

## **Institutional frameworks and production systems: the contribution of skilled workers to the flexibility of the American automobile industry**

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### **Introduction**

From a variety of interpretations of industrial economies undergoing restructuring, broad agreement has emerged that increasing the skills of the manufacturing workforce is a critical component of the new competition that bases itself on continuous product and process innovation and on industrial policies that support flexible strategies (Best, 1990; Hirst and Zeitlin, 1989; MacEwan and Tabb, 1989; Commission on the Skills of the American Workforce, 1990; Mishel and Voos, 1992). There is also widespread appreciation that production systems of whatever configuration depend heavily on the heritage of past practice. These considerations have led to diverse estimates of the ability of the United States to shift its production system in ways that increase the capabilities of workers and firms.

The American case is typically taken as the paradigmatic example of Fordism where historically the integration of operations obviated inter-firm collaborations, the division of labour was taken to the greatest lengths and where adversarial labour-management relations became deeply entrenched. This production system was long understood as the exemplary solution to problems of organising work and co-ordinating industry and the broader society. But the appearance of successful competition based on diverse forms of work casts doubt on the unique functionality of American Fordism. The new competition is constituted by networks of firms that are characterised by mutually supportive collaborations in each member firm of which employees work in teams (Friedman, 1983; Piore and Sabel, 1984; Cusumano, 1985; Shimada and Macduffie, 1986; Dore, 1989; Sabel, 1989; Womack *et al.*, 1990). Rather than guaranteeing productivity through high volume throughput, precisely defined occupations and dedicated equipment, the key is the absence of strict organisational hierarchy and the deployment of workers who are capable of using general purpose equipment for new production projects. Closely associated with organisational flexibility is job security, which provides incentives for employee co-operation and for employer investment in training. Production team membership crosses the worker-supervisor-technician

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occupational divide associated with Fordism and teams have some autonomy to organise production, to route work through the plant, reassign tasks, inspect for quality and do machine maintenance while individual workers perform multiple and rotating tasks. Relational contracting provides incentives for supplier companies to invest in capabilities for research and development; for real product development collaborations and risk-sharing among small companies and bigger customers; and for more timely and less redundant supply transactions. This production system enables firms to introduce products to market faster, more profitably and in smaller volumes than economies organised on Fordist lines.

Whether American firms and industries will transit toward the ideal type of 'flexible specialisation' or 'lean production' or whether they will intensify historic forms of mass production into a kind of 'neo-Fordism' or 'Toyotism' are matters for continuing investigation. But part of the reason for disparate estimates of the American response is conceptual. Some authors are optimistic about American prospects because they believe that the driving force behind the new production model is market competition, *viz.* American firms and workers will be compelled to adopt lean production methods or starve (Womack *et al.*, 1990; Kenney and Florida, 1988; cf. Hirst and Zeitlin, 1991; cf. Thurow, 1992). Others are pessimistic because they conceive the competitive challenge as rooted in more intensive exploitation of labour, not in superior qualities of products and processes of collaboration (Dohse *et al.*, 1985; Jurgens *et al.*, 1987; Parker and Slaughter, 1988; Milkman, 1991). Neither such optimism nor such pessimism is warranted. The American system never was the outcome of a process of natural selection in the competitive marketplace. Its crisis is not that of the superannuation of the Fordist system superceded by other naturally occurring systems which have emerged in other regions of the world. Nor was the system so devoid of labour-management co-operation and skill development that the only alternatives are more intensive exploitation or militant confrontation.

Instead, the American production system has always been characterised by diversity and negotiated adjustments of markets. Contrary to stereotypical invocations of Fordism, the American production system was, while based in large mass production firms, notably dependent on an institutional framework that supported inter-firm co-ordination of production and skill development. The scope of flexibility and the extent of labour-management conflict always depended on the periodic renegotiation of labour and supplier contracts, public training systems, and labour and commercial law, all of which in turn depended on the balance of political power. In fact, the institutional configuration of production in the prototypical Fordist industry, automobiles, was reset three times this century. The first is associated with the introduction of mass production technologies; the second with the New Deal of the 1930s; the third with the defeat of the craft revival in the 1950s and the heyday of industrial pluralism in the 1960s. The Fordist stereotype is only close to accurate for the last period.

