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The Sexual Division of Labour in Process Manufacturing: Economic Restructuring, Training and 'Women's Work'

ABSTRACT ▪ It is widely assumed that the development of enhanced skills appropriate to advanced technologies is an important means of increasing the employability of the socially excluded. This article tests this assumption through case studies in the food industry in Austria, Germany and Britain. The findings indicate that organizational restructuring, technological change and redeployment of labour have very different consequences for women and for men. In all three countries the restructuring of work and skills increased the marginalization of women, reinforcing gender cleavage.

Skills and qualifications have become important topics in both the literature and the political discussion on labour market issues. Skill enhancement is becoming the central focus of labour market concerns and is commonly perceived as a panacea for the social exclusion of disadvantaged groups. It is also stressed that the existence of a certain level of skills makes those forms of work organization possible that are necessary for enhanced competition on the global marketplace.

Research in this genre often examines training systems as a manifestation of institutional arrangements in a particular country or region and then studies their effects on organizational form and economic success. A number of European comparisons have revealed differences in both organizational efficiency and levels of productivity and quality as a result of skill levels and categories (Maurice et al., 1986; Mason and Wagner, 1994). Recently both Soskice (1990) and Regini (1995) have found a relationship between patterns of human resource utilization and organizational strategies, or, as Regini calls them, product market strategies that predominate in various countries and regions.

These approaches have had a pronounced influence on the current debate on the competitiveness of European industries and the future

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direction of labour market policy at European level. The assumption is that accelerating technological and organizational change demand a catching-up of skills. Thus, the challenge for both economic renewal and individual integration is the development of training systems that generate higher levels of skills.

In this article we examine this assumption more closely and critically by addressing the relation between restructuring, skill and job opportunities. In doing so we take the food industry as a pivotal case because it is a sector in which traditional labour-intensive companies exist alongside hi-tech, global ones. Furthermore, it is a sector in which women's labour is extensively used, especially in the labour-intensive routine jobs, therefore making it possible to consider the role of gender in the transition to new production strategies – an issue generally ignored in most studies of human resource utilization and economic efficiency. We compare food manufacturing companies and their restructuring processes across three countries: Austria, Germany and Britain, basing our findings on a similar period in the early 1990s. It should be noted, however, that our study is not strictly comparative in method: we did not set out together to find matched case studies to explore the subject in question. Our research institutions have been in mutual contact over several years because of a common interest in researching the restructuring of multinational companies (MNCs) in the food industry, but we each engaged in independent research projects, and only came together later to establish whether or not our material was suitable for comparative treatment. We found that it was, although a certain unevenness in approach and coverage has been the result. However, we believe that this does not seriously detract from the broad direction of our analysis and conclusions.

In terms of value of production the food, beverages and tobacco industry is Europe's largest manufacturing sector. Of more than 250,000 firms in the sector in the EU in 1990, some 230,000 had fewer than 20 employees and only 4200 more than 100 (CEC, 1994). These figures, and the extensive list of sub-sectors, indicate that the industry is highly fragmented and heterogeneous. However, the 10 biggest companies already had a market share of 20 percent. In some sectors the degree of concentration is considerably higher. In frozen food, for instance, the four biggest firms control 41 percent of the market. In the chocolate industry the four leading companies have a market share of 60 percent between them. The single European market is of particular importance to the food and beverages industry because of the harmonization of previously heterogeneous national regulations. Therefore it is one of the sectors undergoing the biggest economic restructuring at European level including both mergers and acquisitions and intra-company relocation programmes (Pollert, 1993). Given the importance of the food industry for

female employment it is of particular interest to analyse the impact of restructuring on women's jobs and the sexual division of labour.

Our case study material from three different European countries shows persisting gender cleavages within the workforces in terms of skill and employment prospects. There is an enduring sexual division of labour between labour-intensive women's jobs and the more high-tech occupations that tend to be filled by men. In most food companies this means that it is mainly women who are losing jobs in the restructuring process, despite national institutional differences and irrespective of existing or new training systems.

Having signalled the characteristics of the food industry and its restructuring at European level, we proceed in this article to the national levels of Austria, Germany and Britain, and then to plant level. We present findings from our case study research, discussing the consequences for the employment of women of organizational restructuring, technological change and redeployment of labour in mass-production food-processing. In so doing we also discuss the role of skill and training in terms of vocational certificates, retraining and paths of qualification within the differing institutional traditions of the countries concerned. We show that there does seem to be a correspondence between a firm's competitive strategy and its use of human resources (Regini, 1995: 196). However, differences in national approaches to skill and qualification did not translate into differences in product market strategy and had no effect on sexual segregation. Indeed human resource outcomes and organizational restructuring seem to be shaped less by the national institutional environment than by company efforts to obtain maximum usage of their investments in capital-intensive technology; and this tended to reinforce gender cleavage. We conclude that any analysis of the impact of particular training strategies on qualifications and organizational outcomes which fails to consider the gender dimension obscures the real processes of human resource utilization, especially the exclusion of certain types of worker – in this case primarily women – in restructuring measures.

Restructuring and Deployment of Labour: The Case of the Austrian Confectionery Industry

In terms of sales value, the manufacture of sweets is third among the food and beverages industries in Austria. In 1994 some 4000 employees worked for the 35 mainly small- and medium-sized enterprises in this sub-sector; 53 percent are female. Female labour is of particular importance in production areas: 62 percent of all blue-collar workers are women (Lebensmittelindustrie, 1995). The distribution into wage groups shows women nearly exclusively at the lowest level, which indicates that the

sexual division of labour has altered little over history. The processing of raw materials (the 'kitchen'), the mechanized production of sweets ('process area') and maintenance are male, whereas handiwork in production areas and, in particular, packing, is predominantly female.

Many Austrian confectionery companies have kept traditional forms of production, with low degrees of mechanization and automation and a high proportion of manual work. Currently all firms (apart from those protected by specialized market niches) are entering a process of rapid change. The main reasons for this are the single European market, internationalization of ownership and new business strategies. Marketing costs are crucial in this industry and launching new products is an expensive venture, creating strong incentives for the acquisition of existing brands (and of companies holding them). Higher volumes and reduced product ranges allow increased mechanization, which directly affects female workers who are mainly deployed in labour-intensive areas. In addition, firms aim to introduce additional shifts to increase capital utilization and lower overall costs. This results in working hours that are incompatible with family responsibilities – which are traditionally women's. The introduction of night shifts is also crucial, since in Austria women are still not normally permitted to undertake night work in manufacturing. Even if this is not an absolute bar it is often referred to as an obstacle – and provides a handy excuse for excluding women. Companies tend to alter the skill profile of the workforce when restructuring production: giving greater emphasis to technical and machine-based competence and making increased use of external recruitment instead of internal promotion of semi-skilled workers.

