FLEXIBLE MANUFACTURING IN VANCOUVER'S CLOTHING INDUSTRY

By

CHARLES MATHER

B.A. (Hons) University of the Witwatersrand, Johannesburg, 1985

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

(Department of Geography)

We accept this thesis as conforming to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

August 1988

© Charles Mather, 1988
In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of Geography

The University of British Columbia
1956 Main Mall
Vancouver, Canada
V6T 1Y3

Date 12/9/1958
Abstract

Flexible production techniques have been implemented in a number of industries in response to the crisis following the long post World War Two boom. These new methods have recently captured the attention of social scientists from a broad range of perspectives. In the large North American automobile industry, where flexible manufacturing is best documented, firms are introducing programmable equipment, work teams are replacing the assembly line, inventories are kept at a minimum, improving turnaround time and quality are important goals, and markets are smaller as specific consumers are targeted. However, it is becoming increasingly clear that the experience of the automobile industry is not representative of other manufacturing sectors. The implementation of the new techniques is likely to be different where the organisation of production is different, the structure of the industry is less concentrated, and where norms of consumption are distinct.

This thesis focuses on the clothing industry in Vancouver, British Columbia. For this study, interviews were conducted with fourteen clothing firms in the city, ten workers (most of whom were Chinese female immigrants), union officials, equipment salespeople and a government official. The primary research question was to understand
the pervasiveness of the new techniques and their effects on workers and the industry in Vancouver.

The results of this study suggest that it is overwhelmingly the very large fashion firms that have invested in flexible machinery. These firms are large enough to lay out the capital for the new machines which improve turnaround time and flexibility, both vital for manufacturers of fashion apparel. A second advantage of the equipment for factory owners is that it reduces their dependence on skilled male workers who command the highest wages on the shop floor. For women workers in the industry (machinists), the new machines simply speed up work, making an already debilitating job worse. On the other hand, many smaller fashion firms are unable to raise the capital for the equipment even though the potential benefits are significant. In addition, standardised clothing manufacturers in Vancouver have not purchased the new technology because it does not suit their needs. Firms without the new technology weather downturns in the economy primarily through workers in the secondary labour market, which, in Vancouver is dominated by immigrant women. At this stage it seems that are barriers to the widespread implementation of flexible equipment in Vancouver clothing industry.
# Table of Contents

Abstract ii  
List of Figures vi  
List of Tables vi  
List of Plates vii  
Acknowledgements viii  

**CHAPTER I Introduction**  
1.1 Context and Structure 1  
1.2 Sources and Methodology 7  

**CHAPTER II Literature Review: New regimes, industrial geography and segmented labour markets** 12  
2.1 Introduction 12  
2.2 Braverman and the labour process 14  
2.3 Approaches to the labour process in the 1980s 17  
2.4 Massachusetts Institute of Technology School 28  
2.5 Criticisms of current formulations 33  
2.6 Industrial Geography and the New Regime 36  
2.7 Segmented Labour Markets 48  
2.8 Conclusion 56  

**CHAPTER III History and Context of Clothing Manufacturing in Vancouver** 59  
3.1 Introduction 59  
3.2 A brief history of clothing production 60  
3.3 Post-industrial Vancouver? 66  
3.4 The Organisation of Production and the Labour Process in the Clothing Industry 71
3.4.1 The organisation of production 72
3.4.2 The 'traditional' clothing firm without flexible production methods 76
3.4.3 Flexible production in the 'modern' 83
3.4 Conclusion 100

CHAPTER IV Survivor firms and new investment 102
4.1 Introduction 102
4.2 Import Tariffs 103
4.3 Survival of the small firm 112
4.4 New Investment 117
4.5 Conclusion 126

CHAPTER V Immigrant labour in Vancouver's clothing industry 127
5.1 Introduction 127
5.2 Entering the Secondary Labour Market 129
5.3 Unions 139
5.4 Worker Response 149
5.5 Conclusion 153

CHAPTER VI Flexible Manufacturing in Vancouver's Clothing Industry 155
6.1 Introduction 155
6.2 Flexible Manufacturing in Vancouver's garment industry 156
6.3 Implications of Flexible Production 165
6.4 Conclusion 175

CHAPTER VII Conclusion 179

References 186
List of Figures

3.1 Employment in the Canadian clothing industry 61
3.2 Women's and men's clothing production in British Columbia 64
3.3 Garment manufacturing in British Columbia as a percentage of total manufacturing in the province 66
3.4 Location of clothing manufacturers in Vancouver 65
3.5 Garment manufacturing in Vancouver as a percentage of total manufacturing in the province 70
3.6 Garment production in British Columbia as a percentage of total Canadian production 70
3.7 Clothing factories in British Columbia 73

List of Tables

Table I Characteristics of production under Fordism and post-Fordism 23
Table II Long term agreements negotiated with Canada 107
Table III Apparent markets for Canadian clothing 109
Table IV Canadian imports of clothing from various sources 111
Table V Annual rates of growth for exporting countries under MFA four and five
Table VI Tabulated data from interviews with 14 manufacturers in Vancouver

Table VII Employment size of clothing firms in British Columbia

List of Plates

Plate 1 Store front of 'Jones Tent and Awning" taken circa 1911
Plate 2 Designer working on CAD machine
Plate 3 Marker/grader machine with patterns and marker
Plate 4 Computer cutter
Plate 5 Computer plotter
Plate 6 Computerised flexible sewing machine
Plate 7 'Paris presser'
I would like to thank Dan Hiebert, whose encouragement and assistance were invaluable in the research and writing of this thesis. Thanks are also due to Gerry Pratt, my second reader, who was helpful throughout my stay at UBC. At home I would like to thank Cecile for her unwavering support; and Chris Rogerson for his useful advice and material. Special thanks goes to my parents who were supportive through thick and thin. Finally I am grateful to my friends in the geography department at UBC who were lots of fun.
CHAPTER I Introduction

1.1 Context and Structure

The mid 1970s marked an important turning point in the economies of most advanced capitalist countries (Harvey, 1987). Sharp declines in employment, slower growth and declining productivity levels were evidence that the long post war boom had come to an end. Manufacturing, arguably the foundation of most western capitalist economies (Peet, 1987a), was relinquishing its position to the service sector. In Belgium and the United Kingdom, two of the older industrial nations, employment in manufacturing decreased in real terms by twenty-three per cent between 1975 and 1982. In North America the weakening of the sector, although less severe, was a cause for great concern (Peet, 1987b). Rigid employment contracts, labour disputes, rising wages, declining productivity levels, and the saturation of domestic markets were local factors responsible for the crisis in manufacturing (Holmes, 1987a). The decline in the sector was not, however, due solely to problems on the shop floor or in consumer demand in western capitalist countries.
Cheaper imported goods from Japan, Hong Kong and Taiwan, Newly Industrialising Countries (NICs), captured markets previously the domain of local producers (Thrift, 1986). Worldwide manufacturing employment increased dramatically from 1974 to 1983 in the NICs, reflecting their rapid rise to dominance, while in the advanced capitalist countries 8 million jobs were lost in the sector (Peet, 1987b).

Manufacturers responded to the crisis in various ways. Many of the larger firms, attracted by a cheaper and more docile labour force in the Third World, relocated their production facilities offshore, further weakening manufacturing domestically (Frobel et al, 1980; Jenkins, 1984; Thrift, 1986). The movement of capital to areas where labour is less expensive and unions are absent also occurred at a national scale in the United States, undermining the economic structures of the traditional industrial centres (Clark, 1986). Firms unable or unwilling to relocate restructured in situ, re-establishing the conditions for accumulation through strategies known as flexible manufacturing, flexible specialisation and flexible production systems (Aglietta, 1979; Piore and Sabel, 1984). Production runs, according to the 'rules' of the new techniques are characteristically shorter and geared to more volatile and heterogeneous markets, labour is often flexibly deployed, and machines are programmable (Holmes, 1987a).
For a number of important reasons the automobile industry has provided the empirical base (and the terminology *viz.* Fordism; post-Fordism) for the transition to new methods in manufacturing. On the shop floor of large North American corporations, the transition from old to new production methods through restructuring is as clear as it is pervasive. However, there is growing suspicion, particularly among geographers, that the experience of the automobile industry is not representative of other manufacturing sectors. Strategies of restructuring are likely to be different where the organisation of production is different, the structure of the industry is less concentrated, and where norms of consumption are distinct (Holmes, 1987b; Schroenberger, 1987; Gertler, 1988).

In addition, as a number of writers have noted, the shift to new methods of production is not likely to manifest itself immediately in all sectors of the economy. Roobeek (1987), for example argues that,

...it cannot yet be said that Fordism has ended, and post-Fordism has begun. This division is irrelevant as long as institutions of Fordist origins continue to exist or adapt, while new institutional forms are emerging. The transition to post-Fordism is a more gradual process which will continue into the 1990s (Roobeek, 1987; p. 169).
The primary issue addressed in this paper is framed around the quote cited above. I was concerned to understand the transition to new methods of manufacturing, or more broadly, the shift from Fordism to post-Fordism in Vancouver's clothing industry. The main research questions were: which are the firms that have implemented the new technology, and what are the effects of these changes on the industry and workers on the shop floor. At the same time, I was concerned with which firms had not invested in new technology, and how they had responded to the recessions of the 1970s and early 1980s. The results of the case study on Vancouver's garment industry suggest that the move to post-Fordism is in its infancy. Many firms cannot afford the new equipment, while others are simply not interested in improving flexibility to respond to changing fashions. These firms have weathered downturns in the economy through the use of a secondary labour force comprising mainly of immigrant women. Larger fashion firms, on the other hand, have improved their response time and flexibility to changing styles and demand through flexible equipment. It appears that the move to new methods of production in Vancouver's clothing industry will be uneven and complex.

There are a number of reasons why the clothing industry is an eminently suitable sector to broaden our understanding of restructuring and new methods of
production, and the effects of these changes on the labour process, the geography of production and the structure of labour markets. The clothing industry is one of the most footloose and competitive of all manufacturing sectors requiring very little capital investment (Safa, 1981). As early as the 1930s, clothing firms began to relocate production plants (Waldinger, 1986), and in the 1960s and 1970s this process took off as manufacturers moved production to the Third World to take advantage of cheaper labour. The high labour content in production provides an interesting example of the effects of the new techniques on work skills and the structure of the labour process. In addition, work in clothing factories has, up until recently, been extremely resistant to mechanisation. Finally, restructuring in the clothing sector permits an analysis of the role of immigrant women in this industry.

The main body of the thesis, excluding the concluding chapter, is divided into five sections. Thematically, the focus shifts from the literature review and the context of manufacturing in Vancouver, to garment firms and workers in the city's clothing industry, and finally to flexible manufacturing techniques. More specifically, chapter two deals with three bodies of literature which are considered important in understanding clothing production, restructuring and flexible manufacturing techniques. The first area of research concerns skill and deskilling, and
the effects new techniques will have on workers on the shop floor. In the second and third sections of this chapter, the industrial geography and labour market segmentation literatures are examined, both of which address changes with new manufacturing techniques. These three areas of research are drawn upon in the course of the thesis to compare and contrast the secondary literature with empirical material collected in Vancouver.

In chapter three, a brief history of garment production in Vancouver is outlined and the contemporary context of manufacturing in the city is examined. In this chapter a comparison is also made between a typical 'traditional' firm without flexible manufacturing techniques and a 'modern' firm, or one that has implemented the new methods. The aim of this chapter is to provide the context for the empirical data on manufacturers using flexible production techniques, and for two other types of firms in Vancouver's clothing industry. From this stage, the thesis follows the theme developed by Roobeek (1987) in the quote cited above: in chapter four, two types of firms in the city which have not implemented flexible manufacturing techniques are examined. They are new investor firms mainly from Hong Kong and what I have called small survivor firms. These companies maintain flexibility in production through a 'contingent' labour force which is hired or fired
depending on economic conditions. Since this method has been used by clothing firms for a very long time, it is not new, although it may be increasing in importance. The nature of the labour force in Vancouver, which complements the discussion in chapter four, is examined in chapter five. Interviews with Chinese immigrant women workers and the unions in the city are discussed to examine the work experience of this group in the secondary labour market. While the firms analysed in chapter four have turned to their labour force for flexibility, the manufacturers examined in chapter six, having implemented flexible manufacturing equipment, approximate the Fordist model in production.

1.2 Sources and Methodology

Published sources include various local and national newspapers; business and other magazines; official statistical publications; and government documents and newsletters. The small size of Vancouver's clothing industry, until recently, is responsible for the scant attention the sector has received by social scientists. As a result, secondary literature on the apparel industry is drawn from research papers and books based on clothing sectors in Montreal and Toronto, the United States, the
United Kingdom, and elsewhere in Europe. Interviews with clothing factory managers or owners, union officials, government representatives and workers form the basis for the empirical material on Vancouver's garment industry.

Since the initial focus of the thesis was flexible manufacturing techniques in the clothing industry, firms that were implementing the new methods were sought out. However, once two large fashion firms had been interviewed in depth, it became evident that these types of firms represented only a small minority of manufacturers in the city. Two other types of firms were recognisable: new investor companies and, what I have called small survivor firms. To broaden the sample, fairly structured interviews were conducted with these two types of firms as well as other clothing manufacturers with flexible technology. Questions were aimed at the nature of production on the shop floor and whether it had been affected by new manufacturing techniques. Among firms which had implemented the new techniques I was interested in how much equipment the firm had purchased and its effects on production and workers on the shop floor. For firms without the new equipment the questions focussed on whether they could not purchase the flexible equipment or whether they were simply not interested in it.
A random sampling technique was not employed in choosing the firms; instead non-random samples were taken from recognisable groups, in this case, types of firms. For this study, interviews were conducted with the managers or owners of 8 large and small fashion apparel manufacturers; 2 new investor firms; and 4 small survivors firms. The total sample, 14 clothing firms and one textile company, is just over 18 per cent of the clothing industry in Vancouver. By clothing type, the bias in the sample towards fashion apparel firms is representative of the industry as a whole. Although the definition of fashion clothing may be ambiguous, both statistics and manufacturers directories show that these firms dominate the clothing industry in Vancouver (see chapters three and six). In terms of employment size, on the other hand, the sample is certainly biased towards larger firms while on the whole manufacturers in the city tend to be smaller. This bias affected the results in that smaller firms are less likely to invest in flexible manufacturing equipment (see chapter six). Another possible problem in the sampling technique is the categories of firms which were chosen. While this may be a problem in this study, the categories were chosen after extended discussions with the managers of firms with an in depth understanding of the industry.
Interviews were held with nine immigrant women workers and one male worker with a loosely structured questionnaire of open ended questions. A tape recorder was not used to prevent the respondents from becoming nervous or uneasy which might have affected the quality of the interview. Instead, responses were hand written in front of the workers so that they could see what I was writing and correct any errors or misunderstandings. I felt that this method created trust between myself and the workers and led to a more relaxed and less formal environment in the interviews. At the same time, however, a disadvantage of this technique is that the flow of discussion was periodically interrupted while I wrote down responses. Still, this problem seemed to be less important than creating a level of trust between the workers and myself.

In the interviews with women workers I was concerned to understand their work experience in the clothing industry as immigrants, and their feelings towards the unions in the city. Since they dominate the sewing positions in Vancouver's clothing industry questions were also aimed at finding how they came to be employed in garment factories. In most cases, however, the interviews were unstructured, each taking a different route. I feel that this method was useful in understanding the complexity of their working lives. Finally,
representatives from all three garment unions in the city were also interviewed using unstructured questionnaires. Questions were aimed primarily at understanding the problems of organising immigrant workers in Vancouver's clothing industry.
CHAPTER II Literature Review: New regimes, industrial geography and segmented labour markets

2.1 Introduction

In the 1970s and early 1980s, the central role played by manufacturing in the economies of most advanced capitalist countries was eroded. Almost every member of the Organisation for Economic Co-operation and Development (OECD) experienced a decline in output and employment in this sector (Holmes and Leys, 1987). Responses to the crisis include the relocation of production to regions where wages are lower or unions are absent, the closing of factories, and the implementation of new manufacturing techniques on the shop floor. The impact of new production methods, which have captured the attention of social scientists from a broad range of perspectives (Aglietta, 1979; Lipietz, 1986; Piore and Sabel, 1984), are being felt from the shop floor, to the broader organisation of production, and the structure of labour markets. There have been some surprising 'winners' as a number of traditionally declining sectors, such as clothing production, have re-emerged in the economies of many advanced industrial countries.
This chapter falls into three sections, each of which addresses an area of research relevant to restructuring in the clothing industry. The aim of the review is twofold: the extant literature provides a context with which to examine and contrast the peculiarities of flexible production in the clothing industry with other sectors where the literature is more developed; and secondly a framework is developed for the investigation of Vancouver's apparel industry. In the first section, the approaches of the French regulationists and the Massachusetts Institute of Technology (MIT) school are compared to examine contrasting views on the effects flexible production techniques have had on worker's skills and work life in general. Braverman's seminal analysis on deskillling provides the backcloth to a discussion of the proponents of the French regulation school, who argue that work is further deskilled and degraded despite the introduction of new techniques. On the other hand, the MIT school contends that flexible specialisation, their term for the new production methods, will liberate labour from the tedium of simplified, repetitive work. Neither theory is definitive, however, and it is argued that generalisations on the question of deskillling or a liberated working class may be too simplistic. Instead, it seems that while tendencies may be recognised, the effects of flexible production on skills and work life differ across manufacturing sectors, and firm conclusions
can only be drawn on the basis of specific industries and specific places.

In the second section of the chapter, research on the geography of manufacturing is examined, paying particular attention to locational changes as manufacturing industries implement new production techniques. Although most of this section deals with research on the automobile industry, literature on the spatial effects of the new techniques on the clothing industry is also discussed. In the final section, segmented labour market theory is examined to set the context for the issue of immigrant labour and more importantly, immigrant women in the clothing industry. These women are the backbone of the apparel sector in North America and are a central element in its restructuring.

2.2 Braverman and the labour process

In *Labour and Monopoly Capital*, Braverman's (1974) objective is to rekindle interest in processes on the shop floor. Following a Marxist perspective, his analysis traces the transformation of work in capitalist enterprises in the twentieth century. The few studies in the field since the pioneering work of Marx are, according
to Braverman (1974) "...either simplifications or outright misreadings of reality" (p. 4-5). The dearth of research on the labour process is a symptom of the shift by many radical social scientists from the labour process to other seemingly more urgent issues in capitalist society. The lacuna was particularly evident during the 1950s and 1960s when the Vietnam war, civil rights and nuclear weapons captured the attention of the left (Zimbalist, 1979).

The main theme in Braverman's book is the progressive fragmentation, deskilling and degradation of work to control the pace and structure of work on the shop floor. Frederick Taylor's three principles of scientific management are crucial in understanding the process by which crafts are destroyed and work is simplified. Taylor's first principle is the gathering of the craftsperson's knowledge of the work process to dissociate "...the labour process from the skills of the worker" (p. 113). As long as labour controlled the knowledge of their work, managers were unable to dictate the pace of production. When craft knowledge is lost and reduced to rules and formulae, managers are able to set the speed and structure of work. The second principle, the separation of conception from execution, enables capitalists to further control the structure of work on the shop floor. As tasks are fragmented and simplified, and the flow of work through the factory is organised, labour is reduced
to carrying out simply the manual aspects of production. Finally, the third principle is the use of the first two to "control each step of the labour process and its mode of execution" (p. 119). Implementation of these three 'scientific' principles, Braverman argues, gives management control over the structure and pace of production; once a craft worker loses control over these, work is deskillled. Braverman's definition of deskilling is adopted to examine the effects of the new techniques at a later stage (chapter six).

Braverman is also concerned with debunking the belief that the introduction of technology has the effect of upgrading worker's skills. On the contrary, he argues, technology does not play a neutral role in the production process but is a tool used by capitalists to rob labour of its knowledge of the work process (thereby following the first principle of scientific management). As this knowledge leaves the shop floor to become permanently housed in the planning section or is embodied in the machinery, labour is reduced to carrying out strictly defined and simplified tasks. Crafts are destroyed, work is fragmented and labour is reduced to "instruments of production" (Braverman, 1974, p. 172).

The impact of Braverman's seminal study in uncovering the previously 'forgotten' world of factory and office
workers cannot be underestimated. Though Braverman's analysis received widespread criticism (for example, for his inadequate conception of class struggle (Lamphere, 1985), his definition of skill (Gaskell, 1986) and his lack of concern for the impact of gender and ethnicity on the labour process (Gannage, 1986)), it was successful in rekindling interest in the nature of the labour process and debate around the concepts of skill and deskilling. Criticism of the book proved constructive as social scientists filled gaps in his analysis, delving into hidden resistance on the shop floor, and gender and ethnic divisions of labour. The collection of papers edited in the Zimbalist (1979) book, for example, is a direct response to Braverman's plea for a return to the workplace as a primary focus of analysis. Research in the collection includes the proletarianization of clerical work, resistance in those factories whose principal workforce are women and ethnic minorities, and the effects of technology on the labour process.

2.3 Approaches to the labour process in the 1980s

The economic crisis of the early 1980s re-fueled interest in the labour process. Some of this work is concerned with the dynamic between the labour process and
changing norms of consumption. This is a step forward from the work of Braverman who only implicitly deals with changing consumption in the shift from craft production to mass production, and its corollary mass consumption. This implicit treatment restricts his theory from addressing the impacts of changing consumption norms on the labour process (Peck and Lloyd, 1987). Marx himself asserted the intractable relation between production and consumption:

Production mediates consumption; it creates the latter's material; without it, consumption would lack an object. But consumption also mediates production, in that it alone creates for the products the subject for whom they are products...consumption creates the motive for production; it also creates the object which is active in production as its determinant aim (Marx, 1976, p. 91).