There is no question that the introduction of mass production methods resulted in the creation of an automobile industry in which the great bulk of the jobs were low-skill jobs. There also is no question that the auto companies developed forms of bureaucratic hierarchy to manage the labour force. I am not suggesting that the US

automobile industry was anything but an instance of a mass production system. That is exactly the point: the real 'Fordist' production system of the US encompassed skilled and technical workers and forms of negotiated co-ordination. Thus, crucial conditions for the historical establishment of integrated manufacturing firms in the US included federal legal bars to inter-firm co-operation and to collective bargaining contract enforcement. The legal bars did not prevent unions and firms from trying co-operation; it did mean that federal law was a context for co-operative strategies and the appeal of alternatives, such as mergers. Hence, it is also true about the auto industry that craft skills persisted after the moving assembly line was introduced at Ford in 1913 and that the big companies relied heavily on supplier firms, which themselves were organised into a regional collaborative association. The rise and crisis of Fordism much later is rooted in new negotiations in the late 1950s that disrupted this regional system and truncated craft careers, initially as a result of changes in big firms' product market strategies. The Auto Workers' Union (UAW) and the federal government also contributed to the shift, which continued throughout the 1960s. The specific political alignments and rules by the 1960s then all but undermined flexibility. As the institutional framework for collaborations collapsed, second-order incentives were set in motion that enhanced the competitive dimension and contributed to current rigidity.

The point is not that there is a secret history of high-skill factory life and communitarian economy; the point of the story is to draw attention to the historically specific political conditions under which American Fordism developed and to suggest that the past—and thus the present—is more complex and holds more possibilities than usually imagined. The article concludes with discussion of union strategies for high-capability production. Recasting America's production system in the optimistic image of flexibility depends in part on reconceiving this system and gathering the necessary political forces to reconfigure the broader institutions of industry of which collaboration on skilled labour was only a part. New forms of industrial collaboration require a new balance of authority among industrial participants broadly conceived such that all players are permanently, if flexibly, participants in the game.

### **From the American system to mass production**

The first transition pivots on the negotiation and collapse of the Murray Hill Agreement in 1900. The structure of the regional economy around Detroit that was created during the following decades became characterised by a dualism between big mass production firms and smaller supplier and tooling firms. Union organisations retained only fragmentary toeholds in some big and small firms where scarce craft skills made employers willing to deal.

This structure was not imminent in the technologies of production. Most auto companies after the turn of the century focused on design and assembly and they subcontracted substantial portions of their products to the metalworking shops that already clustered in the area. Competition among suppliers and assembly companies was very intense. Nonetheless for the competition, auto companies and a broader array of metalworking firms also developed forms of co-ordination to

channel this competition. Directly and through engineering society deliberations and various trade associations, they set standards for common products and individual firms specialised in particular types of machinery (Montgomery, 1987; Hounshell, 1984; Noble, 1984; Stewardson, 1987). What galvanized Detroit manufacturers the most, however, was the labour question. The bitter breakdown of the national Murray Hill agreement between the International Association of Machinists (IAM) and the National Metal Trades' Association (NMTA) in 1901 led the Detroit Metal Trades' Association, the Detroit Founders' Association and the Detroit Brass Manufacturers' Association to coalesce as the Employers' Association of Detroit (EAD) (EAD Collection; Klug, 1989).

Manufacturing firms of all sizes and types joined the EAD, although automobile companies predominated. The EAD organised inter-firm co-operation initially to defeat local craft union demands for wage increases and workers' control, but then broadened its agenda to wider issues of local and state government policy. The EAD established a Labor Bureau to regulate the labour market: to weed-out unionists, guide workers to member firms and stabilise wages. The Bureau became a central institution of the regional economy by the 1920s and persisted into the 1950s. EAD leaders also formed a political association, first known as the Civic Uplift League, that led successful campaigns to restructure local government and gain entitlements to reorganise work (EAD Collection; Holli, 1974; Fagnolli, 1982).