The fieldwork on which the following account is based was carried out in 1995. Three plants with similar levels of employment and belonging to different companies were selected for the study on the grounds of their business strategy and organization of production, as well as their degree of 'internationalization'. In each plant the researchers conducted interviews, observation and documentary analysis. The interviewees at management level represented both the production and personnel functions. The main questions in these discussions referred to the layout of the production process, work organization, deployment of labour, skill levels and restructuring. On the shopfloor, workers from different production areas with varying skill levels and in different positions in the responsibility hierarchy were asked about tasks, forms of cooperation, skills and qualifications. In addition, works councillors were interviewed about the wage system, deployment of labour and restructuring. Apart from these case studies, the research project involved interviews with representatives of employers' associations, trade unions and the chamber of labour and analyses of written material from these organizations.

Traditional Plants in Transition

Two of the confectionery companies (to which we refer as 'Trad 1' and 'Trad 2') were long-established family businesses until they were taken over by MNCs in 1995. Each had some 250 employees and manufactured large numbers of different products or varieties in small batches. The firms coped with the variety through the use of flexible manual labour and intense cooperation between experienced managers.

The personnel policies of both companies reflected the traditional approaches typical of the sector. On the shopfloor, skilled labour was deployed only in maintenance (machine fitters, electricians) and in processing of raw materials (pastry-cooks, bakers). Machine-operating, manual production jobs and packing were defined as semi-skilled or unskilled work. Personnel strategies were gendered in two senses: women were deployed almost exclusively in manual jobs in production areas and in packing; and in addition, only men were taken on for specialized jobs and careers, whereas women were recruited for general production work and flexible deployment to different manual tasks. In both cases this applied even to skilled women.

The sexual division of labour is clearly represented by the distribution into wage groups, shown in Table 1 below. Figures are also given for 'Global', our third plant studied, which had long been a subsidiary of a global mass producer. In this case, discussed below, there was a predominantly male workforce but those women who were employed were exclusively in the lowest grade.

The packing areas were labour-intensive in both traditional plants: women operated wrapping machines, filled boxes or placed assortments while sitting by a conveyor belt. In Trad 1 the process area also contained

TABLE 1. Blue-collar Workers by Gender and Wage Group, Austria

	Trad 1		Trad 2		Global	
Wage Group	Male	Female	Male	Female	Male	Female
5a Special Skilled Workers	1		5		11	
5b Other Crafts	23	3	36	1	23	
4. Skilled Workers[a]	15		8	1		
3. Chargehands		8		13		
2. Machine operators[b]		15	1	15	57	
1. Other workers		177	4	84	110	31
Total	39	203	54	114	201	31

[a] Including maintenance workers, pastry-cooks etc.

[b] Including wafer bakers etc.

Source: Companies' data, 1995.

a large number of manual jobs carried out by women: work-stations for decorating or filling chocolates were located between machines that were operated by men. In this plant even the processing of raw materials was partly hand-work. This can be explained by the craft tradition of the plant and the strategy to compete on quality. Management also argued that there was a vicious circle: to earn money it was necessary to accept all orders even if this resulted in small batches; hence investment to mechanize or automate production was not cost-efficient, given small volumes and therefore low levels of capital utilization.

Trad 2 also had a wide range of products. However, there were some core brands that allowed production of higher volumes. For these products there were mechanized flow lines that were integrated to encompass both process and packing. Work on these lines meant operating machines; in contrast to the first plant, there was little manual work directly on the product. The process area was mainly male, whereas packing, including the operation of packing machines, was female.

Internationalization is having predictable consequences for both plants: a reduction in the range of products and an increased volume of those remaining. In Trad 1 quality control is changing from craft practice to automated standardization, with higher volumes making it profitable to invest in mechanization and automation. Both changes will considerably reduce female manual labour in the process area. In Trad 2, with already existing mechanized flow lines for the main products, higher volumes through international marketing will result in running a second shift. The planned reduction of the product range will mean less manual work, higher capital utilization and better preconditions for labour-saving investment.

Changes in personnel policies started even before the take-overs. In recent years more and more skilled workers have been externally recruited for positions in the process area, such as line foremen or machine operators; whereas previously, experienced semi-skilled workers used to be promoted to these jobs. There has been a clear preference for workers with a product-related qualification (apprenticed pastry-cooks) as opposed to machine-related qualifications such as machine fitters, even though these workers operate machines and have no influence on the composition of the product. Still, managers argue that food-related qualifications are useful when it comes to maintaining quality levels, by checking the colour and consistency of chocolate, for instance, and adjusting parameters like temperature. Further arguments relate to extra-functional skill such as internalized hygiene standards or the willingness to carry buckets and sacks (which fitters refuse to do). Of course, labour market conditions play an important role in this policy: given the poor wage levels, in most areas it is easier to recruit cooks, bakers or pastry-cooks who were apprenticed in small shops, than mechanics.

During these changes, the treatment of 'skills' and qualifications in the traditional plants varied by gender. Women working on the packing lines were not generally unskilled in the sense of not holding a vocational qualification. Many of them were indeed qualified, albeit in a different area, for example as retail shop assistants, hairdressers, tailors or secretaries. However, such qualifications were not acknowledged at all. In contrast, non-food occupational qualifications held by men, such as gardener, were recognized to a certain extent. The internationalization of business strategies and changes in production techniques and work organization will strengthen the preference for 'skilled' labour in the sense of product-related qualifications. Rationalization will certainly change the gender ratio in unskilled and semi-skilled jobs to the detriment of women. To indicate one of the possible outcomes of current restructuring, we describe below the case of a confectionery plant that already undertakes mass production for international markets at high capital intensity.

The Image of the Future? The Case of a Global Mass-producer

'Global' presents a stark contrast to our two traditional sweet companies, although its workforce is of the same size. For some 20 years it has been run by a food multinational with a strong confectionery division. Its range is limited to a few products with international brands that are sold all over Europe, and mass production is based on highly automated continuous-flow lines, running 24 hours a day and seven days a week. This was made possible two years ago by an exemption from the law on working hours issued by the Ministry for Labour and Social Affairs. The production and packaging areas are nearly exclusively male: some 200 men and only 30 women work there. Women are used to cover seasonal peaks in demand (though the fluctuation in production volumes is considerably less than in the traditional firms).

Production lines are integrated not only technically but also organizationally: line-controllers are in charge of both the process and the packing areas. In packing, there is specialization between machine and manual packing, but the division of labour is less rigid than in the traditional plants. Machine operators undertake some maintenance tasks, which is virtually unknown in the traditional firms. On a new line that is just becoming operational, the division of labour has been further reduced by integrating maintenance into the line operators' duties.