The French regulationists, following a Marxist approach to change and crisis in capitalism, integrate consumption into their theory of the labour process (Aglietta, 1979; Lipietz, 1987). Capitalism, they argue, may be defined by the commodity relation and the wage relation. The former is the exchange of money on the market for a manufactured product, while the wage relation manifests itself when the owners of the means of production purchase labour power from workers. In very simple terms, reproduction of capitalist system requires that capitalists supply goods to the market which are sold for a profit and that each worker purchases the means required to reproduce her/himself for the next working
day. Working class consumption is a lynch-pin in the schema: unless labour purchases the commodities capitalists supply to the market, the system collapses. In Aglietta's (1979) terms, a "...social norm of working class consumption" is required so that commodities are sold on the market (p. 152). An example of the way production and consumption are linked is the way mass production techniques on the shop floor require patterns of mass consumption at the market. The regulationists have developed the term 'regime of accumulation' to refer to the process whereby commodity and wage relations are reproduced for an extended period of time. Although the theory integrates consumption and production, the engine for change, at least in the current crisis, seems to rest more firmly in the realm of production. Consumption, on the other hand, complements production through a regulatory mechanism which either "...coerces or persuades private agents to conform to the regime" (Lipietz, 1987, p. 32). An example of a regulatory mechanism or institutional form which emerged to encourage mass consumption in Canada and the United States was the development of credit finance to facilitate homeownership. Subsequently, homeowners became increasingly involved in purchasing standardised appliances and automobiles, complementing mass production methods in the factories (Belec, et al, 1987). Credit finance is one of many
institutional forms which link production and consumption and are known collectively as the 'mode of regulation'.

Crisis, an integral component of the regulation theory, occurs when the regime of accumulation and the mode of regulation become out of sync. For example, during the 1930s, improved productivity in factories using Taylorist methods of production resulted in a crisis of overproduction because consumers did not have the disposable income to purchase the commodities. Alternatively, as is the case in the current crisis, the very basis of the regime of accumulation might have reached its limits. According to Aglietta, the regime of accumulation dominant from the late 1930s and 1940s until the 1960s, known as Fordism, has reached its limit. Fordism is characterised by mass production, economies of scale, machinery dedicated to single tasks, assembly lines, simplified work, standardised designs, and mass consumption. According to the regulationists, the major goal of Fordism was to reduce the porosity of the work, that is to reduce gaps in the working day such as repair work, the time wasted in handling goods, imbalances on the assembly line, and rests due to fatigue. Yet there are limits on the extent to which porosity could be avoided within the confines of Fordism. The rigid structure of mass production under Fordism impeded the overall efficiency due to imbalances on the assembly line between
the multitude of specific work stations which prevented the maintenance of a continuous flow of production and high productivity levels. High rates of absenteeism and temporary sicknesses, and poor quality control due to the intensity of work on the assembly line, added further barriers to accumulation under Fordism. These 'problems' may in fact be evidence of hidden resistance to the monotony of work on the shop floor of mass production factories. A final contradiction is that the assembly line tends to unify workers in a factory. By the 1970s, low productivity levels and increased foreign competition were jeopardising the stable wage relation capital and labor had enjoyed since the 1940s (Lipietz, 1986; 1987).

According to the regulationists, if a new regime of accumulation does not emerge to overcome the crisis, the capitalist system is in danger of collapsing. The crisis which began in the late 1960s has, however, been averted with the introduction of a new regime of accumulation: neo-Fordism (Aglietta, 1979). The key contradictions of Fordism are 'solved' within neo-Fordism by flexibility, the hallmark of the new regime. This is achieved through short production runs, work teams, reconstituted work, flexible machinery and the manufacture of unstandardised products. While the regulationists have focussed on the changes in production, other integral elements of the new regime are the maintenance of close contacts with
subcontractors and restricting inventories to a minimum at the factory to avoid tying up capital unnecessarily (Holmes, 1987a). The flexible use of labour is a further characteristic of the new regime: in some industries have turned increasingly to a contingent labour force, that is they are drawn into employment while demand is strong and are laid-off when demand falters (Beechy, 1985; Christopherson, 1987). Post-Fordist consumption patterns are geared to heterogeneous markets where demand is usually short lived and consumers are concerned with quality rather than price. A comparison between the two regimes, Fordism and post-Fordism, adapted from Holmes (1987a) is presented in table form (Table I).

Recent claims that the recomposition and automation of work will improve conditions for labour in the new

---

1 However, this labour segment is not a totally new phenomenon in capitalist society and may only be increasing in importance in the new regime of production (Pollert, 1988).

2 The term post-Fordism is preferred over neo-Fordism which refers only to changes on the shop floor while ignoring other changes in the organisation of production. Post-Fordism, on the other hand, refers to both.
Table 1 Characteristics of production under Fordism and post-Fordism

<table>
<thead>
<tr>
<th>Markets</th>
<th>Fordist</th>
<th>Post Fordist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stable design.</td>
<td>Diversity of design.</td>
</tr>
<tr>
<td></td>
<td>Mass markets.</td>
<td>Small markets.</td>
</tr>
<tr>
<td></td>
<td>Competition based on price, style and marketing.</td>
<td>Quality and innovation important.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production process</td>
<td>Dedicated machinery.</td>
<td>Flexible and programmable machinery.</td>
</tr>
<tr>
<td></td>
<td>Repetitive tasks.</td>
<td>Varied tasks</td>
</tr>
<tr>
<td></td>
<td>Deskilled labour force.</td>
<td>Reconstitution of skill.</td>
</tr>
<tr>
<td></td>
<td>Long production runs.</td>
<td>Batch production.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arms length relationship with supplier.</td>
<td>Closer relationship with supplier, long term contracts.</td>
</tr>
<tr>
<td></td>
<td>Quality control through strict supervision.</td>
<td>Workers responsible for quality control.</td>
</tr>
<tr>
<td>Industry and Structure</td>
<td>Large scale production.</td>
<td>Small scale production.</td>
</tr>
<tr>
<td></td>
<td>Fewer producers.</td>
<td>Survival of medium sized producers.</td>
</tr>
<tr>
<td></td>
<td>Vertical integration.</td>
<td>Possible disintegration.</td>
</tr>
<tr>
<td>Location and geography</td>
<td>Extensive production.</td>
<td>Concentrated production.</td>
</tr>
<tr>
<td></td>
<td>Shift to low wage countries possible.</td>
<td>Remains in OECD due to technical advantage.</td>
</tr>
</tbody>
</table>


regime are vehemently rejected by Aglietta (1979): "The combination of these two lines of development [automation
and recomposition] has unleashed the most shameless propaganda about the liberation of man (sic) and work" (p. 122). Rather, he argues, the introduction of automated machines leads to the laying-off of workers, the continued deskilling of the workforce, and the centralisation of production. Although new technicians are hired to operate the programmable machines, they are not the ones deskilled or laid-off by these machines. In reality, regulationists argue, the recomposition of tasks means that every employee can do any of the simplified jobs in the factory. Slowdowns due to absenteeism are thereby prevented, since workers are capable of all the deskilled work on the shop floor. Flexible labour does not, therefore, automatically translate to a skilled workforce. For the regulationists, in spite of new production methods, the processes identified by Braverman in the Fordist regime of accumulation persist and the new regime, neo-Fordism, is simply an extension of the old. A brief discussion of case studies on the implementation of robotics, work teams and quality circles which follows, supports Aglietta's conclusions.

**Robotics:** For Morris-Suzuki (1984), the most important development in recent years on the shop floor is the use of programmable machinery. In most cases, the software instructs a robot to do mundane tasks characteristic of a mass production assembly line. In
some factories, however, the software is sophisticated enough to guide the machines through difficult work and changing external circumstances. These robots are thus "...particularly applicable to the production of small batches of varied products" (Morris-Suzuki, 1984, p. 113), and to the regime of post-Fordism. Her concern is the way in which the software allows capital to dispossess a worker's knowledge and transform it into a commodity. Confirming Braverman's theory, Morris-Suzuki and Aglietta concede that although most of the work in the factory is degraded or deskillled, a few skills are created in the form of programmers. Weighted against workers on the shop floor, the effects of the new techniques are uneven.

Work Teams: In the new regime, the assembly line has been replaced by the work team system. Although "...the continuous flow of production along an assembly line is maintained, the assembly line is now divided into distinct work spaces, each supplied with its own stock of components and tools" (Coriot, 1980, p. 35). Whereas before one individual performed a single operation, now a group of workers is involved in manufacturing a number of different components. From management's perspective the advantages of the new system are impressive in that many of the problems associated with the assembly line are overcome. In particular, with the recomposition of tasks and fewer work stations, work stoppages are less frequent
and flexibility is improved, two factors always problematical in the mass production assembly line. Coriot (1980) is, however, skeptical that labour can in any way challenge management's control of production. Once the system of work teams is in place control simply shifts from the level of the individual to the level of the group. Work teams are subject to deadlines in the same way individual workers were forced to maintain a certain pace on the assembly line. Coriot's thesis is that the assembly line has been restructured rather than replaced, ruling out the possibility of the recreation of crafts or "...a socially recognised qualification" (p. 41). Shifting the bounds of control, managers have solved the contradictions of the mass production assembly line without relinquishing any control of production.

*Quality Circles:* Quality circles and quality of worklife schemes are elements of the new regime and are considered an important part of improving the working life of labour. The objective of the schemes is to make work more interesting and fulfilling through worker input and participation in the structure of the production process and the work environment. There is evidence that the plans have had some success; since the introduction of the quality of worklife system at an automobile plant in Ontario, wage and other plant related settlements have been concluded in record time (Rinehart, 1983). However,
there are also negative aspects to these schemes. In quality circles, some workers learn how to solve production problems as managers would - including the retrenchment, if necessary, of their fellow employees. Rinehart (1983) refers to this process as the modification of worker consciousness to support rationalisations and cutbacks even if the result is the laying off of workers. Though the working life of labour may have improved in the factory which forms the basis of Rinehart's study, the schemes have become tools for management to divide workers on the shop floor.

Workers in this factory also discovered that managers were selective in their acceptance of suggestions. Problems which dealt with increasing output and quality, or decreasing costs were always implemented. However, when the circles suggested spending money to improve working conditions or the factory environment, the ideas were frequently ignored or shelved by management. Thus according Rinehart (1983), even the more promising aspects of flexible production are wrought into tools for capitalists to control labour.
The view that the emerging techniques continue to deskill and are a tool for controlling labour is not, however, held by all students of the labour process in capitalism. In the United States, a group of economists at the Massachusetts Institute of Technology (MIT) have examined recent changes in manufacturing technology and their implications for future growth. Charles Sabel and Michael Piore, the most prolific and well known academics from the school, are concerned specifically with exploring possibilities for renewed prosperity in the United States economy following the crisis of the 1970s (Piore and Sabel, 1984). Crisis, according to Piore and Sabel, takes two distinct forms: the first is a crisis of regulation which occurs when the production of goods is not successfully integrated with the norms of consumption. Regulatory institutions exist to "...connect production and consumption..." in the same way the mode of regulation ensures the consumption of commodities in the French regulation theory (Piore and Sabel, 1984, p. 4). An 'industrial divide', the second crisis, occurs after the first and refers to a juncture in which a choice must be made between extending the regulatory institutions without altering the production techniques in any significant way, or implementing a different technology in production.
Set off by a number of exogenous shocks such as escalating energy prices, the crisis of the 1970s was entrenched with rigid wage structures and stable employment, anathema to the system of mass production which requires a "...reserve army of labour to move in and out of regular employment" (Solo, 1985, p. 831). The saturation of domestic markets and consumer dissatisfaction with mass produced goods also played a vital role in disrupting the links between the consumption and production of commodities. In response to the regulation crisis of a decade earlier, the United States is currently negotiating an 'industrial divide', the second of the MIT school's crises. At this divide, a choice must be made between an extension of the regulatory mechanisms within existing mass production technology, or the implementation of new technology in production. If the choice is the extension of the regulatory mechanisms, existing methods of production are likely to persist.

For Piore and Sabel the preferred route is the implementation of a 'new' technology which is in effect a reversion to older craft methods abandoned at the first industrial divide in the late 19th century. They recommend flexible specialisation, their term for the re-emerging craft paradigm, because mass production has had unfortunate consequences on the labour force. The new/old
techniques, on the other hand, promise a liberated and reskilled working class. Flexible specialisation, implying craft skills rather than the monotony of mass production promises that a:

...worker's intellectual participation in the work process is enhanced - and his or her role revitalised. Moreover, craft production depends on solidarity and communitarianism (Piore and Sabel, 1984, p. 278).

A choice must therefore be made between a strategy for growth based on the current methods, or a path which "...leads back to those craft methods of production lost out at the first industrial divide" (Piore and Sabel, 1984, p. 6).

Their choice of flexible specialisation over mass production is based on the work by Sabel on the Italian industrial complex of Reggia-Emilia, in Italy. In his research he describes how farm machinery corporations subcontracted part of the production process to smaller artisanal firms during a period of intense labour militancy. The large companies were attempting to ensure that labour would not disrupt production. Sabel's view is that skills were reconstituted in the small shops, leading ultimately to one of the most innovative manufacturing regions of the world (Solo, 1985).
Katz and Sabel (1985), in a case study celebrating flexible specialisation, use the automobile industry to show how the flattening of demand, increased foreign competition and the oil crisis led manufacturers to abandon long production runs, standardized products and a simplified labour process. Large corporations have adopted a strategy of manufacturing specialised cars for smaller markets. Another important component of the emerging system is an increasing concern with quality and worker pride with the manufactured vehicle. On the shop floor, this has translated to the flexible deployment of labour, the setting up of work teams, the broadening of job classifications and the reskilling of the workforce.

Surficially, the French regulation and MIT approaches have a great deal in common: both schools use the concept of a regulation crisis, both are concerned with the links between consumption and production and, though they use different labels, the two schools see the solution to the crisis in new structures of work on the shop floor. Despite the similarities, however, there are important differences in the approaches of writers like Aglietta (1979) and Piore and Sable (1984). First, the MIT school introduces the concept of 'industrial divide' which occurs after the regulation crisis. It is a period when a choice must be made between mass production and flexible specialisation or craft production. The divide, although
linked to the crisis, is a juncture which provides the "backdrop or frame to subsequent regulation crises" (Piore and Sabel, 1984, p. 5). The industrial divide concept which introduces an element of individual choice within the capitalist system, is absent in the French regulation theory. Instead, they argue, capitalists must either restructure production on the shop floor or risk the collapse of the system; there is thus no question of choosing between two competing methods of production.

A second difference is that while Piore and Sabel equate the emerging work techniques with craft methods abandoned at the first industrial divide, the French regulationists regard the new work structures as unique to capitalism. Conceivably, in a future industrial divide, the choice for the MIT school will again be one between craft and mass methods of production. French regulation theory is more flexible in that they expect new and unique productive arrangements to emerge after each crisis (Lipietz, 1987). Finally, and of importance to the empirical material in the chapters which follow, the MIT school predict that with flexible specialisation workers enjoy a fulfilling and meaningful work life within the capitalist system. The regulationists argue that until the system collapses, labour will never be liberated.
2.5 Criticisms of current formulations

The MIT school's concept of industrial divide in which a choice is made between two competing methods of production has recently received criticism. First, it is not clear that emerging production methods are simply the return of older craft skills lost at the last industrial divide (Gertler, 1988). The recombination of skills and the replacement of the assembly line in some factories represents the restructuring of work processes, rather than the re-introduction of archaic methods of production (Coriot, 1980). Second, the concept of 'choice' at an industrial divide is rather problematical. Is this choice a collective decision made by governments, capitalists and workers or will each group see the way suggested by Piore and Sabel individually? How do these groups come to a consensus on which production method to choose and will there be any debate? (Solo, 1985). These issues are not addressed in any depth by Piore and Sabel (1984) and are indicative of the vagueness of the MIT approach.

Other academics from various institutes of technology around the United States have demonstrated empirically the weaknesses of Piore and Sabel's work. Shaiken et al (1986) are critical of the prediction that flexible specialisation has the potential to reskill labour and
alleviate monotonous work. Their findings suggest that the primary reason flexible work teams and programmable machinery are introduced, is to centralise and control production. Managers do not want to leave anything to chance:

I believe in having control over every programme and every part because there's a lot involved...We basically have quality control of the programming...You don't want everybody doing their own thing (Manager, cited in Shaiken et al, 1986, p. 173).

Numerically controlled equipment also desskills workers who have a certain amount of power on the shop floor: "Machinists tend to be prima donnas. This is one of the motivations for buying NC [numerically controlled] equipment. It reduces our dependence on skilled labour" (ibid, p. 174). Finally, the pressure to increase turnaround time to meet smaller markets forces labour to work at an extreme pace. Thus more important than the theoretical problems in Piore and Sabel's (1984) analysis, is that their conclusions are not supported by research on the shop floor. In a number of manufacturing sectors there is only scant evidence to suggest that workers are gaining skills or that management and labour are now coming to some sort of equitable relationship in the factory environment.
In a recent paper Gertler (1988) extends the criticism of flexible production arguing that there are a number of misconceptions concerning the implementation of new techniques. For example, computerised machinery is vulnerable to breakdowns, defeating the goal of faster turnaround times. Sophisticated machines are also very costly, and many small firms are unable to raise the necessary capital. Gertler is thus rather skeptical that the new techniques are very pervasive and suggests that the literature has tended to generalise from a few case studies to all manufacturing industries. Both the regulationists and the MIT school are guilty of this criticism. They are also guilty of overstating their positions; for example, at one extreme, the former argue that most work is still degraded and quality of work life schemes are implemented to dupe labour, while at the other extreme, the MIT school contend that skills are recomposed and working life is improved. In a survey of 29 firms in Ontario, however, Mansell (1978) shows that both have some truth: there a number of successful schemes which have ameliorated work life and there are many schemes which serve to further centralise control. It seems that the effects of the new techniques will be different across manufacturing sectors and without more detailed study, generalisations are problematic.
Finally, there are contradictions in the political consequences of flexible production. Closer ties between parent firm and subcontractor places labour in a potentially strong position vis-a-vis capital, as any delays due to labour militancy can be disastrous. It is possible that the Japanese are aware of this contradiction as their Kanban system refers to both the just-in-time (jit) system of delivery and the provision of a better working environment for labour to minimise the threat of strikes (Sugimori et al., 1977). Standardised tasks are mechanised to minimise monotonous work on the shop floor and workers are encouraged to take part in production related decisions. In some North American corporations, the ideas of jit are embraced while the quality of work life is considered less important. The potential for conflict is therefore still present in the new production regime.

2.6 Industrial Geography and the New Regime

Industrial geographers have been concerned with the links between the nature of production in the factory and location (Schroenberger, 1987). Many of the writers have not specifically set their research within the context of a new regime of accumulation or new manufacturing
techniques on the shop floor. Nevertheless, geographers exploring the locational implications for firms implementing new work methods have used the theoretical premises developed in research on the links between production and location. An exegesis of some of these theoretical premises may be found in Allen Scott's series of papers on Los Angeles (1983a; 1983b; 1984). Scott examines how internal and external linkages within and between firms are related to their location in an urban area. Internal linkages which exist within the firm refer to the organisation of the labour process. External linkages are the flow of material between firms and face-to-face contacts over business deals or contracts. Linkage costs are high where they

...are small scale, unstandardised, and unstable as to spatial patterns...By contrast, linkage costs will be low in unit terms where linkages involve the movement of large quantities of products, are highly standardised and are stable with respect to spatial pattern (Scott, 1983a, p. 241).

Scott argues that firms with high linkage costs tend to be labour intensive, vertically disintegrated, and are spatially concentrated to reduce high linkage costs. On the other hand, capital intensity and vertical integration are associated with companies with low linkage costs. In spatial terms, lower linkage costs allow firms to decentralise production to areas where land and labour are less expensive. With rather slim empirical evidence from
the clothing and electronics industries, Scott links the labour process in the firm and its external relations to spatial patterns of manufacturing in Los Angeles (Scott, 1983b; 1984). As mentioned above, he does not discuss his theory specifically with reference to the new regime of production. The concepts of external and internal linkages are useful, however, in that they have been applied by other geographers exploring the spatial implications of industries implementing flexible production techniques.

At the national and international scale, the links between production and location is seen primarily in terms of the standardisation of products, the simplification of the labour process and the relocation of production to areas where wages are lower. The work of Frobel et al (1980) on the relocation of the German clothing and textile industries to the Third World is of this genre. The movement of simplified manufacture to the Third World, they argue, is a long term and persistent trend which is globally manifested in the New International Division of Labour (NIDL). The idea of a long term shift of investment to the Third World, particularly in manufacturing, has, however, recently come under close scrutiny (Lipietz, 1986; Gordon, 1988). Gordon, for example, argues that NIDL is not as extensive or as persistent as Frobel et al assert. At another level,
criticism of NIDL has come from writers who have demonstrated that the impetus to relocate production is often politically motivated rather than simply a quest for cheaper labour. A few of these arguments are discussed below.

In his study of the midwest automobile industry Clark (1986) discusses how political problems were responsible for the relocation of production. He argues that the decline of the region is due to the 'ossification' of class relations which inhibit corporations from restructuring the industry in situ. The relocation of production to peripheral areas of the United States, Clark argues, is a political rather than simply an economic problem. Similarly, Mitter's (1985) study on the clothing industry supports a political-economic over a strictly economic explanation in accounting for the organisation of the clothing industry in Italy. She argues that apparel companies in Italy decentralised production to smaller factories or to detached workshops to break the strength of the Italian union movement. The smaller shops are not usually unionised and collective action is problematic in so competitive an industry.

