy will express more negative attitudes toward the MOA than workers who experienced a more "fostering" strategy.

H2b: Workers in plants that experienced a more extensive "forcing" strategy will display lower levels of effort in MOA-related activities than workers who experienced a more "fostering" strategy.

Summary. We expect workers' affective responses to the MOA to be significantly more negative at the Acustar plants, where the competitive threat had a negative effect on the labor-management climate. We also expect such responses to be more negative at the two plants (both non-Acustar) that voted down the MOA. These votes led to the implementation of work reforms only

Summary of Plant-Specific MOA Experiences

This summary describes differences in the MOA experience across the six individual plants, both as background and to shed further light on selected findings from the survey data. Our account here draws on site-based research that is described in more detail in Lovell et al. (1991) as well as on the findings from the survey.

New Castle Machining. New Castle was the one plant that volunteered for the MOA. The work force perceived that a shift in Chrysler's products from rear-wheel to front-wheel drive was going to leave the plant without support for its product line. The local union held a series of meetings with members to discuss options, and they approached Chrysler asking to open their contract for negotiations in the interest of gaining limited job security. Chrysler offered them an opportunity to become an MOA plant, following the pattern set at four other plants. Only three weeks elapsed between the start of negotiations and the final vote, yet the MOA was supported by 71% of New Castle's workers. Due to this rapid pace, there was some initial confusion about the MOA, but previous positive experience with a jointly sponsored quality program helped pave the way. New Castle became the first plant to do MOA training and to implement teams.

New Castle's survey responses indicate the highest number of team duties performed among the six plants, and a very strong belief that the MOA helped the plant's economic performance. The threatened sale of Acustar plants, however, worked against other positive factors at New Castle. Two other factors may have also diminished workers' enthusiasm at New Castle. First, to preserve team stability, the MOA established a rule that moving to a different job on the basis of seniority could only happen once per contract (as opposed to the old norm of once a year); the enforcement of this rule actually provoked a wildcat strike. Second, layoffs (due to reduced demand) interfered with MOA training and the progress of teams with problem-solving.

At a key moment of tension, a visit by plant managers and union officials to a successful team plant at General Motors (in Shreveport, La.) helped put the MOA back on track. Still, given the tensions arising from perceived encroachments on seniority rights and the aura of threat that affected New Castle as an Acustar plant, it seems likely that workers who did not believe the plant's economic competitiveness had been improved would have opposed the MOA particularly strongly.

Indianapolis. "Indy Foundry," as it was known, was viewed as a highly successful plant in terms of quality and productivity in the mid-1980s. However, the plant's technology was outmoded, placing it at competitive risk. Thus the link between the MOA and corporate investment in new product technology was highly salient to workers and plant managers alike, and the MOA contract was approved by a 2-to-1 margin. The implementation of the new technology led to delays, however, and teams were not designated until nearly two years after the MOA contract was signed.

Indy was unique in part because of its group incentive pay system (bonuses for all if production on a given shift exceeded quota), which dated back to the 1940s. This incentive plan was retained, rather than being replaced by the Capability Progression Pay plan used at the other MOA plants. The new contract added a base level of pay guaranteed regardless of technical problems that hampered fulfillment of production quotas. This guarantee proved necessary, as problems with the new technology hurt plant performance over the next year. Despite the guarantee, workers were highly dissatisfied with their pay during this period, since

through a "forcing" strategy that may have eroded trust between the parties in an already troubled labor-management relationship. We also hypothesize that under conditions of severe competitive threat, workers will be more compliant with the requirements of work reform. In contrast, after workers experience a forcing strategy, we hypothesize that they are likely to express negative reactions to work reform in their actions as well as their attitudes.

Other local differences, beyond these two factors, could also have led to differences in workers' responses to the MOA that were unique to each plant. We consider this possibility in our data analyses by

including plant dummy variables. In "Summary of Plant-Specific MOA Experiences" (above), we also provide contextual detail, drawn from our fieldwork, about the six plants (excerpted from Lovell et al. 1991).

Reactions to the MOA: Individual-Level Factors

We anticipate, based on the foregoing considerations, that workers' responses to the MOA will differ systematically across plants. We also consider individual-level factors that might have influenced workers' views of the MOA. To the extent that these individual factors differed across the

bonuses formerly taken for granted became rare and difficult to attain. Eventually the technical problems subsided, and by 1991 the guaranteed base pay was eliminated.

Pay and performance remained a sore spot at this plant. The survey results showed that workers at Indy Foundry were much less likely than those at other plants to say that their pay level had increased due to the MOA, and saw much less impact of the MOA on organizational performance. However, those who did see an increase in their pay level were very supportive of the MOA. Older workers were also positive about the MOA at Indy Foundry, in contrast with their counterparts at other plants, probably because the consolidation of job classifications combined with the continuation of the old pay system meant there was less need for them to take on the most physically difficult jobs in order to maximize their income. Instead, these jobs went to younger workers, who were not able to earn the same pay premium as in the past and were hence less pleased.

Huntsville (Al.) Electronics. Huntsville was the plant with the most consistently negative attitudes toward MOAs and teams, though its reported average of team duties accomplished was higher (14.4) than at any other plant except for New Castle. The implementation of the MOA at Huntsville was associated with a move into a new plant, which made for a very chaotic transition, and the initiative remained contentious after the move.

The roles of team leaders vis-à-vis traditional foremen were central to the Huntsville experience. The first generation of team leaders clearly felt they were supposed to take charge and ensure that teams fulfilled their Twenty Team Duties as quickly as possible. The relatively high levels of team duties performed suggest that the leaders were successful in this regard. Team members, however, rebelled against having the leaders act like "junior foremen" and insisted on being able to replace team leaders based on a majority vote at any time. As resistance to the MOA initiative grew, heightened by the perilous position of Huntsville as an Acustar plant, the team leaders became a lightning rod for work force frustrations. The turnover of team leaders reached extremely high levels. Eventually the work force began to unload its frustrations on the union leadership, and officials supportive of the MOA were voted out of office, though the new leadership continued to work under the framework the MOA had established.

