Relations industrielles
Industrial Relations

Internal Versus External Labour Flexibility: A Two-Plant Comparison in Canadian Manufacturing

Jean-Noël Grenier, Anthony Giles and Jacques Bélanger

Volume 52, Number 4, 1997

URI: https://id.erudit.org/iderudit/051200ar
DOI: https://doi.org/10.7202/051200ar

See table of contents

Publisher(s)

Département des relations industrielles de l'Université Laval

ISSN

0034-379X (print)
1703-8138 (digital)

Explore this journal

Cite this article

Grenier, J.-N., Giles, A. & Bélanger, J. (1997). Internal Versus External Labour Flexibility: A Two-Plant Comparison in Canadian Manufacturing. *Relations industrielles / Industrial Relations*, *52*(4), 683–711. https://doi.org/10.7202/051200ar

Article abstract

This article examines the divergent patterns of labour flexibility in two Canadian power transformer plants owned by the same company and producing similar products with identical technologies. The case study results are used to point to three oversimplifications in the flexibility debate: the claim that "numerical" and "functional" flexibility are incompatible; the argument that North American management relies more heavily on external flexibility than on internal flexibility; and the widespread contention that the traditional collective agreement is the chief barrier to achieving a more flexible organization of production in North America.

Internal Versus External Labour Flexibility

A Two-Plant Comparison in Canadian Manufacturing

JEAN-NOËL GRENIER
ANTHONY GILES
JACQUES BÉLANGER

This article examines the divergent patterns of labour flexibility in two Canadian power transformer plants owned by the same company and producing similar products with identical technologies. The case study results are used to point to three oversimplifications in the flexibility debate: the claim that "numerical" and "functional" flexibility are incompatible; the argument that North American management relies more heavily on external flexibility than on internal flexibility; and the widespread contention that the traditional collective agreement is the chief barrier to achieving a more flexible organization of production in North America.

Contemporary industrial relations is dominated by issues of transformation and reorganization in the workplace and by the presumed need to restructure the institutional framework of union-management relations. Quality improvements, more flexible production systems, cost reductions and greater productivity are some of the recurring themes in the workplace of the 1990s. In the area of labour relations, these innovations are met with corresponding calls for worker commitment, union cooperation and increased

- GRENIER, J.-N., A. GILES and J. BÉLANGER, Département des relations industrielles, Université Laval, Québec.

- The authors gratefully acknowledge the participation and cooperation of the Power Transformer Division of ABB-Canada and its employees, the financial support of the Social Sciences and Humanities Research Council of Canada and the helpful comments of the two reviewers.

flexibility in the deployment of the work force. For unions this translates into management demands for a revision of long-standing rules regarding the internal labour market and job demarcations in the production process. With workers and their unions facing a hostile labour market, employers are finding unprecedented openness to their claims that restructuring and flexibility are essential to the preservation of plant competitiveness and employment.

This article examines some consequences of different labour flexibility strategies in two plants owned by the same company and producing similar products with identical technologies. The focus of our study is the pattern of labour flexibility in both plants and union and worker responses. In looking at the issue of flexibility special attention is given to the choices made by management and to the response of workers on the shop floor. The two plants contrast sharply in this regard, allowing us to make a contribution to ongoing debates about the relationship between the redesign of work rules and increased flexibility on the shop floor.

After first discussing the main lines of argument found in the literature concerning these issues and their relationship to the redesign of work rules, we briefly present the research project from which our data are drawn and introduce the two plants and their economic environments. The third section moves the discussion to the internal organization of the production processes in the two plants. In the fourth section, we turn to the question of labour flexibility against the backdrop of the market environment and the organization of work, looking in turn at each of the two plants. Of crucial importance here is the interplay between work rules and the forms of labour flexibility that management is pursuing in each case. In the conclusion, we bring the case study results to bear on the general debate over labour flexibility.

FLEXIBILITY STRATEGIES

In this section we discuss a number of aspects of the debate on labour flexibility addressed by our research. Given the pronounced degree of conceptual and terminological imprecision which has characterized the discussion of flexibility in the industrial relations and industrial sociology literature (see Pollert 1991: ch. 1), we first set out a series of distinctions and definitions which will clarify the subsequent analysis.

In its most general sense, the search for "flexibility" involves an effort to make social institutions and organizations more responsive, better able to adjust and adapt to an ever-changing environment. A first distinction that therefore needs to be made has to do with the institutional level at which flexibility is pursued. At the level of the labour market, the debate over

flexibility has focused on the impact of economy-wide institutions, notably government policies, on the efficiency of labour markets (see, for example, Blank 1994; Koshiro 1992; OECD 1994). At the level of the individual firm, the emphasis has been on organizational responsiveness and efficiency, including the way labour is managed. However, as a number of recent studies have noted (Osterman 1994; Penn, Lilja and Scattergood 1992), it is important to distinguish between the firm and the establishment. In what follows, the principal focus is the establishment, although because our case studies involve two plants belonging to a larger firm, we will touch upon flexibility in the multi-establishment firm in the conclusion.

A second important distinction found in the literature is between "internal" and "external" strategies for promoting labour flexibility (e.g., Meulders and Wilkin 1987). Internal flexibility strategies involve efforts to increase the establishment's ability to adjust to changing circumstances through modifications of the internal labour market or the organization of production. External flexibility strategies also seek to enhance the organization's ability to adapt to changing circumstances, but have recourse principally to the external labour market. These two strategies can best be illustrated in reference to two distinct areas where labour flexibility is typically sought: in the volume and organization of labour.[1]

Flexibility in the volume of labour can be sought externally by changing the level of employment through hiring and firing, layoffs and recalls, the use of temporary, part-time or casual employees, or any other measure which affects the flow of workers into and out of the establishment. In contrast, an internal strategy of making the volume of labour more flexible involves a search for adjustment through changes in working time, e.g., by increasing and decreasing the hours of work, by introducing flexible working hours, by internal transfers between different units, by the scheduling of training sessions to coincide with slack business periods, and so on. In the literature on flexibility, the former is often referred to as "numerical" flexibility and the latter is typically called "working time flexibility."

Similarly, a more flexible organization of production can be pursued externally through such strategies as sub-contracting, homework or the creation of informal networks of firms, all of which depend on "externalizing" the organization of production. On the other hand, a more flexible organization of work can be sought internally, through such practices as job enlargement, multi-skilling, job rotation, work teams or indeed any measure

1. A third common area where flexibility is often sought is remuneration. Flexible remuneration can take a wide variety of forms, often linked to individual, group or firm performance or to ability. In the case studies on which this article is based, flexible remuneration was a marginal strategy that applied only to managerial and supervisory employees.

designed to make the deployment of individual workers to particular tasks more adaptable. This latter form of flexibility is usually referred to as "functional flexibility" or "flexible work practices."

Combining the two strategic orientations with the two types of flexibility results in four distinct flexibility strategies, as illustrated in table 1.

TABLE 1

FLEXIBILITY STRATEGIES

Type of Flexibility	*Strategic Focus*	
	External	*Internal*
Volume of labour	"Numerical flexibility" E.g. frequent layoffs and recalls	"Working time flexibility" E.g. flexitime, planned overtime or short time
Organization of work	"Externalization" E.g. sub-contracting	"Functional flexibility" E.g. multiskilling

Although these distinctions are relatively straightforward, the choice of different strategies by establishments, and their differential impact on workers, are more complex. In the remainder of this section we concentrate on three interrelated debates in the literature on labour flexibility: the claim that numerical and functional flexibility are fundamentally incompatible; the argument that North American management relies more heavily on external flexibility than on internal flexibility; and the contention that the traditional collective agreement is the chief barrier to achieving a more flexible organization of production in North America.