The EAD also founded a Trade School, with the collaboration of the Detroit Builders' Association, to train apprentices to fill its members' rapidly expanding demand for skilled machinists. At first, it is true that the National Association of Manufacturers urged members to establish local non-union trade schools to undermine IAM power during the open-shop campaign after the collapse of the Murray Hill agreement. But well after the defeat of the unions, the EAD sought to expand its school. Rather, metalworking firms' product strategies drove them to demand exacting precision from skilled labour. As automobile production rapidly increased before the first World War, assembly companies required skilled machinists to staff their tool rooms where they built tools, dies, gauges and fixtures, to set-up machines for semi-skilled operators and to maintain the mechanised production process. Their enormous demand also created labour supply problems for non-auto industries. The Trade School was a local mechanism to enable firms to carry on their high-precision strategies (EAD Collection; Stewardson, 1987). However, the school failed in 1913.

The cause of the school's failure looks like a collective action problem: not enough companies sent their workers for training because there was no guarantee that the workers would work off the company's investment in training. But this rational economic behaviour was conditioned by government action that vacated traditional forms of training collaboration between craft unions and employers. In particular, federal judges refused to recognise the claims of the AFL and ordered the Machinists and other unions to desist from actions enforcing union rights. Moreover, structural change in government organisation and voting rights, promoted by groups including the EAD, insulated elites from mass political pressure (Elbaum, 1989; Montgomery, 1987; Babson, 1989; Tomlins, 1985; Piven and Cloward, 1988). What makes this a better explanation than that employers really

did not want or need skilled labour is that the EAD then turned to the tax-supported public school system as a functional alternative to its private school.

Turning to the public schools, however, broadened the scope of political conflict over training, and involved school administrators, teachers, local government officials responsible for taxation and middle-class parents whose children then were predominant in public high schools (Kantor and Tyack, 1982; Wirth, 1972; Callahan, 1962; Moehlman, 1925). What emerged from nationwide debates over 'industrial education' was permissive national legislation, the Smith-Hughes Act of 1917, for federal technical and financial assistance to vocational education programmes that would still be controlled by state and local school authorities. The very decentralisation of authority in American government meant that in some industrial districts in the early decades of the century local employers, unionists and educators were able to achieve a greater measure of success at co-ordinating industry and society than was the case generally nationwide.

In Cincinnati, for example, the local employers association gained the support of the public schools and taxpayers to create a work-study programme for school children which was administered by a former IAM strike leader. In another case, Milwaukee, Socialist Party leaders of local government took the initiative to establish a reformed apprenticeship that required school officials, unions and employers to sign an agreement of joint responsibility for a student's all-around training and required employers to pay students' wages for time in school (EAD Collection; Douglas, 1921; Millis and Montgomery, 1945).

Unlike Cincinnati or Milwaukee, in Detroit the local AFL suffered one of its greatest defeats in the open shop drive, where the local craft unionists chose to fight with immigrants and dispute organisational jurisdictions with an industrial union of auto-workers, and did not have much political influence during this sequence. Instead, educators and middle-class reformers found common cause with employers in Americanisation programmes that emphasised language training and obedience. Also, school-based vocational education programmes were begun for young people and for adults as were voluntary apprentice training classes co-financed by the taxpayers and employers (Babson, 1989; Moehlman, 1925; Meyer, 1981).

Still, the scope and scale of these programmes was far less than EAD leaders wanted. Vocational education curricula did not closely co-ordinate classroom work with workplace experience; American vocational education became a dumping ground for non-college bound youth. Adult education classes were highly popular, but depended on individual employee initiative and interest, which made their contribution to production *ad hoc*. The apprentice training collaboration with the public schools was praised, but the program suffered from the same problem that plagued the EAD's trade school, namely employer participation was voluntary and most smaller companies did not. The disincentive to participate was made greater by immigration of skilled labour and by the actions of the big companies, like Cadillac (later GM), Packard and Ford, which could not afford not to train and which established in-house training schools. Small companies readily raided the larger ones for skilled journeymen; the premium wage they paid journeymen was a price they were willing to pay (Kantor and Tyack, 1982; EAD Collection; Stewardson, 1987).

