IS THERE A DEPENDENT RELATIONSHIP BETWEEN FIRMS' VALUE CHAIN POSITIONS AND THEIR COMMITMENT TO HUMAN RESOURCE AND SKILL UPGRADING?

A Case Study of the Automotive Components Manufacturing Firms in the KZN, Eastern Cape and Gauteng Benchmarking Clubs of South Africa

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DECLARATION OF ORIGINALITY

This Masters dissertation represents original work by the author and has not been submitted in any other form to another university.

Where use has been made of the work of others it has duly been acknowledged and referenced in the text.

The research for this dissertation was performed in the School of Development Studies at the University of Natal, Durban. Research was undertaken under the supervision of Dr. Justin Barnes during the period February to December 2002. All data analysed for this dissertation was collected by the KZN, Eastern Cape and Gauteng Benchmarking Clubs from their member automotive components manufacturing firms over the period 1998-2001.

The research was undertaken while working as an intern for the Industrial Restructuring Project but the findings and the conclusions arrived at in this dissertation entirely those of the author.

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LIST OF ACRONYMS USED

ABET	Adult Basic Education and Training
AM	Aftermarket
CEO	Chief Executive Officer
CPI	Consumer Price Index
DTI	Department of Trade and Industry, South Africa
FET	Further Education and Training
LDC	Less Developed Countries
HR	Human Resources
ISI	Import Substitution Industrialisation
JIT	Just-In-Time
KZN	KwaZulu-Natal Province, South Africa
MERSETA	Manufacturing, Engineering and Related Services SETA
MIDP	Motor Industry Development Programme
MNC	Multi-National Corporation
NIE	Newly Industialised Economy
OBM	Own Brand Manufacturer
ODM	Own Design Manufacturer
OEA	Original Equipment Assembler
OEM	Original Equipment Manufacturer
OES	Original Equipment Supplier
PBIT	Profits Before Income Tax
SA	South Africa
SETA	Sector Education and Training Authority
TQM	Total Quality Management
WCM	World Class Manufacturing
WTO	World Trade Organisation
USA	United States of America

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CHAPTER ONE
INTRODUCTION

1.1 Overview of the Research Topic

> *Creating jobs and addressing the skills shortage crisis in the country, while eradicating past inequalities in the labour market, are easily the biggest challenges facing the (South African) government today.*
>
> Glenda Daniels, 2002: 1

Economic growth is regarded by many as a vital contributor towards both national and individual development, and sustainable growth of the national manufacturing sector a key contributor to such national economic growth. Through direct mechanisms such as its contribution to national formal employment and the development of skills and through indirect mechanisms such as its contribution to national revenues from which improved social infrastructure and services can be provided, a successful and growing manufacturing sector is central to both individual and national development (Budlender, 1999; Kanbur, 2001; Rodrik, 2000).

In line with such thinking the post-Apartheid South African government has identified the growth and development of the national manufacturing sector a priority (DTI, 2001b), and not only in terms of its survival in the face of a suddenly liberalised national economy and the increasing demands from global markets that has accompanied this, but also in terms of the creation of increasing numbers of formal jobs and in assistance of the development of a stronger local human capital base. These are serious demands and South Africa faces many challenges in achieving them. Amongst the most important is overcoming the legacy of past protectionist Import Substitution Industrialisation policies, Apartheid polices, and policies which created a fragmented and poor quality education system for the majority of the population, which collectively did nothing to encourage investment in capital equipment nor the development of a strong local skills and human resource base (Gelb, 1999; Joffe et al, 1995). This has resulted the situation described in the quote above, with the manufacturing sector forming the base of hopes for contributing simultaneously to the goals of job creation, skills development, reduction of labour market inequalities and national economic growth. These objectives are clearly stated in the Department of Trade and Industry's Integrated Manufacturing Strategy of 2001.

Engagement in global markets holds great potential for rapid growth of national manufacturing sectors, yet not all forms of engagement or 'modes of insertion' in global production chains provide the desired potential for national- and firm-level development or upgrading. The recently outlined value chain framework of analysis (e.g. Kaplinsky & Morris, 2000; Gereffi, 1999a) provides one way of understanding the nature of the political economy of today's increasingly fragmented global production chains, with both the threats and the opportunities that engagement encompasses. As such the value chain framework of analysis offers the assurance that it will assist both individual firms and national economies in exploiting their actual and potential individual advantages for embarking on a sustainable path of upgrading and development.

Drawing on this embryonic literature, this dissertation seeks to use the value chain framework of analysis as a means of better understanding the juncture between skills and human resource development within a sub-sector of the manufacturing sector. This is particularly important in the light of the recent national re-engagement in the global economy with the associated political economy factors which are influencing the sector both from without and within, and in the context of South Africa's past as well the current demands being placed on it.