Trenton Engine. Trenton voted down the MOA in its initial local union vote by a 2-to-1 margin. Plant managers, with the support of the local union president, were pursuing the MOA in order to bring a new product line to the plant. They were surprised by the negative vote, which resulted from a small turnout in which skilled trades workers—who opposed the collapsing of job classifications that would accompany the MOA—were heavily represented. A subsequent all-plant meeting communicated the importance of the MOA to the plant's survival. After a petition drive among non-skilled-trades workers, a second vote was held and the MOA was supported by a 3-to-1 margin. However, the lingering effects of the initial vote were felt in the next local union election, when an outspoken opponent of the MOA from the skilled trades was elected. Partly due to his influence, and partly due to repeated turnover in the plant manager position, MOA implementation was continually delayed at Trenton. The MOA kickoff ceremonies occurred nearly two years after the contract signing, when the new engine line was finally introduced, but teams were not established until nearly three years later. As at the other MOA plants, skilled trades workers were never placed in teams, and thus their negative feelings about the MOA are not reflected in our survey data.

Performance problems followed the full implementation of teams as workers rushed to learn the additional skills that would maximize their pay under CPP. These problems were still relatively recent,

six plants, they might serve as mediating variables between workers' responses and any plant-level effects we identify (Baron and Kenny 1986). We organize the individual-level factors we measure through the MOA attitude survey into four categories: demographic characteristics; the perceived impact of the MOA on individual economic outcomes (pay and job classification); the perceived contribution of the MOA to improved job design; and the perceived contribution of the MOA to collective employee voice. In this section, we offer hypotheses related to each category. For the sake of simplicity, we do not distinguish between affective and behavioral worker responses

in these hypotheses; we expect that affective and behavioral responses will move in the same direction for each of these factors.

Demographics. Employee reactions to organizational change might vary based on demographic characteristics, though this has been studied only rarely (Cotton 1993). Age may matter: Blumberg (1980) found that younger workers were more likely than older workers to engage in job switching in autonomous work groups in a coal mine, while Ketchum and Trist (1992) observed that older workers were likely to be more resistant to the introduction of teams. Older workers also had more to lose with the

though mostly resolved, at the time the survey data were collected. Hence it is not surprising that Trenton workers were the least likely to see a link between the MOA and improved organizational performance.

Trenton workers had more favorable views of the team aspects of the MOA than did workers at any other plant. The field research did not suggest clear reasons for this difference. It may have reflected the contrast between worker experiences and the highly negative expectations that developed during the long delay, or it may have been due to particular aspects of the previous regime. In any case, the positive view of teams helps explain why Trenton workers reported such positive attitudes toward the MOA despite their skepticism about its effect on economic performance.

Newark (Del.) Assembly and Jefferson (Mich.) Assembly. These two assembly plants had very different founding conditions. Newark initially voted against opening its contract in order to negotiate the MOA, a vote consistent with Newark's reputation for highly adversarial labor relations. In fact, labor relations at the plant had been improving in the years before the MOA, a process that began, as at New Castle, with a jointly sponsored program on quality improvement. The vote more likely reflected the work force's negative reaction to Chrysler's strong language linking the MOA vote to keeping the plant open, and to its insistence on scheduling the MOA contract vote before, rather than after, upcoming local union elections.

After the initial negative vote, the president of the local union worked with plant management and with various factions within the union to gain support for a second vote. The parties mounted an extensive information campaign to correct misperceptions about the MOA. On the second vote, the margin of support for opening the contract was high, and this level of support was maintained during the subsequent negotiations on specific MOA details and the contract ratification. Indeed, the union president was re-elected to a third term immediately after the MOA contract was signed. Subsequently, implementation difficulties arose due to the MOA being launched concurrently with a new product line, but these were typically resolved jointly, with the union taking an active role in pressuring management to fix various problems. Plant managers reported that this local union pressure often helped them break through delays in getting needed support from Chrysler at the corporate level.

In contrast, Jefferson approved the MOA by a relatively large margin. Workers knew that this approval was required as a condition for Chrysler's investment in a new plant, Jefferson North, located just a few miles from the original Jefferson Avenue plant, the oldest in the country at the time of its closing. Indeed, a key provision of the Jefferson local contract for the MOA was an agreement that implementation would not begin until production began in the new plant—an event that would not occur until the winter of 1991–92, 5–1½ years after the contract signing and 4 years after the MOA kickoff ceremonies. The old Jefferson plant closed in February 1990, earlier than originally planned, and the local union, displeased by this, put all pre-MOA training activities on hold. Yet this training resumed as planned in the months before Jefferson North opened, and the confluence of the new plant, the new product (Jeep Grand Cherokee), and the MOA generated tremendous excitement and pride.

The survey data suggest that despite these differences, the assembly plants had roughly similar experiences in terms of worker reactions. Workers were generally favorable to the MOA, and believed strongly that the MOA was responsible for improvements in plant performance. In neither plant, however, were workers keen on performing the 20 team duties. It may have been more difficult for teams under the assembly line production process to find as much time for the team duties as did teams in less constrained work environments.

diminution of seniority. We also know that workers with more education are typically more likely to undertake training (Altonji and Spletzer 1991); Chrysler workers with more education might thus be more positively inclined toward an initiative like the MOA, which included not only required training, but also opportunities to gain skills through the CPP system.

Responses may also have differed by gender. While little prior literature exists to guide us here, we note that women comprised only a small share of the work force in all plants save Huntsville. Due to this minority status, women may have felt less comfortable than men in a team-based work-

place. For example, Thompson and Gooler (1996) argued that while diversity can enhance the performance of work teams, team members who do not fit in with the majority may have more negative attitudes toward the team.

Thus, with respect to demographics, we hypothesize that:

H3a: Younger workers will react more positively to the MOA than older workers do.

H3b: More educated workers will react more positively to the MOA than less educated workers do.

H3c: Men will react more positively to the MOA than women do.

Individual attitudes toward the MOA

might also have been influenced by personal economic outcomes achieved as a result of the agreement. A prominent feature of the MOA, and an important negotiating goal for the UAW, was the guarantee that no worker would face a cut in pay or a movement to a lower job class. New broad job classes were set up to reflect the highest earlier job class folded into the new category, resulting in an increase in task responsibility and job status for the majority of workers. Similarly, the pay rates attached to these new job classes provided a pay increase for most workers, albeit a modest increase overall and hence a quite small increase for individuals at the top end of the range of the former job classes that were being consolidated. Under the Capability Progression Pay plan, workers could increase pay over their initial base by successful mastery of additional skills, yet even the base pay level for the new job classes was higher than previous pay. The union's stated goal was that all workers could potentially move to the top of the CPP scale over time. Our hypothesis can be simply stated, based on a straightforward view of economic self-interest:

H4: Workers whose job class, pay level, or both increased after work reforms were implemented will react more positively to the MOA.