The big firms' corporation schools, such as Ford's Trade and Apprentice schools, contributed to the regional framework of the economy by training thousands of skilled craftsmen and entrepreneurs in the Detroit area. The highly trained alumnae created an informal network of special tooling and parts supply firms which developed complex subcontracting relationships. Although the biggest auto firms expanded their own capabilities, they and the smaller assembly companies relied heavily on specialty firms. The tooling segment of the supplier industry was not made up of marginal producers; it maintained levels of productivity and wages comparable to the big firms until well after the Second World War (Babson, 1989; Ewing, 1991; cf. Scranton, 1991).

### **The New Deal reconfiguration**

Two major changes were made in the institutional framework of Detroit's economy beginning in the 1930s. First, the federal government intervened to stabilise and stimulate product and labour markets. The National Recovery Act (NRA) of 1933, the National Labor Relations Act (NLRA) of 1935 and the Fitzgerald Apprenticeship Act of 1937 extended authority to tooling firms and skilled workers who wanted to establish new forms of collaboration. Second, there was a revival of craft unionism in the automobile industry that in fact pushed employers to accommodate skilled work and re-focus competition on products. None of the New Deal era reforms were inevitable: although production systems already existed, the institutional framework within which it could prosper was widely challenged.

The Roosevelt Administration's first New Deal strategy was the NRA, which aimed to stabilise markets by encouraging intra-industry cartel arrangements to co-ordinate production, market share, pricing and labour standards. In the automobile industry the NRA created two regulatory structures, an Automobile Industry Board for the mass producers and an Automotive Tool and Die Manufacturers' Association (ATDMA) for the suppliers and tooling shops. The NRA countenanced union participation in industry deliberations, but the big companies rejected a role for the American Federation of Labor (AFL) and pressured the ATDMA to resist (Fine, 1964). The big employers established company-dominated unions, cut wages and hired what they called apprentices, who in fact were simply young and cheap workers who received no training, while the smaller firms fomented intense job-bidding among skilled workers. The NRA experience soon compelled federal officials to turn toward an alternative liberal pluralist conception of industrial democracy that granted rights to all industry groups to participate in workplace governance (Millis and Montgomery, 1945; Tomlins, 1985; Irons, 1982).

Liberal Democrats in Congress sponsored the NLRA, which mandated an employer duty to bargain collectively with an independent union of employees. The NLRA, among other things, established the rule that each worksite would have just one union in order to prevent company-dominated unions from dividing the work force, effectively throwing together skilled craftsmen and production workers. President Roosevelt gave his support to a Federal Committee on Apprenticeship to devise a policy for training. This Committee won Congressional endorsement of

apprentice training in the Fitzgerald Apprenticeship Act of 1937. The Act made apprenticeship a matter for collective bargaining; alternative proposals that training become a right of citizenship foundered on AFL hostility to the New Deal and on widely accepted negative assessments of vocational training at the public schools. The federal government's role became to help establish common standards for programmes negotiated and implemented by unions and managements (Committee on Labor, 1937; Cuban, 1982).

However, the transition to industrial pluralism was not smooth. Automobile firms resisted co-operation with employees. While employers and government officials wrangled over the administration of the NRA and implementation of the NLRA, skilled auto-workers organised themselves and forced their way into the decision-making process for the industry. In 1933, Detroit metalworkers formed the Mechanics Educational Society of America (MESA) with the objective of creating a multi-industry metalworkers' union. The formation of MESA seemed unprecedented, an outgrowth of economic crisis, but it had roots in craft culture and the continuing workplace role of skilled workers (Dahlheimer, 1951; Babson, 1988; Fine, 1964). As a politically independent union which was not affiliated with the AFL, MESA ignored NRA procedures and launched sometimes violent direct action campaigns against both suppliers and big firms.