While Global demonstrates greater occupational flexibility than the pattern in the traditional plants, the hierarchy of production control is similar. There are no group structures that might enhance the discretion of production workers. Shift managers are in charge of the production process as a whole, while their 'senior key operators' plan and allocate work, check quality and so on. The line-controllers are superiors to both

machine operators and hand-packers, though they are not classed as managers and do operate machines in emergencies. The traditional plants were also moving in this direction by making supervisors act as relief line operators, and line operators as relief machine operators, when needed.

The most striking feature of Global is that female employment has been systematically reduced, resulting in an almost exclusively male workforce. Vocational qualifications have become more and more important: apprenticed machine-fitters and electricians are recruited for direct production work. Personnel policy is that not only line-controllers but also machine operators, in particular those in charge of automated packing machines, should hold such a vocational certificate. However, in contrast to the other Austrian cases, food-related qualifications do not play a role in this plant; it is technical and engineering qualifications which count.

Qualification levels will be enhanced by recruitment of college-trained technicians for production work. According to the company's personnel manager, flexibility in the deployment of labour will also be further increased. Skilled production workers are deployed on hand packing if needed. Even maintenance specialists are required to change to machine operation or even hand packing from time to time. The feasibility of such a policy can be explained with reference to the functioning of the internal labour market. All production and maintenance workers start their career by manually packing chocolate bars into boxes regardless of their vocational qualification. They can leave these entry jobs if they successfully apply for another position, all vacancies being advertised. The worker representative at the plant stated that skilled workers spend on average half a year in the entry jobs.

Changes in the Meaning of 'Flexibility'

There are fundamental differences in the meaning of flexibility between the 'traditional' and the 'modernized' plants. The traditional plants are flexible in the sense that small batches are produced to fulfil small-scale orders. Apart from improvisation in production planning, the flexibility is based on the flexible deployment of female labour in different manual jobs throughout the plant. This relates first to a rotation of individuals or groups between single-purpose production lines that are not utilized all year round, but vary in use according to seasonal fluctuations in demand; second, to the fact that workers follow large orders through all production stages to provide the required additional labour; third, to the flexible deployment between hand and machine packing according to the needs of the products; and fourth, to replacement for absent workers. Although the kinds of jobs range from decorating and filling chocolates to placing assortments and stacking boxes, they are perceived as similar both in requiring little 'skill' and in constituting 'women's work'. In other words,

the flexibility of deployment of labour rests on a particular social construction of skill requirements and the ability of women workers to cope with diverse jobs – which is not acknowledged as a skill in itself. This view is further supported by the fact that rotation hardly crosses the boundaries between areas of 'men's work' and 'women's work'. The exceptional instances of such cross-overs do not seem welcome to the workers. A newly recruited young man said in interview that he dislikes the rare occasions when he has to change from his job as a machine operator in the process area to the hand packing line; the reason he gave was that the (much older) women on the line kept teasing him, but the women we talked to were also not keen to work in typical male jobs.

Flexibility has a completely different meaning in the 'modern' plant. It refers to the flexible deployment of highly skilled labour in capital-intensive production. Skilled metal workers and even engineers trained in secondary technical schools who are deployed as maintenance specialists are expected to replace machine operators when needed. This means that flexibility rests on a high skill base. As noted above, even hand packing is carried out by skilled workers (at least as their entry job). This also means the breakdown of the previous gendering of tasks, made obvious by middle-aged men manually placing chocolate bars into boxes – a strange sight even to enlightened researchers. Of course this disappearance of sex-typing stems from the almost complete elimination of female employment.

Certified Divisions: The German Case

The German study focuses on two milk-processing plants in west Germany which have long been subsidiaries of a large MNC (one since the 1920s, the other since 1972), and on a third plant in east Germany, also belonging to the same company since 1990. Fieldwork was conducted in 1991 and figures on employment structure were updated in 1996 for two of the plants. The first two plants are similar in size (about 250 employees), output (about 70,000 tonnes per year), technological equipment and organizational layout (breakdown by department, hierarchical levels, plant design). They differ slightly in product range: Plant Y produces a variety of yoghurt and dessert products; Plant C makes a range of cream and cottage cheese products. A larger difference exists in their local labour markets, especially in the availability of skilled workers. Plant Y is an important employer in the rural area in which it is located. It has access to local farmers trained as dairy specialists or mechanics who now farm only part-time because of the persistent decline in profits in agriculture. Plant C is in a more industrialized area where skilled workers, especially with maintenance backgrounds, are in a sellers' market.

In Germany much milk-processing still takes place in small craft-based operations (two-thirds of the companies have fewer than 50 employees; there are currently more than 500 companies with approximately 40,000 employees and a total turnover of 28,000 million DM). In contrast, industrial food production, to which the cases described here belong, is highly mechanized and automated, and has been for a number of years. As in the Austrian cases, the parent company's international character has led to a strategy of large volumes for a restricted number of branded products (increase in product range occurs through slight variation of a particular product type).

All German milk-processing plants have at their core a production department, often split into processing and packing functions – as with confectionery. These functions sometimes belong to one organizational unit, but there is rarely rotation or transfer between the employees of the two areas. Two other departments which are often in direct and frequent contact with the production department are quality assurance (the biological and chemical laboratories) and the maintenance department (responsible for repair and maintenance of the machinery, sometimes for computer programming of the control systems and for machine set-up). Another department with direct influence on production is the logistics or cost and material flows unit which sets production plans and delivery schedules and orders materials. The only other area in contact with production is the warehouse, where finished and sorted products are stored before being shipped to customers or central warehouses.

The German training system provides apprenticeship programmes for two occupations specifically oriented to milk-processing: *Molkereifachmann/frau* (dairy specialist) and *Fachkraft für Lebensmitteltechnik* (food technician). Other occupations often recruited and represented in the plants are laboratory technicians in the quality assurance department, electricians, fitters, systems engineers and other maintenance-related fields in the engineering department, as well as various administrative positions. There are no special occupational qualifications for the packing area.

Restructuring in the Plants

Plant Y was taken over by the foreign multinational in 1972 and transformed into a high-volume yoghurt plant. During 1986 and 1987 almost half the workforce was dismissed, followed by a major investment in automation. High-performance packing machines replaced many of the cup-filling machines and the manual tasks associated with them; then a highly automated end-packing system was installed which eliminated many carton-folding, stacking and forklift transport jobs. The result was a massive reduction in the number of women workers.

In 1972 there were 227 employees in the plant, 189 (104 men and 85 women) classified as blue-collar workers. After the mass dismissals there was renewed recruitment, and by 1991 there were 226 employees, 157 of whom were in the blue-collar category. But of these, 140 were male and only 17 female. The female proportion had thus fallen from 45 to 11 percent: men had replaced women, skilled workers had replaced un- or semi-skilled; by 1996 there were a total of 216 skilled workers and only five unskilled (see Table 2). Recruitment policy had changed from a dichotomy between skilled male workers in the process area and lower-skilled women performing manual jobs or operating cup-filling machines in the packing area, to one of exclusive recruitment of male skilled workers in the entire production area: those with food-related skills in process and those with technical certificates (fitter, mechanic) in packing.