The MOA also had the potential to influence workers' views positively by improving job design. Individuals in jobs with intrinsically motivating characteristics are typically more satisfied with their work than are other workers (Hackman and Oldham 1980). Accordingly, we expect more positive responses to the MOA where job classification consolidation, reassignments, and the construction of teams under the MOA led workers to perceive their jobs as enriched—specifically, along the dimensions of task variety, identity, and significance; autonomy; and feedback from the work itself.

H5: Workers who perceive improvements in their job characteristics will react more positively to the MOA.

Workers' reactions could also be a function of the impact the MOA had on their

collective voice and future prospects. Considerable research suggests that employees favor group expression of their concerns at the workplace (Freeman and Medoff 1984; Kaufman and Kleiner 1993; Freeman and Rogers 1999). Such expression may be important to workers as a way to address issues arising from their daily work experience. It may also give them a sense of efficacy with respect to productivity, quality, and other performance outcomes that affect the fate of their employer—and hence their job security. Here we hypothesize that:

H6a: Workers who perceive greater collective influence on issues arising from their daily work experience will react more positively to the MOA.

H6b: Workers who perceive greater collective influence on the economic performance of their plant will react more positively to the MOA.

Summary. We will primarily investigate the role of these individual-level factors as potential mediators of the plant-level factors identified above. Where worker demographics or perceptions of the MOA's impact do mediate the plant-level factors, they should provide additional insight into the conditions favoring the implementation of work reforms.

Sample and Survey Methodology

Data for our study come from a telephone survey of 2,000 randomly selected employees, conducted between January 17 and February 5, 1993.⁴ Larger plants (those

⁴The timing of the survey was advantageous for two reasons. First, it was administered five to six years after the initial signing of MOA contracts and, even at the plant that was slowest to implement the MOA, over a year after the introduction of teams. Thus we were not picking up the attitudes from a startup period, when a Hawthorne effect or initial resistance to change might have affected workers' views. At the same time, the start of the MOA had not been so long ago that workers were unable to remember the pre-MOA situation in their plant. Second, January 1993 fell about midway between the dramatic recovery of Chrysler from its financial crisis of 1990–91 and its record-breaking sales and profits in 1994. There was neither the dark cloud of another brush with bank-

with more than 2,000 employees) were surveyed more heavily to yield a sample with a representative distribution of the six plants. 400 employees from the Jefferson (Michigan) and Newark (Delaware) assembly plants, Trenton (Michigan) engine plant, and Huntsville (Alabama) electronics plant were surveyed, while 200 employees from the New Castle (Indiana) machining plant and Indianapolis (Indiana) foundry were surveyed.

Of the 2,000 respondents, 1,420 were unionized production workers, 307 were unionized skilled trades workers, 78 were unionized technical and clerical employees, 123 were managers, and 72 were from other categories. The analysis reported in this paper is restricted to the 1,420 unionized production workers, the group most affected by the MOA. Considering only those production workers who confirmed that they were members of teams reduced the sample to 1,289. Eliminating surveys with missing data reduced the sample size to 782; there were no identifiable differences between respondents in the final sample and those with missing data.

The telephone survey consisted of eleven pages of questions designed to find out what employees thought of the overall MOA and its many constituent parts. A professional survey research firm carried out the interviews. Names were picked at random from a list of employees at each plant provided by Chrysler, and the employees were phoned at their homes. A letter from the researchers, accompanied by cover letters from Chrysler and the UAW, was distributed in each plant a week before calls were made, making it clear to workers that both the company and the union approved of and supported the survey's effort to "learn about the views of employees, both positive

and negative, toward the MOA." The complete confidentiality of all individual responses and the research team's independence from both the company and the union were also emphasized in the letter. Interviewers repeated the key information from this letter at the beginning of each interview.

Most questions offered respondents two positive (for example, "agree" and "strongly agree") and two negative (for example, "disagree" and "strongly disagree") potential responses. Both the question and the responses were read to the respondent by the interviewer. Interviewers did not prompt respondents with responses such as "neither agree nor disagree" or "partially agree, partially disagree." However, interviewers took note of such responses when respondents volunteered them, and these answers were later coded as "3" on a five-point scale.⁵ At the end of the interview, respondents were asked open-ended questions about their reactions to the MOA. The telephone interview took 15–20 minutes to complete.

The design of the survey imposes some limits on the conclusions we can draw from the data. The survey was administered to single respondents, without a longitudinal element. Thus we recognize the danger of circularity in the claim that perceptions of

ruptcy nor the euphoria of a huge year-end bonus to color worker perceptions of the MOA. Open-ended comments recorded at the end of each phone survey reveal that workers were still concerned about employment security but were cautiously optimistic that Chrysler was "out of the woods" in terms of its economic performance.

⁵This approach is common practice for telephone surveys. Not offering a "neither agree nor disagree" response shortens the time needed for the interviewer to read all the responses and also reduces the number of different responses the interviewee needs to keep in mind. In addition, this approach minimizes the likelihood that a respondent will consistently choose the middle or "neutral" response because initial discomfort at expressing an opinion sets the pattern for future responses. However, it does not prevent someone who truly "neither agrees nor disagrees" from saying so. When this or any similar comment was made, it was noted by the interviewer and coded. Thus, while this approach inherently generates greater variance (that is, there are fewer "3's" when the "neither agree nor disagree" approach is not explicitly offered), there is no reason to believe that it prevents respondents from stating their opinions clearly or that it distorts or biases the results in any particular direction.

job design, voice, and effects on performance will influence attitudes toward the MOA. Workers who like the MOA, for whatever reason, might be likely to ascribe positive effects to it, regardless of what other data are known to them, and the survey does not allow us to rule out this possibility. Second, we also risk bias from using the same method to ascertain both attitudes toward the MOA and the factors that may affect those attitudes.

These concerns are somewhat mitigated by our plant-level interviews, which suggested that workers were capable of distinguishing between different aspects of the MOA. For example, a worker might favor teams while being skeptical about the MOA overall, or vice-versa. Furthermore, our knowledge about the organizational context, critical to our interpretations of the data, was generated by our fieldwork and is thus independent of the survey data. The survey itself also offered multiple, highly specific questions about the outcomes that individuals might associate with the MOA, encouraging workers to differentiate their responses according to their particular experiences. In short, while these data possess the limitations common to those collected for program evaluation purposes, we believe they can still generate considerable insight into the reasons that different workers, in different workplaces, respond differently to work reorganization initiatives.