The quick success of strikes against members of the ATDMA led to a reconfiguration of the tooling industry that was beneficial to it. MESA won a regional contract which came to cover over 100 firms. It put an end to the inside contracting system, secured union recognition and wage increases and, in 1938, established apprenticeships (Keeran, 1982; Johnson, 1988; Babson, 1989). These agreements removed labour costs from competition among firms, began a process of formalising a regional pool of skilled labour and provided further incentives to firms to focus their attention on product quality. MESA became the largest union in the auto field, but the continued transience of the big firms led MESA to merge in 1936 with the newly formed United Auto Workers-CIO to begin a unified campaign to win union recognition. MESA's Detroit locals formed UAW Locals 155 and 157. They were amalgamated locals that comprised workers in many occupations and companies, both jobs shops and big captive tooling shops of the mass producers. The locals continued to bargain jointly with the ATDMA for a regional contract and skilled workers maintained regional trades councils independent of the UAW.

Still, little progress was made on recreating the trades' role in the big firms during the decade for two reasons. One was that the United Auto Workers' Union had a hard enough time just winning union recognition. A second was that during the Second World War the federal government reversed its policy for skilled work and pursued a programme of 'up-grading' production workers into skilled jobs. First, the emphasis on and the difficulty of getting all workers organised overshadowed the substantive interests in work that skilled workers wanted protected. Their vision of how the industry should be organised was revealed in plans for co-determination of industry during wartime. The UAW's plan, developed by skilled workers organised by Walter Reuther, a toolmaker by trade and director of the UAW's General Motors and Skilled Trades Departments, was typical in advocating a structure of plant, company and industry joint councils to manage production. The UAW and CIO

continued to advocate industry councils after the war. But, in fact, the unions were shunted aside in war industry governance by industrialists and military personnel. Indeed, second, the war quickly generated a tremendous demand for material and, hence, for skilled labour to re-tool manufacturing. To prevent workers from 'taking advantage' of the situation, the government regulated workers' wages, prevented job actions and job mobility, and won skilled trades' agreement to up-grading production workers into specialised jobs that were pieces of craft work for the duration of the war (Amberg, 1993; Training Within Industry Service, 1941; Lichtenstein, 1982).

### American Gothic

After the war during the huge reconversion struggles between industrial unions and employers, the managerial hardline against workers' control, abetted by President Truman and Congressional conservatives, led to a transformation of the skilled trades' interests. Before the war, skilled metalworkers had been leaders of an expanding coalition of labour involvement in managing industry in which all workers would gain; with the defeat of a New Deal revival after the war, they sought to shore up their own position. Skilled workers wanted to establish a largely autonomous craft sphere within the existing collective bargaining framework and they proposed to accomplish this by creating a regional tool and die local to which all workers would belong (*Tool, Die and Engineering News*, 1949; Amberg, 1993). The skilled trades initiative was consistent with the regional framework of the tooling industry, but the trades ran into increasing resistance from the UAW and the Big Three. Indeed, by the late 1950s the union, big firms and federal officials worked out new arrangements that eventually led to the breakup of the regional framework.

The skilled trades' proposal appeared eminently practical given the fact that tool and die makers in the 1940s continued to be highly mobile. A US Bureau of Labor Statistics study (1951) found that 43% of tool and die workers in Detroit had worked in more than one industry in the previous 11 years (not to mention how many different firms within an industry). According to the study, 26% of all tool and die makers worked in the tool and die job shop industry (machine tool accessories), 17% in machinery, 15% in electrical machinery and 21% in the motor vehicle industry. Yet pursuit of the new strategy sharpened the divide between skilled and unskilled in the industry over access to the trades and led to conflicts within the UAW. In addition to being a minority group in the union, a weakness of the trades' position was that leading craftsmen were supporters of the so-called 'left-wing' group within the UAW, which placed them at loggerheads with the 'right-wing' group that provided majority support for Walter Reuther's successful drive to consolidate his control of the union in the postwar years. More generally, implied in the trades' proposal was a syndicalist alternative to the industrial pluralist labour relations that were then being forged by the CIO leaders, Democratic government officials and the big firms: wage rates would be tied to skill level, not occupational niche, productivity nor inflation rate; job security would be maintained by work sharing and managing the volume and quality of skill training; and industrial



relations would be based upon the substantive nature of the work. The broad range of skills which craft workers had would ensure them of authority to deal equally with management.

