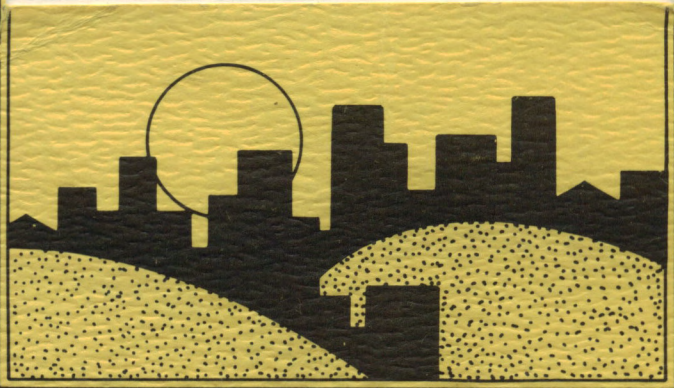


**RHETORIC AND REALITY IN THE CLOTHING
INDUSTRY: THE CASE OF POST-FORDISM**

Alastair Whyte Greig

Urban Research Program
Working Paper No. 26
December 1990



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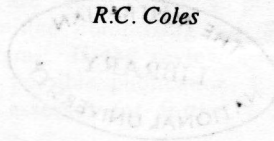
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ABSTRACT

This paper is the second in a series on technological and organisational change within the Australian clothing industry, and forms part of the research project entitled 'A Local Division of Production: Technological Change and Productive Interlinkages in Australian Manufacturing'. The purpose of this second paper is to examine in greater detail how new production concepts have been translated at the clothing manufacturing enterprise level. These changing production techniques are empirically explored through the 'lens' of the post-fordist paradigm. The study concludes that although most companies have had to introduce varying degrees of flexibility into their operations, this flexibility cannot legitimately be described as post-fordist. A cautionary note is also raised: when examining technological and organisational change in the clothing industry it is not enough to look at individual firms as self-contained units; any useful analysis must also take account of the practice of subcontracting and strategic interlinkages between companies.

RHETORIC AND REALITY IN THE CLOTHING INDUSTRY: THE CASE OF POST-FORDISM

Alastair Whyte Greig¹
Urban Research Program

INTRODUCTION

This paper is the second in a series on technological and organisational change within the Australian clothing industry, and forms part of the research project entitled 'A Local Division of Production: Technological Change and Productive Interlinkages in Australian Manufacturing'. The first paper examined the evolving relationship between large retailers and their manufacturing suppliers and argued that in order to understand changes within the industry it is essential to appreciate the key role retailers have performed in altering quality control and production practices at the manufacturing level (Greig, 1990).

The purpose of this second paper is to examine in greater detail how new production concepts have been translated at the clothing manufacturing enterprise level. These changing production techniques are empirically explored through the 'lens' of the post-fordist paradigm.

The first part of the paper outlines post-fordist theories and provides an historical interpretation of the crisis of fordism and the emergence of the post-fordist alternative. The second part of the paper takes up the challenge of Richard Badham and John Mathews' research agenda by applying their 'ideal-type' post-fordist model to the clothing industry.

¹ I would like to express my gratitude to Barry Hindess, Frank Jones, Jane Marceau and Di Bolton for reading an earlier draft of this paper, and to the numerous individuals employed by the firms and organisations interviewed in the study. Through previous agreement the individuals and firms remain anonymous. All unacknowledged references and quotations reflect the commercial-in-confidence nature of the information supplied. This paper was presented to the Urban Research Program Seminar Series, R.S.S.S., A.N.U., 8 October, 1990.

Firstly, it is demonstrated that the rhetoric of post-fordism can be found within the technical literature in the industry. Secondly, using 18 case studies representing most of Australia's largest clothing companies, the key indicators of Badham and Mathews' post-fordist model (namely, product innovation, process variability and worker responsibility) are operationalised. The results indicate that while most companies have had to introduce varying degrees of flexibility into their operations, this flexibility is 'static' rather than 'dynamic', and corresponds more closely to Badham and Mathews' 'neo-fordist' level rather than post-fordism.

Finally, the paper issues a note of caution, pointing out that the *individual* firm is often an unreliable unit of analysis for applying Badham and Mathews' model to the clothing industry. The practice of sub-contracting underlines the importance of taking into consideration strategic interlinkages *between* companies when examining technological and organisational change in the industry.

POST-FORDIST THEORIES

Over the past decade a number of concepts relating to post-fordism have entered the literature on industrial and organisational change, including 'flexible specialisation' (Piore & Sabel, 1984), 'diversified quality production' (see Campbell, 1989) and 'disorganised capitalism' (Lash & Urry, 1987). While Hirst & Zeitlin (1990) have pointed out that these concepts represent distinct theoretical, methodological and policy approaches to the study of industrial change, the term post-fordism will be used in this paper as a generic term for three main reasons. Firstly, the debate within Australia has mainly centred around the concept of post-fordism (see Mathews, 1989a, 1989b; Bramble, 1988, 1990; Campbell, 1990; Hindess, 1990). Secondly, the empirical component of this paper will operationalise the post-fordist model developed by John Badham and John Mathews (Badham & Mathews, 1989). Thirdly, Mathews work on post-fordism represents one of the most ambitious attempts to synthesise and advance the observations and generalisations of the various positions within the literature.

In order to appreciate Mathews' claims, and place his model in historical perspective, it is first necessary to understand what post-fordism is, and

what it claims to transcend, namely fordism. Like the term 'flexible specialisation' coined by Piore and Sabel in their seminal work *The Second Industrial Divide*, post-fordism describes the tendency over the past decade for producers to move away from the standardised production of goods for a mass market utilising an intense in-house division of labour, dedicated machinery and economies of scale towards the production of smaller batch runs of more customised products for a more diversified market, using more flexible machinery and a more flexible multiskilled workforce. Adapting T.S. Kuhn's approach to scientific revolutions (Kuhn, 1970) others, such as Chris Freeman and Carlota Perez, argue that this transformation of methods of production represents the emergence of a new dominant 'techno-economic paradigm' (Freeman & Perez, 1988).

The concepts of fordism and post-fordism are used by theorists such as Mathews as 'ideal types', or 'unified analytical constructs' (Weber, 1949), serving to define the most significant features of competing paradigms with the purpose of explication. The prime 'value reference' for Mathews is the extent to which one system of production is being superceded by another. According to Mathews, the fordist paradigm 'gives us a conceptual handle on reality' (Mathews, 1989a: 30) for understanding the stability which western capitalism achieved between the end of the Second World War and the beginning of the 1970's.. More importantly, this conceptual tool provides an explanation for the 'crisis of mass production', its inherent limitations, and also helps map the possible contours of future industrial change.² While examples of post-fordist techniques can be found in production units well before the 1970's (see Sayer, 1985; Aganbegyan, 1988; McMillan, 1984; Dore, 1986) post-fordist theorists argue that it has only been since the mid-1970's that the post-fordist techno-economic paradigm has emerged as a serious contender to the previously dominant system of mass fordist methods of organising production.

² It should be pointed out that Mathews goes beyond the Weberian notion of an ideal type by deriving an 'ought' from the empirical world. This 'ought', worker-oriented post-fordism, is to be achieved through 'strategically informed intervention ... organised around a politics of democratisation' (Mathews, 1989a: 39).

In the field of sociological theory, the post-fordist debate has refocused manufacturing as an important topic of investigation, tempering the overstated 'post-industrial' thesis made by commentators such as Daniel Bell (Bell, 1973). Indeed, one of the most fruitful contributions to industrial sociology of the post-fordist debate has been the recognition of the interdependency of production and the 'information society' (see Cohen & Zysman, 1987). Echoes of the post-fordist debate have also reverberated through labour process theory, and the left in particular are divided over the meaning and political implications of post-fordism. While Mathews views post-fordism as a potentially emancipatory force, others, such as Tom Bramble, see it as the latest tactic employed by capital to control labour and ensure the generation of surplus value (Bramble, 1988, 1990).

One final theoretical comment needs to be made in order to clarify the focus of this paper. The concepts of fordism and post-fordism have often been used to describe two separate, yet interrelated, phenomena of social change. Firstly, it has been employed to describe organisational and technical developments within *individual units of production*. Secondly, it has been used in a more 'totalising' sense to describe changing patterns of production, consumption and institutions *at a broader societal level*. Mathews uses the broader level of analysis to inform his discussion of changes at the enterprise level. The purpose of this paper is to evaluate Mathews' claims on the enterprise level through applying his post-fordist model to changes occurring in a particular sector of Australian industry, namely the clothing industry. It therefore addresses the post-fordist debate on the more restricted meaning of the term.