In a case study of the electronics industry, Cho (1985) argues that the political motives for relocation also apply at the international scale. She argues that
the possibilities for militancy are much higher in a factory in South Korea where workers hail from the same class background and live in the same neighbourhoods. In a factory in Silicon Valley, however, due primarily to the different class backgrounds of the workers, the potential for resistance was very low. Cho's conclusion is that worker resistance is more of a concern than higher wages and that the higher potential for worker mobilisation in South Korea is forcing companies to relocate back to the United States. All of the papers discussed here add a political dimension in their analysis of the relocation of manufacturing, and Cho's evidence raises serious doubts concerning Frobel et al's argument of a long term trend of the flight of manufacturing to the Third World.

While the regulationist and MIT schools have focussed on the effects of the new techniques on labour, geographers have been concerned with how the location of industry has been affected by different work structures within firms, and by new subcontracting and supply relations between firms (Holmes, 1986, Storper and Christopherson, 1987). Holmes (1987a) uses the tools of the French regulationists to predict the changing spatial organisation of the automobile industry in Canada and the United States. Prior to the 1970s, the auto industry represented the epitome of mass production: manufacture occurred on an assembly line, work was repetitive and
simplified, large buffer stocks were held and companies worked with numerous subcontractors. Declining productivity levels due to contradictions in the system of production and competition from offshore manufacturers led to a crisis in the industry. General Motors and Ford survived through restructuring and the implementation of flexible production techniques. Huge investments were made in programmable machinery, quality circles were introduced, tasks were recomposed, cars were targeted to specialised markets, fewer subcontractors were used, and lower inventories were maintained. These new techniques have led to the spatial agglomeration of industries for at least two reasons: first, the recomposition of tasks requiring skilled labour inhibits corporations from relocating to the Third World in search of cheaper labour. Second, parent firms encourage subcontractors to invest in new technology to increase the quality of production, which has strengthened ties between the two companies. In Canada, Holmes expects the automobile industry to remain in Ontario, while in the U.S., the mid-west is the likely site for firms to locate. Contrary to Clark's (1986) argument discussed above, flexible techniques have thus permitted companies to make in situ changes in response to the crisis without having to relocate.

Holmes' prediction of the return of the automobile industry to the midwest is supported by the work of Estall
(1985) on the just-in-time system of controlling the inputs and outputs in General Motors' production plants. The opposite of this, 'just-in-case', involves maintaining large inventories of stocks for future production which is very costly (Sayer, 1985). Before implementing jit, Estall estimates that at any one time General Motors had up to nine billion dollars tied up in inventories. The locational implications of jit lend support to Holmes' argument of increasing spatial concentration because the system is most successful when the supplier and parent firm are in close proximity. Not surprisingly Estall predicts the reconcentration of the automobile industry to the midwest. Towards the end of his paper Estall concurs with Gertler (1988) on the political implications of jit: in the new system disruptions due to labour stoppages can be very costly for the firm and labour has a potentially stronger bargaining position.

Schroenberger (1987) approaches changes in manufacturing in the new regime rather differently in her research on the automobile industry. Her aim is to stress competition as an explanatory variable in the increased use of flexible production techniques. Implementation of new technology involves the playing off of one advantage
over another and considerable tension exists between the centralising tendencies of the new techniques and the advantages of further extending the spatial division of labour within the [automobile] industry. The eventual outcome depends on the extent to which competitive advantages offered by the new methods compensate for the loss of a certain amount of spatial flexibility (Schroenberger, 1987, p. 200).

Though many companies will continue to produce through mass production methods, others have found competitive advantages with faster turnaround time, closer ties with suppliers and customers and investment in programmable machinery. Echoing the conclusions of Holmes (1987a) and Estall (1985), she argues that proximity to suppliers and the market will lead to spatial concentration. It is important to note that Schroenberger does not argue that her analysis is automatically applicable to any other manufacturing industry. Instead, the extent to which a firm adopts flexible techniques of production depends on the competitive structure of the industry, its industrial organisation and the organisation of work on the shop floor. Some industries are thus not likely to change from mass production methods. This is an important insight because although most of the work on flexible accumulation is based on the automobile industry, the phenomenon is often regarded as ubiquitous across all industries (however, see Holmes, 1987b). Further, not all firms
within a manufacturing sector may be able to become flexible in their work structure due to, for example, a lack of capital (see chapter six).

In the clothing industry, manufacturers located in Third World countries have since the 1950s undercut manufacturers in the United States and Canada with cheaper imports. Their competitive advantage is a function of low wages; even in this decade, the daily wage rate of a worker in South Korea is equivalent to the hourly rate of a worker in North America or the United Kingdom. Most of the clothing imported is standardised to take advantage of cheap labour through simplified work (Mitter, 1985; Waldinger, 1986). Moreover, the long lead time associated with importing clothing is not important where markets are relatively stable and styles are invariable. Competition is based on price in the manufacture of these mass production goods, giving importers an edge over local manufacturers. On the other hand, in the unstandardised or fashion clothing market where styles and colours change frequently, competition is based not so much on price but on 'reading' consumer demand at the right time (Waldinger, 1986). Rapid turnaround is vital because a particular style may become outdated before the manufacturer has been able to produce the clothing. In this market, which is arguably replacing the mass, standardised markets of Fordism, domestic manufacturers have the upper hand in
that they are able to respond to new fashions and deliver apparel to retailers in a matter of weeks (Hoffman, 1985; Mitter, 1985). Foreign based manufacturers, however, are disadvantaged in that with a typical delivery time of six months, they are generally unable to compete in fashion clothing. Domestic manufacturers have been able to further improve their turnaround time with programmable machinery, an important component of the new regime of accumulation. The machines have permitted manufacturers to design new styles, change fashion lines and respond quickly to demand (Gibbs, 1987).

The implications of the consumption of unstandardised and fashion goods in the new regime are significant for the geography of clothing production. Manufacturers closer to the market are able monitor changes in style and therefore have a competitive edge over firms located offshore. This argument has led Gibbs (1987) and Hoffman (1985) to report that some clothing companies are returning to the United Kingdom and other OECD countries. Thus fashion apparel manufacturers with equipment to increase flexibility and turnaround have a competitive advantage over offshore producers where markets are more volatile.

Manufacturers of standardised clothing tend to be in a different situation than are the producers of fashion
goods; on the whole they continue to be undercut by cheaper imported goods due to a fairly constant demand and few design changes. Hoffman (1985), however, argues that the lower labour content associated with computerised cutting and sewing has allowed domestic manufacturers to compete even in the standardised clothing market. Hoffman estimates that for CAD and CAM to be a useful investment, the particular firm must sell more than 50 million dollars worth of clothing a year. The majority of clothing companies in the industry are relatively small and only the largest firms have purchased computerised machinery. His estimate that fifty per cent of the garments produced in the United States are made with CAD or CAM is thus very surprising. Competitiveness may now be dependent on size and scale economies, something which has never been the case in the apparel industry (Hoffman, 1985).

The spatial implications of flexible production are still, however, less clear in the clothing sector than they appear to be in the auto industry. In the latter, most observers tend to concur that the industry is becoming concentrated due to changes in the labour process, and closer ties with subcontractors and markets (Estall, 1985; Holmes, 1987a; Schroenberger, 1987). On the other hand, a number of papers based on the Italian clothing industry suggest that spatial deconcentration persists in this manufacturing sector. In his study of
the Italian apparel industry, Murray (1983) provides evidence that the number of decentralised factories is increasing as large companies subcontract more of their production. Benetton, a widely cited example, currently subcontracts the standardised elements of production to over 10,000 workers while only directly employing 1,500 designers and cutters in its own factories which are "made up of small plants of 50-60 employees, where the union is absent or impeded" (Murray, 1983, p. 91). The reason why the companies are so decentralised is obvious: "Benetton thus holds down its overheads, avoids the thankless task of managing a vast workforce and benefits from the much lower costs of the small subcontractors" (Buxton, 1983, cited in Mitter, 1985, p. 48). Through subcontracting they manage to stay at arms length from any labour resistance. In Schroenberger's (1987) terms, Benetton has favoured spatial flexibility over the advantages with the new techniques.

A number of authors have argued that the instability of markets in the new regime of production necessitates not only flexible techniques and machinery, but also a flexible labour force. Christopherson (1987), for example, has argued that increases in part time and temporary work are evidence that firms are adapting to volatile market conditions through the use of a contingent labour force comprising mainly women and minorities. In
the clothing industry a flexible workforce has always been important and as the demand for more fashionable and less standardised clothing increases, this labour segment will become more central in clothing factories. In labour segmentation theory, discussed in the final section below, this contingent labour force forms part of the growing secondary market.

2.7 Segmented Labour Markets

Labour market segmentation theory was developed to help explain why advances in education are valued in some employment sectors while, in others, the effect of certification of any kind on seniority or wages are negligible. Edwards (1979), a pioneer of the theory, argued that there are three strata into which employment opportunities should be categorised. In the first stratum, the independent primary market, employment is stable, wages are high, there are large returns to seniority and educational experience is usually a criteria for promotion. Labour in the subordinate primary market, the second stratum, usually enjoys union representation and fairly high wages, though the work may be monotonous and simplified. Finally, work in the secondary market is characterised by low wages, low levels of skills, the
absence of unions and few opportunities for advancement. Educational qualifications tend to have no impact on seniority or promotion in the secondary market. Downgraded manufacturing jobs, service and domestic work are most commonly associated with this segment (Edwards, 1979).

Divisions in the labour market do not, however, occur because some workers are inherently better suited to certain kinds of work. Rather, segments are a function of the structure of work and the nature of control on the shop floor:

The reason, for example, education and experience are not significant variables in the secondary market is that the labour process in secondary firms is organised in ways which minimise education and experience (Sassen-Koob, 1980, p. 21).

The system of control sets the boundaries for the labour market segment. In the independent primary market, a bureaucratic system of rules and regulations is the principal method of controlling the pace and structure of work, while in the subordinate primary market control is technical in that the machines are set to regulate the pace of work. In the secondary labour market simple control, which may be defined as "the arbitrary power of foremen and supervisors to direct work to monitor
performance and to discipline or reward workers" (Edwards, 1979, p. 183), is the method whereby labour in secondary firms are controlled. For example, the actions of foremen are often arbitrary, based not on rules or regulations, but on the character of the individual. Promotion in the clothing industry may be based on gender, good looks, family friends, favours and other such informal rules. There are thus no objective standards for promotion and educational experience is usually insignificant. Immigrant labour is often forced into these jobs due to their lack of language skills or education qualifications necessary to enter the other two segments.

Labour market segmentation theory focuses very broadly on how the nature of control divides workers and work into various segments. However, the theory is only a framework, and at a more detailed level of empirical analysis, it is evident that the manner in which workers become channeled into the segments is rather complex. Ng's (1986) research is a good example of how labour markets are reproduced in Canadian society through various state institutions. Her argument is that there is a process by which immigrant women are defined into certain labour segments. Institutions such as employment assistance and placement centres play an important role in reproducing the labour segments. Empirical support for her claims is drawn from research on an 'outreach'
organisation, funded by the Federal government, whose objective was to:

...improve with the help of community based agencies, the employability and employment of individuals who experience difficulties competing in the labour market (Ng, 1986, p. 274).

In practice, however, the programme reproduced and supported the segmented labour market. In the interviews with immigrant women seeking assistance, their skills were matched with employment opportunities and questions were asked concerning language skills, education and work experience. The existence of the secondary labour market, forced employees of the outreach programme to place immigrant women in downgraded manufacturing jobs or service and domestic work.

Creese's (1984) paper on the stratification of the working class also points to how different institutions play a role in creating or reproducing segmented labour markets. Though her research is based on Chinese men in British Columbia around the turn of the century, it demonstrates admirably the dynamic of the segmentation process. Chinese men were employed in the canneries, in domestic service, and in the lumber and mining industry. They were paid substantially less than white workers and were usually hired as a team rather than individually. The basis for discrimination, argues Creese, was their
lack of political and legal rights. Unions reproduced the segmented labour market by not allowing the Chinese to join. The divisions between immigrant and native workers were further entrenched as the former were used to as scab labour during strikes. Thus the state, capitalists and white labour all had a role to play in relegating the Chinese to an inferior labour market segment.

Feminist scholars are, in general, critical of the labour market segmentation theory because it fails to incorporate the effects of women's experience in the home on their employment outside the home (Gannage, 1986; 1987; Lamphere, 1985; Hoel; 1982). In addition, although labour market segmentation theory deals with immigrants and women, there is very little on immigrant women. It has been argued that their labour market position is unique as they are exploited on the basis of class, gender and their status as immigrants. Morokvasic has argued, however, that their oppression as immigrants is most sharply felt and tends to neutralise the other two (gender and class), to mask the exploitation by (for instance) a male compatriot employer or push women to take their husband's stand whatever their own position is in relation to him" (Morokvasic, 1984, p. 894).

Thus since the pioneering work of Edwards, research on labour segmentation has been extended to incorporate the
effects of unpaid work on formal work experiences and other place specific issues affecting women and work.

Since the late 1970s, the continuing important role of immigrant labour in the economies of North American cities has attracted the attention of a number of writers. There is general agreement that the absorption of immigrants into employment, while total unemployment is increasing, is due to the economic restructuring in cities like Los Angeles, New York, Toronto and Montreal. Restructuring has led to the replacement of high paying manufacturing jobs by downgraded assembly work and the emergence of a strong service sector (Sassen-Koob, 1984). Gentrification and other processes affecting the built environment have also played a role in creating labour intensive work opportunities for immigrants shunned by most native workers. Sassen-Koob's findings are mirrored in Los Angeles, where the restructuring of the local economy has led to a greater rift between the wealthy and the poor. This income disparity is reflected in the existence of a high technology sector where skills and wages are high, and peripheralised manufacturing firms where wages are low. In this latter group small clothing firms, food processing and electronics assembly are prominent (Soja, Morales and Wolff, 1987). Thus the process of restructuring in the 1980s has had major impacts on the structure of labour markets and in many
North American cities the secondary labour market, dominated by women and minorities, is growing rapidly.

Immigrant labour did not, however, create the conditions for the emergence of downgraded manufacturing and low-paying service sector employment. Most writers have been careful to distance themselves from this functionalist type of argument and have pointed out its flaws (Castells and Portes, 1986). Instead, it seems that the owners of downgraded manufacturing and service sector firms have not improved the conditions of work because of the availability of a large reserve of immigrant labour. If the immigrant labour did not exist and manufacturers had to depend on local labour, they may have restructured production or perhaps relocated to where labour is less expensive (Waldinger, 1985).

In the papers reviewed above, it is evident that the way in which immigrant workers came to be employed in the secondary labour market is complex. The research by Creese (1984) and Ng (1986) in particular demonstrate how local features play a role in reproducing labour market segments. The process of segmentation is linked to issues in the home, conflicts within the working class, and in state institutions. These analyses demonstrate that labour market segmentation theory is at best a useful framework to begin a study in a particular place. In the
third chapter, a more contextual analysis of how immigrant women are drawn into the clothing industry is developed.
2.8 Conclusion

Perhaps the most notable shortcoming in the literature on restructuring and flexible manufacturing is how dependent it has been on the automobile industry for empirical context. Fordism and post-Fordism, terms describing the regimes of accumulation, attest to the significance of the automobile industry in the burgeoning literature on flexible manufacturing. This point is true of the regulationists, the MIT school and the work by geographers. There is therefore an urgent need to examine the extent to which flexible manufacturing is being adopted in other sectors of the economy. A recognition of the need for a more extensive empirical base has only very recently appeared in the literature (Holmes, 1987b; Storper, 1987; Gertler, 1988) and is underscored by different interpretations over the effect new techniques have on worker's skills. While the regulationists argue that new techniques continue to deskill work, the MIT school writers are of the opinion that flexible specialisation will improve conditions on the shop floor.

The spatial implications of industries implementing flexible manufacturing techniques are as yet uncertain. However, there are indications that firms will concentrate
closer to markets to monitor changes in consumption and will locate closer to subcontractors due to the just-in-time delivery of parts. Holmes (1986; 1987a), Schroenberger (1987) and others have thus predicted the spatial concentration of production, conflicting with the theory of the New International Division of Labour which suggests the continued dispersal of production by firms in search of cheaper labour. In the clothing industry, it appears that the production of standardised apparel can take advantage of less expensive labour in the Third World due to the ease with which the labour process can be simplified. Manufacturers of fashion clothing, on the other hand, are likely to locate closer to the market and forego the attraction of low wages.

Finally, it was argued that some firms have turned to a contingent labour force to maintain profitability during crisis, rather than implementing new methods or investing in flexible equipment which is common in the auto industry. Labour segmentation theory was treated as a framework with which to begin a more in-depth study of how immigrant labour, in particular, come to be employed in low paying manufacturing and service sector jobs. The case studies discussed demonstrate how the state, the unions and the family are pivotal in reproducing segmented labour markets. In chapter five this approach is used to
examine the process of channeling immigrant women into Vancouver's clothing industry.
CHAPTER III History and Context of Clothing Manufacturing in Vancouver

3.1 Introduction

The aim of this chapter is to set the stage for the analysis of garment manufacturing in Vancouver in chapters four and six. In the first section of this chapter, a brief history of the apparel industry in Vancouver is outlined before moving onto a discussion of the current context of manufacturing in the city. Trends in Vancouver's economic structure, a city often described as post-industrial, are examined in relation to the recent growth of the garment industry. The organisation of the clothing industry and the labour process in a 'typical' factory without flexible manufacturing techniques are discussed, to compare changes that occur with the implementation of the methods. Empirically this chapter draws from official statistics, interviews with clothing firms, equipment salespeople, trade journals and secondary literature on the clothing industry.
3.2 A brief history of clothing production in Vancouver

Until recently Vancouver's clothing industry was small in comparison to the rest of Canada (Fig. 3.1) and as a result historical accounts of the industry are scarce. A sketchy picture of the history of this manufacturing sector was, however, compiled through interviews with a few of the older companies, newspaper articles and other publications. Apparel manufacturers in the city have in the past focussed on local markets. In the late nineteenth century, the handful of clothing firms operating in the city manufactured outerwear and gear for the men and women seeking their fortune in the Klondike. Tents, backpacks, rubber boots, rain wear and warm coats were made for those passing through Vancouver (Vancouver Sun, 10/5/1941). A photograph of the storefront of Jones Tent and Awning taken in 1911 is an example of the type of apparel manufactured (Plate 1). In fact, the term 'clothing firm' is something of a misnomer, since many of these also made awnings and repaired and constructed sails for the ships in what was then a small port town (Province, 9/11/1977). With the demise of sailing ships, however, some companies turned their exclusive attention to the outdoor clothing and workwear market which was relatively unaffected by fashions and tended to be standardised. Other firms began a form of 'import
substitution' by supplying local markets with ready-to-wear clothing previously shipped from factories in central Canada or made in the home.

Figure 3.1 Employment in the Canadian clothing industry
Source: Statistics Canada, 31-203

By the early 1920s, there were at least 15 ready-to-wear clothing factories, 11 workwear firms and only 6 manufacturers of sails and awnings in Vancouver (Statistics of Industry in B.C., 1935). Women's clothing
factories appear to have 'taken off' first, and by 1927 there were 10 women's clothing factories and only one men's apparel manufacturer (Report on the women's factory clothing industry, 1928). The number of clothing factories remained small throughout the 1930s and 1940s and in these two decades the number of total clothing factory employees in the province never surpassed one thousand compared to over 50,000 employees in both Quebec and Ontario (Statistics Canada, 34-217; Report on the men's and women's factory clothing industry, 1930-1949). At the same time, men's apparel production began to approach the level of women's clothing and by 1945 there were 14 men's garment factories employing 318 workers and 21 women's factories with almost 500 workers (ibid.). It was only by the 1950s that one reporter could proclaim that "British Columbia's infant needle trade is growing into a major industry" (Vancouver Sun, 20/5/53). In the first three years of the decade, according to the columnist, the number of firms in the city nearly doubled, increasing from 39 to 65. New manufacturers were consolidating the already dominant women's fashion industry where clothing is unstandardised due to frequent style changes. The same reporter predicted that the industry was "becoming known as the 'California of Canada' in women's fashion" (ibid.). Reflecting the terminology associated with new fashion wear, he predicted that "Soon the ladies will know what we speak about when we mention
nothing colours, co-ordinated check, contract stretching, tapered pants" (ibid.) By the end of the 1950s, the women's fashion industry had carved itself a permanent niche in the city (Province, 25/5/1959). Since then the percentage of production dedicated to women's fashion and stylish sportswear has increased rapidly (Fig. 3.2).

In response to stiff competition by cheaper imports from a number of Third World countries beginning in the 1960s, a number of firms which had manufactured workwear turned to satisfying the demand for camping and other
outdoor leisure activities. There are currently a number of firms specialising in sleeping bags, jackets made with high technology material for the very wet weather common in Vancouver, and fashion skiwear.

Figure 3.2 Women's and men's clothing production in British Columbia

Source: Statistics Canada, 31-208; 34-216; 34-217

Employment in British Columbia's garment industry, which is located overwhelmingly in Vancouver (Fig. 3.3),
declined during the mid 1970s reflecting poor performance of the industry nationally (Fig. 3.4). Manufacturers were severely affected by less expensive imports and the relocation of production to countries like Hong Kong, Korea and Taiwan. Since then, however, the industry has re-emerged both nationally and in Vancouver. The recent revival of the industry is surprising in a city often described as post-industrial.

Figure 3.4 Employees in British Columbia's garment industry

Source: Statistics Canada, 31-203; 31-208
Figure 3.3 Location of clothing manufacturers in Vancouver

Source: Manufacturers Directory of British Columbia, 1987
3.3 Post-industrial Vancouver?

