

CHAPTER ONE

INTRODUCTION TO THESIS

INTRODUCTION

Nicaragua represented one of several developing countries that attempted to transform their economies and societies along socialist principles in the post-World War II period. These countries pursued diverse development strategies which shared two common objectives: to meet the basic needs of the population and to increase their own degree of economic sovereignty. The factory constituted a significant arena of change as these objectives called for the restructuring and development of existing manufacturing firms. In pursuit of these objectives, these countries also set out to eliminate coercive work practices and to alter the relationship between management and workers. This thesis focuses upon productive adaptation and union-management relations within Nicaraguan manufacturing firms during a period of revolutionary change (1980-87). A micro-level examination of these interrelated issues provides a unique perspective on the industrial experience of this country.

As we shall see, there are several studies of economic and industrial development strategies pursued by socialist-oriented developing countries and of the characteristic problems they encountered. Yet these studies have been carried out principally at the macro or sectoral level, leaving little published knowledge of what occurred within the production unit. These studies do indicate that manufacturing firms faced abrupt changes in their external environment during the initial transition years. For example, firms faced limitations on their import capacity due to foreign exchange constraints and to financial and trade embargoes levied against these countries by their former dominant trading partners. These conditions reinforced the resource constraints upon manufacturing production generally found in these peripheral economies. Likewise, enterprises encountered changes in demand conditions stemming from redistribution policies, import constraints on user firms and conditions of war. Their governments assumed an expanded role in the economy, thereby mediating the impact of these circumstances upon firms.

This changing external environment could be expected to generate specific patterns of adaptation in the productive sphere. Firm-level adjustment processes were likely to influence the ability of these countries to meet current production and social transformation goals, whilst also shaping the basic characteristics of manufacturing capacity in the long run. Despite its potential significance, the nature of productive adaptation has not constituted a subject of inquiry in this context.

There are also several studies on efforts by the state and party to restructure industrial relations, as noted below. Yet these studies generally do not map out the actual processes by which union-management relations evolved at the point of production. Socialist-oriented change has depended upon possibilities for shaping a type of industrial relations that facilitates production under severe resource constraints, while simultaneously enhancing labour's power and status within the enterprise. Nevertheless, there are few studies on the experiences of unions and management in this area.

The first part of this thesis analyses the process of productive adaptation within Nicaraguan state metalworking firms from 1980 to 1987. It attempts to explain patterns of adaptation in the areas of input usage, machinery utilization and output composition in light of the unique set of pressures and constraints facing firms in this period. It focuses particularly upon the relationship between this dynamic of daily adjustment and the diverse roles of the state in the economy. The results of this study indicate ways in which the Nicaraguan government could have facilitated and enforced more effective productive adaptation without forfeiting the objectives of its industrial restructuring and development strategy.

The second part of this thesis examines the evolution of union-management relations. It compares two metalworking enterprises whose unions initially adopted contrasting positions on their role and relation to management, but then moved towards a similar stance by 1987. This thesis explains these changes in union-management relations in light of each firm's efforts to adapt to its external environment. It focuses particularly upon the response of these unions to constantly changing production requirements and highly unstable economic and political conditions. It thereby lends a distinct perspective to debates concerning the role of unions in production and social transformation within this historical context.

Chapter One indicates the interrelationship between the two subjects of study at the shop-floor

and society-wide level. On the shop floor, the nature of productive adaptation had direct implications for employment and the division of labour, which in turn influenced the evolution of industrial relations. At the society-wide level, the same strategy for transforming the Nicaraguan economy and society strongly influenced the nature of both productive adaptation and union-management relations. This chapter is divided into five parts. Part One defines the main questions and concepts, and highlights the significance of this study. Part Two presents the research context in which these questions were pursued. Parts Three and Four put forward the analytical framework and research methods respectively. Part Five outlines the structure of this thesis.

PART ONE: MAIN QUESTIONS AND SIGNIFICANCE OF STUDY

1. Main Questions and Concepts

Part One sets out the two main questions that motivated this research, and defines the terms of study. First, how did external pressures and constraints combine to generate specific forms of productive adaptation within Nicaraguan state metalworking firms from 1980 to 1987? This study will refer to the following three types of constraints on firms' efforts to maximise production output, as defined by János Kornai in *Economics of Shortage* (1980).¹ Resource constraints operate because the use of real inputs by production activities cannot exceed the volume of available resources. These constraints are of a physical or technical nature and refer to inputs, machinery and physical installations, as well as skilled labour. A demand constraint arises when buyers' demand for a product at given prices constitutes the main limitation on the firm's ability to increase output and sales. Firms operate under a budget constraint insofar as the financial expenses of the firm cannot exceed the sum of its initial equity and its proceeds from sales. The budget constraint affects production indirectly by preventing the firm from buying physical resources. This study uses the term 'external pressures' to refer to any other external circumstances that cause the firm to carry out changes in the productive sphere. The degree and way in which firms respond to these external pressures will most likely be influenced by the type of constraints affecting their operations. However, it is still useful to distinguish between pressures (which may be positive) and constraints, and then analyse

the interaction between the two.

The term 'productive adaptation' refers to actions carried out in the areas of input usage, machinery utilization and output composition in response to these external pressures and constraints. This study will also consider changes in finance, supply networks and marketing channels insofar as these affect the nature of productive adaptation. Finally, it will take into account factors within enterprises that conditioned specific processes of adaptation such as the nature of the production process.

The second question concerns industrial relations in the main state metalworking firms. How and why did union-management relations change from 1980 to 1987? This thesis explains the evolution of enterprise industrial relations in light of each firm's efforts to adapt to its external environment. Under 'external environment', this section of the thesis considers those factors affecting the capacity of unions to achieve labour objectives and the ability of enterprises to meet changing labour requirements in the productive sphere. For the purposes of this study, labour objectives include the improvement of workers' living standards and the enhancement of labour's power and status within enterprises and society generally. External economic conditions, affecting workers' access to consumer goods and services, may influence efforts to meet these objectives. Likewise, external political conditions may affect labour's status and bargaining strength within the enterprise. This study therefore considers both external economic and political conditions, which were also likely to affect the ability of enterprises to meet changing labour requirements in the productive sphere.

This thesis looks at the specific demands upon management and labour generated in the process of productive adaptation. Preliminary research indicated that the latter gave rise to a new set of issues in employment and the division of labour. Pressures to resolve these issues demanded adaptation in other areas of labour policy, and influenced the evolution of union-management relations.² The main metalworking firms responded to these pressures and constraints on their efforts to meet production and labour objectives by adjusting their social welfare and incentive policies. This thesis analyses the interaction between industrial relations and adaptation in these two areas of labour policy.

This part of the thesis focuses narrowly on union-management relations. It considers other aspects of enterprise industrial relations, such as the direct interaction between management and

workers, insofar as these affect the evolution of union-management relations. In this way, this study also considers other forms of labour organisation within the factories such as the Sandinista party committee and the economic brigades.³ In the analytical framework below, we outline two contrasting abstract types of union-management relations which are meant to serve as organising principles for the discussion. The first type is characterised by cooperative union-management relations and a participatory role for labour in resolving production and labour issues within the firm. The second type consists of conflictive industrial relations and a strict demarcation of labour's role. The terms 'cooperative' and 'conflictive' relations will be used with reference to these two abstract types. Part One will now consider the broader relevance of research on these two interrelated questions.

2. Significance of Study

This thesis aims to contribute to knowledge concerning the industrial experience of peripheral socialist economies. This term was first employed by FitzGerald (1985b) to refer to a wide range of developing countries such as Cuba, Nicaragua, Algeria and Tanzania which attempted to transform dependent economies according to a socialist strategy. This section first draws upon FitzGerald and comparative studies to identify features that were shared by these economies and lend particular significance to this study of productive adaptation.⁴ It then relates research on enterprise industrial relations to two main issues which faced industrial labour organisations within this context.

2.a. Productive Adaptation

Peripheral socialist economies generally faced severe resource constraints associated with their position within the international economy and the nature of productive structures. They were integrated into the world market primarily as raw material exporters, in exchange for which they obtained a substantial part of the producer goods necessary for the economy to function. In other words, the role of Department One in providing producer goods was largely taken over by foreign trade (FitzGerald 1985b p.6, 1988b p.55-56).⁵ The expansion of productive capacity within state enterprises depended upon

each country's export earnings in convertible currency, as well as upon foreign assistance in the form of loans, donations and technical cooperation.

How did government industrial policies and planning procedures mediate the impact of international economic conditions upon state manufacturing firms?⁶ How did this in turn influence the nature of productive adaptation? These questions are basic to any attempt to restructure industry on the supply side within a dependent economy. Faced with severe external resource constraints, socialist-oriented governments aimed to gear limited domestic production capacity to key development priorities. The effectiveness of socialist-oriented change depended upon their capacity to mobilise and direct resources towards socially- defined objectives, while simultaneously securing their efficient use.⁷ Did firm-level adaptation in the face of resource constraints facilitate or undermine their efforts to meet these requirements?

On the demand side, enterprises could be expected to face changing conditions given social transformation, import constraints and war. Socialist-oriented governments mediated the impact of these circumstances upon enterprises in their role as planners, policy makers and customers. Within peripheral socialist economies, experiences ranged from a high degree of centralised planning to a heavy reliance upon financial mechanisms to manage the economy.⁸ This thesis examines the degree and way in which the Nicaraguan government influenced exchange relations between domestic producer and user firms. It analyses the nature of these exchange relations with a view to determining their impact upon productive adaptation. We consider the relative power of user firms to exert pressure upon state metalworking firms, thereby influencing changes in output composition, input usage and machinery utilization. This could be expected to differ between user firms. Peripheral socialist economies have been characterised by the coexistence of large and medium-size enterprises, small-scale industries, peasant production, and agricultural and industrial co-operatives.⁹ This study considers exchange relations between state metalworking firms and customers organised under these diverse enterprise forms.