Variables

We use two dependent variables, corresponding to affective and behavioral indicators of worker responses to the MOA: a three-item composite variable reflecting individual workers' attitudes toward the MOA; and the number of the "20 Team Duties" that workers reported their teams were carrying out. As explained above, we are examining two independent variables at the plant level (competitive threat and use of a fostering versus forcing implementation process) and four categories of independent variable at the individual level (demographics; individual economic outcomes; job characteristics; and collective

voice and welfare).

Dependent variables. To measure attitudes toward the MOA, we asked respondents three different, but related, questions—one general and two explicitly comparative. (Distributions of responses are displayed in Figure 1.)

"Overall, are you satisfied with the way things were going in your plant under the MOA?" (1 = "very dissatisfied"; 5 = "very satisfied")

"I prefer working under the MOA to working under the old approach." (1 = "totally disagree"; 5 = "totally agree")

"Overall, I prefer the team system to working under the old system." (1 = "totally disagree"; 5 = "totally agree")

Although these three questions were worded to capture nuances of worker reactions to the MOA, correlations among them were very high. To increase reliability, we combined the three measures additively (all were scaled from 1 to 5) into a single scale (Cronbach's $\alpha = 0.81$) representing an individual worker's mean response to this set of questions.⁶

To measure behavioral responses to the MOA, respondents were asked how many of the 20 team duties were performed by their teams on a regular basis, from 0 to 20. The survey did not record membership by team, so this measure represents individual perceptions of team activities. The reported number of duties should provide a rough proxy for individual worker behavior, but it is possible that some workers who performed only a small range of the 20 duties may have been on teams that performed a large share of the team duties (or vice-versa). Systematic biases resulting from misperceptions, however, seem unlikely: a list clearly specified these duties; MOA facilitators were instructed to make sure that teams reviewed the list at their weekly meet-

⁶In analyses available on request, we examine each of the three questions separately. Small differences in the patterns of results for each of the three questions suggest that workers did make distinctions and comparisons among component parts of the MOA.

ing; and highly involved workers on low-involvement teams seem no more likely than less involved workers on high-involvement teams.

Plant-level independent variables. We operationalize the competitiveness of the plant's business environment by coding the Acustar plants as 1 and the non-Acustar plants as 0. We then operationalize whether the implementation process at a given plant was "fostering" or "forcing" by coding the two plants (Newark and Trenton) that voted down the MOA on the initial ballot as 1 and the four plants that voted in favor of the MOA on the initial ballot as 0.

Individual-level independent variables. For the demographic variables, age was taken from company records and matched to the list of individuals. Education was not available from company records and hence is self-reported on an 8-point scale, with 1 indicating non-completion of elementary school and 8 indicating attainment of a post-graduate or professional degree. Gender was coded by the interviewer, with 1 indicating a male.

For individual economic outcomes, two questions were asked: "Has your job class improved as a result of the MOA?" and "Has your job class improved as a result of the MOA and Capability Progression Pay?" Responses of "Yes" were coded as 1.

For job design, respondents rated their current job along dimensions corresponding to skill variety, task identity, task significance, autonomy, and feedback from the work itself (from Hackman and Oldham's [1980] short form of the Job Diagnostic Survey). These items loaded on a single factor, which we used to construct a standardized scale. Because virtually every job from the old classification scheme was redesigned as part of MOA implementation, it seems reasonable to ask whether current perceptions of job characteristics affect worker attitudes toward the MOA.

To assess employee perceptions of collective voice and welfare, respondents were asked to rate "how much attention management at your plant pays to what your work team thinks or says" on seven issues: *technology* (the use of new technology on your

job); *work methods and procedures* (the way the work is done); *quality* (the quality of the product); *people problems* (handling "people problems"); *job assignment* (who in your team should do what job); *work pace* (how fast the work should be done); and *work effort* (how much work people should do in a day).

Table 2. Means of Variables.

Variable	Full Sample	Jefferson	Newark	Indianapolis	Trenton	New Castle	Huntsville
Satisfaction with the MOA	3.3	3.4	3.6	3.0	3.2	3.6	3.1
Preference for the MOA	3.6	3.8	4.0	3.5	3.7	3.7	3.0
Preference for Teams	3.9	4.1	4.2	3.9	4.2	4.0	3.2
Reaction to the MOA (composite attitude variable)	3.6	3.8	3.9	3.5	3.7	3.8	3.1
Number of 20 Team Duties Performed	13.8	13.7	13.3	12.9	13.1	15.7	14.4
Gender (1 = male)	.81	.92	.93	.98	.79	.99	.39
Age	45.5	48.9	43.8	44.3	44.8	47.5	43.3
Education (1 to 8 scale)	4.2	4.2	4.3	4.3	4.2	4.0	4.3
Pay Level Increases	.71	.49	.78	.46	.82	.76	.87
Job Class Improves (1 = yes; 2 = no)	.35	.33	.40	.24	.41	.35	.32
Job Enrichment (standardized scale)	0.0	-.02	.08	-.28	.04	.15	-.07
Team Influence on Process (std. scale)	0.0	.16	.03	-.10	.04	.00	-.23
Team Influence on Effort (std. scale)	0.0	-.08	-.12	-.14	.06	.17	.15
MOA Improves Organizational Performance (std. scale)	0.0	.20	.20	-.36	-.50	.42	-.13
Number of Respondents with Complete Data	782	181	174	63	133	85	146

Respondents were also asked whether organizational *productivity*, *safety*, and *quality* outcomes had improved or worsened under the MOA. In factor analyses, "team influence" loaded onto two distinct factors, which we call "team influence on work processes" and "team influence on work effort." Perceptions of the influence of the MOA on organizational performance outcomes loaded on a separate, single factor. We constructed standardized scales for each of these variables based on the factor scores.

Results

Across the sample, most workers preferred the MOA to the previous work arrangements. Figure 1 shows that for each of the three individual questions about the MOA, well over 60% of the workers expressed positive views. Workers responded most positively to the question regarding team preference, with over three-quarters

claiming to prefer teams to the old system, while over two-thirds also expressed a preference for the MOA (67% totally or partially agreed). Sixty-four percent said they were satisfied or very satisfied with the MOA.