Skilled auto-workers had authority in their skills and their independent councils. Also, UAW leaders were willing to accommodate some of their demands because the federal Taft-Hartley Act of 1947 made it easier for craftsmen to petition for representation elections which would enable them to leave the union. The UAW endorsed apprentice training at its 1949 convention; skilled workers and UAW leaders established central control of journeyman credentials; the union began annual skilled trades conferences and established skilled trades councils in regions outside of Detroit; and Locals 155 and 157 negotiated portable pensions with the ATDMA in 1950. Moreover, when the Korean War build-up began, the federal government promoted apprenticeships rather than upgrading. By the end of the war, 260 local plant programmes were initiated by the UAW and big firms and premium wage increases were won after a vigorous battle that included a refusal by tradesmen to train apprentices (Amberg, 1993; Murrer, 1954).

On the other hand, the UAW rejected demands for a tool and die local, charging supporters with 'craftism'. The Reutherite leadership shared a popular perception that industrial modernisation was squeezing skilled trades workers between the semi-skilled assembly workers on the one side and the growing ranks of technical white collar employees on the other. In the mid-1950s the UAW began to negotiate a new general purpose job classification to cover semi-skilled workers operating automated machine tools. The object was to increase wage rates and improve job security for production workers and, at the same time, help ensure a fair aggregate labour share from productivity gains (Bannon and Samp, 1958). The UAW also started a campaign to unionise technical workers. Ultimately, the UAW was willing to protect the trades from management exploitation, but its leaders accepted the division of labour and the institutional framework for regulating disputes about it and they were opposed to extending skilled trades authority and careers.

The UAW's rejection of a policy that planned for a major workplace role for skilled workers contributed to a massive trades' reaction in 1955 that eventually led to the end of skilled workers' vision of autonomy. That year a substantial fraction of UAW skilled trades members bitterly criticised the contract with Ford and began a union-wide movement to seek new representation elections from the NLRB (Beach, 1959). The secessionists broadly challenged the organisation of mass production and the stable industrial relations on the basis of secure unions and national contracts between employers and union leaders. They pointedly rejected affiliation with the AFL, criticising the trades unions for allowing the industrialisation of the crafts, and began to form an alternative craft federation. The UAW ran an extensive multi-year campaign against the secessionists, which most of the old craft radicals came to support, and it announced in early 1958 a major reorganisation of the union, part of which abolished the union's regional Skilled Trades Councils and reformed the union on sector and company lines (Amberg, 1993).

The companies argued to the NLRB that organisational independence for their skilled trades employees would disrupt orderly production. However, NLRB doctrine, based on the Taft-Hartley Act, was favourable to craft severance;

moreover, the Board had recently reaffirmed that the primary issue was protection of the craft community even if this resulted in 'a loss of maximum efficiency'. Evidence for the existence of a craft community, the Board went on, was 'a workers' journeyman standing [as the result of a] number of years' apprenticeship' (107 NLRB 1423). Yet, the NLRB's final decision on several dozen secessionist petitions cited the UAW's reorganisation and the industry's centralised collective bargaining structure as reasons to deny elections that were not company-wide and craft-by-craft (120 NLRB 1215).

Thereafter, skilled manufacturing work in autos became a kind of special interest, a premium wage segment without a future (at least if skilled workers wanted to stay in the bargaining unit). On the one hand, the UAW and the companies increased the wage differential with production workers and increased the number of apprentices. On the other hand, the UAW declined to expand the definition of manufacturing crafts to keep up with new technologies; on the contrary, the union agreed to lower entrance standards and to reduce the conceptual component of training. During the 1964, 1967 and 1970 Big Three auto industry collective bargaining negotiations, employers demanded increased numbers of apprentices and creation of specialised, single purpose jobs. The International UAW agreed that locals and companies could increase the number of apprentices at work by relaxing some seniority rules and the prerequisites to enter apprenticeship programmes. The amount of classroom instruction was reduced at Ford in 1964 and at GM in 1967. Rank and file tradesmen, in turn, resisted what they perceived as Taylorisation of the crafts and, in increasing numbers, began to routinely vote against the contracts negotiated by the union with the Big Three auto companies (Amberg, 1993).