How did the extent and nature of demand side pressures influence the type of productive adaptation carried out in state metalworking firms? For example, did these firms introduce

new products or improve the quality of existing models in response to customer demand? Did they carry out changes in input usage and machinery utilization aimed at cost reduction? Were they responsive to abrupt changes in demand pressures regarding output composition and delivery dates? The above questions are key to a state-led strategy for industrial development and social change within dependent economies characterised by the coexistence of diverse enterprise forms.

In a peripheral socialist economy, the state had a significant impact upon the financial conditions facing enterprises in foreign exchange and local currency. Individual firms faced a strict foreign exchange budget which was determined largely by government policies rather than their own financial performance. At the same time, cost-plus pricing policies, credit from state banks on soft terms, and direct government subsidies tended to loosen the budget constraint on firms in local currency (FitzGerald 1988b, p. 57). In Kornai's terms, these firms faced a soft budget constraint in local currency as financial expenses were able to exceed the sum of their initial equity and their proceeds from sales. Enterprises were also likely to face high inflation rates, since the peripheral socialist economy has been characterised by severe financial imbalances and associated inflation.¹⁰ How did these financial conditions (plus severe resource constraints and changing demand conditions) shape the specific forms of productive adaptation within state enterprises?

Socialist-oriented change in developing countries elicited foreign political, economic and often military opposition.¹¹ This international political environment tended to reinforce key aspects of these economies. Financial and trade embargoes levied against these countries by former dominant powers posed further constraints upon limited import capacity. Consequently, manufacturing firms often had to shift abruptly to new trading partners, which involved changes in ordering procedures, forms of finance and often the technical characteristics of inputs, machinery and equipment. Finally, several of these countries faced military aggression or internal conflicts financed by foreign governments in the initial years. War conditions and associated defence spending could be expected to aggravate resource constraints and financial imbalances, while increasing the central government's demand for domestic manufactured goods. In sum, Nicaragua was one of several peripheral socialist economies. This section has focused upon features common to these historical processes that lend distinct significance to a study of productive adaptation

in this context.

2.b. Enterprise Industrial Relations

The second part of this thesis focuses upon the role of the union and its relation to management, as defined by workers within the factory. Government policies and party programmes shaped the external environment of enterprises, thereby posing a series of choices and dilemmas to unions on a daily basis. This study considers how the distinct responses of unions to these dilemmas influenced the evolution of industrial relations. Its findings are potentially relevant to two issues facing labour organisations within peripheral socialist economies.

The first concerns the extent to which labour organisations should assume responsibility in the productive sphere. This question was rooted in the political ties between the state and labour organisations. Unions were generally organised by the revolutionary party holding state power and were committed to the social transformation process under way in the country. Social goals such as employment creation, health care, education, and the improvement of living standards were at the centre of government development strategies. To meet these objectives, these countries had to secure domestic production performance in the face of severe resource constraints and increasingly unstable economic conditions. A political commitment to these objectives implied responsibility in the productive sphere; this provided a potential basis for cooperation between the union and management around efforts to meet production objectives.

The terms and conditions of cooperation remained an undecided question subject to contradictory pressures in most countries. In principle, there was room for labour to enhance its own power and status within the enterprise, while furthering efforts to meet production objectives. Socialist-oriented change depended upon efforts to restructure the labour process; coercive work practices were to be replaced by greater worker knowledge and control over production.¹² In practice, workers often initially assumed responsibility for reactivating industrial plant, thereby filling the gap left by departing administrative and technical staff in both abandoned and newly-nationalised enterprises.¹³ The state and party continued to encourage various forms of worker participation within enterprises.¹⁴ At the same time, government

offices often pressured enterprises to reinstate managerial power and prerogatives in the name of efficiency.¹⁵

These changed political conditions posed a new set of issues to enterprise unions. Did production and labour objectives conflict or coincide under the severe conditions characterising this period? What position should unions adopt when faced with tensions between production requirements and labour demands? Would labour organisations compromise their ability to represent workers' interests by assuming responsibility in the productive sphere? This study provides a unique perspective on these questions in two respects.

First, it compares two enterprises whose unions initially adopted distinct political positions on this issue. One set out to pursue production and labour objectives simultaneously, while the other argued that its sole role was to represent workers' demands. Second, it documents the role of workers in specific processes of productive adaptation. Pressures to adapt in the productive sphere could be expected to have implications for labour regarding employment practices, the division of labour, and payment and incentive systems. Did these pressures on labour use and payment systems conflict or coincide with labour objectives in these areas? How did the initial patterns of industrial relations established in each firm influence its ability to respond to the immediate demands placed upon it and the position gained by workers in the process? How did these relations evolve as each firm attempted to resolve production and labour issues on a daily basis?

This thesis is also relevant to a second major issue within peripheral socialist economies. What position should unions adopt when faced with tensions between efforts to develop independent labour organisations capable of representing workers' interests, and the need to strengthen a progressive state and the political alliances on which it is based? This question was rooted in the nature of socialist-oriented revolution within developing countries. Revolutions took place within predominantly rural economies; they generally did not emerge from industrial workplace struggles (although strikes or other forms of labour protest often played a part in popular uprisings). Revolutionary movements sought to bring an end to dominance by foreign governments and/or repressive regimes, and to overcome the conditions of poverty facing the majority.¹⁶ Socialist-oriented governments were initially sustained by the political alliances forged during these struggles, in which industrial workers formed only one of a number of

groups. Industrial labour unions had to determine the best way to pursue their objectives within this new political environment.

National labour federations were initially established by the revolutionary party that had assumed state power, leading to debates concerning their degree of autonomy. At one extreme, the state was seen as the main vehicle for social change while labour unions were viewed as mere instruments of state power. At the other extreme, it was argued that workers had class-specific interests that could only be represented by autonomous labour organisations.

Industrial workers had to develop their own power base within the new society independent of the state and party. This issue confronted labour organisations at the society-wide and enterprise level.¹⁷

Within the factories, revolution brought an end to a system of labour control based on the threat of dismissal and the repression of labour protests.¹⁸ This initially raised high expectations regarding wage increases and improvements in labour conditions. Union leaders could be expected to come under pressure from their members to put forward labour demands. At the same time, they faced political pressures to mobilise workers' support for both government policies and party programmes. Unions came under pressure to enforce a new system of labour control based upon the political requirements of the broader social transformation process. These tensions were heightened as socialist-oriented governments faced military opposition financed and coordinated by foreign governments. While war conditions eroded workers' living standards, the state and party urged unions to suspend class-specific demands in the name of national unity during a time of war. Under these conditions, unions would be likely to face daily tensions between workers' demands and the requirements of social transformation.

This study discusses state-labour relations on a society-wide level. It looks at government policies, party programmes and labour legislation, as well as the position adopted by national labour federations. These factors shaped the economic and political environment facing industrial workers and their unions. However, we are primarily interested in the response of enterprise unions to the daily dilemmas and challenges posed by this external environment. How did such unions pursue labour objectives under this new set of conditions? How did they work through tensions between immediate labour objectives, as defined by workers, and the requirements of social transformation, as defined by the party and the state? How did their

approach to these daily dilemmas influence the nature of these workplace organisations and their relations to management? These questions are considered in the case studies of two enterprises whose unions also adopted opposing positions on this second issue. One stressed the need to strengthen the Sandinista state and the political alliances on which it was based, while the other asserted its own independence in relation to the state and Sandinista party.¹⁹

In sum, this part of the thesis provides a unique perspective on two basic issues common to labour organisations within peripheral socialist economies. In working through these issues, Nicaraguan unions may have enjoyed a greater degree of latitude compared to that of workers' organisations in other countries. Yet the basic questions and dilemmas were the same. The results of this study pertain directly to the nature of enterprise industrial relations, but may also have implications for the build-up of a national labour movement. While some aspects of firm-level adjustment processes may have furthered these efforts, other aspects may have been working against this goal. These implications will be discussed in the conclusion to this thesis. Part One has defined the two main questions and terms of study. It has highlighted economic and political features of peripheral socialist economies that lend particular significance to a study of productive adaptation and union-management relations in this context, and raised a series of specific questions essential to this endeavour.

PART TWO: RESEARCH CONTEXT

Nicaragua provides the research context for this study. Its time-frame extends from the first year of Sandinista government to the introduction of structural adjustment measures in February 1988. The Sandinista government was formed in July 1979 following a popular uprising that overthrew the Somoza regime, thereby initiating a period of revolutionary change. The new government set out to transform the country's economic and productive structures in line with a new set of development priorities. This period also witnessed significant changes in state-labour relations. Part Two focuses upon the role of the state and industrial labour organisations in this process of social and economic change.

It then describes the country's international environment and focuses particularly upon US policy towards the Nicaraguan revolution. This forms the context for research on productive adaptation and changes in union-management relations.

1. The Role of the State in the Nicaraguan Economy

Upon taking office, the Sandinista government nationalised the financial system, foreign trade, natural resources and the wholesale marketing of some products. It also expropriated productive assets representing 18 per cent of total agriculture production and 30 per cent of manufacturing by the end of 1980.²⁰ The government relied upon this increased control to plan and manage the economy, redistribute real income, and transfer resources to the state sector. In the 1980s, the state became the main investor in the new productive capacity and infrastructure, while also assuming primary responsibility for social programmes to meet basic needs. Meanwhile the private sector retained control over a significant share of productive assets and continued to represent about 60% of gross domestic product (GDP).²¹

The economic development strategy designed by the Sandinista government has formed the subject of extensive research, debate and critique at the macro and sectoral level, as noted in the references.²² In contrast, this thesis provides feedback on state-led efforts to transform the economy from a shop-floor perspective: it focuses upon the type of adjustment processes generated in the course of production. This section briefly outlines government strategy and associated policies towards the distinct productive sectors and suggests their links to industrial production issues. These points are then further developed in Chapters Two and Three.