Largely as a result of its embryonic nature, the value chain literature is unclear with regards to exactly where human resources and a commitment to their development fits into the greater picture, but does mention human resources both as necessary and parallel to all levels of upgrading (Sturgeon, 2001). At the same time it also distinguishes human resources as a potential area of rent generation for both individual firms and national economies (Kaplinsky & Morris, 2000). The literature on World Class Manufacturing (the implementation of which can be regarded as part of the value chain upgrading path for manufacturing specifically) is much more explicit in support of the integral part that human resources play in attaining the maximum benefits from the implementation of the principles such as 'just-in-time' and 'total quality management' and in the ultimate sustainability of the initiative (Brown, 1996; Best, 1999; Dicken, 1998, Womack & Jones, 1996). At the other end of the scale is the Human Resource and Organisation Development literature, which argues that commitment to the development of human resources is the *most important* ingredient of long-term firm and national economic survival and growth (Senge, 1990; Smith, 2001; Solomon, 1999; Hayes & Pisano, 1994). Superimposed on these primary ideas regarding the relative importance of human resources on firm-level development is another very subtle secondary concept: that there is a difference between reactive and proactive human resource upgrading or learning (Senge, 1990; Fleury & Fleury, 2001).

Thus this dissertation aims more specifically, with the same concern in mind as that in the above statement of Glenda Daniels, to contribute to unpacking the relationship between these three bodies of theory with regards to firms' commitment to human resource and skill upgrading by focussing very specifically on the population of automotive components manufacturing firms of the KZN, Eastern Cape and Gauteng Benchmarking Clubs of South Africa. The fact that these firms have committed themselves to a cluster improvement monitoring arrangement demonstrates that there already exists some form of proactivity towards upgrading in general. These firms have also all been subjected to the recent pressures associated with economic liberalisation, and are at the same time part of a sector which has received government attention and supply-side support due to its perceived importance to the national economy in terms of value-added, exporting and formal employment provision. Additionally much has been written about the automotive value chain of South Africa within which these firms operate, and valuable historical data for these firms is already in existence through the activities of the Benchmarking Clubs.

The intent of this research is to determine whether firms' commitment to human resource development is dependent on their value chain positions, with the associated political economy factors such barriers to entry, rent, governance and the ability to upgrade that are encompassed within each of these positions. Additionally, the dissertation intends to discuss, if such a dependence is found to exist, the extent to which the value chain framework of analysis is able to provide insights into the reasons for such differences. Finally, through this discussion, the dissertation aims to highlight the implications for national policy of these findings if South Africa is not only intent on growing its manufacturing sector, but also growing it sustainably and in such a way as to support other national goals of upgrading human capital and skills.

As such the research questions posed are as follows:

1. Do firms that are subjected to similar sectoral pressures demonstrate different levels of commitment to human resource upgrading according to the different value chain positions that they occupy? In other words, is there an element of *value chain positional dependency* in commitment to HR upgrading, a factor which is often discussed in the literature as an independent variable?
2. To what extent can such differences, if they exist, be explained through the value chain framework of analysis, which magnifies intra-sectoral political economy pressures and as such opportunities for and constraints of upgrading?

3. What are the policy implications of these findings, bearing in mind that South Africa has the dual goals of sustainably growing its manufacturing sector as well as upgrading its human resource asset base more generally?

1.2 Dissertation Structure

Given the breadth of the questions posed and the need to fully explore both the theoretical and empirical streams in this dissertation, it is comprised of six chapters.

Chapter Two of this dissertation encompasses both the theory and literature review and is substantial and broad. This is because it initially deals with, and attempts to draw the links between, three essentially separate and extensive bodies of theoretical work: the 'Value Chain', 'World Class Manufacturing', and 'Human Resource Development'. Then, with a focus on the human resource demands of both value chain upgrading and the implementation and sustainability of WCM, the chapter continues by broadly reviewing literature for both the international and South African contexts.

Besides sections 2.4 and 2.5 which respectively review the literature on skills at the international and then at the national levels respectively, each of the sections in this chapter can be read as an entity on their own. Although great effort has been made to allow for linear reading, it is necessary to point out that the nature of the themes discussed is such that starting at any one point is relatively arbitrary as all are to a greater or lesser extent inter-related.

Section 2.1 aims to place the broader theme of this research into a development context, outlining globalisation as the current context of international production and consumption, and the disadvantages that South African manufacturing firms face within this context due to past polices of Import Substitution Industrialisation and Apartheid. The section then draws a link between the success of national manufacturing in globalised markets and individual development.

Section 2.2 is almost purely theoretical: the value chain approach as a means of better understanding and engaging with fragmented and competitive globalised production chains is discussed and analysed. Sub-section 2.2.5, 'Value Chain Upgrading', is the culmination of the theoretical discussion, as understanding and recognising the means and opportunities for 'upgrading' is the first step towards sustainable survival at both the firm and the national economy levels.