Numerical versus Functional Flexibility

One central theme in the literature has been the difficulty of enhancing numerical flexibility and functional flexibility simultaneously within an individual establishment. The reason for this incompatibility is rooted in the goal of functional flexibility: "The essence of these initiatives is to draw out the discretionary effort and creative potential of workers at all levels of the organization by providing work arrangements that delegate decision-making authority to the source of the problem, encourage teamwork, promote problem identification and resolution, and enhance coordination across functional boundaries" (Locke and Kochan 1995: 362). However, as Hyman noted some years ago, the problem facing management lies in the fundamental contradiction of capitalism where the quest for profitability often translates into a relentless pursuit of cost reductions and short-term responses

to unpredictable economic environments (Hyman 1987, 1988). Under conditions of economic instability, such as Canada has been experiencing in recent years, management at the plant level finds itself in the contradictory position of trying to induce workers to make better use of their abilities while at the same time seeking to respond to unpredictable product demand by contracting and expanding the size of the work force on a short-term basis. For this reason, most analysts have concluded that numerical and functional flexibility are fundamentally incompatible.[2] For instance, Penn, Lilja and Scattergood (1992: 220) point out that "it is obvious in the paper industry that numerical and functional flexibility are in serious conflict with each other."

One potential solution to this conundrum is through the development of a core-periphery model of production. Atkinson, for example, proposes a model of labour flexibility which centres on the needs of the firm and seeks to integrate functional and numerical flexibility (see Atkinson 1984; Atkinson and Meager 1986). Functional flexibility is drawn from a core group of workers for whom employment is guaranteed through the existence of a periphery of workers used as a buffer against changes in the level of business activity. Since core workers are protected from economic cycles, they are expected to accept managerial efforts to increase functional flexibility. As Betcherman and Chaykowski (1996: 27) note, however, the core-periphery model entails "potential coordination issues, the risk of an overreliance on the core employees, possible productivity and quality problems from periphery workers or subcontractors and other human resource issues that are normally associated with [peripheral] employees with job uncertainty, low compensation and limited access to training." Beyond the specific problems of managing peripheral workers, the reaction of core employees themselves and the interaction between core and peripheral employees, may mean that, as Geary (1992: 267) puts it, "the suggestion that the creation of a core and peripheral work force could enable management to achieve apparently irreconcilable objectives – the minimisation of labour costs at the periphery and the engendering of employees' commitment at the core – would seem erroneous and misconceived."

A second way of resolving the contradiction is to abandon efforts to achieve flexibility in the volume of labour which rely on external means

2. A notable exception to this consensus is Osterman (1994) who, on the basis of a survey of flexible work practices in private sector American establishments, was surprised to find no correlation between the use of such practices and a management commitment to employment security. "Evidently," concludes Osterman, "it is possible to introduce innovations in work practices without reassuring employees that their jobs are not at risk" (186). We comment on Osterman's findings in the discussion of our case study results in the conclusion.

and to focus instead on internal strategies that are consistent with the pursuit of functional flexibility (see, for example, Kochan and Osterman 1994: ch. 3; Pfeffer 1994). Streeck (1987), for example, argues that an "external" strategy (i.e., numerical flexibility) endangers workers' commitment to the firm and, hence, undermines efforts to elicit cooperation and the use of the creative potential so crucial to functional flexibility. Thus, flexibility in the organization of work can only be achieved if employers are willing to absorb the costs of expanding the "status" of workers in the firm, that is, assuring employment security, rewarding skill development, encouraging participation, etc. But Streeck makes a further distinction that many others gloss over: instead of equating all efforts to enhance volume flexibility with numerical flexibility, he points out that internal means, such as the use of overtime, can be used to achieve a measure of flexibility in volume without undercutting employment security. Status-expanding strategies, therefore, imply the use of internal flexibility practices that might mesh together flexibility in the volume and organization of labour.

Thus, although there is a general consensus in the literature that the pursuit of numerical flexibility, by undermining employment security, conflicts with efforts to achieve functional flexibility, opinions differ as to how to overcome the problem. Our two case studies offer an opportunity to explore this issue, for although both plants attempted to make both the volume and organization of labour more flexible, one adopted a version of the core-periphery model while the other opted for a status-enhancing strategy.

Choice of Flexibility Strategy

The discussion in the literature about the tensions between the different forms of labour flexibility are linked to another issue — the question of why different firms and establishments adopt different flexibility strategies. In particular, if management cannot necessarily pursue labour flexibility on all fronts simultaneously, how will its choices of particular strategies or combinations of strategies be shaped?

Much of the discussion of this question has been conducted at an international level and has focused on the question of why North American firms seem to rely chiefly on external strategies (particularly numerical flexibility, but also externalization) as compared to their European and Japanese counterparts (e.g., Clarke 1992). Of particular importance in this respect is the lack of externally-imposed constraints on North American firms' capacity to adjust their level of employment. As Appelbaum and Batt put it, "the lack of legal, bargained, or cultural restrictions on the ability of most U.S. firms to lay off workers, and the ideological opposition in the United States to such restraints, make it difficult for transformed firms, which rely on

mutual trust, to honor commitments they have made to employment security during periods of recession" (1994: 159).

However, as Piore (1986) argued some years ago, although the broad contrast is probably accurate, this is an overly simple approach since it does not explain why there are exceptions both in North America and elsewhere. In other words, other factors must come into play in the determination of flexibility strategies.

A recent study comparing external flexibility in Canada and Sweden across matched industries (Smith et al. 1995) identifies three sets of factors which influence management's propensity to resort to this type of labour flexibility. The first is the influence of technology and skills. In those industries where either or both are important, management has a higher propensity to retain their work force (see also Penn, Lilja and Scattergood 1992). The second is the character of product demand. In industries facing a difficult economic situation, or where fluctuations in product demand are important, management is more likely to resort to a peripheral work force. Third, the nature of national institutions is important. Where these involve few restrictions on managerial decisions regarding the level of employment, managers are thought to have a higher propensity to adopt external flexibility as an expedient response to economic pressures. As the authors note, Canadian managers face only the obligations attached to seniority when deciding which workers are laid off, but few institutional restraints over the decision to lay off.

Although Smith et al. (1995) put the emphasis on the third factor, our research design offers the opportunity to explore the impact of the second, product demand. That is, the two plants were located in the same country and used identical technologies; moreover, although they manufactured the same range of products, their market conditions were quite distinct. Thus, a comparison of the two plants allows us to perform something of a natural experiment by holding constant the possible influence of technology and national institutions[3] so as to explore the impact of product markets and their impact on managerial flexibility strategies.

Flexibility and the Collective Agreement

A third important theme in the literature on labour flexibility in North America has to do with the relationship between the traditional collective agreement and the achievement of flexibility. As Piore (1986) has argued,

3. It might be objected that, in the Canadian context, *provincial* institutions are more important than "national" (i.e., federal) institutions. Our research indicates, however, that differences between Ontario and Quebec (e.g., legal frameworks, trade union culture, etc.) did not help to explain the differences studied in this article.

the relative lack of externally-imposed constraints on North American firms' ability to vary their level of employment does not mean that numerical flexibility is without cost. Indeed, although collective agreements in North America do not generally prevent management from laying off employees, they do impose a series of rules and procedures regarding the order of layoffs and the consequent adjustments to be made to the internal labour market, particularly as regards the seniority principle. Thus, collective agreements are considered to make numerical flexibility a potentially costly practice.

In addition, the traditional North American collective agreement is said to inhibit functional flexibility by imposing a series of constraints on management's ability to deploy and redeploy labour across tasks due to the elaborate set of rules governing promotions, transfers, bumping, etc. As Weinstein and Kochan put it, "in an environment in which flexible production techniques are perceived as critical, the rigidities intrinsic in the codification of narrow job categories and the strict division of labour have become particularly problematic" (1995: 6).

Conti's (1992) comparative study of work rules in the United States and Great Britain, for example, concludes that under pressures for rapid adjustment, the rigid job demarcations and seniority-based work rules in North American collective agreements adversely affect the labour costs of employers. Alternatively, the use of planned overtime work, which as we saw previously is a form of internal volume flexibility, mediates between the managerial goals of responding effectively to fluctuation of demand and the pursuit of job security, since declining output can be met by reductions in working time rather than by reducing the size of the work force (Conti 1992: 7–8). In concluding his study, Conti argues that collective agreements in North America present a major roadblock to informal arrangements on the shop floor over the issue of functional flexibility.