In Plant C, which has belonged to the multinational since the 1920s, the restructuring process occurred more gradually, but with very similar results. The same recruitment policy was pursued as in Plant Y, but the tight local labour market made it difficult to attract skilled mechanics and welders to work as packing machine operators in undesirable conditions (noisy and damp). Instead of retraining existing female workers, however, men were hired as machine operators for the new high-performance machines, even when they were only un- or semi-skilled. After 1986, not one woman was hired to work in the production or packing areas. Of all blue-collar workers hired after 1986, two were women: one a laboratory

TABLE 2. Sexual Division of Labour by Occupation, Germany

	Plant Y		Plant C			Plant E	
	M	F	M	F		M	F
Production	42		61		Production and Packing	16	19
Packing	58	8	89	18			
Engineering	38	4	42			9	
Quality Control	3	33	4	20			8
Administration	9	14	6	18		7	13
Warehouse	12		21	2		4	1
Other			4	10			
Total	162	59	227	68		36	41

Notes: Plant Y and Plant E data are from 1996; Plant C data are from 1992. Numbers were compiled from company personnel statistics. This table includes both blue and white-collar job categories – a regulated distinction in German industry. In German plants, production, packing, engineering, and warehouse are all blue-collar category jobs. Quality control and administration are in the white-collar job category, as are all supervisory functions in the blue-collar areas (comprising about 8% of plant totals).

helper, the other a kitchen assistant. Of 223 blue-collar workers in 1992, 193 were male and 30 female (Table 2). There were 131 skilled men with vocational certificates, 37 with certificates in semi-skilled jobs, and 25 unskilled. Among the 30 women, one worked at a skilled job, three were classified as semi-skilled although they had vocational certificates, and 26 were unskilled.

Work Organization and 'Flexibility'

The restructuring of employment was accompanied by measures to reorganize the production area in both plants. In the process area (where only men work in Plants Y and C), the goal was to increase job rotation and training. Workers were given financial incentives to learn additional jobs so that they could be assigned to the separator, the mixer, various process lines, and the control room as needed. In the packing area, the 'flexibility' centred around integrating various secondary functions into the normal workload. Thus, a number of tasks from quality assurance, such as weighing cups, conducting pH tests and checking colour and viscosity were all integrated into the packing area. In Plant Y, these were part of the responsibility of the machine operator, regardless of sex, whereas in Plant C, some special unskilled jobs carried out by women were created out of these quality assurance tasks and some other auxiliary jobs, such as covering for the machine operator during breaks, removing left-over material and cup filling. In Plant Y a division of labour had crystallized between the older packing machines, at which the women who had survived rationalization worked, and the new high-performance machines run by men. Women were considered incapable of being trained to work on the new machines because of a lack of technical background and physical strength. In Plant C there were no women working as machine operators.

A pronounced goal of the next round of functional integration was to have machine operators in packing carry out minor maintenance and repair tasks. This served to weaken further the position of women who did not possess the maintenance skills of the mainly technically skilled men. Experience in the plant, product quality and hygienic awareness, all points in which the women had the advantage, were given no particular value, certainly not in terms of remuneration. It was repeatedly stated that men would have to be given training in hygiene because workers with maintenance backgrounds were notoriously careless in keeping their work areas clean, a major requirement in a food-processing plant.

There were no plans to rotate jobs between packing and process. The reasons given were the loss of competence likely to result from major and frequent changes of workplace, and organizational difficulty, since the packing and process areas were located in separate halls. Other aspects were most certainly that packing workers were considered too unskilled

or inappropriately skilled to work in process, and process workers did not want to work in the noisy and damp packing area. This situation strengthened the lack of opportunity for skill acquisition in the plant and made it virtually unthinkable for women to acquire better paid or more desirable jobs in either packing or the even more remote process area.

The sexual bifurcation of the labour market was clearly reflected in wage inequality. At the time of fieldwork (1991–3), both companies had an internal classification system with a hierarchy of three main groups: auxiliary (A), specialist (S) and craft (C), each containing nine pay grades. The categories in which workers were placed were tied to the agreement negotiated between the union and employers' association. In both the process area and maintenance department where no women were assigned, pay ranged from the starting specialist grade (S0) to the middle craft grades (C5). In packing the lowest wage group was A3 and the highest was the upper specialist level (S6-8). The highest grade for women in the packing area was auxiliary level A6. In Plant Y, women operators of the older cup-filling machines were classified in the lowest wage group (A) while men on the newer high-performance machines started in the second wage group at S0. None of the blue-collar women were graded above the lowest wage group (A), whereas 90 percent of blue-collar men were in higher groups.

Pressure for maximum capital utilization led to the introduction of a three-shift system between 1989 and 1991 in both plants; and as in the other cases, working-time patterns were a further element in the exclusion of women. Workers rotate through morning, afternoon, and night shifts on a weekly basis. The night shift is a point of contention in various respects. By law, women in blue-collar jobs cannot work the entire night shift. Male interviewees, although they receive a premium for the late shift, often complained that their female colleagues disrupt the work process by not being able to participate in the shift cycles; and management uses the legal barrier as a reason for not hiring women (though unlike in Britain, women could not be dismissed for this reason). Even if women were permitted to work the full night shift, the system of weekly rotation would certainly be incompatible with existing household and particularly child-care responsibilities.

Plant E

The subsidiary in eastern Germany (here called Plant E) offers a contrast to its western counterparts in terms of division of labour and organization of work. Plant E was taken over in the early phases of German unification, and employment was reduced from more than 300 to under 80. The MNC first installed second-hand machinery but then replaced this by a state-of-the-art processing and packing facility, including an automated end-packing and palletizing system which replaced a number of

TABLE 3. Plant E Wage Groups (1996)

Blue-collar			White-collar		
Grade	Male	Female	Grade	Male	Female
LG4	2	2	*Meister*	4	
LG3	10	9	T4	3	2
LG2	7	5	T3		2
LG1	3	3	T2		5
Total	22	19	Total	7	9

Source: Company personnel statistics.

manual jobs. Nevertheless, the massive lay-offs and introduction of sophisticated computerized equipment did not translate into the elimination of women from the production area.

In the former DDR it was difficult for women to gain access to many industrial occupations, especially in the engineering trades. As a result, other occupations became popular female domains, dairy specialist being one of them, particularly in rural areas. In plant E, women (most of whom hold vocational certificates) work at all jobs in the process area, long a completely male reserve in the western plants. In the packing area, most of the machine operators at the newest, most technologically sophisticated packing lines are women. A sexual division of labour still exists in the laboratory and the engineering departments, the first being exclusively female and the latter all male (Table 2, p. 17).