Since the late 1960s, the importance of manufacturing employment in many western capitalist cities relative to other sectors of the economy has been disappointing. For example, from 1969 to 1977 New York's manufacturing employment declined twice as fast compared to the decline in other sectors of the economy (Sassen-Koob, 1985). In Vancouver, although employment continued to expand in this sector, its relative share in creating new jobs has declined considerably. Since the 1970s most of the new employment opportunities have been provided by the service and financial sectors. A number of academics have attempted to account for this fundamental economic change and an example is Ley's (1980) widely cited and influential paper on liberal ideology and Vancouver's progress towards post-industrialism. Ley uses Bell's (1976) theory of post-industrial society to account for new developments in the economic, political and social structure of Vancouver since the 1960s. Significant to the discussion here is the transformation of the city's industrial employment structure from blue-collar occupations and manufacturing to post-industrial occupations such as doctors, professors, lawyers and other white collar jobs. At present, at least sixty per cent of
workers in the city are employed in white collar jobs, arguably replacing the need for unskilled labour preeminent in the industrial era (Ley, 1980).

More recent data confirm Ley's position on employment trends in Vancouver. Hutton (1985) has described the city's role as a high-order service centre for the rest of the province. In 1985 the service and financial sectors continued to grow faster than any other sector in the city. Hutton predicted that the future of the city's economy lies in a stronger service sector and the development of an infrastructure to support an international finance centre. Manufacturing, clearly on the decline in most of North America, he argued, is likely to continue to relocate to offshore locations. Notable exceptions, however, are the electronics and advanced technology industries, based on information and therefore still compatible with Vancouver's transition towards a post-industrial economy.

What then of other manufacturing and, in particular, of the clothing industry, a sector considered archaic by many economists? Surprisingly, the provincial government has taken a rather active role in promoting and supporting the apparel industry in Vancouver. In contrast to the widely held view that the clothing industry is stagnating, the government sees the industry acting as a "...buffer
against the perils of a boom or bust economy tied to a narrow economic band of resource industries vulnerable to market whims" (British Columbia Enterprise, Feb 1988). It is particularly interested in promoting the manufacture of fashion clothing which has recently "spawned an exciting and rapidly developing industry that is establishing Vancouver as a world fashion centre" (ibid.). Provincial politicians have elevated clothing production alongside high technology electronics, aerospace and subsea industries. Active involvement has taken the form of interest-free loans to new firms, financial assistance in attending fashion shows around North America, support of home-based work (e.g. Vancouver Sun, 30/4/88) and the encouragement of foreign investment (Selzer, 1987). The provincial government's recent labour legislation, which affects the ability of unions to organise, has also played a role in facilitating the growth of new firms.

Official interest in the clothing sector is partly a response to its recent growth. Though clothing manufacture forms a small part of the total provincial economy (Fig. 3.5) and of total clothing production in Canada (Fig. 3.6), growth in employment and output has been spectacular. The most recent unofficial data indicate that since the recession of 1981/2, employment and production have risen by 50 per cent (Selzer, 1987). Official statistics, although slightly more conservative,
Figure 3.5 Garment manufacturing in British Columbia as a percentage of total manufacturing in the province.

Source: Statistics Canada, 31-203; 31-208

Figure 3.6 Garment production in British Columbia as a percentage of total Canadian production

Source: Statistics Canada, 31-203; 31-208
are nevertheless surprising for a traditionally declining sector (Fig. 3.4 and 3.7). The largest increases by clothing type have occurred in women's clothing and sportswear, where style changes are frequent and demand is often volatile. By contrast, men's clothing production, which tends to be more standardised, is stagnating (Fig. 3.2).

Other notable examples of manufacturing industries which are growing in Canada (see Globe and Mail, 2/5/1988) and the United States in the 1980s include electronics, toys and footwear. The revival of manufacturing in Vancouver and other cities in North America has led to a re-evaluation of the theory of a new post-industrial era in which manufacturing plays only a very minor role. More recent accounts of the changes in the economies of cities like New York and Los Angeles have shown that the contraction of commodity production has reached a limit and manufacturing now appears to be re-emerging after the depression of the 1970s and early 1980s. In particular, downgraded manufacturing, that is firms with "...a tightly controllable supply of cheap, typically immigrant and/or female labour" (Soja, Morales and Wolff, 1987, p. 152) is a rapidly growing phenomenon in cities such as Los Angeles and New York. Garments, electronics, and footwear are examples of industries falling under this category (Mazur, 1979; Sassen-Koob, 1985; Soja, Morales
and Wolff, 1987). A modification of the post-industrial theory therefore seems necessary: the theory has captured only one part of recent shifts in the employment structure of North America cities, viz., a rise in the number of higher paid white collar jobs. However, the theory has failed to account for an increase in the importance of downgraded manufacturing employment which often demands a flexible labour force who are hired or fired depending on economic conditions. The combined result of these two processes is a polarised urban economy, with large primary and secondary labour market segments, while unionised and well paid blue collar work (part of the subordinate primary market), is declining. In the case of Vancouver, if the clothing industry continues to grow as it has since the beginning of the decade, a bipolar employment structure seems more likely than a post-industrial one.
Figure 3.7 Clothing factories in British Columbia
Source: Statistics Canada, 31-208

3.4 The Organisation of Production and
the Labour Process in the Clothing Industry

It is rare to find an identically structured labour
process in two factories in the clothing industry (Coyle,
Minor differences such as the lay-out of the shop floor are often a function of a manager's whim, though structural differences (e.g. the type of equipment and the division of labour) are usually due to the product being manufactured. In the subsections which follow, the general characteristics of the clothing industry (section 3.4.1), and the labour process in a typical 'traditional' firm are described (section 3.4.2), drawing on material gathered from interviews with a number of factories in Vancouver, as well as secondary literature on the garment industry. The characteristics of a 'traditional' firm are then contrasted with those of a 'modern' firm that has implemented flexible production techniques (section 3.4.3). In these last two sections, we will proceed chronologically through each step of the production process. Differences in the manufacture of standardised versus unstandardised clothing will also be highlighted.

3.4.1 The organisation of production in the clothing industry

Intense competition and low profits are characteristics of the clothing industry, due primarily to ease of entry (Rainnie, 1984). Sassen-Koob (1985) estimated that in the United States one can set up a viable clothing firm with $300,000, a figure far below the
norm for other manufacturing industries. In Canada, an investor from Hong Kong set up a very competitive factory for around $500,000 (Equity, July/August, 1988). Once established, wages are the greatest concern for owners of clothing factories; this is a factor of the high labour content in production, particularly in pattern making, grading, marking and cutting. Sewing and other machining work also tend to be labour intensive as the varied nature of operations and the suppleness of the cloth has prevented the mechanisation of these tasks. Coyle (1982) argues that the availability of a cheap female labour force has also played a role in inhibiting the development of machines to replace labour. At the same time, however, with very low profit margins,¹ many firms cannot afford new equipment.

In an industry where profits are low and wages are the largest expense, payment schemes such as piece rates, which decrease wages and increase productivity, are common. Piece rates are essentially an incentive scheme: the faster the operator works, the higher the wage. In reality, however, operators usually earn less on piece rates as it is usually tightly monitored, and may be decreased when managers feel workers are earning too much, or if they want to increase the pace of production.

¹ Profit margins in the Canadian clothing industry are typically around 3 per cent (Gannage, 1986).
(Arnopolous, 1979). Operators work harder under the piece rate system, often competing with each other over the number of pieces they can complete in a day (Westwood, 1984). The contradiction is that if they work too hard and earn too much money, the piece rate is lowered. In some factories the pace of work has resulted in injuries on the shop floor, as well as more long-term illnesses due to sitting, the pace of work, and being exposed to various chemicals and dust (Wortman, 1980). It is estimated that one in five women in the garment industry is injured on the job (Montreal Gazette, 28/4/1987). There are also frequent reports of 'unexplainable' spells of fainting and other problems on the shop floor (Montreal Gazette, 12/3/1987; 4/4/1987). In Vancouver unions and the public were outraged at the mushrooming of sweatshops a few years ago (Vancouver Sun, 26/7/1985; Province, 25/7/1985; 25/8/1985; Toronto Star, 9/3/1986).

Some firms turn to homeworking (that is hiring women who work at home), and subcontracting to improve profitability and to remain competitive in the cut-throat industry. Women who sew at home absorb expenses such as the cost of power and machinery. Further, in the U.S. at least, many homeworkers are illegal immigrants; their insecure status allows manufacturers to pay wages which are below the legal minimum and taxes and benefits are not part of their wage (Lipsig-Mumme, 1987).
The experience of men and women on the shop floor of most clothing factories is not, however, the same. A gender division of labour exists and some jobs are male dominated, while other tasks are defined as 'women's' work (Coyle, 1982). Men are usually cutters and pressers, work which is highly skilled and remunerated, while women are operators or finishers, low paying and less skilled work (Coyle, 1982; Westwood, 1984). The tasks carried out by men are also not as vulnerable to wage schemes or other methods which increase productivity as men generally have greater control over the pace of work. The reproduction of a gender division of labour occurs through various mechanisms on the shop floor and outside the factory. Women are restricted from the highly skilled and paid jobs because of the ideology that their work life must be interrupted to raise a family (Gannage, 1986). According to Coyle (1982), men protect their work by recruiting and training new workers informally, and within their own gender. Domestic factors articulate with work life to define women's work in other ways too. Since women may learn to sew at home, management feel that they should sew

---

2 Women's work is not really unskilled. Although not recognised on the shop floor, their skill is based on "...a great deal of hand/eye co-ordination, dexterity, and, above all, speed" (Lamphere, 1979, p. 271).
in the factory too (Anthias, 1983; also see chapter 6), though this does not explain why they are paid less and why their work is considered less skilled. In Vancouver community organisations and colleges reproduce the gender division by teaching women machining skills, while for men this is 'women's work'. Finally, Cockburn (1985) argues that unions in the clothing industry entrench the gender division which they regard as 'natural' and thus also play a role in its reproduction.

3.4.2 The 'traditional' clothing firm without flexible production methods

The manufacture of a garment usually occurs in a number of distinct steps which range from the design stage, to the cutting of material, and construction of the garment. Each of these tasks is often segregated into different rooms in the factory so that paper, bundles of cloth and partly finished garments are transported from room to room. Designing is the first step in production and may be carried out by the owner (Westwood, 1984; Gannage, 1986), or by a professionally trained individual. In factories where the apparel is unstandardised and subject to fashion changes, the design process is vital to the survival of the firm. On the other hand, in the manufacture of standardised clothing where styles seldom
vary, the design process described below, is not an important part of production (and may even be absent in some factories). In very general terms women's clothing tends to be unstandardised while men's is more standardised and less subject to fashion changes. Samples of new designs are usually assembled to test the market, and the labour process in this stage comes closest to traditional craft methods of production as workers are involved in 'making through'; that is, they assemble the garment from beginning to end (Coyle, 1982). The design is drawn up on paper and pieces of cardboard are used to represent the patterns which make up the garment. After the material is cut according to the patterns, the garment is assembled in whole by one or two highly-skilled sample sewers. Not surprisingly, the garment undergoes many modifications before finally reaching a showroom or a retail store. Additional material might need to be cut, different colours may be compared and adjustments to the style may be required. Once a number of sample garments have been manufactured and approved by the owner or the manager, they are taken by salespeople to various fashion or retail shows, or orders are sought from the owners of small boutiques (Cockburn, 1985).

In fashion clothing where demand is uncertain, firms begin the actual manufacturing process only when an order has been made for a specific number of garments.
Production may therefore be slower during certain seasons of the year, and in extreme cases the factory may be forced to close temporarily. By contrast, in standardised clothing production, demand is usually more constant and production is not as vulnerable to the vagaries of the market (Gibbs, 1987). In the event of an order on the sample, the garment returns to the design room where production begins in earnest. The garment is first graded, that is larger and smaller sizes are extrapolated from the initial design. The head cutter, almost invariably a male, is responsible for grading specific measurements from the sample, as well as the tasks of marking and cutting described below. Measurements between sizes are often complex and the grader may refer to a chart for the correct dimensions, although many workers with years of experience have memorised the grading rules. Pieces of cardboard are again cut to represent the various patterns, and are then traced on transparent pieces of paper, by the cutter, setting up what is known as markers. Since the tracing will be used as a guide for the cutters blade, an efficient placement of the cardboard pieces on the paper can save an owner a great deal of money. Cutters with a 'good eye' for marking are regarded as the most highly skilled employees in the factory and are paid accordingly.

3 In some factories this process has been fragmented and different individuals might do the grading, marking and cutting (e.g Cockburn, 1985).
In the cutting room, material is spread from a large bolt across a long table. The bolt of cloth is usually suspended over the table by a spreading machine which feeds out material as it moves back and forth across the table. The number of layers spread depends on the size of the order or the physical properties of the fabric. In the fashion industry since orders are usually smaller, the thickness of the layers does not normally exceed three or four inches. Where orders are larger, more common in the manufacture of standardised clothing, the thickness of the layers may only be limited by the cutter's blade (Waldinger, 1986). The paper marker is then placed over the material and the patterns are cut using a mechanised cutter with a straight or a circular blade depending on the type of machine. This process again requires a great deal of skill: a slip or an unsteady hand may result in wasted cloth and money. After the material is cut, it is bundled into packages, and leaves the cutting room for final assembly in the sewing room.

The supervisor in the sewing room, usually a woman but not always (e.g. Westwood, 1984), is responsible for dividing an efficient technical division of labour by deciding how the assembly of the garment is to be divided between the workers on the shop floor. In this stage, 'working through' the garment is no longer possible (as
was the case in the assembly of a sample) because efficiency and speed are paramount. Dividing the work among operators is often complex and time consuming since the supervisor must ensure that a steady flow in production is maintained. If, for example, the assembly process takes longer at the end stage of production, a bottleneck is created and the entire process slows down, or comes to a halt wasting both time and money (Westwood, 1984). The division of tasks in the labour process is known as section work (Waldinger, 1986). Once the detailed division of labour has been devised, bundles of clothing are passed around the shop floor, each operator (usually a woman) sewing a pant leg or a collar over and over again until all the garments in the bundle are assembled. Since one operator may be involved in sewing collars week after week, the work is often very repetitive and monotonous. The partially made garments are then passed on to finishers who complete the assembly process by sewing button holes and buttons, sleeves and neckpieces and other operations. Finally, the garment is pressed although this work is becoming scarce with new fabrics which do not require pressing, and because the process is increasingly being done by retailers once they receive a shipment of clothing.

The differences in the production of standardised and unstandardised clothing, some of which have been mentioned
above, has important implications for the structure of production. For example, the manufacture of blue jeans, which tend to be relatively unaffected by changes in style, usually occurs by longer production runs and with machinery dedicated to one task. The longer runs allow the realisation of economies of scale, usually not possible in the fashion industry (Waldinger, 1986). The manufacture of standardised clothing also affects the division or sectionalisation of work since where styles are constant, a new division of work need not be devised for each production run. This has allowed some managers or supervisors, through a process of trial and error, to perfect the divisions for maximum efficiency and speed. For example, Steedman (1986) argues shows that these are the tasks which may be involved in the manufacture of a man's coat:

- cutters of various grades, trimmers, fitters, fitter's helpers, thread markers, pocket operators, helpers, lining makers, sleeve makers, canvas markers, edge tapers, operators-joiners, lapel and collar makers, buttonhole makers (by machine and by hand), edge basters, lining basters, shoulder and undercollar basters, top collar basters, head tailors, armhole sergers, finishers, button sewers, brushers, bushelers, seam pressers, edge pressers, off pressers, and basting pullers (Steedman, 1986, p. 155)

The fragmentation and simplification of clothing production has permitted manufacturers to relocate plants
to regions where workers are unskilled and wages are lower. In the 1930s, for example, firms began to move production from New York to nearby regions (e.g. Pennsylvania), while more recently clothing companies have relocated to Third World countries. Cheaper imports, particularly since the 1950s from the Third World, have had detrimental effects on manufacturers based in many advanced industrial countries (Waldinger, 1986).

While the manufacture of standardised clothing appears to be Fordist, the manufacture of unstandardised apparel seems post-Fordist. The division of labour in fashion clothing firms tends to be less detailed because changing fashions do not permit managers to perfect a very fragmented division of tasks. For example, the manufacture of unstandardised clothing may only require "cutters, and trimmers, machine operators, finishers and pressers" (Steedman, 1986, p. 155). Although tasks in standardised clothing production may be more fragmented, in both types of clothing assembly occurs by section work, so that no individual operator sews the entire garment.

Unstandardised clothing is unlike Fordist production in other ways too: it is usually produced in short runs with more basic machinery, since dedicated machinery is not possible due to frequent design changes. Markets are fleeting and small in scale, characteristic of consumption
patterns more prevalent in the new regime of accumulation. Rapid turnaround to meet the vicissitudes of demand is vital for the survival of these companies. At the same time, the nature of the market affords them some protection from offshore imports which are unable to respond quickly enough to the market.

3.4.3 Flexible production in the 'modern' clothing firm

In the last few years advances in computerised graphics displays and the manipulation of objects on the screen have been developed for the clothing industry. Computer Aided Design (CAD) systems have been instrumental in transforming the designing stage of the production process, and designers now work on multicoloured video display units attached to a light sensitive pen or stylus, and a data board (Plate 2). Designs are created directly on high resolution screens, using software described as 'user friendly': styles and colours displayed by the computer-generated model can be modified and various fashion items such as belts and trim can be added. In one of the very sophisticated systems, the screen is capable of generating up to 16 million different colours (Bobbin, September, 1985). CAD machines allow the operator to rotate and move the models on the screen with simple
commands. With CAD, the designer can also experiment with different backgrounds; for example, summer fashions may be superimposed on a summer-like landscape. Finally, once a design is finished it can be stored in the computer's memory for future use. However, since at this stage CAD machines are used primarily for demonstrating new designs, their impact on productivity is negligible.
On the other hand, another innovation known as grading/marking machines has an immediate impact on flexibility, cost efficiency and turnaround time in the day-to-day production of clothing. According to one distributor, the system can be re-paid within a year on savings of wasted cloth alone (Bobbin, November, 1985).
Grading/mark ing equipment falls under the rubric of computer aided manufacture (CAM), not to be confused with the CAD machine which assists only in the design process, and not in the manufacturing process. The operator uses a 'mouse', which enables her/him to move the cursor around the screen to outline the various pieces which make up the garment such as sleeves, front and back sections, and collars (Plate 3). Digitised patterns may be lengthened or enlarged and other minor modifications may be added to the design with a stylus pen. Many commands, such as adding flares and pleats, have been pre-programmed into the computer's memory so that the operator simply positions the cursor and chooses an option (Cockburn, 1985). Once all the pieces for a particular garment are on the screen, they are saved on a diskette for future use. Storing patterns saves time in digitising new patterns, since blocks of items such as a complete sleeve pattern can be re-called without having to digitise the individual parts of the pattern again.
Further, with marking/grading computers, patterns can be automatically graded, vastly simplifying this previously complicated task. All the grade rules and measurements previously in the mind of the skilled cutter/grader are programmed into the computer's memory. For example, in order to grade a block from a size 32 to a
36, the designer moves the cursor to each corner of the piece, chooses the appropriate function, and increases or decreases the size of the garment with the push of a button (Cockburn, 1985; Gibbs, 1987).

Once entered, all the patterns for an order are recalled from the computer's memory so that a marker can be set up. Patterns are shifted, rotated and inverted until the most efficient arrangement is found on the bolt of cloth represented on the screen. The computer is pre-programmed to place patterns close to the sides of the cloth or next to other blocks to avoid wastage. Once the marker is set up, the software calculates exactly how much cloth is being used and how much is being wasted. If the wastage is too great, the operator simply re-arranges the patterns until the optimum marker is set up. Prior to the machines, markers were drawn by the cutters who, with a 'trained eye', could judge whether the marker was efficient enough or not. With the new techniques, his work has now become quantified in the computer and the operator's decision is now based on an objective percentage (Cockburn, 1985). At the same time, the 'keen eye' of the cutter/marker is apparently not as efficient: up to two inches of cloth are saved per garment with the new marking equipment (Kirsten, pers. comm., 1987). A second advantage is that with the new system it is no longer necessary to cut cumbersome pieces of cardboard to
represent the patterns, as blocks are saved on floppy disks. Allied to this, is the fact that markers developed with CAM can now be a lot longer with software which allows the operator to cut cloth for many more unique designs at a time, thereby improving flexibility. Finally and perhaps of vital importance in the fashion industry, the new equipment improves the turnaround time from design to cutting substantially.

Once the most efficient marker has been set up on the computer system, it is either drawn by a plotter linked to the marking/grading machine (Plate 4) or the fabric is cut immediately by a computer cutter linked to the CAM machine (Plate 5). The cutters, which are relatively new innovations, have steel blades guided by a laser beam. While the CAD and CAM equipment described above has important applications for the fashion industry where styles vary, and response time and flexibility are vital, the heavy duty cutters are better suited to the long production runs characteristic of standardised clothing. Sample cutting machines, on the other hand, are less sophisticated and are capable of cutting through only two or three layers of material. Like the CAD and CAM computers, these sample cutters are more suited to changing designs characteristic of the fashion industry.
Markers drawn by a plotter are taken to the cutting room where the material is spread out on long tables. While the older spreading machines are driven by hand, new sophisticated spreading equipment is programmable and mechanically driven (*Bobbin*, October, 1985). A data diskette is programmed with the required number of layers and length of material. The diskette is inserted into the
computerised spreader which runs up and down the table spreading the material faultlessly to the specifications on the diskette. Manual machines often spread the material too tightly or too loosely, jeopardising the accuracy of cutting (Bobbin, October, 1985). Spreading machines, like the computer cutters, seem more suited to long production runs more common in the manufacture of standardised clothing. The marker is then placed over the material and the cutters cut the patterns. For firms without computerised cutting equipment this process has essentially remained unchanged. Finally, as in the more traditional firms, the material is collected in bundles and sent to the sewing operators for assembly.
Attempts to develop an automated or flexible sewing machine have proven very difficult (Morokvasic et al., 1986). The variability of sewing actions, the continuous movement of the cloth and changing styles have all impeded the development of a totally automated system (Cockburn, 1985). At first glance, many of the computerised machines appear to be no different than their older predecessors.
(Plate 6). Closer inspection, however, reveals that microprocessors have revolutionised certain aspects of the sewing process.