World Class Manufacturing, as process and product upgrading is the topic of discussion in Section 2.3. This section looks briefly at the concepts of 'just-in-time', 'continuous improvement', and 'total quality management', the last of which encompasses both the former in addition to pointing directly to the importance of human resources as the only foundation on which the implementation of World Class Manufacturing principles will be sustainable.

Section 2.4 provides an international focus on the human resource demands of WCM and value chain upgrading, placing this firmly within the organisation development theory of the 'learning organisation'. Thus sub-section 2.4.1 is of pivotal importance as it provides the juncture of the three main bodies of theory and having done this at the outset the section goes on to expand these linkages by looking in more detail at issues of leadership and management, trust, skills and training.

Moving this discussion on to the South African context is the subject of Section 2.5. Relationships between management and labour, and issues of mistrust between these groups as being one of the substantial inhibiting factors for implementation of sustainable upgrading is examined and placed within the historical context of Apartheid and the particular form of 'racial Fordism' that developed in the country. These factors, in addition to the serious lack of skills evident at all levels of the national labour market which has led the government to intervene through the creation of a body of legislation that is designed to push and at the same time assist firms in moving in the right direction, are also issues dealt with in this section.

Chapter Three provides a detailed discussion of the methodology used for this dissertation as well as providing a background of the South African automotive value chain for the grounding of the case study population, the 32 firms belonging to the KZN, Eastern Cape and Gauteng Benchmarking Clubs at the end of 2001. Briefly, however, the methodology is quantitative. Firms' 'Value Chain Positions' (ownership, export orientation, tier and market focus) have been used as the independent variables. Commitment towards human resources and skill upgrading are viewed as the dependent variables, however, as commitment cannot be measured directly, proxy measures have been used. Management commitment has been determined by assessing the following quantitative data: the percentage of the remuneration bill spent on training and the number of formal off-line days of training per employee. Labour commitment has been measured by percentage absenteeism, labour turnover, productivity, percentage literacy and percentage numeracy. And although it is recognised that the economic well-being of a firm is dependent on much more than its commitment to human resources, three economic indicators; firm turnover, percentage profits

before income tax, and turnover growth have been included in order to assess correlations between the human resource input and output indicators and firms' general economic health.

Chapter Four presents the findings of the data analysis, while Chapter Five discusses these findings in relation to the literature reviewed in Chapter Two and in the context of the individual automotive value chain of South Africa as outlined in Section 3.1.1. Chapter Six provides the conclusions and the suggested policy recommendations which flow from these findings.

In essence this research provides strong evidence for a dependent relationship between the firms' commitment to human resource upgrading and their value chain positions with MNC owned, 1st Tier supplier, Aftermarket focused, and Exporting firms consistently out-performing Locally owned, 2nd Tier, OEM focused, and Non-Exporting firms, and suggests that this dependency is more acute for reactive than for proactive upgrading or learning. Thus the findings also support calls made by authors of both the value chain and the human resource development literature streams for more of a distinction to be made between the two. Additionally the research further supports the human resource development literature which argues that firms showing more of a commitment to human resource inputs are likely to be rewarded not only in terms of human resource output indicators such as decreased absenteeism and labour turnover and increased productivity, but simultaneously in terms of economic well-being.

In terms of policy recommendations these findings support current government trade policies of liberalisation, which are based on arguments that increased global connectedness is likely to generate externalities of learning, and at the same time the current implementation of supply-side support policies that are designed to push and at the same time assist firms in improving their human resource bases. In summary, this research suggests that the value chain framework of analysis provides a useful tool with which to assess the possibilities and constraints inherent in operating in certain positions within global commodity chains and that it should be employed more extensively if government officials want to develop a deeper understanding as to which sectors to support and how. This is especially important if the dual goals of increased formal employment in a sustainably growing manufacturing sector are to be achieved at the same time as raising the general human capital base of the country.

CHAPTER TWO
THEORY & LITERATURE REVIEW

2.1 Importance of Manufacturing to South African Development in the Context of Globalisation

2.1.1 Globalisation: The Current Context of Production and Consumption

Globalisation, or the increased quantitative and qualitative integration of the global economy, has had widespread political, social and economic effects. *Capitalism* has spread creating new markets in many former communist countries; *power, wealth and ownership* have become more concentrated in the hands of a small group of trans-national corporations and rich developed economies; workers, companies and national economies are now increasingly exposed to *global competition*; and there is a *change in the power of national governments* (Isaacs, 1997).

Evidence for this increased global integration can be seen in almost every sphere of organisational and personal life: faster growing trade, increased finance flows, intergovernmental policy co-ordination and the formation of international trade governing bodies (e.g. the World Trade Organisation); easy access to technology for rapid global communication and information transfer; rapid transportation; internationally organized production chains; and worldwide social integration through the media and increased personal travel (Isaacs, 1997).