This argument about the deleterious impact of traditional collective agreements on functional flexibility has been criticized by some researchers. Bélanger, for example, argues that "the main weakness of this institutional approach is that it neglects the extent of conflict and social arrangements occurring below the level of the collective agreement and, accordingly, overestimates the impact of the agreement on the actual working of the production unit" (1994: 46). He goes on to suggest that this neglect "has led many to exaggerate the constraints imposed by the collective agreement on the efficient management of production" (ibid.).

The case studies presented below offer an opportunity to explore this debate. In both plants, management has sought to reduce production cycle times and boost efficiency by, *inter alia*, seeking more flexibility in the allocation of labour. However, as we will see, the strategies pursued differed in a number of ways, notably as regards the use of the collective

agreement. In particular, in one of the plants, management succeeded in radically reducing job classifications, whereas in the other, the existing collective agreement was left largely intact. A comparison of the impact of these two strategies sheds light on the real impact of the collective agreement.

To summarize, the literature on labour flexibility in North America is characterized by three key assumptions that have become virtual articles of faith: numerical and functional flexibility are incompatible strategies; North American firms are constrained to rely on external flexibility strategies; and the traditional collective agreement is a key barrier to the development of flexibility in the North American workplace. After examining the two case studies in the next three sections, we will return to a consideration of these assumptions in the conclusion and suggest that important modifications are needed.

THE RESEARCH AND THE PLANTS

Research Methods

The data presented in this article are drawn from ongoing case studies of two plants that market, design and manufacture power transformers. The two plants are owned by Asea Brown Boveri (ABB), a large multinational enterprise with interests in various segments of the industrial electrical equipment industry (ranging from robotics to high speed trains and from power transformers to power plants).[4]

The initial stage of the research was carried out in the two plants from July to October 1994. In both cases a pair of researchers conducted a systematic program of interviews with plant managers, union representatives, white collar and professional employees, shop-floor supervisors and blue-collar workers. The interviews (which lasted from one to two hours) addressed issues of work organization, the management process, union-management relations, labour deployment practices, recent changes to the collective agreement, product market conditions, reorganization efforts and the relationship between the local plant and the multinational headquarters (including monitoring systems, performance criteria and the diffusion of "best practices"). These interviews were supplemented by several days of

4. The case studies are part of an international comparative study of the power transformer manufacturing activities of ABB. Research is underway in seven plants located in six different countries by national teams of researchers. The goal of the project is to explore the relationship between the international policies of ABB and the organization of work and labour-management relations at the plant level.

direct observations of the production process during which we engaged in unstructured discussions with workers and supervisors. To ensure comparability between the two plants, the observation phase of the research was carried out in the same areas in the two plants (the "active parts assembly" and "winding-insulation" units). Finally, we were given access to a wide range of company documents and internal data. During the first phase, some twenty-five interviews and ten days of shop-floor observations were conducted in each plant.

Following this initial stage, a preliminary report was drafted and sent to various key informants in the two plants in order to validate the findings and obtain feedback. Contact was subsequently maintained with the two plants, and in the summer of 1996, a second stage of research was launched to study further developments. Although the present article draws chiefly on the findings from the first phase, it has been informed in certain respects by the observations made at a later stage.

Plant Histories and Economic Conditions

The Varennes plant, located on the outskirts of Montreal, was built in 1972 by ASEA, a Swedish corporation which in 1988 merged with a Swiss competitor, Brown Boveri, to form ABB. The Varennes plant was ASEA's beachhead in North America and was built to serve the power transformer needs of Hydro-Québec. Ever since, Varennes has cultivated a close relationship with this major purchaser of power generating and transmission equipment. In fact, until recently, almost 80 percent of the plant's output was sold to Hydro-Québec, whereas the other 20 percent was exported to the United States. Most purchases by Hydro-Québec are for relatively large transformers, whereas shunt reactors, which are smaller units, account for most of the plant's exports to the American market. The close relationship with one major customer has benefited the plant in terms of stability; indeed, from the mid-1980s to 1995, the plant operated at virtually full capacity, a situation which was in contrast to the general downturn in the North American power generating equipment manufacturing industry in the 1990s. For example, during this period, production went from 36 units annually to 46 with a peak in 1992, when 56 transformers were built.

The stable economic environment has meant a corresponding stability in the size and composition of the work force. In late 1994, for example, the blue-collar work force stood at 172 employees, down only slightly from 187 in 1991. Total employment (including white-collar and management personnel) shrunk only slightly – from 301 employees to 286 – over the same period. On average, hourly-paid blue-collar workers are 42 years old and have an average seniority of 14 years in the plant (close to half have been with ABB-Varennes since the plant opened in 1972).

The recent history of the ABB-Guelph plant contrasts starkly with the stability of Varennes. ABB-Guelph was owned by General Electric from the mid-1950s to 1987 when it was purchased by Westinghouse. Shortly thereafter it was acquired by ABB as part of the latter's effort to increase its presence in North America. As with Varennes, production at ABB-Guelph is mostly for the domestic market, with only 10–20 percent of output being exported (mostly to the U.S.). Unlike Varennes, however, ABB-Guelph does not benefit from a privileged relationship with a large public utility and instead competes fiercely with a small number of other power transformer manufacturers, principally in Canada, but increasingly from abroad. Due to this more competitive environment, as well as to a moratorium on further capacity expansion by Ontario-Hydro (the plant's major customer), ABB-Guelph has been experiencing a crisis of profitability and general instability since the early 1990s. Thus, business volume has declined sharply, from 52 power transformers in 1990 to just 18 units in 1993. Since then, the plant has increasingly focused on one of its niche products, small power transformers for the industrial market, as well as on the repairs market; Varennes has become the main site for manufacturing new transformers in the medium and large class.

Total employment of both blue and white collar employees at Guelph declined from 730 workers in 1989 to just 298 as of mid-1994, and then to around 250 by the end of 1995. No employee category has been spared from this reduction: white-collar staff declined from 160 in 1989 to 116 in 1994 (a 27.5 percent decrease), while the blue-collar work force shrunk from 476 to just 157 (a drop of 67 per cent) over the same period. As in the case of Varennes, the work force is experienced and has strong ties with the plant. Both white and blue collar workers have an average of over 20 years seniority.

WORK ORGANIZATION

The most striking feature of work organization in the two plants is the extent of worker autonomy, both in their immediate tasks and their control over the pace of work. Moreover, an important aspect of their responsibilities is reading and interpreting blueprints, a skill upon which managers and design engineers rely heavily to correct improper product designs and devise ways of making them manufacturable. Thus, shop-floor management is highly dependent on the willingness of workers to apply the skills acquired on the job in an industry that has few institutional training arrangements. The example of winders — whose job involves winding electrical wire around cylinders to make the transformer's core — is illustrative. In order to work autonomously, a winder requires three years of on-the-job training, a

considerable investment for any employer. Winders must be able to adapt their working methods to the various types of electrical coils and to the customized features of the designs (which have multiplied in recent years). In addition, it may take up to three weeks to complete a coil and, given the requirement that each coil in a power transformer be the same, a winder is responsible for all of the windings for a particular order. Under these conditions, shop-floor supervisors can hardly control the minute details of work or the moment-to-moment pace of work. Thus, worker autonomy is not so much a matter of management choice but an aspect of the work process to which shop-floor management has had to adapt. Making these features more salient is the fact that the quality of the final product is never known for certain until the final testing stage.[5] Given that buyers are quite demanding both in terms of quality and on-time delivery, there is intense pressure on shop-floor management, a pressure that can only be alleviated by relying on the willingness of the work force to apply skill and care in carrying out their tasks.