Plate 6 Computerised flexible sewing machine

Most of the new machines are only capable of speeding up a single specific task, such as the sewing of a pant lining or attaching a flap to a pocket. These machines are dedicated and inflexible, characteristic of equipment
in Fordism, and are thus more suited to standardised clothing production. Models of the 'playback' type, are also rather inflexible and are only able to repeat the number of stitches sewed by the operator (Gibbs, 1987). The most advanced equipment, on the other hand, is more suited to the changing designs and tasks characteristic of unstandardised clothing production because it is programmable, and can store up to 512 different patterns on a small diskette. New patterns are easily added onto the diskettes with a special pen attached to a personal computer. An operator might spend one or two minutes sewing a particular sewing design (e.g. a logo), while the computer is able to perform the task in a matter of seconds. Salespeople usually recommend that two are purchased for each operator. In this arrangement, the worker moves from machine to machine setting up one for the sewing task while the other is busy sewing (Kirsten, pers. comm. 1987). While the women have lost control of the pace of their work, and in Braverman's (1974) terms have become further deskillled, for the owners, the advantages are impressive since turnaround is improved without compromising flexibility.

Pressing is the final task in the chain of steps to a finished garment, and is traditionally carried out by males. Few inroads have been made into this area of production because many clothes no longer require
pressing. Some machines, however, have been introduced to a number of factories and have speeded up this aspect of production. For example, the 'Paris' pants presser is flexible in that it is capable of pressing many types of pants and different kinds of material very easily (Plate 7). Finally, as the advertisement states, unskilled labour can operate it.
PLUS: CRINKLE FINISH, STONE WASHED, VELOURS

The PARIS PANTS FINISHER

with simple adjustments
finishes all pants ....
FLARES, BELLS, STRAIGHT LEGS & PEGGED

- Substantially reduced pressing room costs.
- Improved quality.
- Utilizes unskilled labor.
- Fast payback on investment.
- Versatile finishing of all popular fabrics (denims, regular cottons, blends, corduroy).
- Uniform finishing of hard to press paneled or yoked garments with patch pockets, etc.

- Up to 3 times greater production than conventional presses.
- Automatic topping and legging.
- Adjustable controls for changing size and styles (flares, bells, straight, pegged).
- Elimination of troublesome double creasing of side seams.
- Ultra soft finish for stone wash and plush fabrics.

* and PARIS has the Midas Touch when it comes to reducing pressing room costs.

There's a specialized PARIS finisher for:
BLOUSES, DRESSES, INFANTS WEAR, JACKETS, KNITTED DRESSES and SKIRTS, LINGERIE, PAJAMAS, PANTS, ROBES, SHIRTS, SHORTS, SKIRTS and SPORTS SHIRTS

Plate 7 'Paris' presser

One of the more startling and anachronistic of all the innovations, considering that manufacturing is apparently moving away from the mass production lines dominant in Fordism, is the unit production system (UPS). Since a great deal of time is spent handling the garments and very little time is spent sewing on the shop floor of
most clothing factories, the UPS permits substantial improvements in turnaround.\(^4\) The garments are conveyed on a pulley around the factory and each unit is centrally controlled by a personal computer. Each operator takes the garment, performs one operation, and releases it so that it can be conveyed to the next operator. Work stations are equipped with a bar code reader and each hanger is bar coded so that piece-work wages may be calculated automatically from a central computer. The assembly line's primary function is to decrease non-productive time or according to the regulationist school, the porosity of the working day. Unlike some of the machinery described above, the UPS system is suitable for the manufacture of standardised and unstandardised clothing production; decreasing the porosity of work results in improved productivity, regardless of the type of clothing. This quote from a trade journal sums up the

\(^4\) According to a trade journal, the turnaround time can be cut in half with the UPS system (\textit{Bobbin}, June, 1988).
Faster sewing speeds do not answer the growing need for flexibility, quality and deskilling at most of the world's apparel workplaces. Instead of reducing the time a garment spends under the needle (less than 1% of total time spent in the sewing room), apparel technology should aim at reducing handling time between sewing operations, and find other ways to cut down on the great amount of unproductive time now wasted as work-in-process slowly moves, and waits, and is untied, briefly sewn, retied, and moved to another waiting spot as it progresses glacially through the sewing room (Bobbin, May, 1988)

The final innovations to be discussed deals with the just-in-time delivery of textiles to the factory and the just-in-time delivery of manufactured clothing to the retailer to maintain low inventories. Pre-dying, the term for the jit delivery of textiles involves ordering undyed cloth in bulk from a textile mill. Once the apparel firm receives an order for clothing, the production manager requests the colour and amount of material for that particular consignment. The cloth is dyed, a relatively quick process, and is delivered to the apparel firm. The jit delivery of the cloth saves fashion firms, in particular, up to two weeks in turnaround time. In order to maintain lower inventories in manufactured clothing, most fashion firms also make clothing to order on samples
which are distributed. Whilst manufacturers of more standardised clothing still purchase their textiles in bulk, many are not willing to pay for the high costs of storing finished apparel, and have turned to the JIT delivery of clothing.
3.4 Conclusion

From a very humble beginning, Vancouver's clothing industry is now playing an important role in the city's economy. Unstandardised fashion clothing where styles change frequently and demand fluctuates wildly (e.g. Vancouver Sun, 2/8/1988), is the fastest growing apparel line in the city. The implications of the growth of the apparel industry are significant in terms of the employment structure in Vancouver, often described as post-industrial. It was argued that the growing importance of clothing production is creating employment opportunities for immigrant labour who are usually part of the secondary labour market. Developments in Vancouver seem to mirror the situation in other large North American cities, where a polarised employment structure has emerged. Well-paid occupations in the financial sector and the professions co-exist alongside low-paying manufacturing and service work.

The differences in the labour process between a 'traditional' and a 'modern' firm with flexible manufacturing techniques are significant. New technology is affecting every stage of the labour process and the effects on shop floor and on worker's skills are considerable. However, some of the new equipment, which
is flexible and improves response time is more suited to the manufacture of fashion clothing where styles change frequently. On the other hand, equipment which is dedicated and only increases the pace of production, is more applicable to the production of standardised clothing where fashion changes are less frequent. At the same time the UPS system is applicable to the manufacture of both types of clothing. However, there are many restrictions to the implementation of the equipment discussed in this chapter; in the next chapter, two types of firms which have not purchased the flexible machinery are examined.
CHAPTER IV Survivor firms and new investment

4.1 Introduction

In this chapter two types of firms in Vancouver are examined: new foreign investors from Hong Kong and smaller survivor firms. These firms are distinguishable from the larger fashion firms in that they have not purchased flexible machinery. For some the price of the equipment is too high (see chapter six), while, for those manufacturing standardised clothing, flexible machinery does not suit their needs. Instead, many new investors and small survivor firms are flexible in that they adapt to swings in the economy primarily through a secondary labour force. Larger fashion firms discussed in chapter six, on the other hand, achieve flexibility in design primarily through flexible equipment. The various roles of import tariffs, the state, and the labour force in the city are pivotal in understanding the emergence of new investors and the survival of small firms. Import tariffs, and the two types of firms are described in this chapter, while only brief mention is made of the labour force. This last aspect is addressed in detail in the next chapter.
4.2 Import Tariffs

The General Agreements on Trade and Tariffs (GATT) was implemented in 1948 to regulate the trade of commodities on a global scale. The aims of the accord were to provide guidelines under which global trade would be carried out to promote "...economic efficiency and growth in all trading countries" (Aho and Aronson, 1985, p. 18). At the same time, GATT was concerned with limiting state intervention to allow the opening of markets and the liberalisation of trade in an orderly manner. Under the aegis of GATT, clothing imports from the Third World, particularly from Japan, began to penetrate the Canadian market as early as the 1950s. During the same decade, Taiwan and Hong Kong, also following a strategy of export industrialisation, joined Japan in the shipment of apparel to the North American market. The level of 'import penetration', or the percentage of domestic consumption of imports versus local production, first caught the attention of domestic manufacturers in the mid 1950s. The 'import problem', as it became known, referred to the undermining of local producers by firms located offshore with cheaper imports. For many domestic manufacturers, GATT had exacerbated the 'import problem' by according Japan and Hong Kong 'most
favoured nation' status thereby forcing Canada and other western countries to accept their imports without restrictions (Clothing Inquiry, 1977). A number of western capitalist countries responded by implementing their own quotas independent of GATT (and therefore in contravention of the global trade agreement). Canada, for example, negotiated a voluntary accord with Japan in 1960 to limit clothing imports from this newly-industrialising country. GATT officials were, however, eager to accommodate the illegal agreements into their guidelines for fear of a worldwide move toward protectionism in the clothing industry (Clothing Inquiry, 1977). In response, GATT negotiated a Long Term Agreement (LTA) in 1962, which allowed member countries to impose restraints on imports from exporting countries in percentage terms. Canada reacted quickly to these new guidelines and, between 1963 and 1971, bilateral restraint agreements were successfully negotiated with eleven countries, including Japan which had been unofficially under restraint since 1960 (Table II). The quotas did not, however, cover all types of clothing: by 1970, for example, Japan was only restricted from exporting blouses, shirts and trousers to Canada (Clothing Inquiry, 1977).
Table II. Long term agreements negotiated with Canada.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>1960</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1963</td>
</tr>
<tr>
<td>China</td>
<td>1963</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1965</td>
</tr>
<tr>
<td>Korea</td>
<td>1967</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1968</td>
</tr>
<tr>
<td>Singapore</td>
<td>1968</td>
</tr>
<tr>
<td>Poland</td>
<td>1970</td>
</tr>
<tr>
<td>Rumania</td>
<td>1970</td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>1971</td>
</tr>
<tr>
<td>Macao</td>
<td>1971</td>
</tr>
</tbody>
</table>

Source: Clothing Inquiry, 1977

In 1973, the first of a new set legislative agreements replacing the LTA, were negotiated. The new Multi-Fibre Agreements (MFA), like the LTA's involved bilateral negotiations between importing and exporting countries so that in each accord the type of clothing under restraint and quota increases were discussed. To many Canadian manufacturers it seemed that the MFA's still favoured Third World exporting countries in that importing nations were forced to accept at least a six per cent increase in imports from the exporting country. As mentioned above, this was in keeping with the spirit of GATT which was to foster international trade. The MFA was also flexible in that if a full quota was not reached in one year it could be carried forward to the next year. Manufacturers in Canada were dismayed by the MFA as it appeared they would still be undercut by cheaper imports.
In 1974, garment workers also voiced their grievances by picketing in Montreal to encourage consumers to purchase apparel made in Canada (*Province*, 30/3/1974). Further representations were made in 1976 on behalf of the Apparel Manufacturers Institutes of Quebec and Ontario, the Manitoba Fashion Institute, and by two of the largest unions in Canada. In their submission, these groups argued that if restrictions were not tightened, imports would control fifty per cent of the Canadian market by the end of 1976. Labour and manufacturers were justified in their response. Just two years after the first MFA, domestic production accounted for only 55 per cent of the Canadian market; two years earlier domestic manufacturers had held 68 per cent of the market (Table III). In an emergency measure, the federal government invoked article 19 of GATT in 1977, which restricted further increases in imports with all countries in each bilateral agreement (*Clothing Inquiry*, 1977).
Table III Apparent markets for Canadian clothing

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic</th>
<th>Imported</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td>67</td>
<td>33</td>
</tr>
<tr>
<td>1974</td>
<td>68</td>
<td>32</td>
</tr>
<tr>
<td>1975</td>
<td>64</td>
<td>36</td>
</tr>
<tr>
<td>1976</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td>1977</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td>1978</td>
<td>68</td>
<td>32</td>
</tr>
<tr>
<td>1979</td>
<td>68</td>
<td>32</td>
</tr>
<tr>
<td>1980</td>
<td>72</td>
<td>28</td>
</tr>
<tr>
<td>1981</td>
<td>68</td>
<td>32</td>
</tr>
<tr>
<td>1982</td>
<td>67</td>
<td>33</td>
</tr>
<tr>
<td>1983</td>
<td>62</td>
<td>38</td>
</tr>
<tr>
<td>1984</td>
<td>59</td>
<td>41</td>
</tr>
<tr>
<td>1985</td>
<td>59</td>
<td>41</td>
</tr>
<tr>
<td>1986</td>
<td>57</td>
<td>43</td>
</tr>
</tbody>
</table>

Source: Annual report on clothing and textiles, 1983-87

The effect of article 19 was positive for local manufacturers and their share of the Canadian market returned to 68 per cent by the end of 1978 (Table III). Clothing producers found the Canadian market "...a lot better now than it was two years ago, mainly because the import restrictions imposed by Ottawa almost two years ago have finally taken effect..." (Vancouver Sun, 10/10/1979). With a positive response from manufacturers and increased pressure from consumers concerned about higher clothing
prices provoked with the restrictions (*Vancouver Sun*, 10/2/1977; *Province*, 27/12/1977; 10/5/1978), article 19 was revoked in 1978, and a new MFA was negotiated. Although some groups in Canada favoured institutionalising article 19, this was not a viable option since GATT rules stipulate that emergency measures can only be implemented for a maximum of three years. MFA's are now rewritten every four years, and in each new agreement additional countries are drawn into bilateral accords with Canada. In the most recent agreement (MFA 4, 1986), imports from a total of 25 countries were subject to quota restraints.

In the 1980s, the major exporters to Canada are still, according to government reports, the 'big four': Hong Kong, South Korea, Taiwan and the People's Republic of China. However, their share of total imports in Canada has decreased from a peak of over 70% in 1983 to 62% in 1986. On the other hand, industrialised countries which include, Japan, the United States, Italy, United Kingdom, West Germany, and France, have increased their share of imports to the Canadian market. Countries referred to as 'other' in official statistics, have also improved their position relative to the 'low cost' countries (Table IV). It seems that the 'big four' have lost ground in the Canadian market because they are subject to tighter restrictions vis-a-vis other clothing exporters. For example, in the MFA covering the period from 1982 to 1986,
Hong Kong and Korea were permitted to increase the level of their exports by 2.6%; Taiwan by 2.8%; and the People's Republic of China by 5% every year. For industrialised countries, increases in the MFA range from 3 to 14% per year, while most are around 6 per cent. The Canadian state is obviously anxious to limit the dominant position of low-cost exporters: in MFA five, which spans 1987-1991, quotas for the 'big four' have been tightened even further (Table V).

Table IV Canadian imports of clothing from various sources

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrialised</th>
<th>'Low cost'</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>21.7%</td>
<td>67.6%</td>
<td>10.7%</td>
</tr>
<tr>
<td>1983</td>
<td>19.9%</td>
<td>70.6%</td>
<td>9.5%</td>
</tr>
<tr>
<td>1984</td>
<td>19.8%</td>
<td>67.9%</td>
<td>12.3%</td>
</tr>
<tr>
<td>1985</td>
<td>22.1%</td>
<td>64.0%</td>
<td>14.0%</td>
</tr>
<tr>
<td>1986</td>
<td>23.2%</td>
<td>62.0%</td>
<td>14.8%</td>
</tr>
</tbody>
</table>

Source: Annual reports of clothing and textiles, 1987
Table V Annual rates of growth for exporting countries under MFA four and five

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Rate of growth)</td>
<td>(Rate of growth)</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>2.6%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Taiwan</td>
<td>2.8%</td>
<td>0.5%</td>
</tr>
<tr>
<td>South Korea</td>
<td>2.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>China</td>
<td>5.1%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

Source: Annual reports of clothing and textiles, 1987

The effectiveness of the MFA's in protecting local manufacturers is a continual focus for debate. Apart from the years during which article 19 was in force and quotas were frozen, the level of import penetration has increased since the 1970s. There are a number of reasons that account for the lack of protection afforded by the agreements. First, bilateral accords are negotiated only after a particular country has exported enough clothing to seriously undermine local manufacturers (i.e., imports from any country outside an MFA are unregulated unless it is shown that they have affected local manufacturers). Not only is it difficult to prove that imports are
affecting domestic producers, but by the time the legislation comes into effect, the damage has been done, and in many cases factories have been already closed. For this reason bureaucrats and politicians have referred to the restraint agreement process with Third World countries as the 'great chase' (Textile and Clothing Inquiry, 1985). In a very real sense MFAs control the damage after the fact and therefore cannot prevent it. A second problem is that MFAs do not cover all types of clothing or, according to one manufacturer in Vancouver, they do not cover the right kind of clothing (2).¹ Manufacturers in Canada seem willing to endure imports as long as the same products are not being made domestically. State measures, on the other hand, appear to restrict certain types of apparel without first considering whether they are being manufactured in Canada. Finally, it has been argued that the agreement is geared to exporting rather than importing countries: industrialised countries are forced to accept increases in imports irrespective of the strength of domestic consumer demand and decreases in import levels are not permitted in the agreements (Textile and Clothing Inquiry, 1985).

¹ Numbers in brackets following a quote refer to clothing firms sampled in Vancouver. The number corresponds to Table VI.
Despite rising levels of import penetration, and the obvious effect they have had on the industry, the role of protectionist measures has played in protecting Canadian manufacturers has not been insignificant. Importers have faced new problems as restrictions are tightened (Vancouver Sun, 17/1/1975; 10/12/1976; 17/8/1983) and the fact that firms from Hong Kong are investing in Vancouver to leap-frog quota restrictions suggests that the MFA's are at least partly successful. In addition, the survival of small firms in the city not large enough to invest in flexible machinery to improve their turnaround time suggests that import restrictions have had some role in protecting local manufacturers. Firms of these two types, new investors and smaller firms, are examined in the following two sections of this chapter.

4.3 Survival of the small firm

Some survivor firms manufacture standardised clothing while others produce more fashion conscious apparel. In either case, however, they tend to be smaller than the large fashion firms discussed in chapter six. Standardised garment manufacturers seem more dependent on protection from import quotas and assistance from the provincial government, while small fashion firms rely on
fast turnaround time and flexibility in changing from one style to another to compete with firms located offshore. However, for both types of firms, their methods of achieving flexibility have been practiced by companies in the garment industry for many years and differ from the methods employed by the larger firms (see chapter six).

Unable or unwilling to invest in flexible equipment or substantially restructure production, a number of smaller firms persist in Vancouver (Table VI). For example, the owner/designer of a sports jacket and outerwear establishment interviewed for this study employs some 20 workers, most of who are female immigrants. Turnaround time, which they improve by hiring more labour, seems just as important for these firms as it is for the larger fashion companies: "Turnaround is the most important thing....We improve it by hiring a few more people if they're available" (14). This manager also seemed rather unhappy about the need for quick response in the industry: "The thing is in this business everything is needed yesterday" (14). Reducing inventories is also a major goal for the smaller survivor firms and one company in the sample manufactured to order only, a change from when it "...used to make to stock. We used to make extras. Don't do it any more - it doesn't warrant it - a lot of people are going bankrupt" (5). However, the firms in the sample continued to order their textiles in bulk
and there was no evidence of any pre-dyeing process discussed in the previous chapter. Production runs of a particular style for one survivor firm varied from 5 to

Table VI Tabulated data from interviews with 14 manufacturers in Vancouver

<table>
<thead>
<tr>
<th>14</th>
<th>25</th>
<th>30</th>
<th>50</th>
<th>40</th>
<th>12</th>
<th>11</th>
<th>10</th>
<th>9</th>
<th>8</th>
<th>60</th>
<th>20</th>
<th>60</th>
<th>25</th>
<th>400-5000</th>
<th>50% Stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>
300, depending on the order. Flexibility in the size and style of the order allows these firms to compete with foreign competitors who usually require longer runs before they accept an order: "Imports aren't really an issue for us, you know? They only want large numbers [orders] - it doesn't affect us" (14). Though imports were still a concern for another manager, he argued, "You have to live with it. You make the things that they don't import. If you need something special or you can't wait a long time we can do it" (5). These last statements indicate what is perhaps the key to the survival of many smaller firms: they depend on small orders of unstandardised clothing and rapid turnaround time. Importers cannot compete because their response time is slow and they depend on larger orders of standardised clothing so that economies of scale may be realised.

During the interview with one firm, the manager and I were interrupted by a customer with an order. The exchange between the manager and the customer demonstrates admirably the nature of the market these firms serve. The conversation reproduced here is as close as possible to verbatim:
Customer (C): We want five of those jackets like you made for us last year. Can you do it?

Manager (M): Sure how soon do you need them?

C: In a few weeks.

M: O.K. what sizes do you want?

C: We want one 44, two of 42, and two of 40. The 44 and one of the 42's must have those detachable collar type things. For the rest we want those fur collars. By the way how big is your 44, this guy put on a lot of weight recently.

M: Well why doesn't he come in and we can fit the size here?

C: O.K we'll tell him to phone you to arrange a time.

M: Do you want the lapels on the shoulders?

C: I can't remember what the other guys want so I'll have to phone you later. Can you do the pockets with velcro?

M: All of them?

C: Yes.

M: O.K., anything else?

C: I don't think so.

M: O.K. I think that's all - if anything goes wrong you can always come back for alterations.

In placing the order for the five jackets, the customers had to meet the manager and discuss each one in turn. All five were essentially different and due to confusion over the size, one of the men would have to
visit the factory to be measured. This deal could not have occurred between the customers and an offshore manufacturer. Even a large local firm would be loathe to accept an order of only five jackets.