Globalisation of consumer tastes through international branding and advertising, and increased disposable income, has resulted in product cost being only one consumer consideration. Variety, rapid innovations and quality are now equally, if not more important, than cost (Morris, Barnes & Dunne, 2001: 2158; Bessant, 1995: 2-4; Robinson & Ellis, 1999: 26). So, in addition to the physical loss of the captive domestic market to the domestic producer by the reduction of trade barriers, the domestic developing economy market is no longer psychologically captive to the domestic producer either, and even though domestic producers may have no desire to export their products, they are unable to avoid global competition (Bessant, 1995). Thus the global context in which manufacturing firms are now forced to operate is one of increasing uncertainty and production fragmentation (Dicken, 1998: 1).

But while the production process itself has become increasingly globally fragmented, the most important production chains have also become increasingly well coordinated and well regulated. Large Multi-National Corporations (MNCs) do this directly through ownership, and indirectly through market links and quality specifications (Dicken, 1998: 7-8).

Unfortunately, though, this does not mean that location does not count or that 'distance has died'. The forces of *traded interdependencies* (decreased production costs resulting from smaller distances between firms) as well as *untraded interdependencies* (face-to-face contacts, skilled labour pools, and social and cultural interactions) still reinforce clustering of manufacturing firms (Dicken, 1998: 11). The main blocs involved in finance flows, trade and manufacture form a global triad consisting of the United States (and USA/Mexican border), Europe and the Far East. The bulk of global manufacture takes place within this triad, is funded by local capital and foreign direct investment originating from other countries within the triad, and is controlled by MNCs whose share-holders live in countries within the triad (Dicken, 1998: 26-49).

2.1.2 South African Manufacturing: The Historical Context of Protection

Industrialisation in South Africa, as in many other peripheral Third World countries, developed under national policies of protection that created artificial demand for locally manufactured goods through the application of trade tariffs and quantitative restrictions on imported manufactured goods. These inwardly focused protectionist policies, known as Import Substitution Industrialisation (ISI) policies, were first introduced in South Africa in the 1920s and continued to grow in number and complexity throughout the twentieth century (Kaplinsky and Morris, 1999). Compounding the effects of the ISI policies were national policies of Apartheid or separate racial development which led in South Africa to the unique situation of 'racial Fordism' where mass production and mass consumption were constructed along racial lines (Gelb, 1991: 13). Thus with significant distortionary effects on the market, which included the reduction of incentives for firms to become more efficient and competitive and with the direct support of many non-specialist firms, these policies together led to the creation and survival of internationally uncompetitive firms in all sectors of South African manufacturing. These firms did not made good use of either the plant, their equipment or their labour within the production process (Joffe, Kaplan, Kaplinsky & Lewis, 1995: 9). Low levels of investment in both capital and human resources (Barnes & Kaplinsky, 2000a: 218), and poor productivity (Joffe et al, 1995: 7-9) have thus historically limited manufacturing performance in South Africa.

This pattern of local protection only began to change with the advent of the new democratic government in 1994, when export oriented trade policies began to be pursued in earnest and, in compliance with international pressure for neo-liberal, market oriented policies. At a rate even faster than advised by the WTO, the barriers of protection literally came tumbling down (Kaplinsky & Morris, 1999: 734; Barnes & Kaplinsky, 2000a: 211). Thus the recent export drive in South Africa has had to build up from a very low base of export performance, with the historical shortcomings of poor investments in capital and skills being brought into the spotlight by the fact that domestic market liberalisation has taken place within the international context of 'globalisation'.

2.1.3 From Success in Globalised Markets to Individual Development: Making the Link Through Manufacturing

Even countries with continental national economies, such as China, India and Brazil, can no longer rely on their domestic markets to provide sufficient space for economic growth (Dicken, 1998), and in relation to the spectacularly successful economic growth of the East Asian NIEs, there is a strong view that this achievement was in a large part due to their adoption of export-oriented industrialisation policies and to the subsequent massive rate of growth in exports of *manufactured* products from these countries (Gereffi, 1999b: 38; Dicken, 1998: 35-7).

Brown argues strongly that regardless of country location or levels of development, the state of the national manufacturing sector is central to the prosperity of the entire national economy. The lucrative high-waged services sector is certainly no replacement for a healthy manufacturing sector and is indeed dependent upon the manufacturing sector for its continued existence and growth. This is because manufactures are internationally tradable in a way that services are not (Brown, 1996: 44-5). But like the services sector, and in contrast to the traditionally named 'primary' sectors such as mining and agriculture, a focus on manufacturing holds the potential[1] for firms and thus national economies to embark on a sustainable growth path of high value-added: a factor of paramount importance in today's globalised economy of international trade (Kaplinsky, 2000).