The Nicaraguan development strategy was designed to meet the basic needs of the population and to reduce external dependence. In 1979, about two-thirds of the Nicaraguan population lacked health care, education and adequate nutrition. The government aimed to redress this situation through state social expenditure in health, education and housing, and subsidies on basic goods and services. These measures were combined with extensive community participation in literacy and preventive health campaigns, the local construction of schools and housing and other social programmes.²³

1.a. Agriculture, Agro-industry and Geothermal Energy

This strategy also called for reactivating, restructuring and developing domestic

production capacity. Agriculture, consisting of primary export production and the cultivation of food crops, remained the predominant sector within the Nicaraguan economy. The government continued to give priority to traditional agro-export branches such as coffee, cotton, sugar, beef and bananas. Agro-exports provided the major share of export earnings and thus the foreign exchange for capital goods imports. Economic recovery and growth depended upon this sector's performance as well as the external terms of trade.²⁴

About 72 per cent of agro-export production remained under private ownership as of 1983, and was divided between medium- and large-scale enterprises (42 per cent) and small producers (30 per cent).²⁵ The government allocated foreign exchange among agro-export producers according to specified output targets, while state banks provided the working capital in local currency. It guaranteed support prices in each branch based on cost estimates for standard products and a negotiated mark-up. While this ensured profit margins in local currency, surplus in foreign exchange remained under state control.²⁶

The central government initiated large-scale, capital-intensive projects in agro-industry and geothermal energy. Agro-industrial investment projects aimed to increase value added on exports, while also supplying domestic food products. By developing geothermal energy, the government sought to decrease the country's dependence upon oil imports and to provide the infrastructure for future industrialisation.²⁷ Import requirements for these public investment projects were largely financed through long-term foreign credit. Nevertheless, these projects required local construction materials and labour, and relied upon long-term state bank credit in local currency.²⁸

Domestic food production received high priority within the stated objectives of the agricultural development strategy: Nicaragua aimed to achieve food self-sufficiency by the year 2000.²⁹ To increase food production, the government relied upon state investment in agro-industry and capital-intensive dairy farming, and agrarian reform. Small-scale farmers traditionally raised livestock and cultivated food crops such as maize and beans. The agrarian reform programme consisted of land redistribution, credit for small-scale production, and the formation of co-operatives.³⁰ The government initially attempted to establish monopoly control over the marketing of peasant products to urban areas. In

1984-87, it lifted state marketing controls and introduced changes in price and credit policies, shifting the internal terms of trade in favour of the peasantry.³¹ However, small-scale producers continued to receive low priority in the allocation of foreign exchange throughout the period under study, despite their traditional dependence upon a number of imported items.

1.b. The Manufacturing Sector and Metalworking Industry

In the 1960-70s, Nicaragua developed an incipient manufacturing sector under the Central American Common Market (CACM), consisting of both consumer and intermediate goods industries. Its main branches included, among others, food, beverages, tobacco, textiles, chemicals and metal products.³² The Sandinista industrial development strategy gave priority to the production of basic consumer goods and inputs for priority areas within agriculture, agro-industry, construction, manufacturing and defence. This strategy also promoted manufacturing firms within the above areas which processed domestic raw material.³³ The Ministry of Industry (*Ministerio de Industria*: MIND) relied upon its control over imported resources to promote priority branches and product lines, tying foreign exchange allocations to annual output targets. Government foreign exchange rate, price, credit and wage policies shaped the financial conditions facing enterprises in local currency.³⁴

The metalworking industry played a complementary role within economic development strategy. This industry produced mainly items for the construction sector such as steel structures, nails and reinforcing rods for concrete structures. It also supplied spare parts and intermediate goods to agriculture, agro-industry, transport and manufacturing. Government strategy for this industry emphasised the provision of inputs to priority sectors, while also calling for the construction of agricultural equipment. The state metalworking division promoted the development of the country's technical infrastructure in areas such as foundry, forging, machining and heat treatment.³⁵ The state sector represented 79 percent of metalworking output value in 1986 and included the main enterprises in this industry. This exceeded its share in total manufacturing production value, registered at 42 per cent in 1987.

This study focuses upon priority state metalworking firms which played a key role in efforts to reactivate, restructure and develop this industry. It proceeds from a pilot study of five enterprises to a case study of two, IMEP (*Industrias Metalúrgicas del Pueblo: The People's Metallurgy Industry*) and METASA (*Metales y Estructuras, S.A.: Metals and Structures, Inc.*). Both enterprises produced construction inputs in the 1970s, although METASA operated on a larger scale. As one of two main metalworking firms, METASA was crucial to efforts to reactivate existing production capacity following the 1978-79 war and retained priority status in the 1980s as a supplier of major state construction and infrastructure projects. Meanwhile, IMEP diversified into agricultural equipment and parts production, obtaining priority status for its role in state-led efforts to restructure the metalworking industry in line with the requirements of agriculture and agro-industry.

1.c. Industrial Production Issues and the Role of the State

How were industrial production issues linked to the role of the state in the economy? The government was likely to influence the specific production issues facing state metalworking firms in its role as industrial planner, regulator of economic activity, and as one of the main customers of this industry. The Ministry of Industry utilised its control over scarce foreign exchange as one of its main planning instruments, thereby mediating the impact of severe external resource constraints upon enterprises. The extent and nature of resource constraints could be expected to shape the industrial production issues confronting enterprises on a daily basis.

The annual plan covered only a small percentage of the demand for domestic metalworking products. With few exceptions, the main state metalworking enterprises established direct relations with their customers. The latter were found in both the state and private sector, and ranged in scale from large construction and infrastructure projects to small-scale industry and peasant production. As regulator of economic activity, the government implemented foreign exchange, price and credit policies towards these diverse user sectors, which could be expected to affect the extent and nature of their demand for domestic metalworking products.

The central government became one of the main customers of the metalworking industry due to its social spending, defence expenditure and public investment projects. Through its purchasing decisions, the state could be expected to have a direct impact upon the demand conditions facing production units.³⁶ In addition, state investment projects and support prices to agro-exporters, both at the core of Sandinista development strategy, constituted two main sources of inflation in the 1985-87 period. High inflation rates were likely to affect both production and labour supply to the factories.³⁷ This thesis examines these and other links between the state's role in the economy and manufacturing production issues.

2. The Role of Industrial Labour Organisations

The formation of the Sandinista state and the emergence of enterprise unions throughout the manufacturing sector significantly altered the nature of industrial relations.³⁸ The number of unionised workers increased eight-fold from 1979 to 1987. The majority of new enterprise unions were organised by the party in government, thereby resembling other peripheral socialist economies. The Association of Rural Workers (*Asociación de Trabajadores del Campo*: ATC) organised both permanent and seasonal workers, while the Sandinista Workers' Federation (*Central Sandinista de Trabajadores 'José Benito Escobar'*: CST) became the largest industrial labour organisation. Together they represented over 60 per cent of organised labour by 1986.³⁹

Yet five opposition labour federations also had member unions in agriculture, construction and manufacturing, thereby lending a distinctive aspect to the Nicaraguan experience. Two of the opposition labour federations organised member unions primarily in private enterprises and therefore will only be discussed briefly in this study. The remaining three were active in state enterprises and posed a direct challenge to the Sandinista position on the role of unions in production and social transformation.

The Sandinista Workers' Federation urged workers to increase production and productivity so as to further state-led efforts to improve living standards. This federation adopted the dual role of pressing labour demands, while strengthening Sandinista political power and the broad class

alliances on which it was based. In the area of wage policy, it tended to give precedence to the latter role. The three opposition federations opposed attempts by the Sandinista party to direct the activities of organised labour. They called on their member unions to mobilise workers around wage demands and other workplace issues, and to strike if necessary.⁴⁰

Sandinista and opposition labour federations carried out fierce battles in the factories to win over workers to their ranks and to gain control over enterprise unions. While opposition unions depended on wage dissatisfaction to recruit workers, Sandinista unions were under pressure to carry out many roles simultaneously. The Sandinista Workers' Federation pressured its member unions to represent workers' demands while promoting support for government economic policies. These unions were expected to mobilise workers around productivity drives, national political campaigns and the war effort. The Sandinista party and the Ministries of Industry, Labour, Education, Social Welfare, Domestic Commerce and Defence all turned to the Sandinista unions to organise programmes among workers.

Four sets of government policies were aimed explicitly at changing industrial relations. First, the government encouraged union organising, collective bargaining around non-wage issues, and various forms of worker participation within enterprises. Second, new legislation authorised the Labour Ministry to oversee collective bargaining and to serve as arbitrator in management-labour disputes.⁴¹ Third, the government suspended the right to strike in 1981, invoking this measure to limit collective industrial action at the branch and national level. Fourth, the Labour Ministry began to set wage ceilings in the early 1980s. In 1984, the government attempted to standardise job classifications and payment systems according to the principle of equal pay for equal work. The Labour Ministry set national wage scales and authorised incentive pay based on production per worker beyond set labour norms. Through this policy mix, the government both created opportunities and posed a series of constraints upon enterprise unions.

Otherwise, social and political objectives tended to take precedence over production considerations in shaping government policy towards industrial workers. In 1980-83, the government aimed to improve the living standards of the urban and rural poor through state social expenditure on health, education and housing; subsidies on basic goods and services; and other measures.⁴² The state and the Sandinista party gave priority to these redistribution

measures over wage differentials and incentive pay aimed at recovering labour productivity and securing labour supply. They directed policies towards industrial workers as part of the urban poor generally. In 1984-87, there were cutbacks in state social spending under conditions of economic crisis and war.⁴³ High inflation rates further eroded workers' real wages, resulting in labour turnover and labour supply problems. Still the government did not negotiate wages or other aspects of economic policy with national federations based upon labour's role as a productive resource. Rather the state and Sandinista party tended to view organised industrial labour as only one part of a larger coalition of social movements that were defending the revolution, and relied upon the political mobilization of labour around production objectives.