Similarly, educators and Washington policy-makers did not see a need to emphasise all-around training or reform of the job structure. The new computer-controlled technologies were conceived as dedicated tools that could be operated by unskilled button-pushers. The Johnson Administration's Council of Economic Advisors stayed the course of Keynesian macroeconomic management and it urged manufacturers to continue extending the division of labour in order to create jobs that 'marginal' workers could perform. The Congress provided new money for more vocational training and for short courses of retraining in the Manpower Development and Training Act of 1962 (Foltman, 1964; Battelle Institute, 1966; Amberg, 1993).

But politics changed. Organisations of black workers, such as the UAW-based Trade Union Leadership Council, increasingly pressed for greater participation in union policy-making and access to the trades. Civil rights activists argued that unless minority workers could gain skilled and technical jobs in the primary labour sector, they would remain mired in the least secure positions and, when laid-off, would have few resources on which to draw (Doeringer and Piore, 1971). More broadly, black voters were crucial for the continued success of the national Democratic Party, especially after President Johnson signed the 1964 Civil Rights Act and effectively wrote-off conservative white electoral support. In this context, the federal government's labour market policies were supplemented with sometimes strenuous efforts to win voluntary racial integration of the skilled trades,

initially focused on the construction trades. In autos, the UAW co-operated with Democratic goals by further loosening apprentice programme entrance standards, launching an outreach programme under a federal grant to encourage minorities to apply and, in the 1970s, establishing a pre-apprenticeship programme to prepare blacks (and women) for the apprenticeship qualifying test. But many skilled workers resisted changes in apprentice programmes and there was an outcry when it was discovered that union instructors in the pre-apprenticeship programme were teaching students the test answers. The whole exercise seemed to confirm the common sense that 'working class careers' was an oxymoron and to undermine union solidarity and the Democratic Party coalition (Georgakas and Surkin, 1975; Gould, 1977; Matusow, 1986; Amberg, 1989).

At the same time, the regional supplier network experienced a crisis. A turning point occurred in the late 1950s when the big auto firms responded to market stagnation and heightened competition by further integrating their product lines, making huge investments in dedicated tooling and expanding in-house tooling capacity (Arnett and Smith, 1975; Scherrer, 1991). Mass producers in other industries followed the same path. The big firms' internal capacities placed added pressures on suppliers and tooling companies to become more productive, cost-conscious and competitive. Moreover, the big firms increased the amount of subcontracted work to non-union firms and pressured the ATDMA to resist UAW wage demands. Members of the ATDMA, who had prided themselves on what their association called 'integration in depth', namely the ability of specialist producers to work together efficiently to provide an entire range of services, increasingly turned away from contracting networks and toward integration of specialties within firms. Ewing (1991) recounts a key example: big firms increasingly subcontracted die try-out work, which was highly lucrative, but also highly capital intensive and stressful for small firms. A growing number of firms competed directly for this work rather than collaborate, which led to financial crisis for many companies. Although the war-related boom of the 1960s softened the profit pressure for a time, investment and labour cost issues came to a head at the end of the decade.

The UAW was acutely aware of the mounting tooling crisis, but it had a completely orthodox response. The union made a concessionary wage agreement in 1961 with the ATDMA and supported the tooling industry's search for economies of scale. The Detroit tool and die locals agreed to recognise 'temporary' journeymen, workers who moved into skilled jobs for specific purposes and learned the trade on the job. They also agreed to the creation of a 'tool machine operator' who received higher pay, but whose training was focused on a far narrower range of tasks and presumably was more cost-effective. But of course these workers were less able to switch to other types of work when demand declined for work from the machines they operated. At the same time, the UAW sought to raise tooling sector fringe benefits, which had always lagged the Big Three while hourly wage rates were higher, to the industry norm. Once the war effort slowed, the tooling industry's financial crisis led to an employer-provoked strike in 1971 which soon reduced the regional collective bargaining framework to about 20 companies (Amberg, 1989).