The significance of a high value-added, and therefore sustainable, growth path is that the state of the national economy impacts directly on the lives and levels of development of all its citizens as a growing economy is strongly associated with greater numbers of jobs, increasing real wages, and

[1] Kaplinsky (2000:119) points out that certain types of manufactured products (often those produced in developing countries) have also recently become prey to falling terms of trade. This will be discussed more fully in Section 2.2.1 in relation to firms' insertion into global value chains.

larger government revenues. Development at the *individual level* is often equated with a move away from poverty and although monetary income is not the only factor used in defining individual poverty, lack of disposable income in a democratic capitalist society such as South Africa has a significant negative impact on an individual's access to nutrition, health and education services, and through this on the individual's general state of empowerment and participation (Budlender, 1999: 199; Kanbur, 2001; Lustig & Stern, 2000). Thus a growing national economy results in increasing state revenue with which it can start to provide and/or improve the provision of services such as health care, education, public infrastructure etc. A shrinking economy means exactly the opposite: increasing unemployment, decreasing real wages and a potential deterioration of public services and infrastructure. In sum then the state of the national economy has a direct impact on the levels of national development: primarily through the quantity and quality of employment opportunities and secondarily through the availability of funds for government spending on public goods and services (Gelb, 1999; Rodrik, 2000).

Manufacturing in South Africa is already a major contributor to national output and employment (DTI, 2001a). The manufacturing sector accounts for 19.90% of gross national value-added and in the year 2000 employed just under 1.3 million people. This figure represents 27.38% of total formal employment (SA Reserve Bank, 2001). In addition, manufacturing makes up a significant proportion of South African exports as well as forming critical inputs into other sectors of the local economy (DTI, 2001a). A focus on better understanding this important sector has the potential not only to have a direct impact on improving its sectoral output, employment and skills development contributions but also to promote the growth of the entire national economy and, through the mechanisms discussed above, to thus positively impact on all aspects of South African development.

2.1.4 Conclusion

National economic growth, and sustainable growth of manufactured exports particularly, has been highlighted as being a vital step towards both national and individual development. However, acknowledging the importance of an internationally competitive manufacturing sector is far easier than actually achieving such global competitiveness. South Africa faces many challenges in this regard, amongst which the most important is overcoming the legacy of past ISI and Apartheid polices which did not encourage investment in capital nor in the development of a strong local skills and human resource base. Globalisation has meant that competitiveness with regards to price is no longer the sole factor of importance, and it is within this context of intense international competition

over quality, variety, innovation and cost effectiveness that South Africa has had to begin the painful process of restructuring its entire manufacturing sector.

The value chain framework of analysis, discussed in detail in Section 2.2 provides one way of understanding the nature of the political economy of globally fragmented production chains, with both the threats and the opportunities that engagement in such chains encompasses. The value of such understanding lies in the fact that individual firms and national economies may utilise it to exploit both their actual and potential individual prospects for embarking on a sustainable upgrading path.

2.2 Understanding the Value Chain

2.2.1 What is a Value Chain?

> *The* Value Chain *describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformations and the input of various producer services), delivery to final consumers, and final disposal after use*
>
> Kaplinsky and Morris (2000: 4)

Although the concept of the value chain is referred to by numerous different names: *'filiere'* in French national planning literature (Kaplinsky, 2000: 121), the 'value chain' by Kaplinsky and Morris (2000), the 'value stream' by Womack and Jones (1996), the 'commodity chain' by Gereffi (1999b), and the 'production chain' by Best (1990) it will be referred to as the 'value chain' throughout this dissertation, using the above definition by Kaplinsky and Morris.

2.2.2 Why is Value Chain Analysis Important?

While participation in the global economy by many Less Developed Countries (LDCs) has led to the opportunity for substantial income growth, there has also been a dark side to globalisation. A tendency towards increasing unequalisation within and between countries, as well as a stubborn resilience of the absolute levels of global poverty has necessitated a review of blanket policy advice towards these countries implying that *any and all* involvement with the global economy (in terms of manufactured products) will *always* have a beneficial outcome (Kaplinsky, 2000: 117-8; Gereffi, Humphrey, Sturgeon, 2001: 1-2).

'Dependency' theorists (see for example Baran, 1963) qualified the classical economic view that trade in general is always good for all parties involved by drawing attention to the deteriorating

terms of trade for primary products (produced predominantly at the *periphery*) over manufactured products (produced predominantly at the *core*). Policy prescriptions from these ideas led to ISI, however declining growth in countries that pursued such policies in comparison to those who pursued more export oriented policies with regard to manufacturing led in the 1990s to blanket policy prescriptions by the World Bank and IMF for developing economy liberalization (Smithian, 1996: 23-7). However, globalisation has changed the very nature of the organisation of production in general and manufacturing in particular to such an extent that merely highlighting the preferential trade status of manufactured products over that of primary commodities is of limited value in the present period. Thus blanket liberalization policies proved to be no more the answer to under-development than ISI did.