Local state assistance for clothing factories in the city is not restricted to the high profile fashion companies. The provincial government also assists small firms, particularly those that manufacture standardised clothing, by awarding contracts to those located in the city even if their rates are more expensive than manufacturers located in central Canada or in the Third World. In the sample of firms interviewed in the city, two small survivors were partly dependent on state institutions for orders of uniforms, work clothing and other apparel (8;14).

Smaller firms seem to be more vulnerable to local market changes and recessions than larger companies which are able to penetrate new markets more easily. The cutter in one factory explained how variable business could be: "We're doing very well now. I've never worked so hard in my life. We are getting lots of orders. Especially the club jackets and stuff. To think just a few years ago everyone was going broke" (5). This firm's survival strategy during the downturn in the economy in 1981/2 was to lay off labour. When times are busy, according to the
manager, "we get more operators [i.e. women sewers] - more people and better people" (5). Yet, since the male cutter interviewed has worked at the firm for over 30 years, it appears that a core work force (usually male) is maintained while a more flexible labour force, usually immigrant women, are hired or fired depending on economic conditions. This is consistent with Christopherson's (1987) argument about the persistence of a contingent work force in the United States. She argues that part time and flexible work conditions are not a remnant of an earlier industrial stage; instead, they are becoming a structural feature of the emerging economic regime. In times of recession or when markets are volatile, firms respond by laying off their contingent labour force. In Vancouver and in many other North American cities, immigrant women usually dominate this labour segment (Beechy, 1985; Christopherson, 1987).

4.4 New Investment

A large proportion of new firms opening apparel factories in Vancouver are from Hong Kong (Selzer, pers. comm.). This is an interesting phenomenon in that it represents a reversal in the trend towards the relocation of clothing production to the Third World from western
capitalist countries. It also poses serious questions concerning the theory of the New International Division of Labour, briefly discussed in chapter two. The shift of capital from Hong Kong is partly a response to the termination of the 99 year leasehold on the country from China in 1997. Chinese takeover of Hong Kong has worried many businesspeople who have preferred to transfer their capital rather than risk losing it under a new political regime. Although the Chinese government has promised capitalists in Hong Kong that very little will change, many have decided to move their operations to Canada.

There are a number of other factors which have attracted Hong Kong investment to Canada as opposed to some other western capitalist country. What has perhaps attracted investors most are the new business immigration policies, introduced by the Liberal government in 1978. The 'Entrepreneur Programme' requires that a new investor have a net worth of at least $500,000, has a successful history of business ventures and plans to make a significant investment in Canada. Once these guidelines are met, the immigrant is eligible for landed immigrant status. Controversy surrounded the implementation of the new policies, particularly when it was discovered that the immigration department did not monitor whether the investors had followed through with their stated plans (Malarek, 1987). In some cases, for example, it was
revealed that individuals who had intended to set up a manufacturing plant had instead opened a retail store. Despite these problems, in 1986 under a new federal government, the business immigration laws were extended to attract even more wealthy investors. The new 'Investors Programme' still requires that business immigrants have a net worth of $500,000 and are able to show they have a certain business acumen. At the same time, however, the minimum investment is set at $250,000, they must employ at least one Canadian and their venture must take advantage of resources and markets in the country. This new programme is also flexible in that the owner of the new venture need not run it him/herself (Malarek, 1987).

Though the laws are federally controlled, the British Columbian government has played an active role in encouraging entrepreneurs to invest in the province through free counselling and information services in offices located all over the world, including Hong Kong (British Columbia Ministry of Economic Development, "Business immigration", ED/01/87). The provincial government has also been proud to display its success stories, one of which is a sportswear clothing company. This firm has invested in "state-of-the-art computerised sewing equipment and eventually plans to transfer much of its Hong Kong apparel business to Vancouver" (British Columbia Ministry of Economic Development, "A guide to
Significant in the firm's choice to locate in Vancouver, as opposed to another larger clothing centre in Canada, is the "good labour pool to draw from" (ibid.). Another Hong Kong investor had researched his decision to locate in Vancouver rather more carefully: "Lo went to Toronto and Montreal. He found that wages for garment workers in Vancouver are 25 to 30 per cent less, although he is quick to add that most of his employees earn between five and six dollars an hour--well above the minimum wage" (Equity, July/August, 1988, p. 72, emphasis added).

Second, clothing manufacturers have been attracted by the large North American market. Increasing protectionism has made it difficult for apparel firms exporting from Hong Kong to penetrate the US and Canadian markets successfully. Import quotas for firms that have had agreements with Canada for many years, such as Hong Kong, are becoming less liberal each year, as governments attempt to protect domestic manufacturers. They have also had difficulty competing in the lucrative fashion end of the market where value added is higher than in standardised clothing. As discussed in chapter three, manufacturers in Hong Kong and Taiwan have problems competing with the long lead times inevitably associated with producing offshore. According to the manager of a
firm who recently set up a factory in Vancouver:

We have a lot of customers on the West Coast and in the Far East we have quota restrictions. We can accept a lot more orders being here in Canada. Customers want us to be here - they feel they have closer contact with us and they can control production better (12).

Locating closer to the market is therefore doubly advantageous: they can compete in the high end of the market and they are exempt from tariffs and quotas. With the proposed US Canada Free Trade Agreement, manufacturers in Canada will also have free access to the huge US market.

According to a government representative, seventeen manufacturers from Hong Kong have set up factories in Vancouver in the last year (Selzer, 1987). Part of the explanation for firms locating in Vancouver, rather than one of the larger clothing centres in central Canada has been the active role of the provincial government in encouraging new investment. One aspect of the government's role has been sending officials to Hong Kong pointing out the strengths of Vancouver which are, in their opinion, access to a skilled, docile work force and large markets (Selzer, 1987). Workers in Vancouver are
racially stereotyped as "Orientals who are by tradition very adept and dexterous; two very key elements in the production of clothing" (Selzer, 1987; p. 10). One firm that recently arrived was grateful for the assistance they received from the provincial government:

The [provincial] government has been quite helpful to us - they supplied us with information about the labour. The thing is the workers aren't skilled to world standards and they let us bring in our own supervisor to train the labour how to work (12).

The labour force in Vancouver may have played a role in the location decisions of some Hong Kong clothing firms in other ways too. Not only do the wages seem lower in the city, as discussed above, but potential investors in Hong Kong are usually informed that,

the garment unionised work force in British Columbia is stable and peaceful...A study of industrial relations in the province indicates that where labour disputes have occurred they tend to be primarily focused in resource based industries (forestry/mining) or in the public sector--teachers and nursing staff. Our records show that there have been no labour disputes in the garment industry or in secondary manufacturing generally (Selzer, 1987, p. 3; emphasis added).

Another of the newly arrived firms, also from Hong Kong, contracts work from other firms and retail outlets. Interestingly, the company manufactures for many of the same firms it had dealt with while located in Hong Kong.
Now, however, the firm is able to subcontract for fashion clothing retailers or other manufacturers, and can guarantee rapid turnaround. The new company is also planning to manufacture its own fashion lines in the very near future. Their designer had recently travelled to Hong Kong to obtain ideas for new fashions, which she will adapt for the North American market: "I (the designer) go to Hong Kong and get the designs and make them into Canadian designs. I have to change them because they are too fashionable for the women here. Also the sizes are different" (6). Proximity to the market has allowed this company to compete in fashion clothing, previously difficult when the firm was located in Hong Kong.

A second firm in the sample was established by a multi-national clothing manufacturer with headquarters in Hong Kong. Production is geared to fashionable, though standardised, clothing under labels like Polo and Yves Saint-Laurent. Their operation is close to the mass production model dominant in the Fordist regime, having recently invested in computerised sewing machines to speed up specific work processes rather than to improve overall flexibility (Equity, July/August, 1988). Other methods used by the firm to improve turnaround time are also more
characteristic of Fordist production:

We improve turnaround time by adding new machines and more labour. It gives us more control in speeding up the production process. We also have to plan the organisation of work very carefully. A certain procedure might take too long and it holds up the entire process. Then the rest don't have any work to do - this costs us money. So we plan ahead and hire more labour and subcontract or do overtime - this helps us speed production (12).

This statement demonstrates that the manager is interested in maintaining a continuous flow of production, while flexibility in terms of design is really not a concern. It is also evident from the quote that he uses a contingent labour force, hiring when orders are large and demand is strong.

New investment from Hong Kong to Canada in the clothing industry has important implications for theories predicting the long term relocation of manufacturing to the Third World. Frobel et al.'s (1980) theory of the New International Division of Labour is perhaps the most widely cited attempt to explain this phenomenon. In essence, the theory is concerned with the process by which products are standardised and tasks are fragmented into less skilled work. To take advantage of unskilled and cheap labour in the Third World, factories relocate away from advanced capitalist countries where wages are higher. The NIDL theory, characteristic of a genre of literature
which focuses on cheap labour as the primary motivation for the relocation of production to the Third World, sees the shift as a long term process in the evolution of capitalism. However, new investment in Vancouver by clothing firms, previously located in Hong Kong is a response to the quest for access to new markets, rather than simply a question of cheap labour. Although at a national level the labour force in Vancouver is important, proximity to the market is the most important factor in the high value-added fashion industry where demand is unstable.
4.5 Conclusion

Though unsuccessful in stemming the level of import penetration, tariffs have played a role in Vancouver's garment industry. New investment by Hong Kong firms is in part a response to the restrictions imposed by the Canadian state. The shift of capital from a newly-industrialising nation to a member country of the OECD, has important theoretical implications. It is becoming evident that cheaper wages is not the only reason for the relocation of manufacturing companies (Gordon, 1988). Smaller firms have also benefitted from the tariffs, although they generally serve a market based on small orders of unstandardised clothing, one which is generally not suited to the abilities of offshore manufacturers. Flexibility for these firms is not gained through new technology; instead, they rely on a 'contingent' female immigrant labour force to weather downturns in the economy. In the clothing industry this method is not new and has been used by owners since women have worked on the shop floor of apparel factories.
CHAPTER V Immigrant labour in Vancouver's clothing industry

If it weren't for immigrant labour the industry would die (ACTWU).

5.1 Introduction

Immigrants in North America have dominated the clothing industry as owners or workers for much of its history; immigrant women and men formed the basis of the clothing sector in New York (Weiner and Green, 1984; Waldinger, 1986), Toronto (Hiebert, 1987), Montreal (Lipsig-Mumme, 1987), and Los Angeles (Soja, Morales, and Wolff, 1987). Control of the industry by a single ethnic group has not, however, always persisted: in New York, for example, Jewish immigrants were owners and workers in the first half of the century while in the 1980s the industry is increasingly controlled by Chinese and Hispanic immigrants (Waldinger, 1986).

1 These acronyms in brackets refer to the interview with the unions, i.e. ACTWU is the Amalgamated Clothing and Textile Workers Union; ILGWU is the International Ladies Garment Workers Union; and UGWA is the United Garment Workers Union.
In Vancouver, the ethnic composition of the work force has also shifted between different immigrant workers over time. During the 1950s the booming industry depended mainly on Italian men and women workers. Italian men, usually trained as tailors prior to their arrival, came to control the more highly skilled jobs in the factory, such as cutting, marking, grading and pressing. Although men from other ethnic groups have captured the skilled positions since the 1950s, many Italian men continue to work in the industry. The number of men employed in a typical clothing factory in the city is, however, far less than the number of women. Italian women, subject to the gender division of labour on the shop floor, were sewing machine operators or finishers. However, they were largely replaced during the 1960s by immigrants from mainland China. Since then, Chinese women have become the backbone of the industry in Vancouver, accounting for some 90 per cent of the female employees in the clothing sector (Keynon, 1986). The remaining ten per cent is largely made up of East Indian, Vietnamese and Portuguese women.

In this chapter, three issues are analysed: the dynamic of how Chinese immigrant women have come to dominate sewing positions in Vancouver's clothing industry; the strength of unions in the city and how this is mediated by employers and to a lesser extent the state;
and finally the experience of Chinese women workers in the industry. Empirical material is drawn from interviews with women workers, most of who were employed in factories without flexible equipment, union officials and employers. Published sources are also used to compare and contrast the experience of Chinese women in Vancouver with conditions for workers in apparel sectors in other cities.

5.2 Entering the Secondary Labour Market

Ng's (1986) research suggests that immigrant women "...come to be constituted as a visible social category..." through various state and private institutions in society (p. 269). In her case study she examined the way a job placement centre directed immigrant women to work in the secondary labour market in areas such as clothing, other downgraded manufacturing industries, and the service sector. In Vancouver an immigrant support group, MOSAIC, is also involved in reproducing the segmented labour market by teaching immigrants English and sewing skills in the same course (Chiang, pers. comm., 1988). In this process their immigrant status is linked with the type of work they are expected to find. Newly arrived immigrants, eager to learn English, are immediately 'defined', in Ng's terms, into the secondary
market. With the continuous arrival of immigrants to the city, clothing factories are ensured a steady supply of labour. Beginning in the 1970s, these English/sewing courses were provided by the state in Vancouver (see also Pollak, 1988):

I went to the YWCA to a government sponsored programme to teach immigrants English and how to sew. They paid me 40 dollars a week. They also helped me find a job. I had no experience in the trade and the course was 4 hours sewing and 4 hours learning English. I was a school teacher in Hong Kong before I came here (Lee).

Another woman interviewed had office skills from her country of origin and was fluent in English, but in Vancouver she was unable to use these skills because of the questions on the job placement form:

When I went to manpower I told them I worked in an office back home. They just ask you 'Do you have any Canadian experience?' So I couldn't get an office job (Law).

This woman's lack of Canadian experience left her little option but to take a job in a clothing factory, a problem among Chinese immigrants. More commonly, however, immigrants are barred from all but the service sector and

---

2 These names refer to women who were interviewed and are fictitious.
manufacturing work because they lack language skills:

What can they do right? That's what I mean. They come from China they don't speak English and they just tell you what to sew and you just sew (Daisy).

I was happy to find the job. I didn't have any choices; it seemed secure without having English, I didn't have the language. They treated me O.K. but I remember others...[she remembers others who weren't treated that well in the factory] (Eng).

They just walk off the street and get hired. They don't speak the language...you don't need to know English to read the patterns (ACTWU).

The woman's income in an immigrant household is vital for the survival of the family. In the interviews, myths about secondary income sources (i.e. the 'pin money' theory) were dispelled:

When I came I didn't want to work as a sewer for too long. I had four kids and with relatives there are eight of us. We really needed fast money. My husband found a job as a welder. But it was starting from scratch and it wasn't very stable (Law).

What my husband makes is good enough just to live. We need my money for the kids (Jay).
One of the women interviewed was willing to endure harsher working conditions in a more modern factory only because the wages were higher:

At the first place I worked they didn't have any benefits. And no wage increases, not even one cent; that's why I didn't want to work there. In three years we got no raise - it just stayed at three dollars an hour - it was minimum wage at the time. But the work was easy there. That's why I left, though, because of the money. In the job I have now the work is really hard, but the pay is better. You see at the old factory they had old machines. But in the place that I'm at now it has a new machine and they are much faster (Jay).

As Chinese immigrants have come to dominate sewing jobs in the apparel industry in Vancouver, job search strategies have become increasingly informal. Family or community networks are often used to secure employment: "I first went to my aunt to ask her then I went around with my cousin. You know we just went door to door" (Daisy). In the interviews with women operators, it seemed that they usually had little difficulty in finding employment in the clothing industry as long as the economy is healthy. One of the women interviewed had taken a course in sewing in Hong Kong before she left for Vancouver. Two weeks after having arrived in the city she had secured employment in a clothing firm. Part of the reason that Chinese women find work relatively easily is because of their reputation. Both employers and union officials regard Chinese immigrant women as in some way ethnically
superior; a sample of the comments from some of the managers and union officials is reproduced below:

The Chinese are hard workers - it is a positive aspect - they do a good job and are fairly conscientious.(3)

The Chinese are more reliable - they are willing to take the job. We advertise through the Chinese newspaper too.(4)

We have a Chinese labour force - they have a very good work ethic, they are experienced, dependable and they show up for work.(11)

It's a cultural thing. you know, they just work harder.(4)

They [East Indian women] won't take over from the Chinese. They are a lot more efficient than the East Indians (UGWA).

Although most of the comments focussed on the cultural aspects of their work ethic, a few were more blatantly racist:

The Chinese have the expertise, manual dexterity, attitudinal persuasion, and it's a secondary income source and with language problems they can still do it. A big part is the physical aptitude - their hands are fine boned and they can work around sewing machines. In other workers it's not there (7) (my emphasis).

It was easier to find Chinese people. By word of mouth you know. And they are very good operators. They are trained all day long without going to the bathroom - you know they are very hard workers (UGWA).
Not all manufacturers or union officials argued that the Chinese were in some way genetically superior, and one of the union officials contended that their work ethic could be explained by their circumstances in a new country:

They're not working because they want to - it's a must for them - it's not the case that they can stay at home - they must leave the home to survive (ILGWU).

One manager of an apparel firm was shocked and affronted when I informed her of the opinions of other owners in the city. She rejected the racial superiority argument:

Sure the labour force is absolutely critical - we have a very high labour content in our work. But I wouldn't make any racially oriented comments (9).

A business agent from one of the unions also seemed to hold the view that the Chinese were superior sewing machine operators. His response to why Chinese immigrant women had replaced Italian women in the 1960s was the following:

Due to a large influx of Chinese in the 60s and 70s - they are widely used. Most Chinese women know how to sew - they have the patience. The Italians don't stay as long (ACTWU).
Interestingly, his assistant who was Chinese responded to his comments: "I'm Chinese and I don't have any patience and I can't sew either. I couldn't do that work (laughs)" (ACTWU).

When the pace of work determines the wage, as is the case with piece rates, Chinese immigrant women have the reputation of being hard workers. However, in other wage payment schemes not linked to output, the same women seem willing to forego their reputation. One owner explained how she would have to deal with the sloth of her employees:

They're like molasses on time work. We've hired an accountant to set up an incentive scheme [piece rates]. It will decrease the labour costs by up to 50 per cent (9).

Chinese immigrants were also hired more readily because employers were under the impression that they were already skilled sewers, or had been while in China or Hong Kong. Two women interviewed did have sewing experience from their country of origin which made it easier for them to find a job in the clothing industry:

I can't do any other work you know? In Burma I learnt how to sew in a factory (Jay).
One woman prepared for her arrival in Vancouver where her husband had told her she could find a job in a sewing factory:

I learnt how to sew in Hong Kong. My husband told me that this was where Chinese people could get jobs. So I took a course in Hong Kong before I got here. He was right because I got the job two weeks after I arrived. (Eng)

However, not all Chinese women learn how to sew in the home or in their country of origin:

I didn't know how to sew. I wasn't a sewer back home [China]. When you are on a power machine, you really have to go (Law).

No I couldn't sew. I never had a machine at home (Daisy).

All the employers interviewed stressed how loyal Chinese women were despite the sweatshop conditions described by a few union officials. This was how one official described some of the factories:

Some of them have worked for over five years and they still only earn $4.50 and hour (minimum wage is $4.25). They [managers] pit worker against worker and really exploit the people. If people stand up for their rights and facilities etc., they are isolated or are fired or they just quit. They [owners] don't want more leaders (ILGWU).
Wages in the majority of shops are minimum. In unionised shops wages are higher but not very high. Piecework is a demanding way of getting people to work to the limit (ILGWU).

There are still horror stories - the fact that they question women going to the bathroom, all the old methods way back when. You wouldn't believe you're in the 80s (ILGWU).

In spite of claims that they are 'suited' to the work, the women interviewed found the work very debilitating. One woman who had recently suffered a stroke mentioned piece rates as a contributing factor to her condition:

There is so much competition [with piece rates] and the work is too hard. If I went back now I don't think I could work. They have to do their best to stay (Daisy).

They gave me a sample to test me. They try to make sure how straight you could do it. They don't pay you at first. If you're good they give you the better jobs later (Daisy).

In recent years, feminist scholars have argued that in any explanation of the labour market position and experience of women workers, their domestic lives must be considered. In Vancouver, despite the racially based ideas on the superiority of Chinese immigrants in the garment industry and their loyalty at work, their work experience is mediated by their status as women and immigrants in Canada. Arriving with children and very
little money, many are forced to restructure their lives so that one member of the family is at home all of the time:

I was working 8 hours a day. my husband is at home then and he looked after the kids. Then he works at night and I look after the kids. Those times were really tough - it's not easy like it is now (reference to daughter who is at university) (Daisy).

Our house was a good location and my grandfather lived in the house too. It was close to the factory. I sometimes worked overtime and my husband worked the graveyard shift (Eng).

When the family cannot support the women at home by caring for the children many are forced into an alternative arrangement:

My mother in law was looking after the kids but then she got sick. I had to quit my job and go home. I worked at home [homework] so I could look after the children (Jay).

In the face of poor conditions in some factories in the city, Chinese immigrant women have had difficulty in seeking out support from the clothing unions in Vancouver. Part of the reason is that they do not have the time to become involved in the union, working at the factory and
at home:

They have no time for the union - they finish work and they buy the vegetables, they have to cook for their kids (ACTWU).

Others are intimidated by the fact that their English may not be adequate. In addition, unions have been hampered by anti-union tactics by the state and the factory owners. However, problems in representing women, who comprise the majority of workers in the industry, have also stemmed from the internal structure of the unions themselves.