Compounding these constraints, and partly in response to these, is the priority given to reducing production cycle times throughout ABB (see Björkman 1994). Known as "throughput times," cycle times are a specific performance criteria set by the multinational against which all ABB power transformer plants are measured. Two overlapping objectives are pursued through this strategy. First, by focusing on cycle time reduction, plant management is forced to look at every step in the production process to find sources of time economies. Thus, insisting on cycle time reductions is seen as a means of promoting quality work and quality processes as well as a way of encouraging rationalization efforts. Second, this approach to the management of production contributes to lowering plant overhead costs by reducing the volume of work-in-progress on the shop floor and the amount of inventory on hand at any given time.

Like many other multinationals, ABB uses a variety of methods to shape the direction of change in individual plants, including technical guidelines, the promotion of "best practices" through international visits and meetings, continual comparisons among its plants and the rotation of managers (see Giles, Grenier and Bélanger 1996). Nevertheless, beyond the vague exhortation to become more flexible and to break down the barriers between different categories of workers, there is very little central direction on the question of work organization or labour relations.

5. A power transformer can take up to 36 weeks to design and manufacture. Failures at the final testing stage involve costly delays since the unit must be unsealed and taken apart to pinpoint the precise source of the problem. Given the considerable investment both in terms of time and of the financial penalties imposed by customers for delays in delivery, quality is a high priority in the industry.

Thus, although the cycle time reduction targets are set by the multinational, local plant managers are expected to develop their own strategies for achieving these objectives. Indeed, we found that the economic environment of each of the two plants and their respective histories within ABB played a major role in shaping the managerial approach to the shop floor. In Varennes, the managerial approach was to rely on the commitment and autonomy of the workers. Shop-floor supervisors did not apply methods of direct control and focused mainly on the overall progress of units according to the production schedule and on conformance to budgetary targets.[6] Interviews with shop-floor supervisors and with employees reveal that, within these limits, supervisors are expected to develop their own approach to employee management and that, in turn, foremen rely on the tacit cooperation of the work force in meeting the objectives of the production schedule.

In Guelph the managerial approach to the production process was quite different. Faced with the two-fold challenge of integrating into ABB and confronting an adverse economic climate, attempts to gain control over the flow of production were much more overt than in the Varennes plant. Following ABB's purchase of the plant, a team of corporate managers was mandated to review the competitiveness of the organization and "bring it up to speed" with other ABB plants. In what local managers referred to as a programme of forced costs savings, the management of production was restructured through the introduction of a concept of "focused factories," which divided the production process first according to product ranges and then according to processes. This involved reducing the span of control of managers in order to focus their efforts on the rationalization of each step in the production process. There followed a wave of scaling down during which inventories were slashed dramatically, maintenance work contracted out and the manufacturing of components out-sourced to local suppliers. These efforts at rationalization accounted for an initial wave of layoffs in 1990–1992 and for improvements in plant performance that made ABB-Guelph a stellar performer in the company's internal benchmarking system.[7]

In the moment-to-moment operations of the production process, the emphasis on cost cutting and reducing production cycle times in the Guelph plant led to the implementation of monitoring systems aimed at giving front-line supervisors increased control over the flow of production. As one manager told us, the goal was not to increase detailed control over each task or

6. These budgets include manpower and material costs, as well as the costs of rework due to quality problems. Budgets are established on a monthly basis and then accorded to the forecasted requirements of each unit to be produced during that month.

7. In terms of cycle times, inventory costs, quality improvements and on-time delivery rates, the Guelph plant rose from the bottom half of ABB power transformer plants in 1989 to among the top five by 1992.

sequence in the production process, but rather to focus on the interface between each step in the process in order to make bottlenecks more visible. This meant that workers were now required to gain clearance from foremen upon completion of a job order and to await permission prior to commencing on a new job order. Moreover, foremen had to do a visual check of all work before it progressed to the next step in the production process. While the intent may not have been to improve detailed control, many workers reported that they felt their autonomy threatened and that there was a clear lack of trust by management towards shop-floor employees. Clearly then, the results of this managerial approach to the shop floor at Guelph, unlike at Varennes, was to monitor the margin of autonomy of the workers in order to acquire better knowledge of the production process for use in making decisions regarding rationalization.

LABOUR FLEXIBILITY

Varennes: A Pattern of Internal Flexibility

The year-to-year stability noticed in the number of blue collar workers in the Varennes plant is equally reflected in the monthly level of employment. Until recently, short-term fluctuations in the labour force were not a feature of the managerial approach to labour in this plant. Union officials as well as management representatives stressed that this type of adjustment practice was not part of the historical pattern of work force management, nor was it thought to be an efficient long-term alternative to respond to fluctuations in product demand. Moreover, the union argued that such practices would put the cooperation of the work force at risk and harden the union stance as regards the observance of the collective agreement in general and labour deployment rules in particular. This is a real possibility given that the agreement has rather elaborate rules regarding the management of the internal labour market and considering that over the years the union has taken a pragmatic approach to work rules in exchange for an unwritten commitment to protect employment during economic slumps.

Temporary layoffs have been used so sparingly in the past that the relevant clause in the collective agreement refers only to the layoff, bumping and recall procedures to be followed in the case of the "elimination of positions" (*abolition de postes*). Union officials in fact believe that the wording of the clause effectively denies management the use of temporary layoffs, thereby isolating the internal labour market from fluctuations in business activity. One union official summed up the situation by saying that when workers leave ABB-Varennes "it's for good." The validity of this interpretation is, however, less important than its roots in the long-standing

employment stability enjoyed by Varennes' employees. Moreover, it would appear that job security has been buttressed by Hydro-Québec, which has apparently pressed Varennes to provide stable employment as a condition of continuing as the utility's chief supplier.

In the case of permanent layoffs, management is able to resort to labour shedding. But here again, there is a cost since management must compensate workers at a rate of one week's wages (including benefits) for each year of employment in the plant. In any event, permanent layoffs trigger a sequence of bumping between employees in the plant, a system which also increases the costs associated with external adjustment. Given that the average seniority of a worker in the plant is 14 years, layoffs are effectively costly in comparison to other means of achieving labour flexibility.

Thus, through the years, the union has effectively built a system of formal constraints that increase the relative costs of external flexibility. But obtaining internal labour flexibility also requires management to bear additional labour costs in transferring workers outside their usual job classifications. While the collective agreement does not have specific clauses related to functional flexibility, transferring workers between job classifications is allowed under certain conditions dealing mainly with the provision of overtime work. These aim first of all at tying functional flexibility to overtime rates of pay, with workers being expected to work outside their usual job description during overtime. Second, this compromise depends on an equal distribution of overtime opportunities among the work force. Third, there is a compensation mechanism for those cases when management is unable or unwilling to distribute overtime equally among the work force.[8]

These three elements form the cornerstones of a compromise that ties flexibility in the volume of labour with functional flexibility in a comprehensive pattern of internal flexibility. The union is quite insistent on the respect of these principles and sees its role as monitoring the distribution of overtime opportunities and maintaining a consensus as to how overtime is to be shared among union members. The union president defined his role in this matter quite clearly. "I go to the shop floor and ask the guys who's done overtime recently and who hasn't. Then I ask the guys who haven't done any if they want to, if so they get the extra hours. If not, I ask the guys who have already accumulated overtime to decide which one of them will get the extra hours."[9] Clearly the union president saw one of the main

8. In effect this translates into a system of monetary compensation equal to 50 percent of the hours worked by any individual in a given job classification above the average monthly hours for co-workers in the same job classification. For example, if a worker performs 10 hours above the group average, his co-workers receive 5 hours extra pay at regular rates.