Gibbon (2000: 3) states that the 'recent focus on "Global Commodity Chains" as units of analysis primarily reflects the importance assigned to the emergence of manufacturing systems which are dispersed and integrated on a world-wide basis, but in which, at the same time, power is mainly associated with system co-ordination rather than with a concentration of ownership of productive resources'. Kaplinsky (2000) supports this argument further by pointing out that since the mid-1980s the terms of trade for a range of manufactured commodities has shown a declining trend. Notably, these manufactured products are particularly those produced by developing countries that, although involved in *manufacturing,* are only negligibly involved in *system co-ordination.*

Value chain analysis provides a framework for looking at the relationships between players in the chain i.e. the co-ordination of the system: it opens up room for understanding the dynamic nature of these relationships and in so doing creates the potential to influence this dynamism (Gibbon, 2000; Sturgeon, 2001). Because of this it is equally useful in explaining the 'traditional' decline in terms of trade of primary products as it is in explaining the same phenomena currently to be found in the export of certain manufactured products. Through the framework of value chain analysis it has been noted that those who have lost as well as those who have gained from global trade participation have had in common the mode of insertion into these global value chains. Thus while participation in global trade of manufactured products does indeed remain vitally important, the mode of insertion into these global commodity chains (which in turn influences the nature of intra-chain relationships) is of equal importance. Appropriate insertion can lead to a virtuous cycle of upgrading and sustained income growth, while inappropriate engagement has the potential to lead to a disastrous downward spiral, a 'race to the bottom', at both the level of the firm and national economy as a whole (Kaplinsky, 2000).

'Immiserising growth' or the 'race to the bottom' is probably the most serious consequence of inappropriate insertion into global markets by individual firms, groups of firms and national economies. The term 'immiserising growth' is used to describe the situation of increased economic activity, with both increased output and employment but with falling rates of economic return. This state of affairs is likely to happen in the instance of (firm or national) concentration of involvement in areas or stages of manufacturing for which the global demand is relatively high but for which barriers to entry are relatively low. Increasing competition between the increasing numbers of suppliers leads to a situation of buyer control with a downward spiral in prices and therefore profits. Thus 'immiserising growth' can essentially be viewed as a self-destructive path of increasing work for decreasing rewards (Kaplinsky, 2000; Kaplinsky & Morris, 2000).

But are such disastrous paths recognizable at the outset and thus avoidable? Kaplinsky (2000: 121) states that 'insofar as distribution is an outcome of the globalisation of production and exchange, value chain analysis provides a valuable methodological tool for explaining these (path trajectory) developments.' Thus value chains are more than descriptive devises: their value lies predominantly in the fact that they can be used in an analytical fashion in order to identify the 'vicious' or 'virtuous' types of growth trajectories and potentially avoid the former and reinforce the latter. But in order to use them in this fashion certain important components of value chains need to be clearly recognized and understood. These components include the concepts of barriers to entry and rent, and the issue of value chain governance (Kaplinsky, 2000). The following two sections (sections 2.2.3 and 2.2.4) will discuss these concepts in more depth, while section 2.2.5 will, by using these concepts, discuss the complexities of value chain upgrading.

2.2.3 Barriers of Entry and Rent

Central to the concept of economic rent is the role of *scarcity*, or unequal access to a particular resource. Limited access to scarce resources creates the barriers of entry and so provides the basis of rent (or profit) collection. Scarcity is however a *dynamic* concept and can be consciously constructed through purposive actions (Kaplinsky, 2000: 122), and this continuing incentive to create or protect rent provides the engine for the constant flux of role shifts within value chains (Tam & Gereffi, 1999: 9). This argument has consequences for both those who have, as well as for those who do not have, access to these scarce resources. For those who do not have access the dynamic nature of scarcity implies hope that with conscious effort the situation may be turned around, while for those who do have access to rent-generating resources, it implies a warning not to rest easy if the status quo wishes to be maintained.

Manufacturing in and of itself, for example, used to be protected by high barriers to entry and thus produced high rents. As more and more developing countries attained the know-how of certain manufacturing processes, and used this in combination with low wage levels to successfully compete with the developed nations, the economic rents generated from this type of activity began to fall. Thus while the more complicated areas of manufacturing are still protected and therefore offer producers higher value, increasingly the areas of high and growing rent are to be found in regions of the value chain outside of the manufacturing process *per se* i.e. in design, marketing, brand-names etc, and even in the role of governorship itself (Kaplinsky, 2000: 127; Gereffi et al, 2001).