THE SOCIO-ECONOMIC CONTEXT OF POST-FORDISM

However, before examining Mathews' model of post-fordist change at the enterprise level it is useful to place it within the broader understanding of changes taking place in patterns of production and consumption. The purpose of this section is *descriptive*. It is not intended to be a critique of Mathews' social theory. It sets the contextual framework within which Mathews approaches changes at the enterprise level. Mathews' totalising framework for explaining these changes borrows heavily from the French Regulation School. This school has combined Marxism with

functionalist sociology in order to explain the inner dynamics and reproduction of the capitalist system.³ According to the French Regulation School any regime of accumulation, or model of capitalist economic growth, requires corresponding modes of regulation, or institutional forms, to assure its reproduction. These institutional forms involving the organisation of consumption and negotiation help to ensure the regulation of the mode of production (Aglietta, 1979; Lipietz, 1987). Carlota Perez adopts a similar stance when she argues that the capitalist mode of production consists of two interrelated sub-systems, a techno-economic sub-system and a social and institutional sub-system. The smooth operation of the mode of production requires that an equilibrium exist between the techno-economic and the socio-institutional mechanisms (Perez, 1983, 1985).

In the popular sense fordism has come to mean a specific form of work organisation based upon mass production and the assembly line. Henry Ford's introduction of the moving conveyor belt for assembling Model-T Fords at Highland Park in Detroit in 1913 is presented as the harbinger of this system of production. Linked to Fredrick Taylor's system of scientific management of work organisation and its accompanying 'degradation of labour', it is often argued that this innovation shaped the contours of the twentieth century. According to the post-fordist theorists, this fordist techno-economic paradigmatic shift, or the 'first industrial divide', led to the need to bring the social and institutional mechanisms into line with the new techno-economic advances. Between the wars, the advances in productivity and accumulation resulting from the new production and organisational techniques associated with mass production of standardised goods, the assembly line and Taylorist work organisation led to a crisis of industrial capitalism. In functionalist terms, the techno-economic and the socio-institutional sub-systems of capitalism were in a state of disequilibrium. As Michel Aglietta points out, during the 1920's the fordist system of regulation faltered because 'the working class market could not yet be reached under the social conditions of production at the time' (Aglietta, 1979: 88).

³ One disciple of the school, Alain Lipietz, concedes to an *a posteriori*, or metaphoric, functionalism ('It is as though...'). However, certain critics, such as Hirst and Zeitlin (1990) and Daniel Cataife (1988), have also accused the French Regulationists, such as Aglietta and Lipietz, of adopting a functionalist position.

According to Mathews, 'the need for markets to be created for mass produced goods from the 1920's onwards, underlies many of the social and economic developments that are conventionally seen as arising independently' (Mathews, 1989a: 27). While Ford's \$5 day and the New Deal can be interpreted in this manner, Mathews and other post-fordist theorists argue that the rise of the post-Second World War interventionist state and Keynesian demand-side policies were the most important factors which brought the socio-institutional and the techno-economic sub-systems into equilibrium. These developments facilitated a stable mass consumer market for mass production and assured, until the early-1970's, the reproduction of the fordist regime of accumulation. Apart from the direct demand generated by expanding state expenditure, welfare measures such as social security helped diminish the cycles of boom and bust, and deflected much of the discontent and social disruption previously characterising recessions and slumps. Furthermore, the Bretton Woods agreement attempted to stabilise international trade through fixed exchange rates tied to the powerful U.S. dollar.

Annemieke Roobeek further argues that in Europe and elsewhere social democratic parties and/or labour unions 'gained strong positions in the post-war period, which were translated into strong bargaining positions in the corporatist decision-making process and the building of the welfare state' (Roobeek, 1987: 135). Unions, fighting and bargaining on the strength of representing deskilled Taylorised labour, performed a functional role in maintaining the overall stability of the system by generating mass consumption market demand.

Other phenomena of regulation mentioned by Roobeek include the growing spheres of the commodification of the means of consumption and the extension of consumer credit facilities. She also argues that the post-war expansion of suburbanisation 'which can be seen as a socio-economic innovation, made the integration of the auto-house-electrical appliance complex possible' (Roobeek, 1987: 133). From the post-fordist perspective, these social and institutional changes enabled the long post-war boom to materialise. The changes promoted a synchronicity with the dominant techno-economic sub-system, fordism, by providing stabilised

mass markets for standardised products produced through mass production techniques by ever-expanding corporations.

This regime of accumulation based upon the fordist production system began to manifest signs of crisis in the late-1960's and early-1970's. Roobeek has listed a number of factors which limited and restricted the expansion of fordism and its regime of accumulation (Roobeek, 1987: 136-40; for similar accounts, see Mathews, 1989a; van Tulder & Junne, 1988).

One reflection of the inherent limits within the fordist system was *declining productivity growth*. Durable mass consumer goods had reached a maturity phase due to declining demand and the inability to find new markets.⁴ Another related factor of the crisis of fordism was the *divergence between the decline in productivity and wage growth*. As mentioned above, fordism and the post-war growth had increased the bargaining position of labour and encouraged the regulation of labour. Despite declining productivity growth during the 1970's, unions were still able to secure wage increases. As Roobeek (1987:138) points out, 'the regulation of wages gave the employers, finding themselves faced with falling productivity growth and a saturated market, reason to complain about rigid and inflexible labour relations'. Capital responded by demanding new, more flexible, forms of labour contracts and work practices, which would reflect growing market instability and fluctuating profit margins.

Furthermore, mass fordist production techniques were easily emulated, and competition within industry sectors led to the saturation of mass markets, *limiting market expansion*. The internationalisation of these markets in durable consumer goods soon reached limits during the 1970's as developing countries faced growing debt burdens. The resulting monetarist policies and the austerity measures forced upon the people of these debt-ridden nations hardly encouraged the mass market for durable

⁴ Another factor influencing declining productivity growth was growing governmental regulation in areas such as occupational health and safety, and in environmental controls over the growing problem of pollution. Furthermore, fordism was premised upon unlimited access to cheap raw materials and cheap fuel. The oil crisis of 1973-4 provoked a sharp reminder that this premise was indeed shaky. Resultant rises in prices spurred a search for new technologies and new materials.

consumer goods which had promoted the post-war boom in the industrialised west.⁵

In order to overcome this crisis many companies *relocated labour-intensive aspects of the production process in low-wage countries*, thereby reducing labour costs. However, while this may have advantaged individual firms, the resort to low-wage Third World labour adversely affected the systemic fordist equilibrium between production and consumption on a societal level *within* western nations. As jobs were rationalised away, the states' financial burdens increased further through rising expenditure on unemployment benefits. The *internationalisation of production* also triggered a crisis in Keynesianism, as more and more uncontrollable leaks to foreign markets exacerbated the problem of ensuring the sub-systemic *national* equilibrium upon which fordism was based.

However, for the purposes of this paper the most important question is how the crisis of fordism manifested itself at the level of individual units of production. Roobeek lists four problems directly related to the enterprise level. Firstly, fordism's *structural overcapacity* began to manifest itself in growing inventory problems. As demand declined firms were forced to invest in increased storage capacity for unsold goods, which increased non-productive operating costs. In turn, these problems highlighted the inflexibility of fordist production technologies and organisational strategies, which were unable to produce optimal volumes and diversify production quickly in response to changing demand.

⁵ Roobeek also argues that the crisis in fordist regulation was occasioned by the *increasing costs for public services for the middle class*. In the original fordist model state-provided social services were intended to shelter the working class from the effects of economic recession. However, these services became increasingly concerned with the needs of the middle class (and suburbanised society) who came to define welfare needs and appropriated them in terms of their own interests and requirements. As the working class took advantage of these expanding services the cost to the state escalated, helping to usher in the 'fiscal crisis of the state'. While the term 'fiscal crisis of the state' has been used here, it should be pointed out that Roobeek does not highlight one of James O'Connor's principal theses, namely that 'the socialization of the costs of social investment and social consumption capital increases over time and increasingly is needed for profitable accumulation by monopoly capital' (O'Connor, 19783: 8, emphasis added).

Secondly, the crisis of fordism manifested itself in *poor quality control*. While competition and saturated markets placed a premium on quality, the organisation of fordist production was unable to guarantee it. High rejection rates of components and materials on one hand, and finished goods on the other, came to be seen as an unacceptable cost as productivity growth declined. However, the technical equipment was not available to systematically check quality. Furthermore, deskilled Taylorised work and authoritarian work relations did not encourage worker involvement in quality control at the point of production. Many companies began to recognise the relationship between the quality of work and the quality of production. As critics of Braverman and critics of 'actually existing socialism' pointed out, high labour turnover, absenteeism and various forms of industrial sabotage were forms of worker resistance to the degradation of labour under alienated conditions of work,(see Braverman, 1973; Stark, 1980; Ticktin, 1973).