### Labour and the new flexibility

The old production flexibility that had persisted in autos had been largely abandoned by the 1970s when the industry faced increasingly uncertain market and political conditions. Nevertheless, industrial relations routines persisted. The big auto companies first tried to extend the division of labour and standardise products globally, increase overtime and subcontracting, gain financial concessions from the UAW and substitute computerized process technologies for both unskilled and skilled labour. Skilled autoworker militants resisted what they perceived as a new Taylorism. They challenged contractual 'management's rights' to make unilateral decisions on subcontracting, plant closings and products and called for a new union effort to mobilise members to devote their skills to producing quality products in the USA. However, the UAW's responses initially were to apply standard collective bargaining techniques for the adjustment of labour to short-term changes in markets and technology. But the crisis deepened for the union and the companies and the standard responses led to major contract concessions in 1982. Now the crisis is about a low-skill, hierarchical production system and its co-ordination with other institutions of society. Yet, at the same time, the partisan political coalition framework that supported negotiated co-operation among unions and firms was disrupted and has not been re-established (Independent Skilled Trades Council, 1982; Shaiken, 1985; Amberg, 1993).

Thus, operating in a broken-down political framework of production, auto employers have been trying to restructure their internal labour markets: the importance of job classifications is diminished, and the 'skills' required by both blue- and white-collar employees are increased. These skills are diverse: auto companies have wanted to upgrade some production worker jobs to include monitoring of automated equipment, quality inspection and leadership of production teams, and they have tried to expand skilled trades jobs to include pieces of work traditionally performed by separate crafts and by production workers. Similarly, tooling and supplier firms' hopes depend not only on increased orders from foreign-based companies and the restructuring Big Three, but on greater attention to product development, production flexibility and on the ability to work together, including collaborations for training. Yet what the industry is finding is not only resistance from skilled workers who worry about employment security as jobs are broadened, but a dearth of workers with capability to readily learn the new manufacturing style as well as the need for managers to re-apply the lessons of inter-firm co-operation (Coffey, 1989; Scherrer, 1991; Katz, 1985; Milkman, 1989; Wever *et al.*, 1992; Steinhilper, 1989).

Similarly, union leaders have not yet tied on-going restructuring experiments to a broader labour conception of reorganising the production system and a political strategy for re-setting the institutional framework to achieve this. Instead, the International UAW has continued partisan and legislative routines historically rooted in a party coalition which has been in a state of virtual collapse. The union's policy agenda is progressive but unavailing without a vision and strategy to link labour authority to the resolution of manufacturing problems. To concede local work traditions as inhibiting management plans to more flexibly deploy labour

without tying change to an industrial strategy endorses a reading of industrial history in which work organisation reflects a uniquely logical response to technology and markets.

Indeed, the picture of what is happening is mixed; there is not a uniform adoption by firms of flexible strategies nor are employers simply opting to super-exploit labour. Indeed, the scope of flexibility that the American production system achieves will be shaped by the institutional framework of production, both inherited and what can be made of historical and comparative experience. American history shows us how institutions were created to produce and reproduce skills. The coalescence of knowledge and practice is reflected in a local UAW initiative that aims to reorganise the regional supplier industry around Detroit in part by devising a strategy with employers for industry success (Labor-Management Council, 1990). This project has not advanced enough to evaluate whether it represents a new producerist framework which could co-ordinate competition and co-operation among firms, but it represents a kind of political practice that draws on the historical development of the industry. Moreover, this kind of substantive micro-co-operation could be the basis for a movement that develops the political resources for a new framework to sustain worker co-determination (cf. Weiler, 1990; Bluestone and Bluestone, 1992).

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