In what follows, we consider workers' responses by referring to the composite variable "employee attitudes toward the MOA" and the self-reported behavioral variable "team duties done." The sample mean for employee attitudes was 3.6 on a 5-point scale, while the sample mean for team duties done was 13.8 (of a possible 20). Table 2 summarizes the means of the dependent and independent variables, both for the sample as a whole, and split out by plant.

Tables 3 and 4 show how mean levels of worker attitudes and behaviors vary by the two systematic plant-level differences we identified; Table 5, discussed below, presents analyses of variances of these responses at the plant level. Table 3 shows that,

Table 3. Attitudes toward the MOA by Plant-Level Factors.
(Figures in Cells Are Means for Composite Variable)

		<i>Plant Faced Threat of Sell-Off</i>		
		<i>No</i>	<i>Yes</i>	<i>Total</i>
<i>Plant Faced "Forcing" Implementation Strategy</i>	<i>No</i>	3.68 N = 244	3.34 N = 231	3.52 N = 475
	<i>Yes</i>	3.82 N = 307	No observations	3.82 N = 307
	<i>Total</i>	3.76 N = 551	3.34 N = 231	3.64 N = 782

surprisingly, workers in the plants workers in the plants that entered into the MOA as a consequence of a more explicit "forcing" strategy expressed more positive opinions about the MOA than did workers in the other plants. Table 4 shows that workers in these plants, however, also reported that their teams performed fewer of the 20 team duties. Table 3 also shows, less surprisingly, that workers in the two plants facing the threat of sell-off had more negative attitudes about the MOA than did workers in other plants. Table 4 shows, however, that these workers reported performing more team duties than did workers in the other plants. This pattern of results is consistent with three of our four plant-level hypotheses (H1a, 1b, and 2b), and supports the expectation that affective and behavioral responses to the MOA might move in different directions under the "competitive threat" condition.

Table 5 displays the results of one-way, two-way, and nested analyses of variance for the plant-level differences that are presented in Tables 2, 3, and 4. The one-way analyses in Table 5a are equivalent to simple tests of differences in means across the conditions and plants; in each case, the differences are statistically significant at conventional levels. In Table 5b, the two-way analyses of variance for each dependent variable show significant differences between workers' responses in the plants facing the threat of sell-off and responses in the plants that did not face this threat. Once this factor is considered, the use of a forcing strategy at a particular plant has no

additional explanatory power with respect to attitudes or behaviors.

In Table 5c, we also examine the additional explanatory power of plant-specific factors by adding the plant dummies. We display only analyses for the "competitive threat" variable, because, as the results in Table 5b show, the "forcing" strategy variable has no explanatory power once the competitive threat is taken into account. The results of the nested analysis of variance suggest that plant-level idiosyncrasies do explain further differences in workers' attitudes. For team duties done, however, the inclusion of dummy variables for individual plants offers no additional explanatory power once the threat of sell-off is considered.

The substantial differences in means for many of the individual-level factors across the six plants, as shown in Table 2, suggest that some of these factors could mediate the plant-level effects identified in the analyses of variance. We explore the direct effects of these variables and the possibility of mediation effects through ordinary least squares regression analyses, reported in Table 6 (for attitudes toward the MOA) and Table 7 (for team duties done). Following the method suggested by Baron and Kenny (1986), we introduce the individual-level variables in blocks, then consider (a) the plant-level competitive threat variable, (b) the plant dummy variables, and finally (c) the complete model with all variables included. (As above, we do not report equivalent tests for the "forcing" variable.)

Table 4. Team Duties Done by Plant-Level Factors.
(Figures in Cells Are Mean Number of Duties Done)

		<i>Plant Faced Threat of Sell-Off</i>		
		<i>No</i>	<i>Yes</i>	<i>Total</i>
<i>Plant Faced "Forcing" Implementation Strategy</i>	<i>No</i>	13.48 N = 244	14.84 N = 231	14.14 N = 475
	<i>Yes</i>	13.23 N = 307	No observations	13.23 N = 307
	<i>Total</i>	13.34 N = 551	14.84 N = 231	13.78 N = 782

Attitudes

Columns (1) and (2) of Table 6 reprise, in regression form, the central results of the one-way and nested analyses of variance in Table 5 for employee attitudes. Column (1) examines the effect of the threat of sell-off, alone. Column (2) contains a model with estimated effects for the threat of sell-off and for each individual plant. We omit dummy variables for one Acustar plant (Huntsville) and one non-Acustar plant (Trenton) in order to identify the model. Since Huntsville and New Castle are covered under the "threat of sell-off" variable, the coefficient for New Castle indicates its difference from Huntsville. Coefficients for the non-Acustar plants are estimates of each plant's difference from Trenton. As these columns show, the effect of the threat of sell-off on MOA attitudes is statistically significant, even when the individual plant-level dummy variables are added; the F-test for the additional variance explained by the plant dummies is also statistically significant.

The strongly positive coefficient for New Castle in column (2) demonstrates, as suggested by the means in Table 2, that the workers at New Castle had significantly more positive attitudes to the MOA than those at Huntsville, despite their sharing a common threat of sell-off. In contrast, coefficients for the plants that did not face the threat of sell-off (Jefferson, Indianapolis, and Newark) do not differ statistically from that for the omitted non-Acustar plant (Trenton). Put more generally, reactions to the MOA

at New Castle and Huntsville, both under threat of sell-off, do differ significantly, suggesting that we need to probe for additional plant-specific factors to understand this difference.⁷

Columns (3), (4), and (5) of Table 6 examine the effects of demographic factors on attitudes to the MOA. Columns (4) and (5) indicate that, consistent with Hypothesis 3c, men responded more favorably than women to the MOA, but there is no support for H3a or H3b: age and education did not have statistically significant effects on worker attitudes. Column (5) shows, however, that the differences between men and women are reduced to statistical insignificance by the introduction of plant dummy variables. This suggests that the statistically significant coefficient for gender in column (3) is actually identifying a plant effect; specifically, the fact that Huntsville, the plant most negative toward the MOA, also had the highest proportion of women. Generally, the plant-level effects are not mediated by the differing demographic characteristics of the plants.