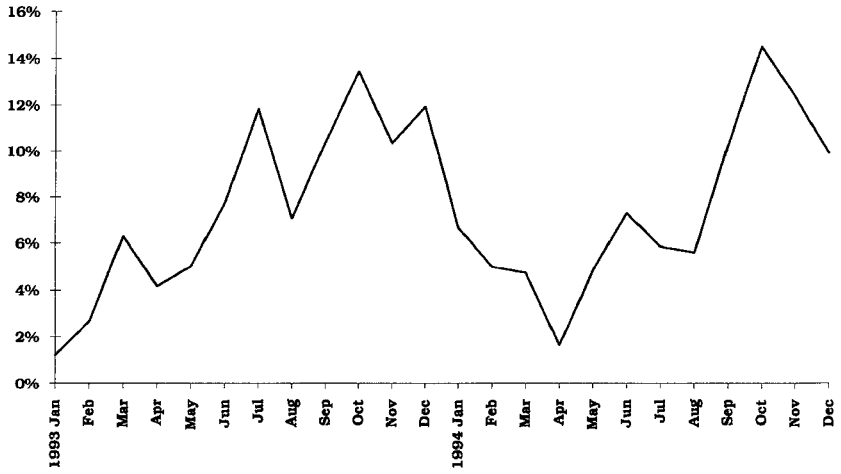
9. This and other direct quotes from Varennes have been translated by the authors.

functions of the union as preventing favouritism in the distribution of overtime. Finally, the institutional framework also provided for sanctions against permanent layoffs in the form of reductions in overtime hours following such measures. Again, the union is quite inflexible in this matter, as evidenced by the example of a reduction in overtime following the closure of a department in 1992 which cost seven jobs. The union refused to allow overtime pending the recall of these workers to other areas of the plant.

The extent to which overtime is an important feature of internal flexibility at ABB-Varennes is demonstrated by company data shown in figure 1. In order to understand the dynamics of this practice one must keep in mind that the production process and the tightness of the production schedule are such that bottlenecks are extremely costly. In addition, orders are released in sequence to the shop floor; no more than four power transformers can go through assembly at a given time; and the customized nature of each transformer means that it is useless to accumulate inventories of final products. Thus, there tends to be mounting pressure on the shop floor as delivery dates draw near and during the final months of the calendar year when management must meet its annual sales projections. As shown in figure 1, this results in increased overtime in the final four months of the year.

FIGURE 1

Varennes Plant: Overtime Hours, 1993–94 (as a percentage of hours worked)



In explaining the choices between internal and external flexibility, we are driven to go beyond the constraints of the institutional framework of labour regulation. Indeed, the collective agreement is a creature of compromise and the choices made by management are reflected in the mechanisms for increasing labour power. Interviews with upper management reveal that the choice of internal flexibility and the decision to bear the costs associated with overtime as a way of obtaining functional flexibility are shaped by the recognition of the autonomy of the work force and the need to stimulate the acquisition of tacit skills among the work force. Stimulating workers to work in more than one job classification was seen by managers as a way of spreading skills throughout the shop. Managers interviewed made explicit reference to the high dependency on the work force in achieving a high level of plant performance. Consequently, management considered the relative cost of training a peripheral work force as higher than that of paying overtime rates. As one manager told us, "we do a lot of craft work here. If you hire more people... it will take up to three years before they can work autonomously and be productive." Management's choice has therefore been to redeploy workers downstream as a way of meeting periods of peak volume and as a means of spreading the skill base to as many workers as possible. Thus, over the years, this stable work force has acquired experience on various parts of the production process outside any given job classification. The benefits of this approach were conveyed by one manager who spoke of workers in the following terms. "We are strong at the shop floor level. When you speak of the workers, they know what they are doing out there... That's probably what has kept ABB-Varennes competitive."

The leanness of the production process reinforces this dependence on the willingness of workers to deploy their skills in a flexible fashion and in the choice of an internal flexibility strategy. Managers frequently pointed out that the plant was built and equipped in such a way that it could meet bottom-line costs under adverse economic circumstances. This goes for the level of employment as well as for the technical capacity and equipment available at any time on the shop floor. Given the limits on production capacity, the extent to which temporary increases in the level of employment would be efficient is questioned by plant management. This meant that overtime and functional flexibility was made more imperative to management, especially when year-end sales figures come into play. "We have a problem of material resources if we want to increase plant capacity...", one manager told us. "Today [early October 1994] we have twelve more weeks in our fiscal year to meet profit expectations; we should be running jobs in parallel, but our equipment capacity does not allow this. So we work 22 hours a day instead; labour compensates." These constraints are incorporated into the managerial planning system, which is devised in such

a way as to give shop-floor supervisors some breathing room in meeting the production schedule. Thus, while labour usage is planned on the basis of a 5-day week, the plant often operates on a 6-day basis. This was done intentionally to give foremen some flexibility in balancing shop activities by scheduling overtime directly for their areas of responsibility.

From the union's point of view, the advantage of overtime being tied to functional flexibility, apart from the obvious cash-nexus of the employment relationship, is that the stability of the work force is maintained. The union is keenly aware that many of the skills acquired on the job are not easily transferable to other industries and that workers have little mobility and bargaining power in the external labour market. Thus, protecting the internal labour market from the vagaries of the product market is the union's priority. Pragmatism is the union policy with respect to issues outside the internal labour market, while questions of overtime and job security are closely monitored. This stance is confirmed by management representatives, who see the union's position as a strategy of reinforcing the collective agreement in order to strengthen their bargaining power in informal trade-offs with management.

Guelph: External and Internal Labour Flexibility

The pattern of labour flexibility at the Guelph plant presents an interesting contrast to that observed at Varennes. We have already noted that the plant introduced changes to the organization of production in the context of a cost rationalization programme, management's response to a crisis of profitability. Initially, this rationalization effort did not target workers specifically; indeed, various managerial efforts at introducing problem-solving committees on the shop floor and holding monthly information meetings suggest that the original intent was to draw on their cooperation in changing the organization of work and improving the competitiveness of the plant. As time passed, however, the deterioration of the product market and the ensuing profitability crisis cut short these efforts in favour of a more short-term focus on cost cutting. The changes introduced to the shop floor were also intended to make better use of human resources by promoting functional flexibility. Management sought to redesign job content to promote multi-tasking and to devolve to production workers a range of responsibilities related to the management of materials and supplies. Thus, the managerial approach to functional flexibility was to promote vertical enlargement by assigning responsibilities for material flow to production workers and to increase horizontal enlargement of jobs by broadening job descriptions.

This initiative took place in early 1992 and was undertaken in parallel with the implementation of the new "focused factory" structure. In order to

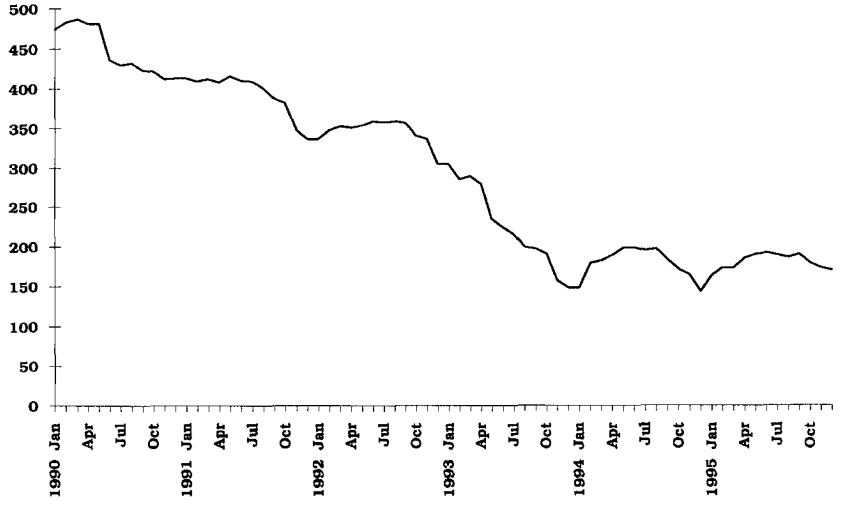
increase functional flexibility, changes to the collective agreement in the form of a reduction in the number of job classifications were sought. Hoping that such changes would assist in stopping the decline in employment, the local union agreed to reduce the number of formal job classifications in the collective agreement. These were reduced successively from 120 in 1991 to 90 in 1992 and then to 30 in 1993. To the union, the initial broadening of job content in this way made sense and to a certain extent went hand in hand with the realities of the shop floor. As the local union president noted, "the ways and means of doing things went hand in hand with the proposed changes, so why not do it?" With support from the local union, management proposed the changes to the workers as a means of increasing efficiency and flexibility thereby saving jobs. In some areas of the plant the new job classification scheme meant dramatic changes, while in others the actual way of doing things differed only slightly from previous practice. Workers in the insulation unit benefited the most from the new job structure in terms of job content. Under the previous scheme, these workers were often confined to a single task (such as drill operator, bandsaw operator, assembly) and many confided that the combining of the previous fifteen classifications into a single code for the unit as a whole made the work more rewarding. These workers now became responsible for the whole range of tasks on a job order and appreciated the responsibilities attached to the new job classification scheme. However, in the active parts assembly and coil winding units, the situation was quite different. Here, the new single classification for each group meant few changes to the division of labour, as a result both of the scarcity of training opportunities for less skilled workers and a decision by the work groups themselves to preserve the traditional division of labour. In part, this last element was in response to the numerical flexibility practices deployed by management following the introduction of functional flexibility and to the challenge to the functioning of the internal labour market.