5.3 Unions

In Vancouver, unions made their presence felt in the 1950s when new clothing factories were being established in large numbers in the city. By 1955, when the International Ladies Garment Workers Union (ILGWU) announced a major organising drive across Canada, a substantial, though unspecified, percentage of the $100,000 dedicated to the drive was spent in Vancouver, where the level of unionisation was virtually nil (Province, 16/9/1955; Vancouver Sun, 11/7/1955). During
the years following the commencement of the drive, at least 12 factories were organised by the union (Labour Statesman, 31/9/1955). Indeed, the ILGWU had more agreements with factories in the 1950s than it has currently in the city (Labour Statesman, 31/7/1956). In the early 1960s, another union, the Amalgamated Clothing Workers of America (ACWA), became involved in Vancouver in an attempt to ameliorate 'sweatshop' conditions and wage rates which were far below the statutory minimum (Trevor, 1962). However, due to resistance on the part of employers, ACWA was only successful in organising a few factories and they no longer have a local in the city (ibid.).

In the period since the early 1960s, unions have not managed to organise a substantial section of the work force in Vancouver. In fact, it was thirty years before the ILGWU attempted another organising drive (Vancouver Sun, 31/5/1985). Part of the explanation for the weakness of the unions lies in the volatility of the industry in the face of foreign competition. Manufacturers in Canada, affected by cheap imports, have resorted to restructuring the shop floor to reduce labour costs or have relocated to the Third World in search of cheaper labour. Threatening to close down or move offshore has been used as a bargaining tool by owners seeking to offset the "high
costs of unionisation" (Lipsig-Mumme, 1987). In Vancouver these threats are not always idle:

Companies don't want to unionise - they intimidate the workers. Or they threaten that they'll close the place down. One company wanted to cut wages by 25 per cent. The members refused and demanded an increase. It didn't matter because the company closed down anyway (ACTWU).

In central Canada, the combined effect of restructuring and the growing anti-union campaign by employers have had a major impact on the membership of the largest union in the region, the ILGWU. Lipsig-Mumme (1987) argues that between 1976 and 1985 the union lost over 10,000 members in Montreal and a substantial amount of bargaining power due to the closing down of factories and the move to homework. In British Columbia, where garment unions have also had difficulties organising factories, anti-union legislation is likely to further restrict their actions. The ILGWU local in Vancouver was dismayed by the passage of Bill 19, which allows clothing firms to break union contracts by closing and re-opening "across the street" (Vancouver Sun, 15/7/1987). Unions in the clothing industry were also concerned over section 25 of the Bill which permits unionised firms to open non-unionised subsidiaries, an illegal practice under the older labour laws. These tactics which have been used occasionally by clothing companies in the past, are
legitimised with the new legislation creating further problems for organising the apparel industry work force.

The three locals currently in the city are affiliated with the International Ladies Garment Workers Union (ILGWU), the American Clothing and Textile Workers Union (ACTWU) and the United Garment Workers of America (UGWA). All three unions receive direction from headquarters in the United States. With just over 10 of the estimated 80 firms in the city organised, unions blame employers with anti-union tactics for their lack of success. Intimidation was an issue raised during an interview with a union representative who recounted two failed attempts at certifying factories.

They are intimidated - they feel they have to be loyal. You can organise sometimes but to get a collective agreement...(shakes her head). Marjorie Hamilton - we started in 1985 3 and it was only in September 1987 that we got certification. Only three months later they took a decertification vote. When we voted for certification 219 workers voted. When we decertified only 120 showed up. Only thirty per cent of them were union members. The employer was 'able' to get them to decertify (ILGWU).

3 See Vancouver Sun, 31/5/1985
Snazzie - we got certification but shit it was close. Then the company turned around and promised the workers higher wages and told them to decertify. There was a letter in their pay packets. On the 17th we had our last meeting and on the 18th they got their letter. Then we went around the factory with the wage proposal. They threw it in the bin and decertified: they were promised a bigger wage if they decertified. The information we are getting now is that there was no raise. They're still on base rate [minimum wage]. (ILGWU)

The effect of the failures was disastrous on the ILGWU which had spent a great deal of money attempting to certify these factories. According to one of the other unions, this setback seriously affected the ILGWU's ability to apply for more funds from the national executive for future organising drives (ACTWU). It might also explain why the ILGWU organiser informed me that she was waiting for the Canada-US Free Trade agreement to pass before she would attempt to certify another factory. The organiser at the UGWA also mentioned intimidation as a problem in organising workers:

Sometimes they [Chinese workers] are scared: 'am I going to get fired if I join the union?'. The managers scare them (UGWA).

4 See Vancouver Sun, 16/9/1987
Employers sometimes play on the immigrant status of women and one woman mentioned her fear of being deported as a factor in her deciding not to sign the membership card, even though she was a legal landed immigrant:

When the union came outside the doors trying to get the people to sign the cards the manager said if you sign you are fired. People were very scared. We were scared of getting shipped out [back to Hong Kong](Eng).

Union officials, at the same time are frustrated with the lack of militancy of the immigrant women. Responding to a question on problems in organisation, one union organiser said simply: "They aren't trouble makers - they are chickenshit" (ACTWU). It also appears that they are less resistant that workers elsewhere in Canada:

People from Eastern (sic) Canada are always in an uproar. Here the people are much more quiet. In Toronto there the people are really stronger. I don't know if it's because they have more whites or it might be because of a different culture - I don't know what it is. I went to go to talk to one of the committees and I found it completely different. Here they listen to you and you explain and there you find they just scream at you. They are real fighters (UGWA).

---

5 See also Serafin, 1985.
Biased labour legislation, resistance on the part of factory owners, and the precarious nature of the industry are the main reasons why unions have had problems in organising workers in the clothing industry. These factors are responsible for the 'corporatist' or business unionist attitude where unions seem to side with management rather than with workers. However, secondary literature on the garment sector in other Canadian centres, the United States and the United Kingdom suggests that there are other factors involved in the weakness of apparel unions. Lipsig-Mumme's (1987) argument based on Montreal's garment industry, for example, identifies problems in the role of union leadership - which has usually been male, even though only around 12% of the union membership is male. She argues that women have been, and continue to be, under-represented because they are employed in less skilled and more insecure positions in the factory. Moving in and out of employment, they have been unable to secure positions in the union, which regards them as dependents earning a secondary income. In addition, many immigrant women do not remain for long periods of time in the industry and are replaced by more recent immigrant groups. Men, on the other hand, whose work experience is usually more secure, have access to the senior union positions. As evidence of male control, Lipsig-Mumme shows how since 1910 in the ILGWU, no woman has ever held the office of the president, the secretary
This gender bias has meant that union policies are sometimes geared towards the needs of men rather than the seemingly more pressing needs of women (Arnopolous, 1979). Gannage's (1986) discussion of the union pension plan is an example of how policies are drawn up without prior thought to how they affect women on the shop floor. In the Toronto union, the pension plan came into effect once a worker had been a member of the union for twenty years, ten of these twenty years consecutively. The plan is biased against women whose work experience is often broken by family responsibilities. A second example occurred in Montreal, where a union did not respond to fainting spells suffered by women on the shop floor (Montreal Gazette, 4/4/1987). In these two examples, the union seemed unaware of the position of women. Cockburn (1985), Lipsig-Mumme (1987) and Coyle (1982), however, argue that male leadership has also allowed men to secure and entrench skilled work in the factory.

Historically in Vancouver, male leadership also appears to have played a role in the strength of clothing
...they were big, heavy men, these union reps, men who wore neckties, and they didn't go into the shops except to talk to management. As a result, the contracts they arranged were weak, and written in a language incomprehensible to the workers they were supposed to represent (Serafin, 1985, p. 4).

However, in Vancouver, as in other cities, the growing realisation that women organisers are more sensitive to women's needs in the clothing industry, is reflected in the changing leadership of the unions. The ILGWU is now totally controlled by women, at least at the local level, and during the latter stages of the research, the male representative at the ACTWU was suspended and control of the union now rests in the hands of women. The UGWA, on the other hand, is still controlled by a male who had been an employee in a factory in the city.6 Although his views are not definitive evidence that male controlled unions in the clothing industry are weaker and less effective in representing female workers, it is interesting that his comments were more 'corporatist' than was the case in the

---

6 This was one of the three factories he organised in Vancouver.
other two unions:

But you have to be reasonable with the company. They are our bread and butter. If the unions get too big they forget that the company is putting the food on their plate (UGWA).

He also simply did not have the time to organise any more than three factories:

I wouldn't try to organise a shop right now. It means a lot of running around. Once you start you have to see it through. Before there were only a few unions...now its like wolves trying to get the factory (UGWA).

It was also clear how as an Italian he was finding it more difficult to represent the new generation of women workers in the city:

When I first started 24 years ago, it was all Italian women. Now its more difficult to organise with the Chinese - they are the majority, at least 70 per cent (UGWA).

However, as discussed above, the gender biased leadership in some clothing unions is only one factor contributing to business unionism in these organisations. The ILGWU, for example, unsuccessful with its costly 1985 union drive due to anti-union

---

7 By this he implied that some unions demanded too much of employers
tactics by employers, apparently has insufficient funds to organise any more factories.

In the ILGWU and the ACTWU in Vancouver, the changing work force was reflected in a number of Chinese speaking women in the organisations. This is central in overcoming some of the language barriers which have been documented in secondary literature on the clothing industry (Coyle, 1982; Gannage, 1986). Union drive pamphlets, new negotiations and newsletters are now printed in English and in Chinese by the ACTWU (ACTWU). The changes in the union leadership and the hiring of Chinese women in the union are important steps in ensuring that unions are better able to represent immigrant women on the shop floor of clothing factories in Vancouver.

5.4 Worker Response

Once a factory is organised, according to union officials, immigrant women usually welcome the changes with the negotiation of a contract.

The workers feel pretty good about the union usually — they benefit definitely. There are a lot of immigrants but they feel intimidated — if they feel the union is there they feel comfortable (UGWA).
However, workers seem to view the success of unions somewhat more ambiguously:

When I first started there was no union, no medical or anything. When the union came we got the medical. There wasn't holiday or any benefits. The only time you get off is when somebody in the family dies. You have to wait for somebody to die before you get a day off! (laughs)(Eng).

When we have a problem we go to the union. Sometimes they listen sometimes they don't. There's nothing we can do--we can't fight. We need the job (Irina).

Even when the union appeared to have gained a wage increase in the negotiations one woman was still unsatisfied:

The union did good we kept getting annual increases. But they might have been helping the managers. We demand fifteen percent increase and they would only give us 7.5 %. They were a bit on the managers side. If they ask for 15 per cent they should get it. We pay the union dues; we should get what we want (Eng).

In spite of changes in two of the union organisations in Vancouver, women workers still have difficulty voicing their opinions and needs. Many have no time to become involved because they work in the factory and at home (the double day, Gannage, 1986). For many women, without
recourse to collective action, their resistance appears to have taken an individualised form. Some women simply avoid stressful situations at work:

They treated me O.K. but I remember others...I didn't take part in the hassles. Luckily in my job there wasn't the competition [piece rates]. You know you hear 'so and so is getting laid off'. I didn't want to get involved (Eng).

Another woman resorted to leaving factories with poor conditions. In the last ten years she had worked at 11 different firms; she left three because of poor wages, four were located too far from her home, in another three she described the conditions as poor, and only one closed down. According to a union representative many women leave the garment industry for other less stressful jobs or work hard enough so that they would never have to work in the industry again:

Some work until they can get schooling and then they are out of the industry - they use the industry for jobs but they don't stay (ILGWU).

All of these women dealt with the poor working conditions in an individualised way, a response to the lack of representation in the unions. This type of resistance has been documented by Hoel (1982) in her research on the clothing industry in England. For men on
the shop floor, weaker unions or unions controlled by women may mean that they will be relatively unprotected from the new technology which is having more serious implications for their work. These issues are dealt with in more detail in chapter six which addresses flexible manufacturing in Vancouver's clothing industry.
5.5 Conclusion

The reputation Chinese women have earned is not due to some inherent cultural or physical characteristic which makes them suited to the grueling conditions in a clothing factory. Instead, like other immigrants, their income is vital to the survival of the family economy after their arrival in Canada. The women are also concerned to ensure that their children, as second generation immigrants, do not suffer in the same way they did. Perhaps the clearest example of how their reputation was not a cultural trait was the comment of one employer who paid workers on an hourly basis and complained that they were as 'slow as molasses'.

The Chinese immigrant's commitment to the family, combined with problems with the English language, has presented problems for unions organising the industry. Unions have also had difficulties organising factories in the city in the face of anti-union state legislation, employers attempting to avoid the 'high costs' of unionisation, and the precarious nature of the industry. Their problems are, however, internal to the union too: one union in Vancouver was controlled by an Italian male in an industry dominated by Chinese women workers. The organiser of this union held racist views on labour, his
approach was one of business unionism, and he had 'no time' to organise any more than three factories. However, in the other two unions led by women, and assisted by Chinese immigrants, many of problems associated with organising workers described in the secondary literature on the clothing industry and noted in the UGWA in Vancouver, might be resolved. These changes in Vancouver suggest that they are more sensitive to the needs of Chinese immigrant women.

Finally, it was argued that in the face of weak unions, Chinese women have resorted to individualised forms of resistance. However, this form of resistance will not improve overall conditions in the industry and in this sense is a negative reaction. In the face of underhand tactics by employers and a provincial government decidedly against unions, labour organisations will continue to have difficulties organising women, despite their commitment to workers in Vancouver's garment industry.
CHAPTER VI Flexible Manufacturing in Vancouver's Clothing Industry

6.1 Introduction

The Canadian clothing industry was severely affected by the recessions of the 1970s and early 1980s, and by cheaper imports from newly industrialising countries. By the end of 1982, employment in the garment industry nationally had reached an all time low (Fig. 3.1). In Montreal, the largest clothing centre in the country, restructuring in response to the crisis was evidenced by the loss of over 2000 jobs to homeworking in 1981 alone (Lipsig-Mumme, 1987). This chapter focuses on how a number of fashion clothing firms based in Vancouver, one of the smaller Canadian clothing centres, have restored profitability by implementing new manufacturing technology. To set the adoption of new technology into perspective, this chapter examines five companies currently using flexible machinery in Vancouver, with particular reference to the depth to which flexible techniques have penetrated the labour process. Speculations are also made concerning the extent to which other companies in the city are likely to invest in the
new technology. Finally, the implications of these changes for labour, unions and the industry are analysed. The chapter draws from interviews with garment workers, factory owners, and trade union representatives.

6.2 Flexible Manufacturing in Vancouver's garment industry

A few large fashion clothing firms in Vancouver have invested in flexible machinery, including marking/grading machines (see section 3.6.3), which are considered the most flexible of the new systems. In spite of the high cost of the machines, firms are willing to lay out the capital, since the return on this investment is relatively quick. According to the manager of a firm which had recently purchased a marking/grading system, they would be able to recoup the investment within two years (4). At the same time, however, owners of smaller factories simply cannot afford this new equipment (Table VI). This finding is congruent with the arguments made by a number of authors (Holmes, 1987; Schroenberger, 1987; Gertler, 1988), including some on the clothing industry (Hoffman, 1985; Gibbs, 1987). Hoffman in particular has stated that

1 The price of a marking/grading machine starts at around 100,000 dollars.
firms selling less than 20 million dollars (US) of clothing are unlikely to purchase the new machinery.

Table VII Employment size of clothing firms in British Columbia

<table>
<thead>
<tr>
<th>Code</th>
<th>Employment range</th>
<th>Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>6-14</td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td>15-24</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>25-49</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>50-99</td>
<td>14</td>
</tr>
<tr>
<td>6</td>
<td>100-199</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>200-499</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Manufacturers Directory of British Columbia, 1987

In Vancouver, employment size was found to be a significant variable in predicting whether firms will purchase flexible technology. Of the 14 firms in the sample, 4 already have a marking/grading machine while one other owner was planning to purchase one in the next few months. According to the provincial government's Manufacturing Directory (1987), four of these five firms had an employment code of 7, or 299 to 400 employees while the other company had a code of 6, or 100 to 199 employees. One firm interviewed with an employment code of 5 (50-99 employees), recognised the advantages of the new equipment but still found the investment too
expensive:

We'd like to get into it but it's fairly costly. It's a lot faster too; we have three full-time people grading and marking. We have to sit down and change styles and it takes a whole day to do just one. With the new machines we could do ten a day (11).

Another firm with a code 3 employment level informed me in graphic terms that she was 'panting' for the marker/grader, but at this stage could not afford it. If employment size is an indication of which firms are likely to purchase flexible technology, its pervasiveness will be very limited since the average firm has only around fifty employees, and only 14 per cent of firms in Vancouver have employment codes of 6 or 7 (Table VII).

In CAD and computerised cutting machines the financial constraints are more daunting, even for the larger fashion companies. In the sample of firms in Vancouver this equipment did not feature significantly and according to a sales representative they are very rare in the city (Kirsten, pers. comm., 1987). One reason for this dearth of investment in CAD technology and computerised cutters is the large capital outlay required for their purchase. In part, the cost of these machines is high because they are a recent innovation, unlike the grading/marking machines which have been available for several years:
We have a grading/marking machine. We don't have a design machine; it is recent and fairly expensive. You also need a technical person to run it.

In addition, the return on investment for CAD equipment and the computer's cutter is not as high, a further obstacle for many clothing firms. According to the production manager of another firm: "We don't have a computerised cutter. They [heavy duty cutter] are fine for long production runs. We need more flexibility for style changes. They also cost more than a million dollars" (7). Firm number 3 in the sample gives an indication of the scale of production necessary for the 'complete package' of flexible technology (the design machine, the grading/marking machine and the sample computer cutter). Not only is it the largest clothing manufacturer in the city with sales reaching over 50 million dollars a year, it is also one of the fifty largest firms in the province based on revenue (B.C. Business, July, 1988). Thus the large capital outlay for the sophisticated equipment has prevented most firms from investing in the entire package of flexible technology. It seems that most large fashion firms are only able to invest in a grading/marking system, one item of the flexible machinery currently available to clothing manufacturers.
Financial constraints are not the only reason why flexible equipment is not more pervasive in Vancouver's clothing industry. Manufacturers of standardised clothing are not interested in flexibility and their production is more characteristic of the Fordist regime. Their designs are constant, dedicated machinery is used, and economies of scale through long production runs are still the goal. Even manufacturers large enough to purchase the machinery are unlikely to do so because it does not suit their production needs. One firm producing standardised T-shirts was simply not interested in any of the flexible machinery (8). Other factors also seem to play a role in limiting the extent of flexible equipment. For example, this was the response of the owner of a firm when, during an interview, he was asked whether he planned to purchase computerised machinery in the near future: "Oh no, we won't get the computerised stuff...You know you can't teach an old dog new tricks, eh!" (5).

Caution concerning the new machinery is advisable in other ways too. Some of the so-called flexible machinery being introduced is not very flexible and suits long production runs of standardised clothing, more characteristic of Fordism (see section 3.4.3). An example are sewing machines dedicated to one particular task which only speed up production without improving flexibility. Instructive was this statement in response to whether one
firm planned to invest in a computerised sewing machine: "This business isn't mass production enough; you know what I mean? We don't do the mass stuff. We don't produce enough of one thing to make it [computerised sewing machine] worthwhile" (11). On the other hand, a large manufacturer of more standardised clothing had invested a great deal of money in computerised sewing machines (10). Computers do not always imply flexibility and equipment linked to microprocessors may not be more flexible than the machines characteristic of Fordist or mass production methods. CAD and marking/grading computers, on the other hand, as discussed in chapter 3, are flexible and thus suited to changing fashions, and the consumption patterns which are apparently more pervasive in the new regime.

In spite of these caveats, large fashion clothing firms are benefitting from the new machinery. Improved turnaround time with the new equipment is increasing their competitiveness vis-a-vis offshore manufacturers, which is vital because, "Price wise we can't compete with foreign imports - we compete with quicker turnaround and quality garments" (1). Improved quality with computerised
machines was an issue raised by another manager:

You have to look at the quality aspect. I don't think at that level that imports are a major consideration. Quick response is also the big thing. Everyone wants to make a decision on whether to order later and later in the cycle, that is as close as possible to when the new season's styles are revealed. There's duty protection too, fair is fair (3).

Large retailers play a role in 'encouraging' local firms to improve their technology to maintain fast turnaround and quality production:

There isn't a hard and fast rule but they [large retailers] will take advantage of you when times are hard. Also if you are a day late they might send it back. It happened to us. If you make a mistake they send it back. They will send it back for any reason. Reputation is very important. Very (3).

A few of the larger companies interviewed subcontract offshore, but they too modify their arrangements in accordance with the need for rapid turnaround: "If they [retailers] want it in six months we go offshore. If they need it in three months we make it here" (1); and,

We imported some sweaters in April - we'll get them in late November. There is a definite six month cycle: three months to get the material, six weeks for production, then four weeks on the water. This is if everything goes to plan - which it doesn't (2)
Delays at customs, problems in production at the offshore assembly plant and in delivery often result in late shipments which are especially costly in the volatile high fashion market. One importer in Vancouver, for example, received a shipment which had incorrect labelling on the garments and had more clothing in the boxes than had been disclosed. The result was that:

> the samples used by our sales staff to attract orders for Townline's spring line are a week late already....Some sales trips to the east have already been cancelled....It's getting so critical that if we don't receive them it could have devastating effects on our spring business (Vancouver Sun, 17/9/1983).

Realising the benefits of flexible technology for the fashion industry, two other firms in the sample deliberately changed their lines from standardised clothing, relatively unaffected by style changes, to fashion wear. The manager of one of the firms summed up the reason for the change:

> We were into workwear up until 1980 or so...but the imports just killed it - from the Third World and Eastern [Central] Canada. Now we change styles every year - they [offshore manufacturers] can't get the jump on us...it's not easy to produce offshore - one is never sure of the quality or the delivery. We are surviving because of our uniqueness and new fashion. It was a deliberate strategy in order to survive. We can't compete on a one-to-one basis because of wages (4).
While fashion firms closer to the market have the upper hand over manufacturers based offshore, companies with flexible technology are more competitive locally. Retailers concerned with quality production and quick response are likely to favour dealing with firms which are more flexible and can guarantee delivery. Since only the larger firms have purchased the machinery, competitiveness may now be dependent on size (c.f. Hoffman, 1985).