⁷The effects for the Indianapolis and Newark plants differ statistically ($p < 0.05$) from one another in the models that do not include the individual perceptions as predictors (columns 2 and 5 of Table 6), though neither effect is statistically different from the effect for Trenton (the omitted plant). Workers at Trenton had more positive attitudes than workers at any other non-Acustar plant in the fully specified model (column 8); we consistently omitted Trenton to make it easier to compare the different specifications.

Table 5. Analyses of Variance by Plant-Level Factors.

<i>Dependent Variables</i>	<i>Independent Variables</i>	<i>Degrees of Freedom</i>	<i>F (Prob > F)</i>
a. One-Way Analysis of Variance			
Employee Attitude	Forcing strategy	1, 780	11.60** (0.001)
	Threat of sell-off	1, 780	19.14** (0.000)
	Plant dummies	5, 776	8.47** (0.000)
Team Duties Done	Forcing strategy	1, 780	5.52* (0.019)
	Threat of sell-off	1, 780	13.08** (0.000)
	Plant dummies	5, 776	3.58** (0.003)
b. Two-Way Analysis of Variance by Context (Partial Squares Method)			
Employee Attitude	Forcing strategy	1, 779	1.80 (0.18)
	Threat of sell-off	1, 779	9.24** (0.002)
Team Duties Done	Forcing strategy	1, 779	0.31 (0.58)
	Threat of sell-off	1, 779	7.82** (0.005)
c. Nested Analysis of Variance: Plants within Threat of Sell-Off			
Employee Attitude	Threat of sell-off	1, 776	8.12 ** (0.005)
	Threat of sell-off (plus plant dummies)	4, 776	5.69** (0.000)
Team Duties Done	Threat of sell-off	1, 776	16.26** (0.000)
	Threat of sell-off (plus plant dummies)	4, 776	1.20 (0.311)

Statistically significant at the .05 level; *at the .01 level.

Columns (6), (7), and (8) display the results of adding the individual-level perceptions of the MOA to the model. These variables add considerable explanatory power. Workers whose job class (H4a) and job characteristics (H5) improved, who believed their teams had real influence (H6a and H6b), and who attributed improved performance to the effect of the MOA (H7) were significantly more likely to express opinions favorable toward the MOA; the adjusted r-squared for the full model is 42.9%. These are the results most likely to be affected by response-response biases, since workers already positive toward the MOA might be more likely to perceive fa-

vorably its impact on various aspects of their job and the overall organization.

Column (8) shows that the individual-level perceptual measures did not mediate the effect of the business environment on workers' overall reactions to the MOA; the "threat of sell-off" coefficient remains statistically significant and negative after we control for all of these variables. These measures do, however, suggest a mediating effect that helps explain the statistically significant difference in reactions to the MOA between the two Acustar plants, New Castle and Huntsville. The New Castle coefficient dropped sharply with the inclusion of these individual perceptual mea-

Table 6. OLS Regression Coefficients: Determinants of Attitudes toward the MOA.
(N = 782; Standard Errors in Parentheses)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Threat of Sell-Off	-0.42*** (0.10)	-0.60*** (0.14)		-0.33*** (0.10)	-0.56** (0.15)		-0.38** (0.08)	-0.61** (0.12)
Jefferson Assembly		0.05 (0.14)			0.07 (0.14)			-0.32** (0.12)
Indianapolis Foundry		0.22 (0.14)			-0.25 (0.19)			-0.13 (0.15)
Newark Assembly		-0.21 (0.18)			0.19 (0.14)			-0.20 (0.11)
New Castle Machining (faced threat of sell-off)		0.66*** (0.16)			0.62** (0.18)			0.13 (0.15)
Male			0.46 *** (0.11)	0.33*** (0.12)	0.15 (0.13)	0.35** (0.09)	0.21** (0.09)	0.19 (0.10)
Age			-0.007 (0.006)	-0.008 (0.006)	-0.010 (0.006)	-0.010* (0.005)	-0.011** (0.005)	-0.009 (0.005)
Education			0.000 (0.052)	-0.002 (0.052)	0.009 (0.052)	0.040 (0.041)	0.038 (0.041)	0.041 (0.041)
Pay Level Increases						0.01 (0.08)	0.06 (0.08)	0.02 (0.08)
Job Class Improves						0.30*** (0.08)	0.28*** (0.08)	0.27*** (0.08)
Job Chars. Scale						0.24*** (0.04)	0.24*** (0.03)	0.24*** (0.03)
Team Influences Process						0.10*** (0.04)	0.11*** (0.03)	0.11*** (0.03)
Team Influences Effort						0.40*** (0.04)	0.38*** (0.04)	0.39*** (0.04)
MOA Has Improved Performance						0.54*** (0.04)	0.55*** (0.03)	0.57*** (0.04)
Constant	3.76*** (0.52)	3.70*** (0.10)	3.58*** (0.39)	3.83*** (0.40)	4.00*** (0.41)	3.53*** (0.32)	3.76*** (0.32)	3.91*** (0.33)
Adjusted r-Squared	0.023	0.046	0.019	0.031	0.048	0.399	0.415	0.419
F for Additional Variables (Prob > F)	19.14*** (0.00)	5.69*** (0.00)	6.03*** (0.001)	10.60*** (0.001)	4.44*** (0.002)	83.02*** (0.00)	22.49*** (0.000)	2.32 (0.055)

Omitted Plants: Huntsville (faced threat of sell-off), Trenton Engine (did not face threat).

Statistically significant at the .05 level; *at the .01 level.

tures. We know from Table 2 that workers at New Castle were especially likely to believe that the MOA had a favorable impact on performance outcomes. Once these favorable perceptions are controlled for, the statistically significant coefficient for New Castle in relation to Huntsville (in columns 2 and 5) disappears, and no plant-specific effect can be identified for either of them.

Estimates for the individual-level factors

also lead to alternative interpretations of the differences among the non-Acustar plants. For example, we find that Trenton Engine, the omitted non-Acustar plant, was more positive toward the MOA than were the other plants after we control for the individual perceptual measures. We note that the Trenton mean for "MOA has improved organizational performance" was significantly lower. In other words, workers at the Trenton plant did not see a big

impact of the MOA on organizational performance, possibly because implementation was initiated only one year before the survey. When we control for this difference across plants, the results show that Trenton workers responded positively to the MOA. Column (8) also reveals a statistically significant, negative plant-specific effect at Jefferson Assembly Plant. This result suggests that attitudes toward the MOA at Jefferson Assembly were generally more negative than would be predicted by the model based on individual-level variables. Further analyses (not shown, but available on request) indicated that the explanation for the negative response at Jefferson was more complicated than the explanation offered for the positive effect at the Trenton plant. The negative coefficient at Jefferson became evident only after we added a combination of several perceptual and demographic variables to the model.