IMEP and METASA were selected for the case studies for two reasons. First, their unions initially represented opposing positions within the Nicaraguan labour movement on the two issues discussed under Significance of Study. Second, these two firms established contrasting patterns of industrial relations in 1979-81. Both unions were located within priority state enterprises and represented a significant force within their respective factories. They were equally committed to achieving labour objectives, albeit by distinct routes. These two firms could be said to offer a best case scenario in which to examine distinct labour strategies. The following section will now briefly turn to the broader research context.

3. International Environment

Nicaragua encountered abrupt changes in its international environment during the period under study. In the early 1980s, the country faced a severe deterioration in the external terms of trade, as well as the disruption of regional and US trade. The US administration suspended bilateral loans to Nicaragua after 1981, and successfully pressured US private banks and multi-lateral institutions to do the same. It also financed contra operations against military, civilian and economic targets, particularly agro-export units, and imposed a trade embargo in 1985.⁴⁴

Nicaragua diversified its trade relations and received financial aid from several countries in Latin America, Europe and Canada, as well as Arab and Asian countries. It also initiated economic relations with socialist countries, which extended concessionary credit to finance imports from their own suppliers. Nevertheless the US financial and trade embargo, together with the decline in export earnings, generated severe import constraints upon enterprises. This led to a decline in productive activity and forced a further shift to socialist country suppliers. In 1985-87, these countries provided the main import source, while tied credit and loans became the main form of external finance.⁴⁵

Meanwhile, defence expenditures came to represent over half the central government budget by 1987, forcing cutbacks in social programmes. Defence spending contributed to a fiscal deficit which was financed by monetary emission, thereby contributing to high inflation rates. In the context of war and reduced access to foreign finance, there was increasing tension between social spending, state investment, support prices to agro-exporters, and defence. This contributed to an inflation rate which reached 1800 per cent in 1987.⁴⁶

US measures against Nicaragua magnified rather than changed the nature of pressures and constraints on manufacturing production. These measures led to more severe resource constraints upon manufacturing firms. High defence spending secured a demand for domestic manufactured goods, but contributed to shortages and increasingly unstable economic conditions. Finally, the war brought into sharper focus the basic tensions and dilemmas facing industrial labour organisations.

Part Two has briefly described the role of the state in the Nicaraguan economy and identified its potential links to industrial production issues. It has presented the positions of the Nicaraguan government, national labour federations and Sandinista party on the proper role of unions in efforts to meet production, labour and social transformation goals. Finally, it has referred to the country's international environment in the 1980s.

PART THREE: ANALYTICAL FRAMEWORK

Part Three presents the distinct frameworks utilised to analyse the nature of productive

adaptation and changes in union-management relations. It then suggests ways in which these two subjects of study may be interrelated at the shop-floor level.

1. Productive Adaptation

This section provides a conceptual framework for analysing the nature of external pressures and constraints on Nicaraguan manufacturing production and corresponding forms of productive adaptation. In constructing this framework, it draws first upon Kornai's distinction between the constraints of resource, demand and budget, and the interaction between them in capitalist and socialist systems (Kornai, 1980). Part One has defined these three types of constraints on firms' efforts to maximise output. Kornai further distinguishes between hard and soft budget constraints, outlining the conditions that secure the former. A firm faces a hard budget constraint when prices are determined exogenously; the tax system is inflexible and does not allow for exemptions; there are no free state grants or external financial investments; and credit is only granted as an advance for subsequent proceeds from sales. It faces a soft budget constraint when the above principles are not asserted consistently.⁴⁷ This distinction forms the cornerstone of Kornai's analysis of the resource- constrained economy.

The centrally-planned economy is a resource-constrained system in contrast to the capitalist economy, which is demand-constrained. This difference stems from the distinctive nature of the budget constraint on firms. The classical capitalist firm faces a hard budget constraint. Its survival depends on its ability to cover the costs of its input purchases out of its proceeds from sales. It cannot produce more than it can expect to sell. Therefore, it sets its production plan at the level of demand constraints. In contrast, the traditional socialist firm in the centrally-planned economy faces a soft budget constraint. It cannot go bankrupt even if it is operating at a loss. Its demand for inputs and investment goods is not limited by its own savings or considerations of profitability. As buyer, the firm tries to acquire as many inputs as possible, so that shortages do not hold back production. As seller, it faces an almost unlimited demand for its products. Government planners also encourage firms to maximise output. Therefore, it sets its production plan at the level of resource constraints.⁴⁸

Kornai analyses state socialist enterprise behaviour in an attempt to explain chronic shortages in centrally-planned economies. He shows how the way in which firms adapt contributes to this situation of chronic shortage. In other words, he studies a consolidated system which reproduces itself. The Nicaraguan economy did not constitute a consolidated system with clearly-defined regulatory mechanisms in the 1980s. Rather it was in transition. Significant changes were occurring in the nature and scope of the state's role in the economy. As a small dependent economy, Nicaragua remained vulnerable to abrupt changes in its international environment. These two sources of change constitute the starting point for a study of external pressures and constraints on production in the Nicaraguan case.

Despite these differences, Kornai provides an important reference point for this study of productive adaptation. The Nicaraguan manufacturing sector operated under severe resource constraints in the 1980s. Furthermore, government foreign exchange rate, credit and price policies tended to soften the budget constraint on enterprises in local currency. These policies formed an integral part of state-led efforts to transform the economy. Kornai provides key concepts which may clarify the nature of productive adaptation under these circumstances. This section will now select these concepts and point to additional factors that are likely to be relevant in the Nicaraguan case. On this basis, it will develop categories of productive adaptation to be considered in the case studies.

1.a. Resource Constraints

The state socialist enterprise repeatedly confronts resource constraints in its efforts to increase production. Resource constraints may result from a shortage of raw materials or other inputs, a lack of spare parts, machinery breakdowns or other factors. Kornai outlines three basic forms of adaptation to resource constraints in current production.⁴⁹ In the first case, the firm insists on the input combination specified in the plan and adjusts the volume of production to the current bottleneck; that is, to the scarcest resource at a given point in time. This means that other resources in the same plant remain unutilised due to complementarity between inputs. In Kornai's terms, shortage and slack appear simultaneously.

In the second case, the firm changes its input usage so as to overcome the constraint.⁵⁰ Forced input substitutions are likely to have negative consequences. For example, if the firm utilises a higher-quality material, costs will be likely to rise accordingly. If it utilises a lower-quality material, the quality of output will deteriorate. Forced substitutions normally represent *ad hoc* solutions aimed at keeping the plant in operation.⁵¹ In the third case, the firm adjusts its output composition to available inputs. This form of forced adjustment is one factor leading to the production of an assortment of goods that do not coincide with customer demand.

Kornai's basic forms of adjustment to resource constraints assume detailed physical planning based on input-output coefficients and therefore can only be applied loosely in the Nicaraguan case. Furthermore, the circumstances that gave rise to these forms of adaptation and some of their consequences are likely to be distinct from that described by Kornai. In Kornai's account, resource constraints stem from the expansion drive of state socialist enterprises operating under a soft budget constraint. This expansion drive is not limited by calculations of risk since the firm risks neither bankruptcy nor closure. In the Nicaraguan case, one would expect resource constraints to be the predominant factor calling for firm-level adaptation, partly due to the soft budget constraint facing enterprises. Yet the manufacturing sector operated within the limits of a strict foreign exchange budget which constituted the main factor determining resource constraints on production. The government influenced the nature and degree of resource constraints on individual firms through its control over foreign resources.

In sum, adaptation to resource constraints constitutes one of the main categories of productive adaptation and includes the following types:

1. adjustment in the volume of production to current bottlenecks;
2. adjustment in output composition to available inputs; and,
3. forced substitution of inputs, machinery and equipment, including equipment reconstruction.⁵²

The significance of these types of productive adaptation will be interpreted in light of

government policies, as well as international economic conditions.

1.b. Demand Conditions

Kornai analyses the relative power of buyer and seller within a resource-constrained economy and its impact on inventories and production.⁵³ In a shortage economy, the buyer has an almost unlimited demand for inputs, while the supplier holds the products that can meet that demand. The seller supplies a useful product to the buyer, while the latter pays in cash which has limited significance to the seller, given the weak role of prices and money in the economy. This leads to a seller's market wherein the producer-seller occupies a position of strength in relation to the user-buyer.

The producer operating within the seller's market responds fairly weakly to signals from buyers and reacts with lags. It is slow to adjust supply to demand and often produces goods that do not meet buyers' requirements, while failing to manufacture those products that are most needed. The firm has no internal economic incentive to develop the market by introducing new products of better quality. It shows greater interest in quantitative output increases than in quality improvement. In the area of inventories, Kornai states that normal input stocks will tend to form a relatively large share of total stocks, while output stocks will represent a relatively small share.⁵⁴ As buyer, the firm attempts to accumulate input stocks as a buffer against shortages. As seller, it can rely on its customers to absorb quickly most of its output stock and usually maintains a long list of unfilled orders.

While Kornai's account of the seller's market is not directly applicable to the Nicaraguan case, it does provide a useful basis upon which to develop a more appropriate framework. This thesis will analyse the relative power between domestic producer and user firms, while modifying Kornai's framework in two ways. First, Kornai analyses the relation between state enterprises organised under a central plan. In contrast, this study will look at the relation between state metalworking firms and customers organised under diverse enterprise forms. It will examine how the state influenced these exchange relations in its role as customer, and as regulator of economic activity. Second, Kornai attributes the relative power of the producer-seller versus the user-buyer to chronic shortages and the

soft budget constraint on state enterprises. While these conditions are likely to be relevant, additional factors such as customer type will also be considered in the Nicaraguan case.