The need to be closer to the markets in the fashion industry has prompted some writers to argue that clothing firms may now return from the Third World back to the advanced capitalist countries. Mitter (1985) is adamant on this point: "...there has been a visible shift in the relocation of production in the clothing industry from the third world in favour of Western European countries, since the beginning of the 1980s" (p. 47); while Gibbs (1987) is somewhat more ambiguous: "Changing retailers strategies have encouraged the 'return' of clothing production to Britain" (p. 317). However, there is little support for the contention that clothing firms which relocated to the Third World are now returning to Vancouver or even to the country as a whole. Manufacturers and retailers continue to subcontract standardised clothing offshore in countries like Hong Kong, Taiwan and Korea. Thus while imports have
had difficulty penetrating the fashion end of the market, offshore manufacturers still have the upper hand in the manufacture of standardised clothing (Hoffman, 1985; Mitter, 1985; Gibbs, 1987). In a few papers, authors have described the growth of the clothing industry more carefully, arguing for example that "Cheap female migrant labour" (Morokvasic, 1984, p. 890), or new production methods are responsible for the re-emergence or survival of the clothing industry in some advanced industrial countries. From the data collected in Vancouver this description of the growth of the apparel industry in the city is favoured over the conclusion that firms are now returning to western capitalist countries.

6.3 Implications of Flexible Production

While the goal of improving turnaround time and maintaining flexibility is the same for firms in the automobile and garment industries, flexible manufacturing techniques have taken a rather different form in the clothing sector. Clothing manufacturers have turned to computerised and reprogrammable machinery, rather than the radically new production methods more common in the auto industry. In this, the final section of the chapter an explanation is offered for the reasons why flexible
manufacturing has taken a unique form on the shop floor of clothing firms. In addition, the effects of the new techniques on workers skills will also be examined in this section. The ideas presented here are necessarily speculative, as they are based on a few firms which have implemented new techniques in Vancouver's garment industry.

Machinery and Methods: New work methods introduced on the shop floors of automobile plants include quality circles and work teams so that workers monitor their own production and identify with their work; a shift from multi-sourcing to single sourcing; and the implementation of just-in-time delivery of parts to minimise costly inventories. Note that these methods are a response to specific problems in the North American auto industry which emerged in the 1970s such as poor quality products and parts, resistance and alienation on the assembly line, the expense of maintaining large inventories according to the 'just-in-case' system, and competition from Japanese manufacturers (Holmes, 1986). Large fashion clothing manufacturers have, similarly, responded to changes which have affected their particular sector. To remain competitive in markets which are more volatile fashion firms have improved flexibility and response time with programmable equipment such as marking/grading machines.
A number of firms have also implemented the just-in-time delivery of textiles and many make to order only, and thereby reduce inventories. However, it seems that the quality circles and work teams have not been seen as an appropriate solution to the volatility of North American markets.

If quality control circles were unsuitable in the clothing industry, it follows that the quality of production has not emerged as a problem in the crisis, or, it is a problem which could not be solved using quality control circles. The answer; however, seems more complex; quality has always been an issue in the manufacture of clothing, but it is usually monitored through the 'ticketing' of garments, so that inspectors or supervisors are able to locate the problem (and the worker) immediately. If a worker consistently produces poor quality, and this is usually a problem in the sewing room, she might be reprimanded or even fired. The widespread availability of female labour has allowed managers and owners to pursue this 'simple' form of controlling quality, instead of resorting to expensive quality control circles. The implementation of work teams to prevent alienation, on the other hand, is not necessary on the shop floor of clothing factories because this problem has rarely presented difficulties to owners. With large reserves of labour who can be trained relatively quickly,
workers who are unable to cope with the alienating and demanding conditions at work, simply quit or are fired. High turnover rates in most clothing industries lends support to this argument (Hoel, 1982). Women whose income is more vital to the survival of the family (see chapter five), must maintain high quality and endure the alienating conditions, or risk losing their jobs and jeopardising the livelihood of their family. Women have also had problems in eliciting the support of unions which are often weak, due to hit and run nature of the industry (Lipsig-Mumme, 1987). Thus, quality production and the problem of alienation are dealt with differently in the clothing industry and, as long as large reserves of female labour persist, it seems very unlikely that clothing firms will turn to either quality circles or work teams. Firms have overcome problems in clothing manufacturing within the context of the industry itself.

The idea that clothing firms have responded to the crisis within the confines of their particular industry, accounts for the introduction of the mass production assembly line on the shop floor of clothing factories, apparently out of place in the new regime of flexible production. Though estimates vary, a worker spends around 20 per cent of the time sewing the garment, a further 20 per cent is accounted for by changing needles or thread and rests due to fatigue, while the remaining 60 per cent
is handling time (*Bobbin*, June 1988). Unit Production Systems (UPS), as the assembly line in the clothing industry is called, are geared specifically to reducing the relatively long time spent handling clothing in order to improve response time. Thus, for fashion firms anxious to improve their turnaround time, the solution is not in faster sewing machines or in new wage schemes to increase productivity, but in an area of 'work' which seems to have been neglected by capitalists up to now.

**Control or Flexibility?:** Whether new manufacturing techniques are used to control labour, or are used simply to improve flexibility in the new regime of accumulation, has interesting implications in the clothing industry. For example, from research on a number of industries (excluding clothing production) Shaiken et al (1985) have clearly demonstrated that there are cases in which the new techniques have been introduced to control production: "Machinists tend to be prima donnas. This is one of the motivations for buying NC [numerically controlled] equipment. It reduces our dependence on skilled labour" (ibid, p. 174). Flexibility for these firms was an issue, but only secondarily to the main problem of controlling the structure and pace of production on the shop floor. On the other hand, Pollert's (1987) analysis of new methods of production provides an alternative explanation for the introduction of flexible manufacturing techniques,
and is critical of the Shaiken et al theory. She argues that in many cases the equipment and techniques are not implemented with the express purpose to deskill labour and centralise production; instead, they are a response by the firm for greater flexibility in production. The fact that workers are deskilled and control is centralised is only a by-product of the new techniques and machinery.

Whether new manufacturing techniques are introduced to control production or to improve flexibility may depend on the level of worker resistance and on the extent to which control is a problem on the shop floor of the factory in question. Pollert's analysis certainly seems to explain the implementation of flexible techniques in firms without a militant workforce and strong unions. However, when worker resistance is high, the Shaiken et al theory seems more applicable; flexible techniques are implemented or production may be reorganised primarily to prevent disruptions on the shop floor. This kind of explanation, \textit{viz.}, that where worker resistance is high flexible techniques are introduced primarily to control work, while when it is low the technology is implemented primarily to improve response time is, however, rather problematic. If it were applied to the clothing industry in Vancouver it might be argued that since there has never been a strike in the industry and unions are generally weak, flexible manufacturing has been introduced to the
large clothing factories primarily to improve flexibility while the effects on the work environment are merely an unintended consequence. This would assume that clothing factory managers are unaware of the effects their new machinery will have on worker's skills and on control in general. However, a cursory glance at any of the trade journals geared to the garment industry dispels this myth (e.g. Bobbin, June, 1988). Control and flexibility are two sides of a coin: the new methods are introduced to clothing factories with both advantages in mind.

Re-skilling and Deskilling: The effects of flexible manufacturing techniques and new work methods have been interpreted differently by different schools of thought. French Regulationists and most Marxists support Braverman's thesis on the tendency towards the deskilling of work in capitalism. An important caveat in Braverman's theory, supported by the regulationists, is that not all work is deskilled. To quote Aglietta and Braverman in turn on this issue:

...the creation of new skilled jobs is far from making up for the destruction of old skills resulting from the change in work organisation, inasmuch as it makes sense to speak of compensation of this kind, since the skills involved are heterogeneous and thus incommensurable (Aglietta, 1979, p. 126).
The mass of workers gain nothing from the fact that the decline in their command over the labour process is more than compensated for by the increasing command on the part of managers and engineers. On the contrary, not only does their skill fall in an absolute sense, but it falls even more in a relative sense (Braverman, 1974, p. 425).

On the other hand, Piore and Sabel (1984), of the MIT school, argue that while the tendency in mass production was toward deskillling, in the manufacture of varied products in the new regime skills are recomposed. Where products are continually changing, the fragmentation of work described by Braverman is not possible and a skilled workforce is required.

Evidence from the sample of firms in Vancouver's apparel industry and the description of new equipment in trade magazines tend to confirm the arguments of the Marxists. Skills in a 'traditional' clothing factory are usually divided along gender lines and highly-skilled work is controlled by men, while women perform the less-skilled tasks. It is argued that men have controlled the highly skilled work through closed shops and control of union organisations (Cockburn, 1985; Lipsig Mumme, 1987). However, the implementation of flexible equipment in Vancouver such as grading/marking machines, is deskillling traditional male jobs. As discussed in chapter three, grading and marking were tasks which could not be
monitored in an objective manner. In addition, it was
difficult for managers or owners to increase the pace of
production in these male controlled jobs. With the
computerised grading/marking equipment, on the other hand,
the designer is expected to work far faster and there is
an objective record of his/her work. Following
Braverman's definition that tasks are deskill when
workers lose control over the pace and structure of work,
it seems that these jobs have been deskill. For male
cutters, the expense of computerised cutting machines
means that their skills in this area are secure, for the
time being. However, as the technology improves and the
costs decline, the work of cutters in factories with
flexible technology may become redundant.

The work of women sewers, on the other hand, has been
simplified since the beginning of the century and 'skill'
now based not on a detailed knowledge of the making of a
garment, but on dexterity, speed and quality work. There
is thus little room for further deskillling. However, as
we have seen, more sophisticated sewing machines increase
the pace of work, particularly when a single operator
works on two machines. Although their work is not further
deskillled, operator's tasks are degraded as they lose even
more control over the pace of their work.
There are at least two reasons why men's work is the 'logical' target for deskilling (Cockburn, 1985). First, men receive the highest wages of any production worker on the shop floor. With a 25 to 60 per cent savings in labour costs in pattern making, the new machines are an especially attractive investment for many companies (Gibbs, 1987). A second reason for the deskilling of men's work is that, until the introduction of the computerised marking/grading and cutting equipment, their work was very much a craft. As discussed in chapter 3, until managers quantified or computerised the work, it could not be speeded up or structured as is the case in women's work.

Deskilling is not always a one-way process and, as Aglietta and Braverman have argued, some workers may gain new skills. This is true in clothing industries which have invested in flexible manufacturing equipment. For example, designers have acquired new computer skills with the marking/grading machines. In addition, one designer found that her work environment had improved: "My job was mindless before the company bought the grading/marking system" (4). In order to operate the new system they must go through a training period which usually lasts no longer than a few months once they already have design skills. Designers on the new machines are also periodically
retrained as the system is upgraded or a more advanced software package is developed.

These comments on skill, control versus flexibility, and on quality control circles, are, as discussed above, necessarily limited to firms which have implemented flexible manufacturing technology. For example, in firms without the new techniques, the labour process is still traditional: male skill is based on a long apprenticeship, while women's work is regarded as unskilled though based on dexterity and speed. Deskilling in clothing production has thus affected only a small group of workers. For most production workers, of greater concern in the hit-and-run industry is not whether they will lose their skill; instead, it is whether they have a job the next day.
6.4 Conclusion

From the sample of firms interviewed in Vancouver, it appears that the introduction of flexible machinery is having a limited impact on the clothing industry. Of the 14 firms interviewed, 5 have already purchased or will purchase flexible equipment within the next six months. Significantly, larger companies are more likely to invest in the machines, consistent with a number of papers in the literature (Hoffman, 1985; Gibbs, 1987). Changing market conditions and new technology have allowed firms in the city to enter a niche in which less expensive imports have only a negligible effect. These firms manufacture fashion clothing, where markets are small and uncertain. Lead times are vital in this sector and flexible equipment is reducing the time from design to manufacture substantially. Offshore producers are unable to deliver apparel to the market fast enough to meet the volatile demand in this clothing line. However, although some companies are investing in new machinery, many are unable or unwilling to purchase the equipment. As discussed in chapter four, many of these are smaller firms which are geared to local markets.

Computerised machines are not always as flexible as is often assumed and a microprocessor does not immediately
imply flexibility. Most of computerised sewing machines, for example, are dedicated to one or two particular tasks and only increase the pace of production. This type of equipment is suitable for long production runs of standardised clothing, characteristic of the Fordist regime, rather than the smaller runs more common in the fashion industry. An important point arising from this conclusion is that, in general, flexible equipment such as the design and marking/grading computers will be implemented in the large fashion clothing factories, while dedicated sewing machines will be purchased by standardised clothing manufacturers.

Flexible machinery in the clothing industry is generally having a detrimental effect on labour on the shop floor of apparel firms. Grading, marking and cutting, skilled work and the preserve of men, is being deskilled by computerised machinery. These tasks are the 'logical' choice for deskilling: the pace of their work could not be set under the old regime, the work could not easily be quantified, and the wages for these jobs are the highest on the shop floor. Already fragmented and subject to wage payment schemes designed to increase production, women's work will become more debilitating with the new equipment. In some cases women will be operating two machines at once. The work of designers, on the other hand, seems to have improved with the introduction of
computer aided designing and grading/marking machines. They have learned new skills and their work environment is reportedly improving. The effects of the new machines are uneven, but seem to be weighted against those on the shop floor.

Though the introduction of flexible manufacturing techniques is being implemented among a number of clothing firms, the form it has taken is different than has been the case in other industries, most notably the automobile industry. Investments are being made in more advanced equipment only and there is no evidence of new work techniques, quality control circles or quality of working life schemes. It was argued that the methods were not being introduced because in the automobile industry they represented a response to a crisis in this sector. In clothing production the problems of alienation and poor quality have been dealt with in other ways. The introduction of work teams and quality circles is unlikely in the clothing industry; it seems instead that flexible manufacturing techniques are a response to problems which are unique to particular industries.
CHAPTER VII Conclusion

The introduction of flexible manufacturing techniques in a number of industries, has recently received a great deal of attention in academic journals. Debates have focussed on the pervasiveness of the methods; their effects on skills and work life; and the spatial ramifications of firms implementing new production techniques. Widely divergent views, particularly concerning the effects on workers skills, attest to the need for a better understanding of these changes. In the clothing industry, while there is little evidence to suggest that new work methods are being introduced, flexible equipment such as computerised designing, marking/grading, cutting and sewing machines are currently available to manufacturers. These machines seems particularly suited to the manufacture of women's apparel which tends to be unstandardised due to frequent style changes. On the other hand, manufacturers of more standardised clothing, where designs seldom change and production is characteristically Fordist, are not likely to benefit from the flexible technology.

This case study was based on the garment industry in Vancouver, British Columbia. While the size of the industry in Vancouver is small compared to the rest of the
country, the recent growth of the women's fashion industry has been spectacular. The results of this study suggest, however, that at this stage there exist significant barriers to the implementation of flexible equipment in production. It is only the very large fashion firms that have invested in any flexible machinery. Indicative of the restrictions, one firm which had purchased a significant amount of flexible technology was also the largest clothing manufacturer in the city with sales of over $50 million a year. Even firms with a limited amount of flexible equipment were, according to employment size, the largest in the city. Many smaller fashion firms are unable to raise the capital for the equipment even though the potential benefits are significant. Standardised clothing manufacturers in Vancouver, on the other hand, have not purchased the new technology because it does not suit their needs. Their production techniques are still based on the Fordist principles of long production runs of standardised clothing, economies of scale, and machinery dedicated to one particular task.

These smaller firms without new technology, some of which are investors from Hong Kong, respond to downturns in the economy through a flexible or contingent labour force. In Vancouver this labour force comprises mainly Chinese immigrant women who are hired and fired depending on economic conditions. Their insecure position in a new
country has made them vulnerable to conditions in the clothing industry. These women also have little recourse to unions which are generally weak due to the precariousness of the industry, the actions of anti-union employers and state legislation.

For firms in the fashion industry large enough to lay out the capital for the new machines, the advantages are tremendous. Flexible equipment improves turnaround time and flexibility, both vital for manufacturers of fashion apparel. Quick response allows large fashion firms to compete with offshore manufacturers, whose lead time for fashion clothing is often too long to reach the volatile markets. The improved competitive position of large fashion firms vis-a-vis foreign competition and the necessity of being closer to the market is in part responsible for the growth of the clothing industry in Vancouver. At the same time, large fashion garment manufacturers are more competitive than smaller firms in the city unable to purchase the new equipment. A second advantage of the equipment for factory owners is that it reduces their dependence on skilled male workers who command the highest wages on the shop floor. Marking, grading and pattern making, are now performed by the designer with sophisticated computer software. These tasks are speeded up with the new equipment and computer disks and tapes allow managers to monitor their work more
closely. For women workers in the industry (machinists), the new machines simply speed up work, making an already debilitating job worse. As discussed in chapter six, however, these comments on skill and work life are only applicable to the few firms which have implemented the new techniques. On the shop floor of 'traditional' companies men continue to control skilled work while women's jobs are viewed as unskilled.

Finally, as has been noted elsewhere, the shift to new methods of manufacturing is not likely to be an immediate or even rapid process. Many firms in the clothing industry cannot afford the new technology. However, it is also argued on the basis of this case study that the shift may never be absolute, even in the long term. The survival of small standardised clothing manufacturers who rely on a contingent labour force and are unwilling to invest in flexible equipment, suggests that mass production methods will persist. Thus the shifts to flexible methods in Vancouver's garment industry is a complex and uneven process.
References: Secondary Sources


Jenkins, R., 1984: Divisions over the international division of labour, Capital and Class, 22, 28-57.


Morokvasic, M., 1984: Birds of passage are also women..., International Migration Review, 18(4), 886-907.


Pollert, A., 1987: The 'flexible firm': a model in search of reality (or a policy in search of practice?), Warwick Papers in Industrial Relations, University of Warwick, Number 19, 1-40.


Rainnie, A.F., 1984: Combined and uneven development in the clothing industry: the effects of competition on accumulation, Capital and Class, 22, 141-156.


Serafin, B., 1985: Garment worker's unions struggle to organise, Vancouver Postal Worker, July 1985, 4-5.


Newspapers, Trade Journals and other magazines

BC Business, July, 1988, p. 60-1, Top 100 B.C. companies.

British Columbia Enterprise, February, 1988, p. 4-5; 12-13, There's more to BC's economy than meets the eye.

Bobbin, September, 1985, p. 34, New products and services.

Bobbin, October, 1985, p. 34-5, Those who cut it.
Bobbin, November, 1985, p. 49, Lectra systems.

Bobbin, May, 1988, p. 77-82, Put technology into context.

Bobbin, June, 1988, p. 22, Setting the record straight.

Equity, July/August 1988, p. 71-83, Eddie has the lowdown on selling.

Globe and Mail, 2/5/88, p. b1, b4, Manufacturers profit margins at highest level since 70s.

Labour Statesman, 31/9/55, p. 20, Garment workers sign 5 city firms.

Labour Statesman, 31/7/56, p. 1, Ladies garment workers all-out drive pays off.

Montreal Gazette, 12/3/87, p. a6, Experts can't find source of dizziness.


Montreal Gazette, 28/4/87, p. a6, 1 out of 5 women workers suffer disability: study.

Province, 16/9/55, p. 5, Union garment workers plan Vancouver organising drive.


Province, 30/3/74, p. 29, Union asks import cuts.

Province, 9/11/77, p. 13, Jones boys pile up a tentful of history.

Province, 27/12/77, p. 21, Clothing curbs extended again
Province, 10/5/78, p. 29, Prices expected to soar.

Province, 25/7/85, p. 3, Garment workers suffer abuse.


Toronto Star, 9/3/86, p. f5, Vancouver women struggle to reform sweatshops.

Vancouver Sun, 10/5/41, p. 17, Gold rush brought big clothing business here.

Vancouver Sun, 20/5/53, Progress edition, p. 4, Needle trades new 'growth' industry.

Vancouver Sun, 11/7/55, p. 15, Union aims to sew up industry.

Vancouver Sun, 17/1/75, p. 77, Clothing to be returned over improper labelling.

Vancouver Sun, 10/12/76, p. 40, Local importers bemoan as clothing quotas take hold.

Vancouver Sun, 10/2/77, p. 21, Torn up over clothing restrictions.

Vancouver Sun, 10/10/79, p. c1, Clothing industry now feels more comfortable.

Vancouver Sun, 17/8/83, p. a1,a2, Imported clothing delayed by customs.

Vancouver Sun, 31/5/85, p. a20,Garment union launches its first drive in forty years.

Vancouver Sun, 26/7/85, p. a14, Sweat shop claims anger plant owner.

Vancouver Sun, 15/7/87, p. c10, Bill 19 called a bad fit.
Vancouver Sun, 16/9/87, p. a17, Garment workers reject wage increase.

Vancouver Sun, 30/4/88, p. d12, Made at home.

Vancouver Sun, 2/8/88, p. e2, Women's wear industry in tatters: weather trends blamed.

Statistical and other government publications


Textile and Clothing Inquiry, Report to the Minister of Regional Industrial Expansion, vol 1, October, 1985.

Statistics Canada, 31-203, Manufacturing industries in Canada.

Statistics Canada, 31-208, Manufacturing industries by province.

Statistics Canada, 34-216, Men's clothing industry.

Statistics Canada, 34-217, Women's and children's clothing industries.

Personal Communications

Chiang, K., Employee at MOSAIC, Service for non-English speaking residents.

Kirsten, M., Sales representative for equipment in clothing factories.