The *international dispersal of production* also resulted in a further problem of fordist control. This was the logistic problem of coordinating the assembly and delivery of parts from around the globe. Final production costs rose due to the increased interest paid on transit of parts and final goods, while global production hindered firms' ability to respond flexibly to changes in local markets. Once again, as with the problem of structural overcapacity, this problem highlighted the need for new production, distribution and logistical systems which could respond quickly to market changes.

Roobeek also lists *growing bureaucratisation* as a control problem for fordism. Like the interventionist state, as fordist corporations expanded, their rules and regulations grew more complex. This 'iron cage' resulted in 'inflexible, slow, rigid decision-making' procedures which were reflected in increased production costs.

Roobeek's enumeration of difficulties encountered by the fordist regime of accumulation and control highlights the complex relationship which exists between the techno-economic sub-system and the social and institutional sub-system. The crisis of fordism was not occasioned merely by production and economic factors. These factors cannot be viewed in isolation from the social and institutional factors which

promoted fordist accumulation in the first place. Furthermore, as Mathews argues, by grasping fordism as an analytical construct, it is possible to explain the crisis faced by individual units of production during the 1970's. It also sets the contemporary challenge of industrial restructuring within a wider socio-economic context.

THE POST-FORDIST CHALLENGE

The fordist paradigm also helps reveal the possible responses available to companies in their attempt to overcome its crisis. The variety of responses all have one imperative in common, namely the search for *flexibility*. Indeed, the 'flexible firm' became the catchphrase of British managers during the 1980's, and Piore and Sabel use the term flexible specialisation to distinguish post-fordism from fordist mass production.

Greater flexibility was sought throughout all aspects of the production and distribution process, from flexibility in product range to capture the needs of a differentiating market, to flexibility in the production process to enable firms to respond rapidly to these changes. Therefore, flexibility affected both the technology utilised within a firm and also the managerial and operational strategies adopted by the firm. In order to overcome the limitations of fordism, the flexible post-fordist firm would have to reorient its activities to take into account the need for a differentiated product variety to meet the needs of a more uncertain market. Production runs would consequently have to be made in smaller batch sizes. This would alleviate the problem of inventory control over incoming supplies and finished goods. Decentralisation of functions would overcome the difficulties surrounding complex rules and regulations while the problems associated with employee relations would be tackled through reversing the trend towards deskilled Taylorised work organisation and encouraging skill upgrading and multiskilling. Flexible workplace practices were required, either through broadening the workers' range of activities (functional flexibility) and/or through temporary or non-standard contracts with workers peripheral to the core activities of the firm (numerical flexibility, or distancing).

However, John Atkinson has urged caution in the use of the term 'flexibility' for three reasons. The first is that the range of subjects

covered by the term is extremely broad. Secondly, the range of groups and institutions affected is also very broad and flexibility affects these constituents in different ways. Thirdly, 'its use is often blatantly ideological, reflecting our cultural disposition to value flexibility....over inflexibility' (Atkinson, 1987). He therefore makes the distinction between 'dynamic' and 'static' forms of flexibility. Dynamic flexibility refers to 'changes to institutional, cultural and other social or economic regulations and practices which permanently increase the capacity to respond to change' (Atkinson, 1987). On the other hand, static aspects of flexibility refer to 'one-off accommodations to particular pressures, which leave one no better placed to respond to further pressures' (Atkinson, 1987)

While John Mathews has not used this distinction in his book *Tools for Change: New Technology and the Democratisation of Work* and in numerous recent articles, his discussion of the various strategies adopted by firms to overcome the limitations of fordism complements Atkinson. Mathews distinguishes between neo-fordist and post-fordist approaches: the former resembling static forms of flexibility and the latter resembling dynamic forms. Neo-fordist strategies can in turn be sub-divided into forms of either intensification or modification towards innovation and specialisation. Intensification involves 'expanding outwards on a world scale; contracting inwards...; or rationalising and reorganising production, utilising computers, along Taylorist lines', or what Mathews calls 'computer-assisted Taylorism' (Mathews, 1989a: 31).

The first two forms of intensification have been dealt with above under Roobeek's discussion of the limitations of fordism, and would be more accurately described as fordist strategies. However, computer-assisted Taylorist intensification does represent an attempt to overcome fordist limitations through introducing flexibility by utilising advances in micro-electronics to integrate aspects of production, speed up flows of information between departments, customers and suppliers, reduce wage costs and increase productivity. Mathews argues that computerised Taylorist intensification has had mixed results, but ultimately fails to overcome the structural crisis of fordism.

Computerisation of production is certainly leading to productivity gains - but while it is applied along Taylorist lines, it quickly comes up against structural limits in the form of poor quality goods or inflexibility of supply. The divorce of conception from execution - the basic Taylorist principle - has led to productivity gains in a simple mechanically-based mass production system, but firms are finding that it represents an absolute *limit* to productivity growth in complex computer-integrated manufacturing systems, where worker flexibility and power of innovation are at a premium. (Mathews, 1989a: 32)

According to Mathews, the second form of neo-fordism, involving increasing specialisation and product diversification, also reaches limits imposed by fordist strategies. While these strategies enable firms to tap into niche markets and produce higher value-added goods, by taking advantage of advanced computerised technology, they generally operate within Taylorist work organisational principles. These principles, Mathews stresses, are incompatible with the premium on a highly skilled and motivated workforce needed to fully exploit a permanent culture of innovation and flexibility, or dynamic flexibility.

Mathews concludes that fordism and Taylorist work organisation are no longer relevant to the changing conditions of late-twentieth century economies. A more democratic workplace is 'an *optimal strategy* for firms to follow. The participative and democratic workplace then becomes....the most efficient and productive workplace' (Mathews, 1989a). Mathews goes on to argue that if work democratisation, reskilling and an end to the division between conception and execution of production functions is the only rational path for firms to pursue in order to overcome the crisis of fordism, then enormous opportunities exist for the labour movement. These conclusions are 'truly momentous'. The fundamental aim of the labour movement, the dignity of labour, now becomes compatible with efficiency and rationality in the shift from fordist to post-fordist production. In order to exploit this opportunity the fordist culture of confrontationist industrial relations must be transcended, by one based upon cooperation. A labour movement strategy in the face of the post-fordist challenge must 'rest on a notion of *strategic accommodation* between capital and labour. Employers and

unions may pursue their own interests, but with a *common interest* defined by the need to develop a flexible, innovative and efficient industrial system' (Mathews, 1989a). Marxists have criticised Mathews on the ground that he fails to address the fundamental contradictions between capital and labour, and claim that this 'strategic accommodation' is, at best, utopian, or at worst, politically disastrous for the union movement (Bramble, 1990).

Mathews recognises that the merits of his claims rest upon empirical examination. Along with his colleague Richard Badham, he has developed a three-dimensional model of production systems in an attempt to provide a coherent framework for discussing the dynamics of industrial change throughout the 1980's (Badham & Mathews, 1989). The three production characteristics which they isolate as the key determining variables defining the techno-economic transformation are: a) the degree of product innovation; b) process variability; and c) labour responsibility (Badham & Mathews, 1989:206).

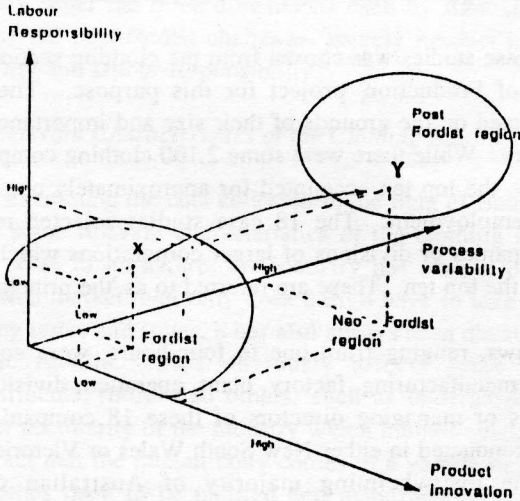


Figure 1 Three Dimensional Model of Production Systems (Badham & Mathews, 1989:207)

This model can be applied across industry sectors in order to assess the extent to which individual companies or even entire industry sectors have implemented the new production systems. On each dimension the highest points are associated with a high degree of flexibility and post-fordist practices.