Under seller's market conditions, enterprises are generally not responsive to buyers' requirements. In contrast, Nicaraguan metalworking firms could be expected to respond to demand pressures from some of their customers. This thesis will examine the extent and nature of demand-oriented adaptation as influenced by the relative power of producer and user firms. By demand-oriented adaptation, it will refer to the following types of productive adaptation aimed at meeting current user needs:⁵⁵

1. adjustment in output composition (including changes in the firm's current product mix, the introduction of new products and product quality improvements);
2. changes in input usage and machinery utilization aimed at improving product quality or matching product specifications to buyers' requirements; and
3. adjustment in input usage and machinery utilization aimed at completing contracts and meeting delivery dates.

Demand-oriented adaptation will first be considered independently of price. Price-enforced adaptation will form a separate category, as discussed further below.

1.c. Financial Conditions

Price Responsiveness and the Soft Budget Constraint

How strong is the firm's response on the demand and supply side to changes in relative prices? Kornai argues that the degree of price responsiveness is highly system specific and relates to the nature of the budget constraint.⁵⁶ The firm operating under a soft budget constraint is not forced to adjust to prices in the productive sphere for two reasons. First, it is generally able to increase its product prices to cover cost increases. Second, even in circumstances wherein the firm cannot set its own prices, it still does not have to adjust to

prices by altering its input-output combination. The survival and growth of the firm do not depend on prices insofar as it can cover losses through subsidies, tax exemptions and soft credit.

Kornai mentions two cases in which firms may demonstrate price responsiveness in setting their product mix. The first case corresponds to the firm producing to meet aggregate output targets as defined in the central plan. If products C and D use identical physical inputs, the firm will prefer to manufacture C if its selling price is higher than that of D because this would allow it to produce more output in aggregate-value terms. The second case corresponds to the firm that does not face output targets defined in the central plan. It can therefore select those products that are most profitable. In both cases, the firm has more room to adjust to relative prices on the output rather than the input side. This follows from the asymmetry in the role of seller and buyer in a shortage economy. As customer, the firm has little room within which to select inputs on the basis of relative prices, whereas it can be guided by this criteria in determining its product mix.

Profitability criteria (as calculated at current or expected domestic prices) do not have a significant influence on the investment output decision or on the choice of inputs and technology.⁵⁷ As regards the latter, both government officials and enterprise managers are more responsive to engineering preferences, non-price shortage signals, foreign exchange quotas and foreign trade commitments. In decisions between technological alternatives, cost minimisation criteria play a small role. Finally, if firms demonstrate weak price responsiveness, the interest rate is likely to have little influence over investment decisions.

Firms with a soft budget constraint exhibit an import hunger which runs parallel to investment hunger. Each enterprise attempts to maximise its own import quota, while having no strong economic motivation to think about costs. This is intensified by chronic shortage as firms attempt to obtain imports to fill the gap in domestic supply. Exchange rate policies have a weak influence over firms' import demand as long as price responsiveness is weak. In foreign trade generally, Kornai states that responsiveness to prices, costs and exchange rates is weak or non-existent. Gain or loss from foreign trade is not clearly calculated, since it is impossible to make such a calculation with arbitrary prices.

Financial Conditions in Local Currency

This thesis considers the relation between the state's role as both industrial planner and regulator of economic activity, and the financial conditions facing firms in local currency. Government foreign exchange rate, price and credit policies were likely to generate a soft budget constraint upon Nicaraguan enterprises in local currency. Kornai raises two separate questions which are relevant in the Nicaraguan case. First, were firms forced to adjust to prices in the productive sphere? Second, did firms have room to adjust to prices on the input and output side? According to Kornai, enterprises operating under a soft budget constraint are not forced to carry out the following:

1. adjustment of output levels to ensure that price covers the marginal costs of increasing output;
2. adjustment of output composition to relative prices;
3. adjustment of input usage to relative prices; and,
4. minor technical changes in the production process aimed at cost reduction

For the purposes of this study, these types will be classified as price-enforced adaptation. This category also includes purchasing and investment decisions enforced by price considerations in local currency.

Nicaraguan metalworking firms could not be expected to carry out price-enforced adaptation, except perhaps when confronted with immediate liquidity problems in the inflationary period. Profitability criteria were unlikely to guide their investment output decision or their choice of inputs and technology. Their room to manoeuvre in adjusting to prices would depend upon the availability of foreign exchange, and the degree and nature of demand-side pressures and constraints. Hyperinflation rates could be expected to affect the ability of prices to guide adjustment in the productive sphere. A final question may be most relevant in the Nicaraguan case. How did the soft budget constraint in local currency, plus high inflation rates, influence the way in which firms adjusted to other external circumstances?

Financial Conditions in Foreign Exchange

Kornai does not distinguish between financial conditions in local currency and foreign exchange. This distinction is useful in the Nicaraguan case. Metalworking firms could be expected to face a strict foreign exchange budget shaped by government planners, loosened only by the availability of supplier credit lines. This does not qualify as a hard budget constraint in Kornai's terms as the firm's foreign exchange budget did not depend primarily upon its own performance. Nevertheless, it does call for an additional category of adaptation given foreign exchange considerations. This includes adjustments made in light of a strict foreign exchange budget in hard currency and the availability of supplier credit lines.

This thesis will consider the relation between the role of the state as industrial planner, and adaptation given foreign exchange considerations. This category applies primarily to firms' purchasing and investment decisions. It also may include technical initiatives aimed at improving performance given foreign exchange considerations. For example, a firm may carry out minor improvements to its existing production process in the face of foreign exchange constraints on its ability to replace equipment. These changes are not forced by immediate resource constraints, nor do they normally represent optimal solutions to current production problems. Yet they may be highly significant within a production environment characterised by severe foreign exchange constraints.

In sum, this section has defined the following four categories of productive adaptation: 1) adaptation to resource constraints; 2) demand-oriented adaptation; 3) price-enforced adaptation; and 4) adaptation given foreign exchange considerations. One would not expect price-enforced adaptation to constitute a predominant form of adjustment in Nicaraguan metalworking firms. However, financial conditions in local currency were likely to affect the way in which firms adjusted to other external circumstances. This thesis documents patterns of productive adaptation which were likely to fall under more than one category. Each process of adaptation is examined in light of the foreign exchange considerations, resource constraints, demand conditions and financial conditions facing the firm.

2. Industrial Relations

2.a. Contrasting Types

This section outlines two contrasting abstract types of industrial relations which will serve as reference points for the interpretation of the case study results.⁵⁸ These two types represent opposing positions on the role of the union and its relations with management within state enterprises. They are rooted in the unique position of organised labour within peripheral socialist economies, and provide a framework for analysing issues facing enterprise unions in this context.

The first type may be characterised as cooperative participatory union-management relations. Cooperative relations are based on management's and labour's common identification with the revolutionary party that has assumed state power. In such cases, management and labour agree on the following two points. First, there are inherent contradictions between production goals and labour's efforts to improve its situation in the short-run. Yet these contradictions do not have to lead to conflictive union-management relations. Each side has adopted both production and labour goals, which are included in the revolution's economic and social programme. In practice, conflicting interests can be resolved through ongoing negotiations. Likewise, consultation in the course of decision-making can ensure the cooperation of all groups in the implementation phase. Second, workers should participate in efforts to resolve a wide range of production and labour issues, and have the power to influence the outcome of major decisions affecting labour. Plant supervisors channel workers' initiatives in the productive sphere and represent workers before management. Whenever possible, negotiations and conflict resolution take place directly at shop-floor level between workers, supervisors and union representatives.

Under the conflictive type, both labour and management agree on limiting labour's role in the enterprise, although from different perspectives. From labour's perspective, there is an ongoing conflict between workers and management regardless of the political leanings or class basis of the party holding state power. Both state and private enterprises attempt to maximise the surplus value that can be extracted from workers. Therefore, the union's main purpose is to defend workers' interests on issues related to wages and benefits, work intensity, working

hours and working conditions, as well as job security. To do so, unions have to remain autonomous from the party in power, and maintain an adversarial position towards management. Management also agrees that the union should be limited to representing workers' interests on issues relating to wages and working conditions, although for different reasons. Management is concerned with protecting its decision-making authority in other spheres of the firm's operations. Management alone should resolve production and financial issues. At the shop-floor level, plant supervisors should implement management policies and enforce its decisions. In sum, this section has outlined the following two abstract types:

- * cooperative union-management relations and a participatory role for labour in resolving issues within the firm; and
- * conflictive union-management relations and a strict demarcation of labour's role.

IMEP and METASA initially established distinct patterns of industrial relations, which closely resembled the cooperative and conflictive types respectively. The case studies will compare the subsequent evolution of industrial relations in these two firms.

2.b. Adaptation and Industrial Relations

Part One of this chapter identified the following categories utilised to analyse the interaction between adaptation and industrial relations:

1. external economic and political conditions potentially affecting the capacity of unions to achieve labour objectives and the ability of enterprises to meet changing labour requirements in the productive sphere;
2. issues in employment and the division of labour that stemmed from each firm's efforts to carry out productive adaptation;
3. adjustments in social welfare and incentive policies; and
4. the interaction between industrial relations and adaptation in these two areas of labour

policy.