This does not however mean that involvement in the manufacturing portion of the '*design – manufacturing – marketing*' distinction is necessarily cause for concern. It has been pointed out that 'learning-by-doing' is an essential step in upgrading and so becoming involved in the high rent areas of the value chain may require initial learning through involvement in areas of the chain where value-added is less (Tam & Gereffi, 1999).

Kaplinsky & Morris, (2000: 28) distinguish numerous types of rent (see Box 1 overleaf). All of these can however be divided into three broad categories: those that can be 'constructed' at the firm level (which includes mention of HR), those that arise from the bounty of nature, and those that are provided by parties outside of the chain (where HR rents may be seen as arising from national government policies regarding the support of general and specific education).

Yet despite this classification there is the need to draw attention to another crosscutting distinction: the role of the 'local' within the context of the 'global' value chain. Humphrey and Schmitz (2000: 11) note that the 'local' context is important in at least four ways: Firstly, *national trade policies* have a profound effect on the formation of global value chains; secondly, global value chains have been transformed by *firm-level innovations*; thirdly, market access may depend on *local- and regional- level public organisations*; and lastly, there is the little-discussed issue of the role of *local knowledge systems* and innovation on industrial upgrading (Humphrey & Schmitz, 2000; Kaplinsky & Morris, 2000).

Box 1: Different Forms of Economic Rent

Group 1: Rents that can be constructed at the firm level;

- Technology rents – having command over scarce technologies
- Human resource rents – having better access to skills than competitors
- Organisational rents – possessing superior forms of internal organisation
- Marketing rents – possessing better marketing capabilities and/or valuable brand names
- Relational rents – having superior quality relationships with suppliers and customers

Group 2: Rents that arise from the bounty of nature;

- Resource rents – having access to scarce natural resources

Group3: Rents provided by parties external to the chain;

- Policy rents – operating in an environment of efficient government: constructing barriers to the entry of competitors
- Infrastructural rents – access to high quality infrastructural inputs such as telecommunications
- Financial rents – access to finance on better terms than competitors

Source: Kaplinsky & Morris, 2000: 28

In summary, rent is derived from access to scarce resources and while many forms of economic rent can be constructed at the level of the firm, certain types of rent will depend upon the local context of government policy and provision. National public infrastructure, access to competitive finance as well as access to national pools of educated and skilled labour are but a few examples of constraints or advantages inherent in the local context.

2.2.4 Governance in a Value Chain

Gereffi (1994 in Kaplinsky, 2000: 124) refers to 'governance' as the role and responsibility of key actors within the chain with regards to the inter-firm division of labour, and to the capacities of particular participants to upgrade their activities. Implicit in this statement is that issues of governance determine *relationships* at the *inter-firm* level, establishing *individual positions within the chain,* which directly and critically affects the individual firm's ability to *upgrade*[2]. This is because networks of relationships are dynamic, and can range from essentially symmetrical (or equal) to highly asymmetrical (or unequal) in nature. Gereffi et al (2001: 4) seems later to have refined this to a simpler and more inclusive definition of governance – 'Governance refers to any co-ordination of economic activities through non-market relationships'. Central to both definitions

[2] This issue of governance in relation to upgrading will be discussed in greater detail in Section 2.2.5

is, however, the association between the concept of *governance* and *inter-firm relationships* or co-ordination.

'Governance' is also a multi-dimensional concept and can be further refined into three different types: '*Legislative governance*' defines the basic rules and conditions for participation in the chain; '*judicial governance*' refers to the role of administering compliance with these rules while '*executive governance*' refers to the provision of assistance to individual firms in meeting the operating rules. Different parties inside or outside of the chain may take responsibility for these different forms of governance (Kaplinsky, 2000: 124-5). Humphrey and Schmitz (1999: 3-4) additionally point out that governance may be administered through either public or private agencies, or even through some fusion of the two, and state further that all forms of governance essentially controls the following three aspects of the value chain: the positioning of the chain within the market; the structure of the chain; and the systems of monitoring and controls over the chain. Thus the division of the various types of governance to different 'governors', and the position of these 'governors' in relation to the chain, may result either in situations of mutual support or of conflict of interests, both of which play a critical role in the ability of individual firms to upgrade.

Box 2: Producer-Driven versus Buyer-Driven Value Chains

Producer-driven chains are generally found in sectors that are capital and technology intensive. Barriers to entry to the 'producer' role are primarily to be found in the ownership of knowledge and in the capital-intensive nature of the production process. These chains tend to be multi-layered, investment-based networks involving thousands of firms. Producer-driven chains rely primarily on technology and organisational rents. Examples of such chains would be automobiles, aircraft, heavy machinery and computers.

Buyer-driven chains are generally found in sectors where labour-intensive production is more the norm, but where design and marketing play a key role as well as provide the barriers to entry. In other words the cost involved in acquiring market knowledge, electronically based supply management systems, product design and development, and advertising, provide the rents as well as the protection of those in these rent-generating and governing positions. These chains tend to take the form of independently owned, horizontal trade-based networks of firms, and are closely tied to relational, trade-policy and marketing rents. Examples of such chains include the garment and footwear industries.