POST-FORDISM AND THE CLOTHING INDUSTRY

The Study

Using data gathered as part of the study entitled 'A Local Division Of Production: Technological Change and Productive Interlinkages in Australian Manufacturing' the rest of this paper will assess Badham and Mathews' model. Two questions will be addressed. The first is whether, using Badham and Mathews' framework, Australian clothing companies are adopting fordist, neo-fordist or post-fordist strategies to deal with changing market conditions? The second question is whether the model provides insight into technological and operational changes occurring in the Australian clothing industry. In other words, does the model capture the complexities of organisational change within the industry?

A sample of 18 case studies was chosen from the clothing section of the 'Local Division of Production' project for this purpose. These case studies were selected on the grounds of their size and importance in the Australian industry. While there were some 2,100 clothing companies in Australia in 1989, the top ten accounted for approximately one third of production and employment. The 18 case studies selected represent independent companies or divisions of larger corporations which appear within the list of the top ten. These are referred to as 'the principals'.

Personal interviews, ranging from one to four hours, were conducted with production, manufacturing, factory, plant, operation, divisional and general managers or managing directors of these 18 companies. All interviews were conducted in either New South Wales or Victoria, which accounts for the overwhelming majority of Australian clothing employment. The response rate from the top ten companies and divisions of corporations was 100%, and in almost all cases information was given

openly and willingly. This experience contrasts with many other studies of the clothing industry which have experienced low response rates. While this problem was experienced with smaller companies and makers-up in the study, overall it was clear that managers preferred the opportunity to discuss issues and problems on a face-to-face level, and many expressed dissatisfaction with the quantity of mail-out questionnaires they were expected to fill in each week.

Information was sought on areas relating to the company's structure and operations, products and product innovation, customer profiles, technology used in the enterprise, changes in the production process, inventory control, work organisation and personnel, restructuring, relations with suppliers and/or sub-contractors, research and development, future strategies and views on government policy and the direction of the industry in general. Where appropriate, and depending upon the time constraints upon the interviewees, tours of inspection of the plants' facilities and operations were also undertaken.

From the information gathered it is possible to group a number of variables under the three dimensions used by Badham and Mathews to examine the post-fordist challenge, namely product innovation, process variability and labour responsibility.

Some Relevant Characteristics of the Clothing Industry

Before examining the data collected in the light of Badham and Mathews' model, some relevant characteristics of the clothing industry should be noted. Due to its nature, the industry has always been sensitive to a diversified market. Not only does design have to take into consideration changing tastes and styles, it has also always been dictated by seasonal and climatic factors. This obviously affects some sectors, such as outer garments, more than others, such as undergarments and hosiery. Another peculiarity of the industry which inhibits product standardisation is the fact that the human body comes in a variety of shapes and forms, and clothes need to be tailored and manufactured accordingly. Other industries, such as automobiles and electronics, do not face the same *absolute* constraints imposed by the body that the clothing industry does. (However, style is an important variable here. Periods of loose-fitting

clothing are more amenable to product standardisation than skin-tight fashions.)

Another significant characteristic of clothing manufacturing is that the principal tool of production, or assembly, namely the sewing machine, has remained relatively unaltered since its invention 150 years ago (Plant, 1981). The industry has remained highly labour-intensive and the nature of garment assembly hindered the application of substantial mechanised and computerised technological advances. Low-paid female and migrant labour characterise clothing employment and training requirements have remained low, with employers often relying on skills acquired by women, yet not recognised, during earlier periods of socialisation (see Elson & Pearson, 1986).

The Taylorisation of work organisation was adopted well before the Second World War (Frances, 1988; Tsokhas, 1989) and remains dominant today through the straight line, straight bundle, progressive bundle systems and transporter systems. These systems involve the breakdown of work tasks to the most simple movements and operations, resulting in the fragmentation of skill. In addition, traditional Taylorist payment systems operate through payment-by-result (PBR) or piecework, meaning that wages are calculated according to the number of individual stitching tasks completed daily.

Taylorisation and the gender characteristics of the workforce have also meant that many sections of the industry rely upon sub-contracting and outwork for labour. The traditional problems associated with outwork, such as control over the labour process, can partly be overcome through piecework. Outwork, with its notoriously low rate of unionisation and the prevalence of short unstable contracts and irregularity of work, means that employers have been able to cope with fluctuations while passing on various costs of production to sub-contractors and outworkers. Exploitation within this sector is, and always has been, notorious. As Probert and Wajcman have noted, the practice of outwork has traditionally represented an attempt by employers to 'overcome the limitations of inflexible Fordist production systems' (Probert & Wajcman, 1988: 438, see also Phizacklea, 1990: 30). It is estimated that outworkers account for between 30% and 60% of the Australian clothing

workforce. Labour-intensive industries, such as clothing, have always been able to apply this form of numerical flexibility or distancing more successfully than more mechanised sectors of industry. Factors accounting for this include the transportability of the product and the ability of the self-employed worker or outworker to purchase and move her principal means of production, the sewing machine, cheaply and easily. It would be impractical, if not impossible, to assemble automobiles this way. For these reasons, outwork in computer-data entry parallels the clothing industry in many respects, through cheap transportability of the product (information) and the cheap availability of portable home computer terminals.

Post-Fordist Rhetoric in the Clothing Industry

However, these traditional features of the clothing industry are increasingly being questioned from numerous sources, including retailers, unions and various manufacturing bodies within the OECD. Pressures from within the industry and from the market in general are beginning to shake garment manufacturing. According to the 1988 Report of the Technical Advisory Committee of the American Apparel Manufacturers Association, 'A revolution is coming to apparel manufacturing.... and apparel manufacturing will never look the same again' (A.A.M.A., 1988: 1). The report lists three 'seeds' from which the revolution is growing. These are changes in apparel marketing requirements, changes to the labour force and new manufacturing alternatives. These three seeds of change resemble Badham and Mathews' three-dimensional model of change from fordism to post-fordism.

changes in marketing requirements -----	product innovation
changes in the labour force -----	labour responsibility
new manufacturing alternatives -----	process variability

With respect to the first revolutionary seed, market changes, the report argues that 'the days of mass production to serve mass markets with stable products and predictable growth are gone. As the apparel marketplace has become segmented into many parts, it has increased in complexity and uncertainty. Effective response to market trends has emerged as a critical element of a successful manufacturing strategy'

(A.A.M.A., 1988:1). Manufacturers therefore must 'improve their market responsiveness by providing more styles over more seasons in smaller quantities to serve larger, more knowledgeable, and more demanding retail customers' (A.A.M.A., 1988:2).⁶ The need for product innovation is also being led by final consumers. According to the report:

We are moving from mass to specialised markets. Consumers lead more diversified and active lifestyles, and seek specific products for specific end uses. Fashion cycles are accelerating, and more niche brands are being created. The consumer has more interest in apparel as a mirror of his or her lifestyle than ever before, leading to more diversified wardrobes, and changing wardrobe mixes. There is more emphasis on image and peer approval. Consumers have greater time pressures: working women have less time to shop, buy closer to the season, are less loyal to brands and retailers, and are more conscious of value than ever before. (A.A.M.A., 1988:2)

Manufacturers are also having to 'compete for capacity' with retailers who are increasingly integrating backwards into manufacturing and design and are demanding better service from their manufacturing suppliers.

⁶ This point needs more attention in the post-fordist literature, especially its relation to the concept of 'consumer sovereignty'. Here, it is pertinent to recall Max Weber's comment on the relation between production and consumption. 'For purposes of economic theory, it is the marginal *consumer* who determines the direction of production. In actual fact, given the actual distribution of power, it is only true in a limited sense for the modern situation. To a large degree, even though the consumer has to be in a position to buy, his wants are 'awakened' and 'directed' by the entrepreneur' (Weber, 1978: 92). Andre Gorz made a similar point from a Marxist perspective over twenty years ago. 'The consumer is never sovereign. He is only able to choose between a variety of products, but he has no power to bring about the production of other articles, more suited to his needs, in place of those offered to him. The production of the superfluous creates and shapes needs at least as much as it fulfills them. The market is not a democratic confrontation, on equal terms, between a variety of offers designed to meet them. It is a place where huge production and sales oligopolies, possessing very wide powers of decision, encounter a fragmented multiplicity of buyers who, because of their dispersed state, are totally powerless to influence the production decisions of the firms. The nature of the market prevents it from being a place where collective choices can be formed or the collective will asserted. It is a place where fetishized products confront their fragmented producers, cut off from their own product, who have now become the 'consumers' (Gorz, 1968: 196).