These categories were selected based upon preliminary research in the main metalworking firms, and were designed to interpret a highly dynamic context. How were industrial relations likely to evolve under conditions prevailing in Nicaragua? The work of Kornai is of limited use here as industrial relations did not constitute a significant variable in his account of enterprise behaviour. Nevertheless, several studies of state socialist enterprises attribute some of the main aspects of labour-management relations to chronic shortages within the centrally-planned economy, as defined by Kornai.⁵⁹ These studies do not provide sufficient basis upon which to predict the direction of change in Nicaraguan metalworking firms. Yet they do provide important insights into the interaction between adaptation and industrial relations. By comparing these two contexts, this section will point to potentially relevant factors under the above categories.

Nicaraguan firms did face conditions of supply uncertainty, thereby resembling their counterparts in centrally-planned economies. Several studies argue that state socialist enterprises were forced to adapt continuously to supply uncertainty, including both shortages and changes in the technical characteristics of vital inputs, machinery, components and tools.⁶⁰ As a result, workers' firm-specific skills and ability to adjust constantly to unexpected circumstances became all important.⁶¹ Firms also faced constant labour supply problems. Adaptation to ongoing changes in the supply of both physical resources and labour required constant improvisation and readjustment of the labour process.⁶² Under these conditions, work could not be organised and evaluated merely with reference to management-based information and control systems, as illustrated by Kövári and Sziráczi's description of Hungarian plants in the 1970s.

Because of the lack of standardised conditions, clear and compulsory performance requirements cannot be set down. The manufacturing of individual products defies the use of well-based engineering norms. Because of the frequent breaks and bottlenecks in the flow of work, some workers always migrate from machine to machine, chasing work. Blueprints are inaccurate, the necessary tools are missing, the size of the work piece and the quality of the material differ from the specifications.⁶³

The above studies suggest that adaptation to supply uncertainty calls for considerable shop-

floor decision-making and problem-solving capabilities.

Did labour shortages constitute a critical issue in Nicaraguan enterprises? How did efforts to carry out productive adaptation influence the division of labour? To pursue these points, this section of the thesis builds upon earlier results concerning the nature of productive adaptation in Nicaraguan metalworking firms. It then identifies issues in employment and the division of labour arising in the course of productive adaptation. Under employment, this study compares skill requirements generated in the process of productive adaptation to the skill profile of workers in each firm or those available from external labour markets.

Under the division of labour, the case studies document the degree of shop-floor decision-making and problem-solving required to carry out distinct types of productive adaptation. This is considered in relation to output, inputs and machinery, as well as labour allocation. The case studies examine the division of responsibility for productive adaptation between shop-floor employees and administrative and technical offices. In this way, the case studies identify the main issues in employment and the division of labour facing each firm. Studies of state socialist enterprises indicate that efforts to resolve these issues will influence the nature of labour-management relations.

Sabel and Stark argue that workers in state socialist enterprises derived considerable bargaining strength from tight labour market conditions, as well as from their role in adjusting to uncertain production conditions.⁶⁴ Shop-floor bargaining over norms and piece rates constituted the workplace response to permanently tight labour markets. Workers would threaten to leave for better jobs in an attempt to keep piece rates and bonuses high and individual production quotas low. Labour turnover represented an informal workplace bargaining tactic, while chronic labour shortages constituted the source of labour's bargaining strength. The existence of a secondary economy increased the bargaining power of workers in the primary plants.⁶⁵ Workers could also threaten to leave for secondary sector jobs. Likewise, they could withhold efforts in their formal jobs, continue to rely on social benefits distributed through the factories, and put more effort into a second job after normal working hours.

Pressures to adapt to supply uncertainty also influenced plant bargaining around labour norms. Managers had to deal with a workforce that knew how to exchange participation for advantage. Managers regarded norms as bargaining chips with which to obtain the flexible use

of labour required to fulfil the plan. Workers derived additional bargaining strength from management's dependence upon their ability and willingness to adjust to a changing production environment. This thesis will pursue these points in the context of plant bargaining around social benefits and incentive pay. In doing so, it will take into account three main differences between the Nicaraguan context and that portrayed in the above studies of state socialist enterprises. These differences pertain to the role of the union, the origin of social welfare policies, and the external economic and political environment.

In the above studies of state socialist enterprises, informal bargaining between workers and management takes place outside the union's domain. The union is not an autonomous actor. Nor does it represent a countervailing force in relation to management. In contrast, this study focuses upon the political positions and strategies of unions within Nicaraguan metalworking firms. It discusses differences between unions which were rooted in distinct labour histories within each factory. It documents the role of the union in both formal and informal bargaining with management. Union strategy in the face of a changing external environment is expected to have a significant influence over the evolution of industrial relations.

The origin of social welfare policies is also distinct in these two research contexts. The distribution of goods and services through the workplace formed an institutional feature of the centrally-planned economy. In contrast, Nicaraguan unions moved to plant bargaining around social benefits and incentive pay partly in response to declining real wages and conditions of economic crisis. Sabel and Stark emphasise management's dependence upon workers to meet output targets under uncertain conditions. In the Nicaraguan case, one would expect management and labour to become increasingly interdependent as each side attempted to resolve production and labour issues. This could be expected to influence the nature of union-management relations.

Finally, the above studies were carried out within a consolidated economic and political system. In contrast, Nicaragua faced increasingly unstable economic conditions during the 1980s. Likewise, the political environment was characterised by an ongoing struggle for political power between various sectors of society. This was likely to generate continuous adjustment within the workplace. Under external economic conditions, this study considers changes in government wage, distribution and price policies, as well as the availability of social services. It

also looks at alternative income-earning opportunities outside the factories.⁶⁶ Under external political conditions, it includes government policies, Sandinista party programmes, labour legislation, and the positions adopted by national labour federations. The above are considered in the general context of social transformation, economic crisis and war.

Part Three has defined four categories of productive adaptation and has outlined two abstract types of industrial relations. The above studies of state socialist enterprises indicate ways in which productive adaptation and changes in union-management relations may be interrelated at the shop-floor level. Each firm's efforts to carry out productive adaptation raised a new set of issues in employment and the division of labour. How did pressures to resolve these issues influence plant bargaining around social benefits and incentive pay? What type of dependence or interdependence existed between management and labour, and how did this affect each side's bargaining strength? The above studies suggest that the answers to these questions will partially explain the evolution of industrial relations.

PART FOUR: RESEARCH METHODS

This section will briefly outline the main research methods utilised to pursue the two main questions under study.

1. Productive Adaptation

How did external pressures and constraints combine to generate specific forms of productive adaptation within Nicaraguan state metalworking firms from 1980 to 1987? External pressures and constraints on production constituted the independent variable for the case studies of enterprises, while productive adaptation represented the dependent variable. The former were derived from research on the Nicaraguan economy, manufacturing sector and metalworking industry. Case studies of two metalworking firms provided the context for the analysis of productive adaptation.

Research on the Nicaraguan economy aimed to select those factors that were integral to the social transformation process and could be expected to have an impact upon state

enterprises. This was based upon a review of secondary sources, as well as unpublished government documents and statistical reports. Research on the Nicaraguan metalworking industry aimed to identify specific circumstances facing the metalworking industry as compared with the manufacturing sector generally under each of the above categories. I began by organising basic information on the manufacturing sector and metalworking industry on an annual basis, drawing upon government and company records and United Nations technical and economic studies. I also carried out background interviews with administrators and engineers within the state metalworking division and visited 14 out of the 17 state metalworking firms.

I then carried out a study of five state metalworking firms based upon their contribution to sectoral output (these firms represented 82 per cent of state sector metalworking output value in 1986). Its objective was threefold: 1) to identify those external factors that had an actual impact upon the main metalworking firms; 2) to gain preliminary evidence concerning the areas in which firms adapted to these external circumstances; and 3) to select two firms for the case studies that would enable me to pursue the most relevant issues for this industry. In these firms, I reviewed enterprise records, interviewed the director, and observed the production process in each section.

At this stage, the objective of the case studies was to analyse the nature of productive adaptation in light of the external circumstances facing firms. The first phase aimed to identify the main external factors affecting production, as mediated by management decisions in other areas of the firms' operations. The second phase sought to identify and document patterns of productive adaptation. Each case study was based upon a review of company records (plus information compiled by the Ministry of Industry) and the cross-referencing of numerous exploratory and structured interviews with workers, plant supervisors, administrative and engineering staff, and the enterprise director. Interviewees were asked to reconstruct the history of the firm with reference to company records. This basic method was adapted in light of existing information and according to the specific objectives guiding each phase of the case studies on both productive adaptation and industrial relations.

2. Industrial Relations

How and why did union-management relations change from 1980 to 1987? To pursue this question, I also combined research at the society-wide and enterprise level. Research on the Nicaraguan economy and political environment aimed to select those factors that were most likely to influence union-management relations. This stage included a review of secondary sources, government and labour documents, labour legislation, and United Nations reports. I then carried out preliminary research within the five main state metalworking firms, the main objective of which was three-fold: a) to trace changes in union-management relations from 1980 to 1987; b) to identify the external and internal factors that may explain the above; and c) to select two firms for the case studies. In these five firms, I reviewed company records and union reports, interviewed the director and union secretary general, and attended enterprise assemblies. Based on this preliminary research, I identified the four categories to be utilised in the analysis of adaptation and industrial relations.

In this stage, the objective of the case studies was to examine the interrelation between adaptation and changes in industrial relations. Each case study consisted of four phases. The first phase aimed to select the relevant external conditions affecting each enterprise, while the second sought to identify the main issues in employment and the division of labour. The third focused upon their efforts to adjust social welfare policies and incentive pay. The fourth sought to describe and explain the evolution of industrial relations. Each phase included numerous interviews with enterprise personnel, as well as a review of collective bargaining agreements, quarterly union reports and company records. I also relied upon participant and non-participant observation in both firms over a one-year period.