The absence of women with occupations in the maintenance and engineering trades presents the only potential threat to their position. Discussions to integrate some simple maintenance tasks in the packing area have put women on the defensive, since they appear less qualified to undertake these tasks than their male colleagues. This could provide an opening for new restructuring measures in which men with technical backgrounds are recruited to replace the highly skilled women. However, 1996 figures show a much more balanced division of labour and pay structure than in the western plants despite women's exclusion from engineering and the *Meister* (master-craftsman) pay grade (see Table 3).

Restructuring Without Regulated Qualifications: a British Food-processing Plant

In Britain the food, drink and tobacco industries constitute the largest single manufacturing group (with food by far the largest part), producing 17.8 percent of gross manufacturing output (*Business Monitor*, 1989); and

it is the second largest employer after mechanical engineering, with 500,800 workers. It is a relatively successful part of the UK economy; despite the recession it expanded from 9.9 to 11.4 percent of manufacturing employment between 1974 and 1992 (*Employment Gazette*, January 1993). In 1993, 41 percent of the workforce was female: higher than for manufacturing as a whole (30 percent).

The research question, as in the other two countries, was whether production restructuring is causing a decline in women's presence in this sector. Unlike the Austrian and German cases, the British example offers the opportunity to explore the effects of restructuring, and in particular the introduction of sophisticated machinery and process control, in an institutional environment in which formal qualifications play little part in employers' labour market strategies. Rather, we see informal social processes writ large as the main factors in employment restructuring.

The British case study focuses on restructuring at 'Chilled', a food-processing establishment belonging to a major European MNC, employing some 300 workers in a rural part of south-west England. The major fieldwork was conducted in 1991, when interviews were held with management, workers and the trade union; this was followed up in 1995, to investigate the effects of four years of major rationalization and narrowing of product range.

In 1991 there were three manufacturing departments: for yoghurt (Y Plant), chilled desserts (D Plant) and canned beans (C Plant). The distinctive combination of dairy and canned beans production at this factory had arisen for historical reasons, but it meant that two different production environments existed – a very sophisticated capital-intensive, computer-controlled production system for yoghurt and chilled desserts, and an older, mechanized flow-line for beans-processing. In a competitive European environment, it is not surprising that the labour process and technology in the British yoghurt and chilled desserts plants resembled production in the German dairy factory, with a clear demarcation between the process control room and the packing department, with further departments for quality assurance and laboratories for testing the complex micro-biology of dairy-processing. Across the factory and including the canned beans plant, we again find sectoral similarities with the other cases in terms of departmental structure figuring a production, maintenance, logistics, cold-store and warehouse department.

At 'Chilled', products were made under branded names, but increasingly also for the major British retail supermarkets under their own labels. The supermarkets were squeezing the company to reduce prices and contributed to pressure to reduce costs and retain only the most profitable lines, which further accelerated restructuring. In late 1991, production of yoghurt was transferred to France; and shortly afterwards, the company

withdrew from the baked beans market, again, squeezed out by the multiples and two main brand leaders. Henceforth, production focused on the most profitable dairy activity in chilled desserts.

Work involved a sexual division of labour as found internationally across the sector, between the production or manufacturing end, which was increasingly capital intensive and persistently male dominated, and the packing end, which, while increasingly mechanized, was female. Unlike the Austrian and German cases, however, no formal qualifications exist in British food-processing: skill is learned 'on the job'. Even so, it is traditionally male. The only apprentice-trained occupations of engineering and electricians are in maintenance, and as elsewhere these are entirely male preserves.

Unlike the Austrian and German firms, where restructuring involved some new recruitment and thus a search for new certified skills acquired outside the workplace, here restructuring and changes in occupational demands occurred in tandem with continuous employment loss. Changes took place in terms of who left and who remained at the factory, and the types of employment-based retraining for the remaining employees. As numbers were reduced between 1991 and 1995, so the skill, age and gender composition of the workforce changed. First, the baked beans side had existed since 1968, with a stable, older workforce habituated to mechanical, flow-line production. Now, since flexibility between plants was expected of workers, these traditional 'engineering oriented' employees (as described by the personnel manager) found it difficult to adapt to the computerized process control environment of Y and D Plants. With employment rationalization in the C Plant, many of these older workers were found unsuitable for the demands of computerization in the dairy side and were offered redundancy packages.

In the 'chilled' side of production (both yoghurt and desserts) the workforce was younger, and those in the higher production grades (all men) possessed minimum qualifications of a couple of GCSE (basic secondary school) certificates, usually including maths – although this was not necessary for the lower grades. The new D Plant in particular, which had only been opened in 1990, required more technical training. It should be noted, however, that this did not imply formal technical qualifications, except for senior laboratory technicians, many of whom were graduates. In Britain, craft qualifications do not apply to food-processing operatives, in spite of the fact that certain manufacturing processes require considerable knowledge and discretion. With most training employer-based, recruitment and selection are based on criteria such as 'reliability' and 'common sense' although some employers also use aptitude or psychometric testing, depending on the local labour market. With increasing computerization of production, however, minimum secondary education in mathematics and English language is

increasingly required, while further technical training is often arranged between the workplace and a local college. New technology installation is often conducted by the equipment suppliers themselves, sometimes supplemented with some further technical courses at a local college of further education. In spite of formal equal opportunities policies, selection for the newest, highest skilled occupations is based neither on qualification not experience, but on management discretion. Training for the sophisticated D Plant at 'Chilled', which required operating the computerized process control room, began with 18 'key' workers from Y Plant selected by the production manager in 1988, who were first taken through 'classroom'-based training of the whole new plant's procedures, and then worked through its commissioning – its 'dry check' (equipment testing) and 'wet check' (testing using real materials). These 18 workers became the most senior operatives, and with a low attrition rate, remained as the trainers for further workers coming onto D Plant. All were young men.

Restructuring involved changes both in the organization of the labour process and in terms of time and capital usage – that is, in shift arrangements. Both processes affected the sexual composition of the workforce, which (as elsewhere in the food-processing industry) was already bifurcated between the male manufacturing end of production and the female more labour-intensive packing end. At 'Chilled', which in 1991 was already a highly automated factory in all three plants, men were in a majority: of a total of 371 production workers, 220 were men (59 percent) and 151 were women (41 percent), with most men in the highest grades, and most women in the lowest. In a skill and pay structure of eight grades, discounting the first Starter Grade 1, 78 percent of women were in the bottom three grades, as basic packers, high-speed packers, sorters, quality assurance through check-weighing, and production recording. The highest grade any woman achieved was Grade 5 (19 percent of women), which was 80 percent male and where half of all male operatives worked: this grade included forklift truck driving, filling operatives and other production tasks. The top three grades (technical, process control and supervision) were entirely male, and all the craft workers (fitters and electricians) were men (see Table 4).