The second seed of the apparel manufacturing revolution involves the development of new manufacturing techniques over the past fifteen years. Manufacturing systems have been developed and applied to the industry through the use of computerised technology in the effort to increase flexibility, reduce throughput time, reduce batch sizes, reduce inventories, increase quality control and develop more sophisticated transmission of information flows within the production plant, between conception and execution, and between customers and suppliers. These systems have already revolutionised design and product initiation (through the widespread acceptance of computer-assisted design [CAD]) and pre-assembly (through the use of computerised cutting). While the assembly stage remains labour-intensive, bar-coding and tracking systems are available which monitor and control throughput time and work-in-progress. A variety of apparel machine manufacturers are developing computer integrated manufacturing (CIM) systems which will fully coordinate all aspects of the clothing production process.

The third seed of the apparel revolution is the change in the workforce. In Australia, as elsewhere, the industry has always relied upon 'waves' of migrant labour as a cheap production input. However, given the low wages and degradation of work few of the daughters of these workers prefer to follow their mothers into the industry. The industry faces enormous difficulties retaining its workforce and labour turnover is extremely high. As the AAMA Report states, 'apparel's traditional approach to manufacturing does not deal well with the new [labour] realities. It was developed during a different time, for different workers, with different expectations. So long as the apparel manufacturing industry remains labour-intensive, it will be faced with an increasingly difficult challenge to develop new ways of attracting and retaining workers. Indeed some revolutionary changes may be needed...' (A.A.M.A., 1988:2). (I assume here that these manufacturers are discussing something less radical than the overthrow of existing relations of production!) In Australia, the Clothing and Allied Trades Union has argued that the only way the industry can survive with lower tariffs is through skills upgrading and better wages. The industry, they argue, may end up smaller, but it will be healthier, more responsive and more flexible (Textile and Apparel Index of Australia, 1990: 34).

Thus, the rhetoric of post-fordism can be found in a mature labour-intensive industry such as the clothing sector. Indeed, case studies and anecdotal evidence often single out specific clothing companies as exemplary post-fordist models. The Italian company Benetton, with its complex networks of sub-contractors and retailers connected through information technology, is regarded as a leader in market response techniques (Belussi, 1987). The chain of Next retail stores in Britain, with its suppliers producing to specification is regarded as a successful challenge to the traditional 'stack them high to sell them low' approach to retailing (*Marxism Today*, 1988). In Australia, the phenomenal growth throughout the 1980's of the manufacturer/retailer Country Road is often highlighted as a successful venture into lifestyle niche marketing. In the field of work organisation Yakka's Shepparton plant and Stubbies' Brisbane plant are often heralded as excellent examples of the the benefits which accrue from the application of Just-In-Time (JIT) production systems (Hazeldene, 1990).

However, the question remains concerning the extent to which the rhetoric of post-fordism translates itself in the wider reality of changes in clothing manufacturing. Through targetting the largest companies with the highest turnover it is possible to make a measured estimate of the extent and pace of change among those most likely, and most capable, of post-fordist adaptations. It would also be expected that these companies would, or will be, forced into more flexible manufacturing as the traditionally high tariff barriers for clothing are reduced to around 50% by the end of the current TCF Plan in in 1995 (see Button, 1987; TCFDA, n.d.). How flexible are clothing manufacturers becoming and what forms of flexibility are being introduced?

Adoption of New Production Techniques

A useful starting point in examining change, and commitment to change, is the extent to which companies have embraced new production techniques. These new production techniques associated with post-fordism include Just-In-Time (JIT), Value-Added Management (VAM) Total Quality Control (TQC), Total Quality Management (TQM) and Manufacturing Resource Planning (MRPII).

Of the 18 principals interviewed, 7 claimed that they had introduced JIT. However, it was clear from the interviews and from direct observation of the practices on the shopfloor that the interpretation of applying JIT varies widely. Of these seven companies it was evident that only 3 had introduced JIT as an all-embracing production philosophy. These three had to spend at least 18 months on pilot studies and management and operator retraining before fully implementing the system. They had also introduced JIT in conjunction with other systems such as VAM or TQC and had sought outside assistance through organisations such as the Technology Transfer Council. One of the three companies which had fully embraced JIT added that they wanted to deliver on time and had to be 'led, kicking and screaming' down the JIT path by their major retail customers. Another stated as a reason for introducing JIT that 'workers do not like to be regulated'. It was also evident that for these companies introducing JIT had been a prolonged and often difficult experience, but one which had thoroughly transformed production practices and work organisation. Indeed, the managers recalled the experience in the same way soldiers recount their war memories! Furthermore, JIT was viewed as an ongoing *process*, rather than a one-off adaptation, and it was clear that some of the companies' factories were more advanced than others.

In the other four factories which claimed to have introduced JIT, it was clear that its implementation had been *ad hoc*. One stated that 'we're taking some of JIT, without going all the way', while another stated that 'we have JIT, but we haven't bothered about it too much.' Another, when asked if JIT had been introduced, remarked, 'As if we haven't always been doing it!'. Yet another, while arguing that JIT had been introduced in 1983, was in the process of improving their time and motion studies (a classic piece of Taylorism) because 'the workers are still wasting time'. These four companies still operated on PBR, rather than group bonuses which are recommended by JIT. It was evident that in these four companies, aspects of JIT had been adopted as an attempt to reduce inventories and work-in-progress while retaining a Taylorised approach to the shopfloor.

Apart from these seven companies, another four had introduced other systems which had transformed their production systems to varying degrees. One, an internally created system, was introduced to lower

stocks and reduce work-in-progress, while another had introduced MRPII in order to increase their flexibility and to react more quickly to the market. This company also stated that they would introduce JIT 'if our suppliers would'. The other two companies had introduced TQM as a basis for further change. As one stated, 'So far, it has aided us in defining things which just previously happened. It's still early days. It helps with training. People are now aware that specifications have to be defined for everything you do: definitions; measurement; limits of acceptability.' This company was also in the process of creating an in-house integrated information system. This example was a good demonstration of the growing importance of *controlling information* as part of a long-term process of introducing new production systems.

Thus, out of the 18 principals, 11 claimed to have transformed to *some extent* their production practices, although it was evident that four of these 11 companies had done so on a very ad hoc basis.

Of the seven companies which stated that they had not introduced new production systems, one claimed that they had 'a combination of all QC systems: TQM, VAM, etc. We pick the eyes out of it', while another stated that, while they hadn't introduced any new system, they 'try to do what they state, but not formally'. These two companies could be bracketed with the four *ad hoc* JIT implementers. This problem of categorisation again stems from the loose interpretation available of what constitutes JIT.

This leaves five companies which had not altered their production practices over the past decade. One stated that they had been to JIT and TQC seminars but 'had gone no further'. A common response among companies was that JIT was not appropriate to their business. One typical response was: 'I'm aware of it, in the sense that to introduce the full program is beyond our needs. JIT is appropriate for companies which do not do as much product variety. You need to find the right solution to suit your business.' Yet, all of the three JIT leaders had increased their stockkeeping units (SKU's) over the past five years. One had increased the range from 13,000 to 16,000 units (the largest in the study).

Thus, while almost all principals were aware of the new production systems, only seven could be said to have substantially embraced them, or were in the process of embracing them. The rest either 'cannibalised' the systems in an attempt to reduce inventory costs or retained their traditional methods of manufacturing.

Product Innovation

Despite this, it was evident that the principals had had to respond to retailers' demands and a changing market. This was clear from data relating to product innovation. Out of the 18 principals interviewed, 16 stated that they had increased their range of products over the past five years. In most cases, the range had increased quite substantially. Ranges had increased not only in terms of fashions and styles, but also in the areas of fabrics and colours, and targeting a more varied market. Other companies had extended their range to cater for the opposite sex, while others had branched out into accessories and homeware to consolidate their lifestyle niche. A number of companies had also expanded their range through moving up-market, introducing new labels (often as a franchise from Europe or the U.S.) while others had attempted to tap into the growing discount market. Both swimwear companies interviewed had also diversified their range into the active sportswear market. Even a large suit manufacturer, noted for its conservatism, had a current collection (or story) of 30 styles in 30 different fabrics. The reasons provided for the increased ranges were usually increasing competition and the demands of a more sophisticated market (both retailers and end-consumers). The production managers often expressed consternation about the widening range. One, from a hosiery company, complained that it 'caused stocking headaches'!

The two firms which had decreased their range of products over the past five years were both volume producers for the lower-to-middle end of the market. Their approach to the changing marketplace contrasted starkly with the other 16 principals. As one claimed, 'Due to the Australian clothing price structure, the range of products has been decreasing over the years. We are a volume producer, and we want the volume part of the market.' On the whole, however, 16 of the 18

companies had increased their range through diversification up or out of their previous markets.