3. Interview Techniques

This research was not conducted through the use of a closed questionnaire. Instead the case studies combined a series of open-ended discussions, allowing the respondents to describe events as they saw them, with a subsequent set of more structured interviews. A checklist was used to guide both types of interviews to ensure that they covered a basic set of issues defined by the underlying analytical concerns. This methodology was judged to be best suited to

process-related questions concerning the interaction between productive adaptation and union-management relations over an eight-year period. Moreover, each factory and different groups within it tended to share an idea or myth about themselves. In a formal questionnaire, employees would have been likely to respond in a way that reinforced this myth. For example, interviewees in one of the two main case studies would have emphasised the cooperative nature of industrial relations. In contrast, informal interviews that attempted to reconstruct events in a mosaic fashion were more likely to provide an understanding of how conflict was worked out in this context.

In addition, the effectiveness of participant and non-participant observation and exploratory interviews depended upon the ability of the researcher to become part of the setting, staying beyond the initial period of performance for an outsider. The use of a formal questionnaire would have interfered with these aspects of the research method. Finally, under conditions of war, military service, political conflict and economic crisis, workers could find it threatening to give a written response to seemingly straightforward questions. In this context, a respect for interviewees ruled out the use of formal questionnaires.

4. Limitations to Research Approach

The case study findings represent an interpretation of extended interviews, as well as of a variety of company records which were most often kept in very rough form. Likewise, I inevitably gained insights concerning the relation between various events because of the time spent on the shop floor. I continually checked my own interpretation of events by cross-referencing various information sources and interviews, and by approaching the same question from distinct angles. This approach provided a fairly clear view of patterns of productive adaptation, which emerged as the firm attempted to struggle on a daily basis to overcome numerous obstacles while taking advantage of immediate opportunities. It also provided a firm basis by which to identify labour issues and reconstruct changes in union-management relations.

This approach also had its limitations, some of which stemmed from information constraints. There were numerous problems involved in attempting to trace the

effectiveness with which firms carried out specific processes of productive adaptation either through financial or physical indicators. Both IMEP and METASA were characterised by poor information systems resulting partly from the soft budget constraint and high inflation rates. Under these circumstances, value figures did not measure performance and prices provided virtually no information. These firms were also run without systematic production records based on physical indicators. Furthermore, the case studies could not provide quantitative indicators of a number of the phenomena described under labour policy and union-management relations due to poor labour statistics.⁶⁷ Because information constraints formed a main feature of the production environment, this became a subject of study during the course of fieldwork.

Furthermore, cause-effect relations could not be easily established within a research environment characterised by change on numerous levels simultaneously. These conditions limited any attempt to trace the impact of specific adjustment processes upon production performance. Finally, inevitable problems are involved in reconstructing events based upon interviews. I attempted to keep these problems to a minimum by interviewing numerous employees of distinct occupational categories and political positions, and by constantly comparing interview results with both company records and observations gained through direct observation.

PART FIVE: STRUCTURE OF THESIS

Chapter One has contended that the nature of productive adaptation and changes in industrial relations formed two inseparable outcomes of the Sandinista strategy for transforming the Nicaraguan economy and society. Yet each area of study required a distinct analytical framework and set of research methods. This thesis is therefore divided into two sections. Chapters Two through Four focus upon productive adaptation, and Chapters Five through Seven concern industrial relations. Chapters Two and Three outline external pressures and constraints on manufacturing and metalworking production, while Chapter Four examines patterns of productive adaptation in IMEP and METASA. Chapter Five identifies external conditions affecting efforts to meet labour objectives within the workplace; Chapter Six highlights issues in employment and the division of

labour within IMEP and METASA; and Chapter Seven explains changes in labour policy and industrial relations. This section briefly describes the organisation of each chapter, thereby concluding Chapter One.

Chapter Two outlines the main international and domestic factors affecting Nicaraguan manufacturing production from 1980 to 1987. Part One describes the main features of the manufacturing sector prior to 1980, indicating those areas in which firms would become vulnerable to changes in their external environment during the following decade. Part Two describes Nicaragua's foreign financial and trade relations in the 1980s and their implications for the manufacturing sector. Parts Three and Four focus upon government economic and industrial policies respectively. The conclusion to Chapter Two summarises these main findings and draws out their implications for productive adaptation.

Chapter Three focuses upon the metalworking industry. Part One looks at the specific circumstances facing the metalworking industry as compared with the manufacturing sector generally. Part Two underlines the interaction between state strategy for the metalworking industry and productive adaptation within the five main metalworking firms. Based upon these findings, the conclusion to Chapter Three raises a set of questions regarding productive adaptation and underlines their relevance for the metalworking industry and manufacturing sector generally.

Chapter Four analyses patterns of productive adaptation within IMEP and METASA in light of the specific pressures and constraints facing these firms. Part One looks at the interaction between four categories of productive adaptation defined in the analytical framework. Parts Two and Three present the results of the IMEP and METASA case studies respectively. The conclusion summarises and compares the main forms of productive adaptation in these two firms. These results are then related to the role of the state in transforming the Nicaraguan economy.

Chapter Five outlines external pressures and constraints upon enterprise labour policy and union-management relations. By way of background, Part One focuses upon the relation between the Sandinista movement and organised labour prior to 1979. Part Two presents government wage and incentive policies from 1980 to 1987. Part Three identifies political pressures and constraints upon the role of enterprise unions in negotiations and dispute

resolution, and in efforts to resolve production and labour issues within the firm. The conclusion draws out the implications of these external conditions for the autonomy of enterprises, labour policy and union-management relations.

Chapter Six returns to the case studies. Parts One and Two highlight the two issue areas in employment and the division of labour respectively. The former concerned the need to train workers and persuade them to remain within the firm, while the latter pertained to the persistent demand for shop-floor decision-making and problem-solving capabilities. The conclusion compares the results of the two case studies and affirms that each firm adjusted its labour policies under pressure to resolve these issues.

Chapter Seven explains the evolution of union-management relations in light of each firm's efforts to adapt to its external environment. Part One reviews the two abstract types of industrial relations that provide the framework for this study. It then characterises union-management relations in each firm from 1979 to 1981 with reference to these types. Parts Two and Three examine the interaction between industrial relations and adaptation through social benefits and incentive policies respectively. The conclusion compares the evolution of industrial relations in these two firms and explains why each reached a similar end point by 1987. It then compares features common to union-management relations in these enterprises with the abstract types.

Chapter Eight concludes the thesis. Part One relates research results on the nature of productive adaptation to the role of the state in transforming the Nicaraguan economy, drawing out implications for industrial policy in that period. Part Two applies findings on adaptation and union-management relations to debates concerning the role of unions in production and social transformation under conditions prevailing in Nicaragua during the 1980-87 period. It thereby defines an alternative stance on these issues. Part Three briefly considers the current relevance of an analytical approach that focuses on micro-level adaptation, given a radically-changed environment.

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NOTES

¹ See Kornai (1980), p.23-25.

All references to Kornai in this thesis will refer to Kornai (1980), unless otherwise indicated.

² The term 'issue' is used here to indicate a matter that remains unresolved. The term 'adaptation' is utilised when it is possible to document a patterned response to pressures and constraints.

³ The term 'industrial relations' will refer to enterprise industrial relations and particularly union-management relations, unless otherwise indicated.

⁴ This section draws primarily upon FitzGerald (1985b, 1986, 1988b); FitzGerald and Wuyts, eds. (1988); and White, Murray and White, eds. (1983). Also see Jameson and Wilber, eds., (1981).

⁵ FitzGerald (1988b), p.56, states 'This is not an exclusive substitution, of course, because the domestic construction sector accounts for up to half of fixed investment in developing countries, while local supplies of energy, chemicals, agricultural machinery, etc. may be quite advanced.' FitzGerald (1985b) contrasts the structure of the peripheral socialist economy with the model of the 'classical' socialist economy wherein Department One consists of producer goods provided by state-owned industries.

⁶ See FitzGerald (1985b, 1988b) on the articulation of the state sector with the world economy and its implications for accumulation and planning within peripheral socialist economies.

See White (1983), p.13-19, on the international political economy that has faced Third World socialist economies. White identifies the pressures exerted, and opportunities offered by both socialist and capitalist countries during three stages (the first Cold War stage, the early 1970s, and the mid-1970s onwards).

⁷ Tensions between these two requirements were at the core of reform programmes within peripheral socialist economies. See Littlejohn (1988) on this issue in the context of Mozambique. Littlejohn argues that the state sector must enter the intensive efficient phase from the outset if it is to develop without crowding out the peasantry (FitzGerald and Wuyts 1988, p.8). See Spoor (1988) on tensions between the capacity to mobilise resources and secure their efficient use in the context of the post-1975 reforms in Vietnam.

See FitzGerald and Wuyts (1988) on tensions generated by the initial mobilisation of resources behind the rapid expansion of the state sector, and subsequent attempts to redefine the mode of economic organisation in Third World socialism.

White (1983), p.30-33, locates the shift from extensive to intensive development within the broader dynamics of socialist change, identifying characteristic transitions and stages of development within state socialist countries.

⁸ See *Ibid.* on shift from centralised planning to a greater reliance upon financial and market mechanisms within peripheral socialist economies.

See White, Murray and White, eds. (1983) on different versions of centralised planning within Third World socialist countries. FitzGerald (1985b), p.12-13, identifies the main points of difference between the Cuban and Nicaraguan case, underlining the role of markets and the financial system in Nicaragua.

⁹ FitzGerald (1988b), p.55, states that the central feature of peripheral socialist economies is the 'combination of very diverse enterprise forms and production systems, within a heterogeneous social structure.' Also see FitzGerald (1985b).

¹⁰ See FitzGerald (1988b) on the problem of financial imbalances in peripheral socialist economies. FitzGerald attributes the origins of macroeconomic imbalance to problems of state enterprise behaviour under a soft budget constraint and the accumulation bias within peripheral socialist economies.