This challenge was two-fold and was, in part, a consequence of management's choice of external flexibility as a response to the declining business volume and, in part, the result of the impact of the focused factory structure on labour deployment policies. The first challenge arose as management increasingly responded to fluctuations in the level of product demand through short-term layoffs and recalls. Following the broadening of job definitions and the reduction in the number of classifications, plant management found itself in a precarious position as the demand for large and medium-sized power transformers declined sharply. Consequently, the plant was hit by another wave of layoffs which further reduced employment from 285 blue collar workers in 1992 to 188 in 1993 and to 157 in 1994. This decline was partly market-driven and partly a consequence of an "externalization" strategy of outsourcing maintenance work and component

assembly. Indeed, in the "fabrication focused factory" (where the metal parts and tanks for the transformers are made by skilled tradesmen), outsourcing was the preferred means of reducing costs and to gaining flexibility. Thus, the number of skilled tradesmen dropped from 77 in 1992 to only 25 in 1994, even though this group and the union were willing to engage in cross-skilling to preserve employment. The extent to which this was accompanied by short-term layoffs and recalls is demonstrated by company data on the monthly levels of employment (figure 2). From 1992 onwards, the downward trend in employment is punctuated by monthly fluctuations. More detailed data reveals that these fluctuations were even more pronounced than is shown in the figure in the parts of the plant where medium and large transformers are made, whereas they were much less marked in the small power unit which produced power transformers for industrial use.

FIGURE 2

Guelph Plant: Number of Hourly Plant Employees, 1990-1995



When we discussed this trend with workers and managers, we were told that the company resorted to this practice as a relatively easy way of adjusting the size of the work force to market conditions, but also because the collective agreement allowed management to avoid respecting bumping rights for short-term adjustments. In fact, workers reported that the practice was so rampant in the plant that some groups referred to themselves as

being on "permanent layoff notice." The managerial concern with keeping the level of employment closely tied to the volume of demand was reflected in the growth of layoff notices, followed by notices extending the prior notification period and so on, creating a sort of revolving door between the internal and external labour markets. Workers told us that they would often be recalled on a short-term basis of one to two weeks for which they had no right of refusal. In practice, they would only learn how long the recall was upon returning to the plant and being greeted with a written notification of yet another layoff.

But the consequences of the new focused factory structure for the integrity of the internal labour market posed an even greater challenge to the internal labour market and to job security than did the use of numerical flexibility. It should be recalled that the new structure divided the plant according to product ranges with one managerial structure for medium and large power transformers and another for small power transformers. Demand for small transformers has been growing since 1992, while the demand for medium and large transformers has been in decline. Most of the layoffs were therefore concentrated in the medium and large focused factory. As workers and their union understood it, the collective agreement provided for plant-wide bumping rights based on seniority for workers performing similar work. Thus, those being laid off in the medium and large focused factory expected to have the right to displace more junior workers performing similar duties in the small power focused factory. However, management saw things differently and claimed that under the new organizational structure bumping rights were restricted to the focused factory from which a worker was being laid off. As a result, more senior workers were laid off while junior employees stayed on in the small power focused factory and even worked a considerable amount of overtime. Management based its decision on the wider task content of jobs in the small power focused factory and also on the collective agreement which prevented the displacement of junior workers when work was in progress in their shop. Given that production was strictly on a just-in-time basis, plant-wide bumping rights were effectively curtailed.

The issue came to a head in 1993 when workers in the medium and large focused factory staged a work stoppage to protest this managerial challenge to the integrity of the internal labour market and to the seniority principle. This prompted a compromise whereby management agreed to allow workers to bump into small power on a trial basis. The compromise proved to be short-lived, however, as management subsequently claimed that workers from medium and large were unable to meet the production standards of the small power focus factory.

The climate of insecurity surrounding the introduction of functional flexibility was therefore largely a consequence of managerial attempts to make

use of both internal and external flexibility. By resorting to short-term layoffs and recalls and by reducing the reach of seniority in the new shop-floor organizational structure, plant management effectively created a core-periphery model whereby those workers, mainly in the small power focused factory, benefitting from some measure of employment security, were expected to be flexible in performing a wide range of tasks, while the periphery was to be called in on a punctual basis to meet surges in demand, mainly in the medium and large product range. While this may not have been the managerial goal in redesigning the workplace, the events surrounding the decline in product demand resulted in the emergence of such a model.

Beyond the conflict which boiled over into the illegal work stoppage of 1993, workers in the medium and large focused factory offered a more subtle form of resistance which preempted attempts at multi-tasking on the basis of the new expanded job classifications introduced between 1992 and 1993. In many instances, workers who possessed a considerable amount of tacit skills refused to train co-workers in an attempt to preserve their own jobs against management's new policy of subjecting bumping rights to a skills test. In effect, this meant that even though in winding all of the workers were in a single job classification, the traditional division of labour remained, a situation which shop-floor management deplored. For workers, however, this was seen as the last line of defence against a management intent on imposing a new employment policy which challenged the principles of the internal labour market by submitting employment to a market-based approach which resulted in insecurity and precariousness.

CONCLUSIONS

In summarizing the differences between the way work is managed at ABB-Guelph and ABB-Varennes, we would like to return to the three general themes set out in the first section and comment on the implications of our case-study findings for the broader discussion of flexibility in the industrial relations literature.

As regards the relationship between the different forms of flexibility, the Guelph case confirms the argument advanced in the literature regarding the difficulties encountered when management seeks to augment "functional flexibility" in the context of job insecurity. Despite the introduction of some more flexible working practices, the real degree of flexibility continued to be seriously hampered by workers' strategies to preserve their internal "job rights" in the face of an erosion of job security and by management's attempt to refashion the internal labour market. Indeed, in a recent interview, a senior production manager at Guelph admitted that a key barrier to further productivity improvements is the employees' insistence on "doing

things the old way." Although from management's perspective this attitude is seen as stubbornly illogical, it makes perfect sense to workers on the shop floor. Why should they, for example, cooperate in training someone whose greater seniority might soon be used to displace them?

But the case of Varennes illustrates Streeck's (1987) argument that the problem does not lie in a fundamental contradiction between flexibility in labour volume and "functional flexibility," but rather in the choice between internal and external means to achieve flexibility. That is, the Varennes case shows that, by seeking to vary the volume of labour through *internal* means rather than external methods intrinsic to "numerical" flexibility, the response of workers to calls for more functional flexibility may be quite different. Simply put, workers at Varennes did not see an increase in functional flexibility as a threat to their employment security; moreover, the benefits of considerable overtime solidified the compromise.

The contrast between the two workplaces also shows the value of case study research in exploring the links between flexibility and job security. As we noted earlier, Osterman's (1994) widely-cited survey of flexible work practices, which found no such link, appears to contradict our findings. However, his conclusion is based on the lack of a statistical association between an extremely generous definition of flexibility – the existence of just one flexible practice covering 50 percent of the core work force in an establishment – and the existence of a no-layoff pledge by management. Using these criteria, the Guelph plant would be considered to have introduced flexible work practices without employment security, whereas Varennes had not introduced any of the formal practices surveyed by Osterman even though employment security was substantial. The reality, as we have seen, was quite different, lending credence to Osterman's own call for "a considerably more textured understanding of the range of practices and the direction of change" (1994: 186).