The dependent variable for Table 6 is set on a scale ranging from 1 to 5; the effects of the coefficients for dummy variables in the models can therefore be interpreted as the changes in attitudes toward the MOA on this scale. For example, the fully specified model in column (8) suggests that a worker in an Acustar plant would score about 0.61 points lower on the 5 point scale than would a worker in a non-Acustar plant. The scales created from factor scores were standardized (mean = 0, s.d. = 1) so that the coefficients for these variables can be interpreted as effects associated with a one standard deviation change in the variable of interest.

Behaviors

Table 7 reports results of regression models with "team duties done" as the dependent variable. As with Table 6, columns (1) and (2) reprise the results of the one-way and nested analyses of variance in order to make subsequent comparisons clear, showing that the threat of sell-off variable was statistically significant and positively related to team duties done, but that the plant-level effects beyond this measure were statistically insignificant. The Acustar plants, New Castle Machining and Hunts-

ville, had higher levels of team fulfillment of the 20 team duties.

Again, the individual-level variables added considerably to the fit of the model. Of the demographic variables, age contributed significantly to the fit of the model specified in column (5), being positively associated with "team duties done." (The statistical significance of age disappears in the most fully specified models, having been mediated by individual perceptions.) This result contradicts H3a, which suggested that younger workers would respond more positively to the MOA. Age (like the threat of sell-off) is related negatively to attitudes to the MOA but positively to team duties done.

Individual perceptions of the effects of the MOA, in contrast to the variables for age and competitive threat, yielded estimates that ran in the same direction for both attitudes and reported behaviors. Effects of improved job characteristics (H5), greater team influence (H6a and H6b), and a perception that the MOA has improved performance (H7) were all statistically significant and positive. Improvement in job class had a weaker association with "team duties done" than with "attitude toward the MOA." The threat of sell-off remains statistically significant and positive even when all other variables are added. The individual perceptions are important but do not mediate the effect of this threat.

Effect sizes in Table 7 can be calculated easily because the dependent variable is a simple count of duties. The threat of sell-off, for example, was associated with 1.25 additional team duties done in the fully specified model in column (8). Perceived team influences on work effort were especially strongly associated with performing more team duties, with a one standard deviation increase in this factor score corresponding to nearly 1.6 more reported duties done (column 8).

The variance explained in "team duties done" is considerably lower than in the corresponding analyses for attitudes toward the MOA: an adjusted R-squared of 16.1% versus 41.9%. This is not surprising. The attitudinal variables assessed individual responses, while for the "team duties done"

Table 7. OLS Regression Coefficients: Determinants of Reported Number of "Twenty Team Duties" Performed.

(N = 782; Standard Errors in Parentheses)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Threat of Sell-Off	1.49*** (0.41)	1.26 ** (0.63)		1.53*** (0.44)	1.13 (0.67)		1.57*** (0.41)	1.25** (0.63)
Jefferson Assembly		0.59 (0.60)			0.45 (0.61)			-0.44 (0.60)
Indianapolis Foundry		0.24 (0.61)			-0.062 (0.81)			0.23 (0.77)
Newark Assembly		-0.19 (0.81)			0.36 (0.61)			-0.38 (0.58)
New Castle Machining		1.30 (0.72)			1.40 (0.81)			0.20 (0.76)
Male			-0.68 (0.49)	-0.08 (0.51)	-0.53 (0.58)	-0.28 (0.48)	-0.85 (0.46)	-0.33 (0.53)
Age			0.057** (0.025)	0.061** (0.025)	0.053** (0.026)	0.045 (0.023)	0.043 (0.024)	0.047 (0.024)
Education			-0.019 (0.227)	-0.011 (0.226)	0.011 (0.226)	0.145 (0.210)	0.135 (0.212)	0.149 (0.211)
Pay Level Increases						-0.14 (0.41)	0.10 (0.41)	-0.16 (0.43)
Job Class Improves						0.23 (0.39)	0.13 (0.39)	0.23 (0.39)
Job Chars. Scale						0.62*** (0.18)	0.63*** (0.18)	0.63*** (0.18)
Team Influences Process						0.46*** (0.18)	0.51*** (0.18)	0.45** (0.18)
Team Influences Effort						1.56*** (0.18)	1.50*** (0.18)	1.57*** (0.18)
MOA Has Improved Performance						1.07*** (0.18)	1.12*** (0.18)	1.12*** (0.19)
Constant	13.34*** (0.22)	13.10 *** (0.46)	11.81*** (1.70)	10.66*** (1.72)	11.11*** (1.79)	10.89*** (1.65)	11.82*** (1.65)	11.07*** (1.71)
Adjusted r-Squared	0.02	0.023	0.005	0.020	0.019	0.16	0.149	0.161
F for Additional Variables (Prob. > F)	13.08*** (0.000)	1.20 (0.31)	2.42 (0.065)	12.15*** (0.001)	0.94 (0.443)	14.49*** (0.000)	22.86*** (0.000)	0.34 (0.850)

Omitted plants: Huntsville (faced threat of sell-off), Trenton Engine (did not face threat).

Statistically significant at the .05 level; *at the .01 level.

measure, workers reported the behavior of their team as a group. Given some heterogeneity of characteristics and attitudes among team members, there should be higher error associated with models of team behavior based on individual responses. It is also worth noting that the range of behavior captured by this dependent variable is relatively narrow. The difference between the plant doing the most team duties, on

average, and the plant doing the least is just over two (10%) on the twenty point scale. This small range notwithstanding, each block of variables, with the exception of the plant dummy variables, contributes significantly to the fit of the fully specified model.⁸

⁸The analyses reported above assume that the model underlying individuals' reactions to the MOA is the same in each plant, with only the level (as

Discussion and Conclusions

We have found that the majority of workers involved with the Modern Operating Agreement (MOA), negotiated between Chrysler and the UAW at six manufacturing plants, had a positive view of the changes associated with that work reorganization initiative. Roughly two-thirds to three-quarters of the workers interviewed said they were satisfied with the MOA and preferred it to the "old approach"; by an even wider margin, they preferred teams to past approaches. This was true despite the rocky start the MOA got at the plants where it was forced in, by the company and the national union, over local opposition. At Chrysler, American autoworkers, typically known for their strong attachment to traditional approaches to labor-management relations, demonstrated strong interest in pursuing mutual gains, and most saw the MOA as a viable means to that end.