¹¹ Case studies in White, Murray, and White, eds. (1983) show how the initial revolutionary struggles and subsequent efforts to defend new socialist countries against external aggression affected the basic features of these societies and conditioned their development. For overview, see White (1983). Also see FitzGerald (1986), p. 50-52.

¹² See FitzGerald (1986), p.38, on social control of the labour process as both part of the transition to socialism and a potential source of productivity increases.

¹³ See Wield (1983).

¹⁴ See Wield (1983) on both defacto worker control and participation schemes promoted by FRELIMO within Mozambiquan industry in the 1970s. Wield (1983), p.99, highlights the role of production councils introduced 'in the belief that increasing workers' knowledge and control of the production process in a political way would lead to productivity increases.'

See Sketchley (1982) for first-hand account of changes in production relations within the Mozambican steel rolling mill CIFEL in 1977-78.

¹⁵ Focusing upon Zimbabwe in the years following independence, Moyo argues that the need to sustain productivity implies a struggle between efforts to restructure labour processes and pressure to reinstate old forms of production organisation, often under the guise of efficiency considerations (Moyo 1988). This argument is also relevant in the case of Mozambique. See Wield (1983), p.103-104.

¹⁶ See White (1983), p.3-6, on the link between national liberation struggles and the basic features and dynamics of Third World socialism. Also see Halliday (1983) and Wield (1983) on South Yemen and Mozambique respectively.

¹⁷ For example, see Carciofi (1983), p.223-227, on changes in the role of the Central de Trabajadores Cubanos (CTC) and its component organisations in the 1960s-70s. Carciofi highlights the shift towards a greater degree of autonomy for unions as a 'check-and-balance' on the planning structure in the 1970s. He argues that formally new institutions designed by the leadership may be subordinated to the structural logic of the old system if unaccompanied by a strong impetus from below. See Carciofi (1983), p.223-227, and White (1983), p.22-23.

¹⁸ Unemployment, differential access to social services, and lack of access to productive assets further enforced this system of labour control. See FitzGerald (1986), p.36.

¹⁹ This thesis refers to the Sandinista National Liberation Front (Frente Sandinista de Liberación Nacional) as the Sandinista party in post-July 1979 period.

²⁰ These properties were expropriated under Decrees 3 and 38, affecting the Somoza family and associates.

²¹ See FitzGerald (1988a), p.18 Table 1, for per cent contribution to GDP by forms of production.

See Weeks (1987) and Ruccio (1987) for opposing views on the relationship between the state and private capital within the Nicaraguan mixed economy. See FitzGerald (1988a) on shift in the Nicaraguan planning system from a 'dual economy' model to one based on the articulation of distinct forms of production. Also see Dore (1986) and Vilas (1985b).

²² See INIES-CRIES (1984) and CRIES (1988) for extensive bibliography on different facets of this

strategy.

²³ See Nicaragua, Ministry of Planning (1980) for statement of this strategy; Gorostiaga (1985) on the 'logic of the majority' guiding this strategy and its main dilemmas; and FitzGerald (1985c) on tensions between economic justice and stabilisation goals.

See Núñez (1987) on community participation programmes as characteristic of the relationship between the Sandinista state and civil society in the early 1980s.

²⁴ See Mayorga (1985) on agro-export model, and the severe decline in the external terms of trade in the early 1980s. Mayorga argues that this model had exhausted its growth possibilities, posing difficult questions for the country's future development.

²⁵ FitzGerald (1988a), p.18 Table 1. Comparable figures were not available for 1987. The agrarian reform programme redistributed land from large private and state farms to small producers in the 1984-87 period, although the extent of these changes in land tenure is still subject to debate. See Abu-Lughod, (1997).

The term "small producers" refers to those hiring less than ten employees.

²⁶ These policies have been evaluated in the context of macroeconomic management (FitzGerald 1989); foreign trade (Conroy 1987, and Goldin and Pizarro 1988); and the mixed economy (Weeks 1987).

²⁷ See Wheelock (1983) for statement of Sandinista agro-industrial investment policy.

For critical discussion of public sector investment programme, see Arguello, Kleiterp, and Croes (1986); Dijkstra (1988); FitzGerald (1989); Irvin (1983); and Irvin and Croes (1988).

²⁸ FitzGerald (1989), p.277-278. FitzGerald makes this observation about public enterprise investment projects generally, arguing that the resultant project demand for construction materials became a main source of inflation.

²⁹ See CIERA (1982) on food self-sufficiency as a main objective of agricultural policy in the 1979-82 period.

³⁰ On the Nicaraguan agrarian reform programme, see Baumeister (1985); Deere, Marchetti and Reinhardt (1985); Enríquez (1985); Enríquez and Spalding (1987); FitzGerald (1985a); Kaimowitz (1986); Reinhardt (1987); Utting (1987); and Wheelock (1985).

³¹ See Kaimowitz (1988) and Utting (1988) for comprehensive account of shift in government policy towards the peasantry after 1984.

³² See Brundenius (1987), p.93-94 Tables 4 and 5, on structural changes and output trends of Nicaraguan industry by major industrial branches in the 1977-84 period.

³³ Nicaragua, Ministry of Economy, Industry and Commerce (1989c).

For discussion of Nicaraguan industrial development strategy, see Brundenius (1987); Castillo (1987, 1989); Dijkstra (1988); Harris (1985); Jenkins (1988); and Weeks (1985).

³⁴ See Dijkstra (1988) on impact of government policies upon 34 private and state manufacturing firms in the 1980-84 period.

³⁵ See Nicaragua, Ministry of Industry (1986a, 1987a).

³⁶ Government purchasing decisions concerned the choice between imports versus locally-produced products, as well as contract terms regarding product quality, price and delivery dates.

³⁷ High inflation rates contributed to declining real wages in industry, and the expansion of parallel markets and thus income earning opportunities in the informal sector.

³⁸ The single enterprise union constituted the main form of labour organisation in Nicaragua. The majority of enterprise unions were affiliated to a national labour federation, which in turn was associated with one of the country's political parties.

³⁹ Stahler-Sholk (1987b), p.555.

⁴⁰ On debate among national labour federations, see Instituto Histórico Centroamericano (1982a, 1982b, 1984a); Stahler-Sholk (1987b); Tirado (1986); and Vilas (1986, 1989).

⁴¹ See República de Nicaragua (1988) for Nicaraguan labour law.

⁴² See Nicaragua, Ministry of Planning (1980), p.104-106; and FitzGerald (1985c).

⁴³ See Stahler-Sholk (1990).

⁴⁴ See Conroy (1987); FitzGerald (1987a); Marchetti (1986); Maxfield and Stahler-Sholk (1985); and Stahler-Sholk (1987a).

Also see Dijkstra (1988) and Jenkins (1988) on impact of US measures and war conditions upon industry.

⁴⁵ Ibid.; and Berrios (1985).

⁴⁶ See FitzGerald (1989).

⁴⁷ See Kornai (1980), p.302-303.

⁴⁸ Kornai stresses that these were 'pure' types rather than descriptions of modern firms. See Kornai (1980), Chapter Two, p.26-30, and Chapter Thirteen, p.311-314.

⁴⁹ See Kornai (1980), Chapter Two, p.30-41.

⁵⁰ Under inputs, we include physical inputs or supplies such as raw materials, spare parts, tools and accessories. Kornai also includes skilled labour under inputs. This thesis discusses skilled labour shortages separately.

⁵¹ Kornai contrasts forced substitution with voluntary substitution. The latter may include changes in input-output combination aimed at the following: a) producing an identical quality of output with less inputs; b) saving costs in the face of changes in relative prices; or c) responding to buyers' demand for a different material composition.

⁵² Under forced input substitution, this study also includes input saving change in response to immediate resource constraints.

⁵³ See Kornai (1980), Chapter Six, p.109-125.

⁵⁴ Kornai acknowledges that inventory levels will also result from what he terms 'organisational factors', including the choice between product differentiation versus standardisation, production techniques and storage techniques, among others. Given these factors, he attempts to identify general

trends that result from the resource-constrained nature of the economy. See Kornai (1980), p.115-117.

⁵⁵ For the purposes of this study, demand oriented adaptation will refer to changes aimed at meeting current user needs, unless otherwise indicated. This study will also consider productive adaptation aimed at ensuring long-term competitiveness, although this was unlikely to constitute the predominant form of adaptation in Nicaraguan metalworking firms during the 1980s.

⁵⁶ See Kornai (1980), Chapters Thirteen and Fourteen, p.299-351.

⁵⁷ The investment output decision determines where fixed capital investment should take place, how much capacity should be created, and what output is to be produced with the new capacity (Kornai 1980, p.343).

⁵⁸ These abstract types provide reference points for the analysis of specific situations. The latter may be closer on a scale to one or the other type or may combine elements of each.

⁵⁹ This section is based primarily upon Burawoy and Lukács (1985); Galasi and Szirácski (1985); Kövári and Szirácski (1985); and Sabel and Stark (1982). See Sabel and Stark (1982) and Burawoy and Lukács (1985) for additional references on industrial relations in Eastern Europe.

⁶⁰ Ibid.

⁶¹ Galasi and Szirácski (1985).

⁶² Burawoy and Lukács (1985), p.726.

⁶³ Kövári and Szirácski, (1985), p. 274

⁶⁴ Sabel and Stark (1982), p.451-457. Also see Burawoy and Lukács (1985), p.733.

⁶⁵ Sabel and Stark (1982), p.457-461.

⁶⁶ FitzGerald (1988b, p.60) states that households in peripheral socialist economies tend 'to have much more autonomy as economic actors than their counterparts in Eastern Europe, derived from their ability to generate non-wage incomes and to gain access to non-state marketing channels'. In the Nicaraguan case, this could be expected to enhance labour's bargaining position within the factories.

⁶⁷ These constraints were common to the five main metalworking firms.