By 1995 this gender polarization was marked further by the defeminiz-ation of the entire workforce. Of a production workforce reduced to 250, 79 percent were now men (197) and women were down to 21 percent (53). How did this process occur? For one might have supposed that, with the reduction of heavier, mechanized production and the introduction of lighter, more sophisticated and computerized work in D Plant, new training opportunities would offer women workers the chance to enter new fields. Instead, as the figures show, they were excluded further.

TABLE 4. Job Grades of Production Workers, UK 1991

Grade		Male	Female
8	Line Controller[a]	8	
7	Specialist[b]	11	
6	Technical[c]	20	
5	Various[d]	112	28
4	On-job trained[e]	56	56
3	Basic trained[f]	8	32
2	Basic Packer		30
1	Starter	5	5
Total		220	151

Notes

[a] Supervisor, formerly foreman, but now more technical than simply supervisory, and in charge of whole production line.

[b] Recruited from factory, trained often by equipment supplier. Process control room operator in D-Plant.

[c] Operatives on machines that make and pack yoghurt; blending machines in baked beans plant.

[d] More individual jobs than assembly line, e.g. fork-lift truck driving, filling operatives (baked beans).

[e] Training by supervisor. Production and recording of production, shop-floor clerical work; identifying product through-put.

[f] 2–3 weeks' training, e.g. baked beans plant, bean sorting, quality assurance (e.g. for bad labels or tins 'blowing'). Also high-speed packing (D Plant).

Work Restructuring, Flexibility and Team-working

Women's exclusion from the new, high-grade jobs was already evident in 1991. Rationalization and 'downsizing' were regular features of factory life: for the past five years, the multinational owner of 'Chilled' had regularly deployed a Production and Quality team to monitor labour efficiency, and recommend to the production manager where labour could be taken out.

The major drive on productivity at this time was in the canned beans area, where 25 percent of the workforce was lost through rationalization. It was striking how often women suffered by losing their job or by being downgraded. Thus, it was proposed to dismiss a Grade 4 bean colour sorter, a woman's job with 12 years' experience, as well as four sorters of finished cans (again female). The latter were employed to take samples, incubate them and test for bacteria (a skilled job which also illustrates the social construction of skill; as a woman's job it was graded as only 4). After resistance both by the women and by the plant manager (who often disagreed with the recommendations of the corporate work-study team), the result was a compromise, with two jobs lost. A move towards team-work also disadvantaged women: the scheme involved rotating between operating the shrink-wrap machine, the labeller (both operated by women) *and*

the job of stacking boxes onto pallets – a job carrying heavy weights and done by strong, fit men. Note, this latter was not automated (as it could have been) to avoid heavy lifting by both women and men. The suggested team reorganization was regarded as discriminatory by the women, as effectively excluding them from the new job combinations. Again they resisted – on their own, without the help of the union – and a compromise was reached: the job of palletizer was separated from the new team. However, this also meant that some women lost their former supervisory position, since pallet-stacking was now included in the new terms of the supervisory grade. Thus two women labellers who had previously also been in charge of the line lost their supervisory role, and were downgraded from Grade 4 to 3 – in spite of having new work responsibilities elsewhere. It was small wonder that even the men interviewed felt that the Production and Quality team were 'unfair to the women'; while a woman, claiming to speak for her colleagues more generally, concluded 'that the company wants to get rid of women, and that we are discriminated against'.

The other major change involved the expansion of D Plant. The process of social exclusion of women from the highest grade technical jobs of process control resonates with Cockburn's (1985) observations of how men exclude women from 'technical know-how', and women's lack of confidence in challenging the socially imposed limitations on their technical competence. Here, the production manager used a gender-blind notion of 'equal opportunities', oblivious of these processes of social stereotyping: if women failed 'to come forward' for new jobs, this was *their* problem.

Most women in this department, as in others, were packing-machine operators and stackers, many also folding cardboard boxes, a job which should have been mechanized here, but tended to be manual as the machine tended to go wrong. Few benefited from training, which was confined to supervisory grades (male) and involved courses in food hygiene and team-building techniques, and the new process control jobs. As with the original selection of the D Plant 'leaders', an internal labour market route was governed by existing seniority principles, and informality. Promotion tended to be from manual process control in Y Plant (traditionally male), to the computerized process control of D Plant. One such (male) recruit, who had jumped from grade 5 to 7, had been trained by another process controller to 'lots of dials and VDUs in charge of three lines'; and while finding the new skills needed 'more concentration, but were less hectic physically', he could build on the basic principles from the manual controls of Y Plant. For women, it was extremely difficult to make such inroads from the packing departments; although process control and other higher grade jobs were officially advertised, the reality was informal promotion.

The one woman who did attempt to gain process control training saw herself as 'pushy' – her only resort in breaking through an invisible barrier

to male gendered technical training. This 'pushiness' was prompted by anger and a sense of injustice at seeing men constantly at an advantage to herself: at 'Chilled' for 13 years, she had trained as fork-lift truck driver and passed 'with flying colours'. However, she recounted that after she returned to work following the birth of her second child, she lost her job (although not her grade), while men who returned to work after injury had their jobs kept open; moreover, male temporary workers allegedly got onto permanent jobs quicker than she did after maternity leave. These reports were corroborated by a woman chargehand. According to another woman (a packer and check-weigher), it appeared that informality (and its corollary, patronage) had increased over the years; whereas she herself had entered D Plant following advertising and an interview, at the time of interview in 1991, they were simply picking workers out for promotion.

In general, production work outside the process areas in both Y and D Plants had, throughout the 1990s, required greater task flexibility (as in the other cases). An important addition to jobs throughout was the integration of Quality Assurance (again, as in the Austrian and German cases). For example, check-weighing was now part of packing. This did not in itself lead to any exclusion of women; rather, it involved job enlargement, and sometimes job intensification. However, with production confined to the modern D Plant from the mid-1990s onwards, the concept of flexibility was broadened: a new team-working system was introduced in which maintenance workers were assigned to production teams (albeit not doing production jobs, unlike the Austrian and German cases, but accountable to the production team-leader), and the previous eight-grade occupational structure was reduced to just four grades, each requiring further training. In the personnel manager's view, many women were deterred from these more demanding jobs and the required training, because they had 'too much else to cope with'. Unfortunately, the actual process of grade simplification was not observed in the field, so the real social processes of further defeminization were not directly observed. Although at the follow-up visit in 1995, the personnel manager told of new company guidelines on action on equal opportunities and against sexual harassment, there had never been a positive action training programme to encourage women into unfamiliar technical jobs, and by 1995 many women had already suffered varying forms of discouragement, leading to effective exclusion. A key element here was the restructuring of working hours to maximize on capital usage which further pushed women out of employment.