Apart from the high fashion sector of the clothing industry, product innovation tends to be incremental. In most cases, colours and fabrics change, placing a heavy emphasis upon the textile industry for innovation. Design and innovation is also tied to the seasons, and this affects the length of the process from design through to prototype through to the production stage. On average this process took between 4 and 7 months, although responses varied between one month and one year. For most companies marketing had taken a more central role in the process, and collections were normally presented to potential clients at the prototype stage in order to test market reaction. The conservative suit manufacturer mentioned before claimed that his company wasn't innovative: their customers were innovating with their bodies, displaying 'bigger guts', and this had to be taken into consideration in design!

Another indication of market responsiveness is the extent to which companies conduct customised production for particular clients demands. Eleven of the 18 principals engaged in this practice: 5 did not, while two stated that clients may demand superficial changes to products. There were two forms which customised production assumed. The first was production for retailers, especially the discounters, and the second was corporate apparel (customised designed uniforms for corporations such as the banking, finance, tourist, hospitality and other service sectors). With respect to the retailers, all the companies in the medium-to-low end of the market catered for the specific demands of the discount chains such as Target or K-Mart. The more high fashion companies which cater for the department stores rarely engage in this service, as design and innovation are considered to be their main market strength.

There has been a growth over the past decade in the production of customised collections of corporate apparel. Eight principals engaged in this practice, two for manufacturing industry (for example, overalls) and four in the service sector. Active sportswear companies also engaged in the production of customised collections. Naturally, this practice only affects manufacturers of outerwear, as there is no demand for corporate collections of underwear.

Thirteen of the principals had strategic plans to further diversify their range of products in the future. In all but two cases this involved moving upmarket in order to create a more varied overall product mix. This involved producing 'more labels for more areas'. As one company spokesperson stated, 'If your going to manufacture in Australia you have to go up. We'll also import stuff for the discount end.' The other two cases were attempting to capture the discount market through diversifying downwards.

Two other companies stated that their diversification over the past five years would be consolidated, while one other company, which had attempted to diversify from women's outerwear to men's outerwear, stated that they would move back to concentrating on womenswear while introducing more fabric changes. The two remaining companies, the two volume producers which had decreased their range, stated that their future market would remain the same, the middle-to-low price range bracket. Only one company identified the export market as a strategic option for the future, despite the current emphasis on this market by the TCF Plan.

Overall therefore, the overwhelming majority of principals had diversified their activities over the past five-to-ten years, mainly through moving either up or out of their previous market. For the majority, non-price factors were an important element of their future strategies. Therefore, with respect to product innovation, it can be argued that post-fordist rhetoric matches the changing realities of the Australian clothing industry.

Process Variability

The second dimension of Mathews and Badham's model is process variability. The following discussion examines the extent to which the 18 principals have altered their production process to meet the challenges outlined above with respect to product diversity. According to post-fordist theories, markets are changing from being stable to becoming more uncertain, and this is putting pressure upon manufacturers to increase their flexibility. The instability of the clothing market is

reflected in the data collected. Twelve of the 18 principals stated that orders from their major customers fluctuated greatly. Most remarked that 'the customer commands the situation', which suggests that the industry is becoming more market-oriented, moving from a situation where manufacturers *push* products onto the market to one where the market *pulls* products from the manufacturer. Of the remaining six companies, two were vertically integrated with their own retail stores which absorbed a large proportion of their production.

These fluctuations demand flexibility in the production process, or process variability, in order to cope with both volume changes and responsiveness in switching products. Only five companies stated that they coped with fluctuations through measures associated with flexible manufacturing systems, such as JIT, sophisticated planning systems and marketing techniques. As one of these firms stated, 'JIT makes us totally flexible. We're now almost totally flexible. We make what we want in the season. It's too risky otherwise.' These companies can be said to have initiated 'dynamic flexibility' into their process.

The remainder were forced to supplement their traditional production systems in order to achieve 'flexibility', or more accurately, 'static flexibility'. Six of the companies systematically used sub-contractors to relieve pressures, and these sub-contractors (and sub-contractors outworkers) find their work reduced when customers orders are reduced. This helps account for the 'feast or famine' condition of makers up (CMT's). Only a tiny handful of makers up in this anarchic section of the market can ever feel secure that work will be available tomorrow. Other responses to fluctuations included the use of overtime (four cases), holding stock (which increases inventory costs), ensuring that the factory runs light on capacity, and labour attrition. One company candidly admitted that they couldn't cope with fluctuations because they were unable to respond quickly.

Another indicator of responsiveness and flexibility is lead times. Shorter lead times reflect quicker response. Eleven of the 18 companies were working on shorter lead times than they were five years ago. Again, the JIT leaders recorded the greatest successes in this field. However, the figure is higher than those indicating the use of new production systems,

suggesting that a number of companies had been able to increase flexibility within the confines of their traditional manufacturing systems. Shorter lead times were attributed to a number of factors, such as the use of JIT, workcells and unit production, 'theories of quick response' and heavy investment in plant and equipment. As noted in an earlier paper, most of the principals have invested heavily in computerised design and cutting equipment which has substantially reduced lead times in design and pre-assembly, while the assembly (or sewing) stage has remained highly labour-intensive and Taylorist (Greig, 1990). Four companies recorded no change in their lead times while three had actually recorded increases in lead times. One, a high fashion company, attributed this lengthening to the increasing complexity of their garments, while another pointed the finger at the unreliability of delivery from their fabric and component suppliers and problems associated with retailers' orders. The third linked it with their increasing product range, although as noted above *all* except two companies had experienced this change.

Another indicator of process variability is the length of production runs, or the size of batch runs. By implication post-fordist practices should be associated with smaller batch runs. Given that a high fashion company will have much smaller runs than an underwear company, respondents were asked whether batch sizes had been increasing or decreasing over the past five years. Again, eleven companies stated that their batch runs had decreased. In the majority of cases, this was a conscious attempt to control inventory, although one company attributed it to declining sales. Two companies' batch sizes hadn't changed, while five companies had increased their batch sizes. Three companies attributed the increase to the fact that sales had increased considerably over the past five years. One company, while acknowledging that larger batch sizes created problems, stated that they had 'fixed costs to cover'. The fifth company, one of the volume producers, also had increased sales, but indicated that there had been a conscious decision to increase runs. 'We move volumes, it's more competitive. Then you've got a chance. It's not technically feasible otherwise. We've got to do volumes on products. This is the message.' Clearly the message depends on the corporate strategy! A similar company, which operated a notch up the market, had reduced their runs from 5,000 to 400 over the five years. In contrast, the volume producer had risen from the same level to 8,000. Once again, the overall

reduction suggests that many companies have increased their responsiveness within the parameters of fordist production techniques. Most interviewees expressed a commitment on the part of their factory to reduce lead times and batch sizes. Further longitudinal investigation will be needed to determine whether this commitment runs up against the rigid barriers imposed by fordism.

The principals were also asked whether their stock levels had increased or decreased over the past five years as a percentage of total production. Data was collected relating to stock levels of finished goods, raw materials and work-in-progress. A post-fordist strategy, or a JIT strategy, aims at operating on zero inventory. The ideal situation is for suppliers to arrive at the factory with the inputs 'just in time' for processing, and once processed, shipped immediately to the customer.

Thirteen of the 18 principals had succeeded in reducing work-in-progress over the past five years. Three companies recorded stable work-in-progress, while two companies experienced increases. Of those who failed to reduce work-in-progress, two attributed it to growing SKU's, while another company simply admitted that the situation was 'horrible!'. Seven of the principals which had reduced work-in-progress attributed it to an awareness of the cost of holding stock, which had forced them to reorganise their operations through JIT, VAM or other work organisation strategies.

Eleven of the 18 companies had succeeded in reducing their stocks of finished goods inventories. These eleven were all in the category of those which had reduced work-in-progress. However, five of the seven remaining companies attributed their inability to reduce stocks to retailers' strategies. Typical responses included, 'The customer doesn't want to carry stock', 'It's all a part of the retailers' marketing decision making'. As retailers begin operating with 'quick response' and JIT they refuse to commit themselves to holding stock and are demanding more deliveries of smaller orders. This places added pressure upon the manufacturer to increase flexibility (Greig, 1990). The remaining companies which had increased their stocks of finished goods attributed it to their growing SKU's (meaning they were holding the same depth of stock in more variety), while one stated that 'stock service rather than

indent is a larger part of the business now and we also carry more lines.' It is significant that this company also had the widest and most fluctuating customer profile, servicing upmarket menswear stores.