It is possible that the favorable attitudes expressed here were due to a "halo effect" resulting from the remarkable turnaround in Chrysler's performance over the period preceding the survey, from near bankruptcy to the most profitable of the Big Three.

indicated by the business environment and plant-intercept terms) varying. We examined that assumption with further analyses (not shown) in which we estimated six separate regression models for each dependent variable. Each of the six models included a full set of interaction terms between the variables and a dummy for one of the plants. Testing the contribution of the interaction terms to model fit is equivalent to testing for the differences between the model for the plant in question and the model for the sample as a whole (Hardy 1993). With respect to attitudes, the interaction terms as a group were statistically significant only for Trenton and for Indianapolis, and in each case they made only a small contribution to variance explained—less than 2%. Generally, we concluded, a single underlying model predicts worker attitudes toward the MOA well across the entire sample. Similar analyses for team duties provided even stronger justification for the finding that essentially the same model underlies variance across all six plants. For none of the six plants could we reject (at conventional significance levels) the hypothesis that the interaction terms contributed nothing to the explanation of variance in team duties done.

Concerns about this effect are mitigated, however, by the wide variation in responses within and across plants. Further, a simple halo effect is belied by the fact that our models consistently identified characteristics of individuals who were favorable to the new approach, whether we measured that outcome in terms of their overall affective attitude toward the MOA or in terms of their behavior in completing the "twenty team duties."

The evidence here, together with field-work observations from our broader study of the MOAs (Lovell et al. 1991), suggests some general lessons and conclusions. First, workers may react favorably to a top-down transformation of industrial relations featuring teams and an emphasis on labor-management cooperation. The Chrysler-UAW experience with MOAs supports the conclusion that union involvement in work reforms can be a stabilizing and sustaining force. The joint labor-management governance of the MOA and the institutionalizing of the MOA's workplace reforms through collective bargaining helped keep the change effort going after a difficult start and through Chrysler's financial difficulties of the late 1980s.

Second, there were systematic plant-level differences in worker reactions to the MOA. Workers' responses differed significantly as a function of the competitive pressure their plants faced, specifically in terms of the risk of being sold. At the Acustar plants, workers reported that their teams engaged in more key MOA behaviors, but also expressed more negative attitudes to the initiative. This is consistent with our hypothesis that affective and behavioral responses to work reform can differ when the business environment presents a strong competitive threat to a plant's survival. This effect was stronger than plant-specific effects; once we controlled for the competitive threat, there were no further differences between the plants in behaviors (despite some remaining differences in attitudes).

On the other hand, the initial process of implementing the MOA work reforms did not seem to have any durable or identi-

able effects on workers' responses. Reactions to the MOA by workers in plants in which the MOA was forced in after an initial negative vote do not seem to have differed over the long term from reactions of workers in the other plants, once we took into account the specific threat of sell-off faced by workers at the Acustar plants. This suggests that the actual experience of working under the MOA work reforms was more important in shaping worker responses than was the forcing strategy used during implementation to overcome the barrier of workers' negative preconceptions.

Third, individual characteristics, experiences, and perceptions affected workers' attitudes toward these changes in the industrial relations system. Some of these relationships (the effects of job characteristics, for example) were predictable, and well supported by theory and previous research. Some specifications of the model showed that demographic differences were important predictors of worker responses, but these effects were either insignificant or only marginally significant in fully specified models that took into account the plant differences and workers' perceptions of the effects of the MOA. We believe that more research is needed on different demographic groups' responses to new work arrangements.

Both the individual-level and plant-level results suggest that workers will remain supportive of new work arrangements only to the degree that the arrangements actually deliver on their promises. The results thus highlight the risks involved with these arrangements for both unions and management. Workers' opinions regarding the MOA reflected their assessments of its effects on their individual interests, on team activities, and on plant performance. Workers who believed that their teams had influence over key aspects of work processes and work effort, as well as workers who believed that economic performance had improved due to the MOA, were especially favorable

to the program. This confirms the importance of the broader context surrounding such initiatives in shaping worker attitudes.

Our analysis demonstrates the value of taking a "meso" level perspective on topics typically treated at the "micro" level of analysis. The combination of quantitative data from individuals with perceptions of group-level and organization-level outcomes, qualitative data from fieldwork, and data analyses based on identifying underlying characteristics of different plant groupings provides important clues to what aspects of the context are relevant for employee attitudes.

Chrysler workers' reactions to the MOA suggest that the answer to the question "What makes teams take?" is "worker self-interest." Our analysis, however, suggests that "worker self-interest" embraces more than economic considerations. Workers may not initially embrace work reforms that appear to cost them the seniority-related economic gains they achieved through traditional collective bargaining. They will, however, be positively inclined toward organizational change that is legitimized and made secure through the backing of a national union contract; that enhances their individual economic interests, even if only modestly; that improves their daily job experiences by making work more intrinsically motivating; that provides an outlet for collective as well as individual voice on important matters affecting their daily job experiences; and that secures their future by enhancing the competitiveness of the enterprise that employs them, and achieves that improved performance through mutual gain, rather than zero-sum, strategies. Amid the current questioning of whether workers are benefiting from their embrace of work reorganization efforts over the past decade, this broader set of criteria—and knowledge about the context in which workers form their beliefs and choose their actions—will best guide such assessments.

Appendix
Twenty Team Duties of the Modern Operating Agreement

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|---|---|
| <ol style="list-style-type: none"> 1. Participate in daily audits 2. Process salvage. 3. Assist in development of work assignments. 4. Correct and/or report minor and major tooling and maintenance problems. 5. Provide input into production standards. 6. Assist in methods planning. 7. Monitor and control performance. 8. Adhere to plant safety rules. 9. Monitor and report attendance. 10. Equalize overtime. | <ol style="list-style-type: none"> 11. Keep overtime equalization records. 12. Support and help train team members. 13. Maintain a clean work area. 14. Problem solving (quality, productivity, statistical process control, and so on). 15. Schedule vacations. 16. Coordinate with other teams. 17. Be aware of and adhere to EEO Guidelines. 18. Assist in employee counseling. 19. Administer Capability Progression Plan. 20. Seek technical assistance when required. |
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