Restructuring and Employment: Shiftwork and 24-hour, Seven-day Working

Before the introduction of new shift patterns in 1991, the employment pattern at 'Chilled' was a 39-hour week, with a conventional two-shift

system (6 a.m.–2 p.m., 2 p.m.–10 p.m.) in the baked beans plant, and a three-shift system, including a permanent night shift, in the chilled dairy plants. The significance of this pattern for a mixed-gender environment was not only that women tended to work on the day shifts and men on nights (although after the 1986 Sex Discrimination Act women could also work on nights); in the small rural environment of the factory, many family members worked here, and partners could manage to alternate their shifts so as to accommodate household and child-care responsibilities.

However, maximum capital usage of new plant had no concerns for the compatibility of employment hours with the local labour market and its family arrangements and domestic division of labour. In 1991 negotiations began with the trade union over a new shift pattern to operate D Plant, with the sweetener of a shorter working week of 37 hours. To operate plant continuously a 'continental shift' system was eventually agreed. Four shift groups were created, each working morning, afternoon and night shifts (including one 12-hour shift) over a four-week cycle. Management thus obtained round-the-clock working, including weekends, without the costs of overtime payment. But for workers, quite apart from the physiological effects of the constantly changing range of hours, the rhythm of work did not match that of domestic life. If partners tried to alternate on different shifts, they would see even less of each other than under the previous system. For single men, or those with wives who could and were willing to cope, it had some attractions – particularly the shift bonus and the four-day breaks; but the change effectively pushed women out of employment.

With the new shift system, people could either take it or leave it. Once again, women claimed that the factory had no interest in retaining them; and indeed, where there were couples working at the plant, if one had to leave for domestic reasons it was the woman. This change in working hours, arguably more than any other aspect of restructuring, forced women workers out of 'Chilled' in the early phase of restructuring in 1991: the way maximum capital utilization was organized was premised on one gender being unconstrained by family, or wider social responsibilities and ties. Four years on, the masculinization of the labour force testified to the consequences.

Discussion: Restructuring, Skills and the Sexual Division of Labour

In the European food-processing industry, major restructuring is under way at both corporate and plant levels. The empirical findings presented in this article suggest that such changes have a particularly detrimental impact on female employment in both quantitative and qualitative terms. What are the main factors leading to the increasing exclusion of women

from production areas? What measures can be taken to influence the processes in favour of female employment?

In the mass-production sector, jobs have increasingly become the routine adjuncts to mechanized and automated process technology. Employees are responsible for either the smooth running of continuous-flow and automated linked machinery or the routine loading and packing of goods. Work is repetitive and machine-paced, with few opportunities for direct influence on production. For the majority of employees, restructuring has meant intensification of work through labour rationalization and the introduction of faster machinery, while 'flexibility' initiatives involve job enlargement through the capacity to engage in additional tasks and the greater integration of quality control into production. Some of this has involved further training, resulting in up-skilling and re-grading, usually accompanied by a simplification of the pay structure into fewer grades; but it has also involved taking on unskilled tasks such as cleaning-up in the production area (Scott, 1994).

It is difficult to assess the influence on skill structure of microprocessor-based technology: greater numeracy and information-gathering ability are required for the monitoring of automated process control equipment, replacing operators' previous judgemental skills. Thus, while access to more 'high-tech' machinery jobs may allow upgrading – largely because of greater responsibility and higher productivity – some of this may be regarded as a social reconstruction of 'skill', rather than genuine up-skilling based on extensive training and new knowledge. Indeed, it is often in the less sophisticated production areas where more opportunities arise to detect faults and make some mechanical adjustments to technology; generally, the more sophisticated the technology, the less scope for 'flexibility' in the sense of work variety in manual intervention (NEDC, 1990). Quite often, as in the British case, faults in high-tech equipment could be diagnosed and remedied only by calling in specialists from the manufacturer. Nevertheless, this may be an interim phase and, as we have seen in all three case studies, a premium is increasingly placed on employees with technical and engineering skills and qualifications.

Studies of German industry have tended to identify the vocational training system as a major factor underlying economic success. This overwhelmingly positive view has been re-assessed in the light of Germany's economic problems and the introduction of 'lean production' in the 1990s. Critics claimed that the system created rigid functional divisions, hindering the introduction of forms of work organization such as group work, project-based work and integration of secondary functions. There has been little discussion, however, of the way formal training has reproduced sex segregation.

With the formal vocational training system, a distinct segregation by gender has already occurred by the time of occupational selection

and entry, with negative consequences for women – most particularly in high-tech industrial occupations in which virtually no women are represented. A greater number of women (and foreigners) receive no vocational certificate at all, excluding them from new jobs in restructured companies at the outset. This is shown in the course of the rationalization waves in the western plants in this study. The resulting lay-offs, division of labour and barriers to further training, although socially constructed, were objectified through the vocational training process. The exchange was not, allegedly, men for women, but rather skilled for un- (or unrelated) skilled. The argument used by policy makers is that since women have the theoretical opportunity to enter apprenticeships in the desired fields, the job loss is an individual rather than a social problem.

At the same time, the generally high level of skill on the external labour market reduces attention to further training in Germany and Austria; while skilled workers receive a disproportionate share of further training relative to unskilled workers. This means that the accumulation of abilities only occurs *on the foundation of already existing skills*. There is thus a similar pattern at the formal level of qualifications to that found in Britain, where employer-based training favours those already in the more skilled jobs. In this framework, retraining programmes can only have a marginal effect on unskilled workers. Unskilled workers, and even workers skilled in other fields who have received retraining, are not considered skilled in the apprenticeship system sense. Therefore they tend to be eliminated in a major restructuring process.

Women in all three cases found it hard to enter 'high technology' areas in processing, or where packing involved previously male-dominated tasks, even though the new 'flexible' jobs themselves required only routine monitoring and recording. The Austrian and German cases demonstrate a new system of credentialism, in which qualifications which tend to be male-dominated are required. But sex segregation is not always attributable to formal training and its alleged rigidities. In the British case, where team-working and so-called moves towards more 'lean' production were the major elements of restructuring, subtle processes of job-gendering are facilitated by the very opposite of the formal exclusionary system of Austria and Germany: informality and nepotism keep capital-intensive machinery 'male', with management fostering a process of male ownership of premium-paying jobs. In some instances, we saw that men were as concerned as women about the unfairness to women (as in the baked beans plant at 'Chilled'), but at other times they colluded in the protection of an exclusionary male shopfloor culture (Phillips and Taylor, 1980; Coyle, 1982; Cockburn, 1985; Pollert, 1996). Without active opposition to entrenched sexual division, internal labour market processes tend to favour continued gender inequality, with recruitment, selection and training of existing employees in practice operating on sexually stereotyped lines.