Finally, we should point out that our findings illustrate the importance of distinguishing between the establishment level and the firm as a whole. Although our findings confirm the thesis of incompatibility between numerical and functional flexibility at the establishment level, the fact remains that it was possible for two plants to pursue markedly different strategies within a single firm. In other words, in the context of a large corporation, different flexibility strategies are not only possible but even quite likely.

Turning to the factors explaining the adoption of different flexibility strategies in the two plants, our analysis confirms the crucial role of product markets. To be sure, historical and cultural traditions at each plant seem to have predisposed the two management teams to their respective strategies. The Guelph team, still strongly influenced by a "command and obey" model inherited from the GE era and reinforced by a culture which

prizes engineering logic over social logic, viewed the problem as overcoming human barriers to technically rational solutions. In contrast, in Varennes there was a long-standing tradition of providing secure, virtually life-long employment, a tradition which was reinforced by a strong sense of community and a recognition of the need to elicit the cooperation of highly skilled and autonomous workers. Nevertheless, a far more crucial factor was the different product markets faced by each plant. Varennes enjoyed a quasi-monopoly in a province where the electric utility, until quite recently, was still expanding, whereas Guelph was confronted with a deep and prolonged slump in its market. To put the matter only a little simplistically, Varennes had the luxury of choosing to vary the volume of labour internally and absorbing the additional costs; Guelph did not, and so fell back on the traditional North American pattern of varying the level of employment, an option that was less expensive in the short term, but one which unwittingly undermined their efforts to promote new working practices.

The critical importance of this factor has subsequently been revealed in two ways. First, as a result of a decline in orders from Hydro-Québec, Varennes is now facing the same fall in demand for its products with which Guelph and the other North American ABB plants have had to grapple since the early 1990s. In this context, "tradition" has been cast aside and a pattern of layoffs is beginning to emerge.[10] Second, subsequent research at Guelph has revealed that labour-management tensions continue to centre on "Clause 13," that is, the clause in the collective agreement which regulates layoffs, bumping and recalls.

As regards the question of the links between functional flexibility and the traditional North American collective agreement, the comparison between the two plants suggests that the received wisdom needs to be qualified in an important respect. Quite simply, in the Guelph plant, where the collective agreement was revised most radically to remove barriers to flexibility, the practical impact was less than in Varennes. In the latter plant, the collective agreement was not seen as an obstacle, but was instead treated as just one element of a broader understanding which permitted management to allocate labour relatively freely in return for employment security and an overtime system that benefited all concerned. This suggests that the problem in North America may not be so much the collective agreement and its detailed regulation of the internal labour market, as the coherence of the whole system of rules concerning the volume and utilization

10. The consequences of this new policy for worker and union response to functional flexibility is one of the subjects of the current phase of the research project. Our working hypothesis is that the move to "numerical" flexibility will undercut efforts to enhance functional flexibility. At this point in time, however, our data is incomplete.

of labour. While there is clearly more than one way to gain labour flexibility, some workplace practices are seen as more legitimate than others.

To sum up, the case studies analyzed here suggest that the debate over labour flexibility in the North American context, both in academia and in labour-management forums, needs to go beyond a number of oversimplifications. This appears to be the case, for instance, with the emphasis that is often put on the number of job classifications, which are frequently portrayed as artificial "impediments" to the smooth and efficient organization of production. Our study of the two power transformer plants shows how the application of a specific set of work rules must be understood in terms of the overall system of labour regulation. Job classifications – or, indeed, any other single set of rules – form just one element of a broader social compromise between the competing rationales of workers and managers, a compromise which has more or less legitimacy and is more or less efficient.

In relating the question of flexibility to market and production constraints, this article has sought to uncover the logic underlying two contrasting systems of labour flexibility in two plants which have a great number of organizational and technological features in common. Our research indicates in particular that there is a need to explore more carefully the interrelationships between different forms of labour flexibility and to focus on the indissoluble link between workplace organization, workers' cooperation and employment security. We suggest that a fruitful area of development is in further detailed case studies of actual workplaces. After all, this is the true testing ground of theories, not only of labour flexibility, but of any workplace innovation.

REFERENCES

APPELBAUM, Eileen and Rosemary BATT. 1994. *The New American Workplace: Transforming Work Systems in the United States.* Ithaca: ILR Press.

ATKINSON, John. 1984. "Manpower Strategies for Flexible Organisations." *Personnel Management*, August, 66–79.

ATKINSON, John and Nigel MEAGER. 1986. *Changing Work Patterns: How Companies Achieve Flexibility to Meet New Needs.* London: Institute for Manpower Studies.

BÉLANGER, Jacques. 1994. "Job Control under Different Labor Relations Regimes: A Comparison of Canada and Great Britain." *Workplace Industrial Relations and the Global Challenge.* Jacques Bélanger, P.K. Edwards and Larry Haiven, eds. Ithaca: ILR Press, 43–69.

BETCHERMAN, Gordon and Richard CHAYKOWSKI. 1996. "The Changing Workplace: Challenges for Public Policy." Research Paper no. R-96-13E, Applied Research

Branch, Strategic Policy, Human Resources Development Canada. Ottawa: HRDC.

BJÖRKMAN, Torsten. 1994. "ABB: les nouveaux possibles." *La fin du modèle suédois*. Jean-Pierre Durand, ed. Paris: Syros, 135–158.

BLANK, Rebecca. 1994. "Does a Larger Social Safety Net Mean Less Economic Flexibility?" *Working under Different Rules*. Richard B. Freeman, ed. New York: Russell Sage Foundation, 157–187.

CLARKE, Oliver. 1992. "Employment Adjustment: An International Perspective." *Employment Security and Labor Market Flexibility: An International Perspective*. Kazutoshi Koshiro, ed. Detroit: Wayne State University Press, 218–244.

CONTI, Robert. 1992. "Work Practice Barriers to Flexible Manufacturing in the US and the UK." *New Technology, Work and Employment*, Vol. 7, No. 1, 3–14.

GEARY, John Francis. 1992. "Employment Flexibility and Human Resource Management: The Case of Three American Electronics Plants." *Work, Employment & Society*, Vol. 6, No. 2, 251–270.

GILES, Anthony, Jean-Noël GRENIER and Jacques BÉLANGER. 1996. "Globalization of Production and Local Embeddedness: A Comparative Study of ABB Power Transformers." Paper presented at the Globalization of Production and the Regulation of Labour Conference, University of Warwick, England, September 11–13.

HYMAN, Richard. 1987. "Strategy or Structure? Capital, Labour and Control." *Work, Employment and Society*, Vol. 1, No. 1, 25–55.

HYMAN, Richard. 1988. "Flexible Specialization: Miracle or Myth?" *New Technology and Industrial Relations*. Richard Hyman and Wolfgang Streeck, eds. Oxford: Basil Blackwell, 48–59.

KOCHAN, Thomas A. and Paul OSTERMAN. 1994. *The Mutual Gains Enterprise: Forging a Winning Partnership among Labor, Management and Government*. Boston: Harvard Business School Press.

KOSHIRO, Kazutoshi, ed. 1992. *Employment Security and Labor Market Flexibility: An International Perspective*. Detroit: Wayne State University.

LOCKE, Richard and Thomas KOCHAN. 1995. "Conclusion: The Transformation of Industrial Relations? A Cross-National Review of the Evidence." *Employment Relations in a Changing World Economy*. Richard Locke, Thomas Kochan and Michael Piore, eds. Cambridge, Mass.: MIT Press, 359–384.

MEULDERS, Danièle and Luc WILKIN. 1987. "La flexibilité des marchés du travail: prolégomènes à l'analyse d'un champ." *Travail et Société*, Vol. 12, No. 1, 7–36.

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT. 1994. *The OECD Jobs Study: Facts, Analysis, Strategies*. Paris: OECD.