It was in the area of raw material inventories where the greatest difficulties had been encountered. While all expressed a commitment to reduce raw material stocks, only 8 of the 18 principals had recorded successes. Five of these eight companies had introduced the most far-reaching managerial systemic changes, while the other three stated that they preferred their suppliers to hold stock in the same way that retailers expect the principals to hold stock. Raw material and component suppliers are often expected to deliver orders in allotments, tied to production requirements. It is in this area of raw material supplies that the utility of understanding 'chains of production' becomes important when explaining problems associated with managerial systems such as JIT. Six companies had retained the same level of raw material stocks while four had increased levels. Three of these ten companies attributed this inability to reduce stocks to growing SKU's while the remaining seven pointed to problems associated with suppliers. One manager stated, 'We don't have JIT. One hiccup and you've got problems.' Five others stated that poor delivery from their suppliers held their stock levels above desirable limits. As noted in an earlier paper on the evolving relationship between retailers and manufacturers, it was quality and delivery problems which pushed retailers to develop closer links with their manufacturing suppliers (Greig, 1990). Fostering similar closer relationships between manufacturers and raw material and component suppliers will be important if the problems manufacturers face in implementing new managerial systems are to be overcome. Finally, one principal who had increased raw material stocks attributed the increase to the use of more imported materials, highlighting the delivery and supply problems associated with chains of production involving international links. While many low volume high fashion up-market firms air freight expensive fabrics from Europe, these costs are prohibitive for larger volume middle market producers. Relatedly, a jeans manufacturer who had also increased its raw material stocks pointed out that there is only one manufacturer of denim in Australia, Bradmill.

Thus, with respect to Badham and Mathews' second indicator of post-fordist change, process variability, the data collected suggests that a majority of the principals have been able to respond to market changes through reducing lead times, batch sizes and stock levels. However, the evidence suggests that many have succeeded in responding more flexibly through retaining fordist or neo-fordist procedures and production practices.

Worker Responsibility

The retention of fordist or neo-fordist practices has been noted above in examining the adoption of new managerial systems such as JIT and VAM, where only a handful have introduced these practices in an all-embracing manner. Clearly, according to Badham and Mathews' model, genuine post-fordism, or 'worker-oriented' post-fordism is premised upon greater worker participation, their third dimension of change. It is far more difficult to quantify the changes which are occurring in this field. However, the study, and direct observation, tend to suggest that worker participation and involvement in decision-making remains a low priority among even the principal clothing companies. Problems associated with determining the extent of change are compounded by the ongoing process of negotiation between unions and employers as part of award restructuring. For the past 18 months both parties have been engaged in Joint Working Party talks and many of the principals have established consultative committees at the shopfloor level between workers, supervisors and management as part of the award restructuring procedure. At the time of interviewing, many employers were delaying any immediate change until the outcome of the negotiations was clearer. As one stated, 'Award restructuring covers a lot of issues. We can't make any moves until we know how flexible the award will be.'

However, seven of the 18 principals stated that they have formal shopfloor involvement in production problem solving. Yet, it was clear that in a number of these cases this involvement was restricted to the setting up of consultative committees. Others, which had consultative committees candidly stated that there was no shopfloor involvement in their factory. It should also be noted that employer participation in the Joint Working Party negotiations has been mainly restricted to

discussions with the principals, thus placing greater pressure upon these firms to honour their commitment to the process by setting up consultative committees. Outside the principals, the committees are rarities. Only three companies had processes which resembled quality circles. One company stated that formerly they had shopfloor involvement, but that the new manager had 'let them slip', indicating the extent to which many forms of worker participation are determined by the whims of management.

Few companies had formal training budgets outside the largest two principal corporate entities, Pacific Brands and the Linter Group,⁷ although many stated that this was 'on the agenda'. The Dawkins Plan will target training at 1% of payroll, although most companies claim that their training costs range from between 2% and 10% of the wage bill. One company stated that it cost \$2,000 to train each machinist recruit and all interviewees stated that each new recruit requires individual in-house training to suit the requirements of their particular process. One production manager stressed that all of her workers were 'house-trained'!

High training costs for operators are associated with high labour turnover within the industry. Machinist turnover ranged among respondents from 15% to 100% per annum, with 50-60% turnover being common. Turnover averages, however, hide the complexity of the situation within factories. Many respondents found the question difficult to answer and pointed out that machinists either stay for less than a year or for more than 10 years. These long-term employees often form a multiskilled core within the factory, and act as trainers, 'room-floaters', or 'trouble-shooters', performing a variety of functions according to production requirements. The method of payment for room-floaters also often differed from the standard practice of PBR.

Five companies stated that they had introduced multiskilling, and there was a direct correlation with companies which had introduced new wide-ranging production systems. One stated that 'we're working closely with the unions on horizontal multiskilling. Production planning forces

⁷ The interviews were conducted between November 1989 and March 1990. During this time the Linter Group went into receivership.

multiskilling. Now we have shorter runs. In the past our workers were not as flexible.' On the other hand, a strong advocate of JIT warned that this form of 'functional flexibility', or horizontal multiskilling, had its problems, stating that, 'It can be deskilling to do too many functions', while another saw multiskilling as principally a means of 'breaking down multiple unionism'. However, all 'multiskillers' acknowledged that it was the only way to operate a JIT-type system.

The majority of managers argued that their workers were not interested in multi-skilling and career paths, due to age or family priorities. This conflicts with Kim Windsor's report, written for the Australian Textile Clothing and Footwear Industry Training Council, where the majority of the workers interviewed were interested in doing some kind of training, and between 57% and 61% of the workers wanted more say in their jobs (Windsor, 1989). Managements' perception of workers' needs evidently conflict with workers' own perception of their needs!

From the interviews and the data gathered there appears to be little indication of a post-fordist mentality among the principals on work reorganisation. Given the strength of the unions within these firms and their involvement in the Joint Working Parties, it is possible to assume that pressure for change would be greater among the principals than smaller firms. However, evidence of this dimension of post-fordist practices remains thin.

Other Issues Arising From the Badham and Mathews Model

Before concluding, one problem associated with the Badham and Mathews model should be noted. This relates to the practice of sub-contracting. Eight of the 18 companies interviewed conducted all aspects of the production process within their establishment, or 'in-house', while 10 used sub-contractors to fulfil various tasks, mainly machining. Two of these only sub-contracted out products which were peripheral to their core activities, while five others used sub-contracting as a means of coping with fluctuations. Due to quality control problems four of these five companies had reduced their number of sub-contractors over the past five years.

However, there were three companies in particular worth looking at, which used sub-contractors in a systematic manner as part of their production strategy. This can be termed the 'Benetton strategy' (Belussi, 1987). These companies have targetted and retained their strengths in-house, in areas such as design and marketing, while hiving-off the labour-intensive aspects of production, such as assembly, or sewing, to CMT, or makers up, sub-contractors. If one analyses these companies on Badham and Mathews' model they appear to be some of the companies closest to approximating the post-fordist 'ideal', especially on the dimensions of worker participation and product variety. However, from interviews and observation of their sub-contractors' practices, it is evident that the hived-off labour-intensive component of the production process is still conducted under the most authoritarian, fordist, Taylorist working conditions. Furthermore, the sub-contractors interviewed further sub-contracted work out to outworkers, where the highest form of exploitation and labour degradation exists in the industry. One manager admitted that given the amount of work they sub-contract out, these firms *must* be using illegal practices.

Thus, a company may score well upon Badham and Mathews' post-fordist model while at the same time their products are being produced under a highly fordist regime of production. From interviews conducted with other smaller high fashion companies this strategy appears to be prevalent throughout the industry (see also Phizacklea, 1990). Therefore, care must be taken when describing *individual* companies as post-fordist. Using the firm as an individual unit of analysis can often lead to highly misleading conclusions, unless the analysis takes into consideration the strategic interlinkages and alliances these core firms adopt with their sub-contractors. A company with a highly skilled core workforce can often be merely the facade concealing a wide network of secondary peripheral workers, many of whom operate under non-award conditions, in isolation from their fellow workers and without the benefits and conditions applying in the regulated labour market. It is crucial, therefore, that analyses of flexibility and the 'flexible firm', take a holistic approach to the production process and take into consideration the complex organisational linkages *between* companies rather than examining a company as an individual unit of analysis.