The change in the meaning of 'flexibility', as illustrated by the Austrian cases, devalues the competencies and capacities of semi-skilled women workers. The areas where women used to be deployed flexibly are disappearing. Along with increasing capital intensity, firms aim at a flexible deployment of mechanically skilled labour in order to prevent downtime. Women lose an asset, their 'flexibility' in the traditional sense. The introduction of skilled craft workers to production in Austria and Germany is a major factor in squeezing out semi-skilled women. In Britain, the construction of 'flexibility' in new teams has set up barriers to women, or downgraded their jobs. They have been less affected by the challenge to the traditional divide between apprenticed craft workers and production employees than in the other cases, since this divide remains much stronger. In general, while production machine operators can engage in 'preventative maintenance' – correcting faults and diagnosing problems – when it comes to any work inside the machine involving removal of the safety guard, this is the exclusive preserve of skilled craft workers. Inter-craft demarcations (Cross, 1985) are also common in the British food industry, though some cross-trade flexibility is occurring between engineers and electricians; and team-working is encroaching on job demarcations, with craft workers more often part of production teams rather than being answerable to a separate maintenance function. If the pattern converges further towards the Austrian and German cases, then the preference for these (male) qualified workers on the production line is likely to apply in Britain. But even without requirements for formal qualifications, alleged 'technical competence' is already ascribed to men, who dominate the new workplace.

Besides training and skill, capital usage and shift patterns are crucial elements of restructuring which the debate on organizational efficiency and social exclusion so often ignores. A prevalent feature of food manufacturing is the continuing sexual division between the 'hot' or 'wet' end of manufacture and the 'dry' or 'cold' end of packing. Men continue to dominate the first, with its increasingly capital-intensive, computer-controlled production; women are concentrated in the routine, repetitive labour-intensive jobs. The construction of gender segregation *within* semi- and unskilled work is partly a historical product of the division between capital-intensive jobs as male and labour-intensive jobs as female, which developed through management's drive to maximize the return on capital investment through keeping it operating over 24 hours and the need for night-shift work (Armstrong, 1982: 32). Not only was there the push factor of 'protective legislation' excluding women from night work, but there was the pull for men by night-shift premium rates.

In all three case studies, competitive pressure and the high cost of new capital investment extended the requirement for 24-hour operation from processing to all aspects of production, including packing: hence the

spread of night work for all, and complex shift patterns for seven-day working. What is at stake here is the relationship between employment time patterns, the domestic division of labour and the effect of both on women workers. In Austria and Germany, where legislation still prohibits women's night work in manufacturing, we saw how this factor was used as an additional excuse to exclude women from new occupations – by both management and male workers. In Britain, where the legal basis for women's exclusion from night work disappeared with the 1986 Sex Discrimination Act, the social disruptions caused by women doing night work were sufficient cause to reproduce what had been legal restrictions before. The household care of dependants has had no part either in management concerns or the academic debate on economic efficiency.

Conclusions

Our cases have shown that in spite of considerable variations in the institutional training and qualification regime, the existing problems and the prospects for the future are quite similar in the countries examined. Furthermore, trends in the relocation of production, automation, increasing capital utilization and changing working hours and their relationship with the household are part of a more general move toward flexible mass production. This is not to argue that institutional conditions have no effect on the way labour and skill are used in the production process; but no less important are social forces transcending nationally specific contexts.

Our criticism of positions that idealize skill as a means to economic health is that they quickly lead to assumptions that training is the cure-all for ailing economies as well as employees at risk. A gendered analysis illuminates clear exclusionary processes for women which are normally omitted from the debate. Our empirical research makes clear that social exclusion (or inclusion) is related only partially to either an inability to meet changing skill requirements on the one hand, or creation of skills through training on the other. If we take into account the interrelated nature of the influences on employment opportunities, including working-time patterns, which disproportionately affect women workers regardless of their actual qualifications, it becomes obvious that the problem cannot be reduced to the lack of skill. And even where changing skill requirements are the problem it is not clear that training constitutes the remedy, unless the whole household and labour market position of workers is taken into account as well.

There are two different types of processes that block or remove women from the production areas of high-tech industries like food-processing. One is that in all three countries examined, technical and craft trades are

overwhelmingly dominated by men. Women are aware of the gendering of occupations when they make vocational choices, and they steer away from male-dominated ones (Cockburn, 1985). Although there are a number of potential factors at work in this decision-making process, one has to see its rationality: in a period of high unemployment and downsizing, the opportunities for young women in 90 percent male-dominated occupations cannot be rated very highly.

The second issue involves the women who lose their jobs in periods of restructuring. Skill has only a small part to play in their elimination from the workforce. Once sophisticated high-performance machinery is introduced, a period of rationalization follows. At least initially, the number of jobs overall decreases, particularly those associated with limited manual tasks. But in any case, when a large share of the workforce is dismissed, it is the marginalized workers, women and foreigners, who will tend to be the first to go. When increased capital usage of expensive machinery, together with the high-volume production of large multinationals, lead to three-shift, seven-day work schedules, the onus is put on women to choose between their responsibilities for household and children and paid employment.

All these factors are structural problems and not a question of individual possession of skills. Focusing on training as a remedy is therefore to a certain extent an ideological means to blame the victim. Skill profiles change with technology and restructuring, but these changes do not automatically translate into demand for labour. Rather, the demand is mediated by a social construction of skill requirements and of skills that persons possess. Thus the German and Austrian vocational training system serves to perpetuate sexual divisions of labour by freezing into a new certification structure the previous rationalization strategies and existing divisions by gender. Furthermore, it supports an orientation to further training that is disadvantageous to unskilled and semi-skilled workers.

Another mediation rests on the availability of (certified) skills on the labour market and the cost calculation between further training of semi-skilled workers on the one hand, and layoff and recruitment of fresh skilled labour on the other. In terms of management's economic concerns, it is far from evident that the policy of replacing women workers by men really saved on costs. The devaluation of women's work and skills biased any serious evaluation of the value contribution of women's existing (or potentially upgraded) skills.

Approaches that emphasize a connection between high levels of skill and positive organizational or economic results, or that identify a link between types of skill generation and predominant market strategies, should be viewed with scepticism. They tend to gloss over sectoral effects, ignore gender effects, and although they have policy implications, pay

little attention to individual effects. In periods of restructuring, patterns of discrimination, deeply rooted social constructions of skill use, and intensified levels of capital utilization all work together to affect human resource outcomes in ways that are neither necessarily rational in terms of capital, nor advantageous in terms of integrating workers at risk.

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