OSTERMAN, Paul. 1994. "How Common is Workplace Transformation and Who Adopts It?" *Industrial and Labor Relations Review*, Vol. 47, no. 2, 173–188.

PENN, Roger, Kari LILJA and Hilda SCATTERGOOD. 1992. "Flexibility and Employment Patterns in the Contemporary Paper Industry: A Comparative Analysis of Mills in Britain and Finland." *Industrial Relations Journal*, Vol. 23, No. 3, 214–223.

PFEFFER, Jeffery. 1994. *Competitive Advantage through People: Unleashing the Power of the Work Force.* Boston: Harvard Business School Press.

PIORE, Michael J. 1986. "Perspectives on Labor Market Flexibility." *Industrial Relations*, Vol. 25, No. 2, 146–166.

POLLERT, Anna. 1991. "The Orthodoxy of Flexibility." *Farewell to Flexibility?* Anna Pollert, ed. Oxford: Basil Blackwell, 3–31.

STREECK, Wolfgang. 1987. "The Uncertainties of Management in the Management of Uncertainty: Employers, Labor Relations and Industrial Adjustment in the 1980s." *Work, Employment and Society*, Vol. 1, No. 3, 281–308.

SMITH, Michael R., Anthony C. MASI, Alex van den BERG and Joseph SMUCKER. 1995. "External Flexibility in Sweden and Canada: A Three Industry Comparison." *Work, Employment and Society*, Vol. 9, No. 4, 689–718.

WEINSTEIN, Marc and Thomas KOCHAN. 1995. "The Limits of Diffusion: Recent Developments in Industrial Relations and Human Resource Practices in the United States." *Employment Relations in a Changing World Economy.* Richard Locke, Thomas Kochan and Michael Piore, eds. Cambridge, Mass.: MIT Press, 1–31.

RÉSUMÉ

Flexibilité interne et flexibilité externe : une étude comparative dans le secteur manufacturier au Canada

À partir d'une étude empirique conduite auprès de deux usines canadiennes de la société transnationale Asea Brown Boveri (ABB), où on fabrique des transformateurs de puissance, cet article étudie les conséquences de différentes formes de flexibilité du travail. Dans chaque usine, une équipe de deux chercheurs a réalisé plus de 25 entrevues auprès de la direction, du syndicat et de tous les segments de la force de travail. L'étude de terrain réalisée en 1994 et en 1996 a aussi consisté en 10 jours d'observation directe en atelier dans chaque établissement. Les directions des usines de Guelph et de Varennes ont contribué généreusement à cette recherche en fournissant des données et de la documentation confidentielles.

Étant donnée l'ambiguïté du concept de flexibilité, l'article débute en suggérant un certain nombre de distinctions sur le plan analytique. Une revue de littérature permet de distinguer trois conceptions de la flexibilité selon le niveau d'analyse retenu. Un premier type d'analyse se penche sur les institutions nationales de régulation du travail et leurs conséquences sur la flexibilité du marché du travail. À un autre niveau, des auteurs se sont intéressés à la flexibilité des organisations et au fonctionnement de structures organisationnelles associées à la spécialisation flexible, au sens de Piore et

Sabel par exemple. Enfin, le présent article s'inscrit dans un troisième niveau d'analyse, qui concerne l'introduction de pratiques de flexibilité du travail au sein de l'organisation productive et le rôle des règles du marché interne et de la convention collective dans la promotion de la flexibilité de la main-d'œuvre.

Cette précision conceptuelle ouvre la voie à une analyse des matériaux empiriques en fonction de trois questions qui dominent le débat en Amérique du Nord. Premièrement, l'idée selon laquelle la flexibilité numérique et la flexibilité fonctionnelle sont incompatibles au sein d'un même établissement. Deuxièmement, la proposition suivant laquelle les entreprises nord-américaines favorisent la flexibilité externe au détriment de la flexibilité interne du travail. Troisièmement, l'idée reçue dans plusieurs milieux à l'effet que la convention collective constitue l'une des principales barrières à la flexibilité en milieu de travail.

En ce qui a trait à la première question, à savoir si la flexibilité fonctionnelle et la flexibilité numérique sont des pratiques compatibles, nos résultats suggèrent que le débat doive chercher à comprendre comment ces deux formes de flexibilité peuvent être arrimées par des pratiques de flexibilité interne. En effet, il semble que la question pertinente n'est pas tant à savoir si la flexibilité numérique est incompatible avec la flexibilité fonctionnelle mais consiste plutôt à cerner comment, à travers des pratiques de flexibilité interne, les acteurs peuvent arrimer ces deux pratiques. Ainsi, la grille d'interprétation proposée repose sur les concepts de flexibilité interne et de flexibilité externe (voir le Tableau 1). Dans les usines à l'étude, tant la flexibilité interne que la flexibilité externe comportent des dimensions numérique et fonctionnelle, qui sont toutefois agencées selon des modalités différentes à Guelph et à Varennes, avec des conséquences différentes à la fois pour les salariés et pour l'efficacité des politiques de gestion du travail.

En ce qui a trait à la seconde question, à savoir si les directions d'entreprises optent plus facilement pour la flexibilité numérique et pourquoi, la majorité des auteurs considèrent que la permissivité des institutions de régulation du travail en Amérique du Nord pave la voie à la flexibilité numérique au détriment de la flexibilité fonctionnelle. La flexibilité numérique serait relativement moins coûteuse que la flexibilité fonctionnelle en raison de la rigidité des règles du marché interne et des barrières à la flexibilité fonctionnelle que l'on associe au nombre élevé de classifications d'emplois. Notre recherche indique que les conditions économiques jouent un rôle de première importance sur les options des entreprises et que les choix des acteurs sont fortement influencés par les caractéristiques de l'organisation du travail. Les deux établissements à l'étude sont situés dans un même contexte institutionnel et ont pourtant des pratiques de flexibilité fortement contrastées ; l'un optant pour la flexibilité externe, l'autre pour la

flexibilité interne. Dans chaque cas, les pratiques de gestion du travail viennent à un coût, mais les choix des directions s'expliquent beaucoup plus selon les conditions du marché du produit qu'en fonction des seuls coûts associés à la convention collective.

La troisième et dernière question concerne le rôle de la convention collective dans le développement de certaines trajectoires de flexibilisation du travail. Plusieurs auteurs partagent l'idée selon laquelle la convention collective traditionnelle est trop rigide en ce qui a trait au déploiement de la main-d'œuvre. Notre étude trouve un support mitigé pour cet argument. Les données empiriques indiquent qu'il faut non seulement considérer la convention collective, mais aussi l'ensemble des compromis formels et informels qui sous-tendent son interprétation par les acteurs concernés. En somme, il faut plutôt concevoir la convention collective comme l'un des principaux éléments du compromis social plus large concernant la gestion du travail. Par exemple, dans un établissement le nombre de classifications d'emploi a été réduit considérablement depuis 1990 sans que la direction n'obtienne en retour une plus grande flexibilité fonctionnelle dans la gestion de la main-d'œuvre. Dans l'autre, le nombre de classifications d'emploi est demeuré relativement le même depuis l'ouverture de l'usine en 1972 mais, contrairement à ce qui est suggéré dans la littérature à ce sujet, les règles étaient interprétées de façon à générer un degré appréciable de flexibilité fonctionnelle. Les acteurs s'étaient donnés des règles de fonctionnement souples sur ce plan, dans le cadre d'un compromis plus large autour de la sécurité d'emploi et de l'efficacité de l'appareil de production.

Cet article propose que le débat concernant la flexibilité du travail en Amérique du Nord doive dépasser les analyses purement institutionnelles pour comprendre comment les pratiques des acteurs sont intimement liées aux conditions du marché du produit, aux caractéristiques de l'organisation du travail et aux compromis sociaux qui sous-tendent la production. Tout en levant le voile sur les aménagements possibles entre différentes formes de flexibilité du travail, l'article vise à mieux comprendre les processus sociaux par lesquels les acteurs produisent et redéfinissent les règles suivant leur interprétation de ces différentes contraintes.