CONCLUSION

To conclude, this paper has analysed the concept of post-fordism in the light of empirical evidence from the Australian clothing industry. Echoes of the claims of an emerging techno-economic paradigmatic shift from fordism to post-fordism are reverberating throughout the technical clothing literature. The recent Technical Report of the AAMA was used to illustrate this. The empirical data presented here suggests that important changes have been occurring within the Australian clothing industry, especially within the areas of product innovation and process variability. Firms have been attempting to introduce a greater degree of flexibility into their operations in order to cope with competitive pressures and retailers' demands. However, only a small handful have embraced advanced production philosophies associated with the post-fordist paradigm. The majority have increased their flexibility within the confines of more traditional, or fordist, production techniques.

It is upon the 'worker responsibility' axis that Badham and Mathews' ideal-type post-fordist model departs most markedly from existing reality. There is little evidence of a commitment to greater worker participation in production problem-solving. However, this conclusion should be qualified by noting that the unions and major employers remain engaged in joint-party negotiations over the award restructuring process. It is still too early to predict the outcome of these lengthy discussions. As Ken Miller from the old Linter Group stated a couple of months ago; 'It's still too early to tell if there is light at the end of the tunnel, or a train coming in the opposite direction.' The nature of this light could well determine the future parameters of industrial democracy within the industry.

Finally, the paper issued a cautionary note into the employment of Badham and Mathews' post-fordism model. Examining companies using an extensive network of sub-contractors (labelled the Benetton approach), it was pointed out that many 'post-fordist-leaning' companies were merely a facade covering extensively fordist production techniques. Employing the jargon of the sociology of development (especially dependency theory and world systems analysis) the underdeveloped fordism of one sector of the industry is an integral part of the 'post-

fordist' development of another sector. In this regard, the clothing industry appears to be regulated by a law of 'combined and uneven development' (Rainnie, 1984), and strategic interlinkages between firms must be taken into consideration when assessing industrial restructuring within the clothing industry.

REFERENCES

- Aganbegyan, A. 1988, *The Challenge: Economics of Perestroika*, London, Verso Books.
- Aglietta, M. 1979, *A Theory of Capitalist Regulation: The U.S. Experience*, London, New Left Books.
- American Apparel Manufacturers Association Technical Advisory Committee 1988, *The Coming Revolution: Flexible Apparel Manufacturing*, Arlington, American Apparel Manufacturers Association.
- Atkinson, J. 1987, 'Flexibility or Fragmentation? The United Kingdom Labour Market in the Eighties', *Labour and Society*, vol. 12, no. 1.
- Badham, R. & J. Mathews 1989, 'The New Production Systems Debate', *Labour and Industry*, vol. 2, no. 2.
- Bell, D. (1973), *The Coming of Post-Industrial Society: A Venture in Social Forecasting*, New York, Basic Books.
- Belussi, F. 1987, *Benetton: Information Technology in Production and Distribution: A Case Study of the Innovative Potential of Traditional Sectors*, SPRU Occasional Paper Series no. 25, Science Policy Research Unit, University of Sussex.
- Bramble, T. 1988, 'The Flexibility Debate: Industrial Relations and New Management Production Practices', *Labour and Industry*, vol. 1, no. 2.
- Bramble, T. 1990, 'The Utopian Fantasy of "Post-Fordism": A Review of John Mathews: Tools of Change', *Socialist Review*, vol. 2.
- Braverman, H. 1974, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century*, New York, Monthly Review Press.

- Button, J.N. 1987, Statement to the Parliament on the Textiles, Clothing and Footwear Industries, June 1987, Department of Industry Technology and Commerce.
- Campbell, I. 1989, 'New Production Concepts? The West German Debates on Restructuring', *Labour and Industry*, vol. 2.
- Campbell, I. 1990, 'The Australian Trade Union Movement and Post-Fordism', *Journal of Australian Political Economy*, no. 26.
- Cohen, S. & J. Zysman 1987, *Manufacturing Matters: The Myth of the Post-Industrial Economy*, New York, Basic Books.
- Cataife, D. 1989, 'Fordism' and the French Regulation School', *Monthly Review*, May 1989.
- Dore, R. 1986, *Flexible Rigidities*, London, Athlone Press.
- Elson, D. & R. Pearson 1986, 'Third World Manufacturing', Feminist Review (ed), *Waged Work: A Reader*, London, Virago Press.
- Frances, R. 1988, 'The Clothing and Boot Industries, 1880-1939', in E. Willis (ed), *Technology and the Labour Process*, Sydney, Allen and Unwin.
- Freeman, C. & C. Perez 1988, 'Structural Crises of Adjustment: Business Cycles and Investment Behaviour', in G. Dosi (ed), *Technical Change and Economic Theory*, London, Pinter.
- Gorz, A. 1968, *Socialism and Revolution*, London, Allen.
- Greig, A.W. 1990, 'Retailing Is More Than Shopkeeping: Manufacturing Interlinkages and Technological Change in the Australian Clothing Industry', Urban Research Program Working Paper no. 23, R.S.S.S., A.N.U., August 1990.
- Hazeldene, A. 1990, 'Just-In-Time', Talk presented to the National Conference of the Clothing and Footwear Industry, Organised by the

- Clothing and Footwear Institute (Victoria Branch), World Congress Centre, Melbourne, 24,25 July 1990.
- Hindess, B. 1990, 'The Post-Fordist Persuasion', *Australian Left Review*, May 1990, no. 117.
- Hirst, P. & J. Zeitlin 1990, 'Flexible Specialization vs. Post-Fordism: Theory, Evidence and Policy Implications', Birkbeck Public Policy Centre Working Paper, May 1990.
- Kuhn, T.S. (1970), *The Structure of Scientific Revolutions*, Chicago, Chicago University Press.
- Lash, S. & J. Urry 1987, *The End of Organized Capitalism*, Cambridge, Polity.
- Lipietz, A. 1987, *Miracles and Mirages: The Crises of Global Fordism*, London, Verso Books.
- McMillan, C.J. 1984, *The Japanese Industrial System*, Berlin, Walter de Gruyter.
- Marxism Today 1988, 'Sign of the Times', October 1988.
- Mathews, J. 1989a, *Tools of Change: New Technology and the Democratization of Work*, Sydney, Pluto Press.
- Mathews, J. 1989b, *Age of Democracy: The Politics of Post-Fordism*, Melbourne, Oxford University Press.
- O'Connor, J. 1973, *The Fiscal Crisis of the State*, New York, St Martin's Press.
- Perez, C. 1983, 'Structural Change and Assimilation of New Technologies in the Economic and Social Systems', *Futures*, vol. 15 no. 5.

- Perez, C. 1985, 'Micro-Electronics, Long Waves and World Structural Change: New Perspectives of Developing Countries', *World Development*, Spring 1985.
- Piore, R. & C. Sabel 1984, *The Second Industrial Divide*, New York, Basic Books.
- Phizacklea, A. 1990, *Unpacking the Fashion Industry: Gender, Racism, and Class in Production*, London, Routledge.
- Plant, R. 1981, *Industries in Trouble*, Geneva, International Labour Office.
- Probert, B. & J. Wajcman 1988, 'Technological Change and the Future of Work', *Journal of Industrial Relations*, vol. 30, no. 3.
- Rainnie, A.F. 1984, 'Combined and Uneven Development in the Clothing Industry: The Effects of Competition on Accumulation', *Capital and Class*, 1984.
- Roobeek, A. 1987, 'The Crisis of Fordism and the Rise of a New Technological Paradigm', *Futures*, April 1987.
- Sayer, A. 1985, 'New Developments in Manufacturing: The Just-In-Time System', *Capital and Class*.
- Stark, D. 1980, 'Class Struggle and the Transformation of the Labour Process: A Relational Approach', *Theory and Society*, vol. 9.
- Textile and Apparel Index of Australasia* 1990, 17th Edition, Subiaco, Farmgate Press.
- Textiles, Clothing and Footwear Development Authority 1990, *State of the Industry Report*, Melbourne, A.G.P.S.
- Ticktin, H. 1973, 'Towards a Political Economy of the U.S.S.R.', *Critique*, vol. 1, no. 1.

- Tsokhas, K. 1989, 'Work Practices in the Clothing Industry, 1929-1965', Department of Economic History Working Paper no. 123, R.S.S.S., A.N.U., May 1989.
- van Tulder, R. & G. Junne 1988, *European Multinationals in Core Technologies*, Chichester, Wiley.
- Weber, M. 1949, *The Methodology of the Social Sciences*, New York, Free Press.
- Weber, M. 1978, *Economy and Society*, Berkeley, University of California Press.
- Windsor, K. & B. Pocock 1989, 'Challenging Work: Changing Work Organisation in the Textiles, Clothing and Footwear Industries', Report commissioned by the Australian Textile, Clothing and Footwear Industry Training Council, September 1989.

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