Source: Gereffi (1999a: 1)

Relating to both the concepts of barriers to entry and issues of governance, Gereffi (1999b: 38) makes what he calls a 'critical' distinction within value chains between 'buyer-driven' and

'producer-driven' chains (see Box 2 above). Many other authors on the subject; Dicken (1998), Kaplinsky & Morris (2000), Gibbon (2000) and Tam & Gereffi (1999) also note this distinction.

Internal governance within a chain is, according to Gibbon, closely related to the type of chain and lies with those within the chain who have control over the barriers to chain entry (Gibbon, 2000:3). In contrast to this view, which sees the nature of the chain as the main explanation of governance type, Tam and Gereffi (1999) find the explanation of governance type in the dynamics of the rent creation process rather than the nature of the chain itself (i.e. buyer- or producer-driven). Thus according to them "(t)he nature of the rent determines the nature of the rent protection problem and therefore the issues of governance" (ibid, p8).

Humphrey and Schmitz (2000) also draw attention to the very close nature of the issues of governance and rent creation. Rather than seeing governance as a 'normal' situation, they believe that firms need to have good reasons to incur the 'expense and inflexibility' of developing inter-firm governance arrangements. According to these authors, the reasons can be summarised as follows: firstly, 'when asset specificity is too great to allow market governance but not sufficient to justify vertical integration' (p5); secondly, when 'the need for co-ordination (and the consequences of poor co-ordination) justifies the expense' (p6); and thirdly, 'when the buyer is exposed to considerable risk if the supplier fails to perform' (p6). Thus intra-chain structure will be directly related to intra-chain governance (see Table 2.2.1 below), itself a consequence of chain-specific risks and rent opportunities, rather than because of the complexity of the nature of the product.

Table 2.2.1: Determinants of Governance in Value Chains

Chain Governance	Determinants
None (i.e. arm's length market relations)	Buyer and supplier do not need to collaborate in product definition. Either the product is standard, or the supplier defines it without reference to particular customers. Risks to buyers are low, either because requirements are easy to meet, or because supplier has a clear capability to meet them.
Network	Co-operation between more or less 'equals'. Supplier and buyer jointly define the product, and combine complimentary competencies. This is more common when both buyer and supplier are innovators, close to the technology or market frontiers. The risk to the buyer is minimised by the supplier's high level of competence.
Quasi-Hierarchy	High degree of control of buyer over supplier: buyer defines the product. The buyer would incur losses from the supplier's performance failures, and there are some doubts about the competence of the supplier. Where high supplier competence is not generalised, buyers invest in specific suppliers and seek to tie them to their chain.
Hierarchy	Buyer takes direct ownership of developing country operations. The buyer carries out product definition, which may involve proprietary technology. The risks of poor performance by independent suppliers increase if the buyer uses quality as a brand attribute. These factors direct control over the production process.

Source: Humphrey & Schmitz, 2000: 6.

Humphrey and Schmitz (2000: 11) further note a proliferation of network and quasi-network type governance within chains and suggest reasons that these types of governance arrangements might be preferential firstly over arm's length relations and secondly over vertical integration. The former is seen as being due to increasingly competitive markets (which require greater buyer-supplier co-ordination) and retail concentration (which is one critical explanatory variable for the increase in buyer-driven chains in which these types of relationships dominate); while the latter is explained as being due to general business trends of focussing on core competence along with the increasingly complex nature of technological and product innovation. Ultimately the specific nature of the chain will determine the nature of rent creation, which will in turn determine the nature of chain governance. But just as intra-chain relationships and rent creation opportunities are dynamic, so too is governance a dynamic concept: the form of governance will depend on the type of governance that will get the job done for the least expense or, alternatively, the most profit.

2.2.5 Value Chain Upgrading

Ultimately, the central reason for using a value chain framework of analysis is to help the individual firm to plan strategically for upgrading and therefore for its future survival. This section will briefly discuss the complexities related to upgrading.

Although the pursuit of upgrading is widely believed to be essential for healthy economic growth (Tam & Gereffi, 1999: 2; Fleury & Fleury, 2001: 116-7; Dolan & Tewari, 2001: 96) and a central question for developing countries in that it should contribute to the overall process of development, the concept of value chain upgrading is complex with no overall consensus on definition having been reached by the numerous authors on the subject (Humphrey & Schmitz, 2000: 11-2).

One set of authors define upgrading as follows:

> *The concept of upgrading refers to several kinds of shifts that firms or groups of firms might undertake to improve their competitive position in global value chains.*
>
> Gereffi et al, 2001: 5

Another set of authors define it slightly differently:

> *Industrial upgrading at the product or detailed industry niche level is defined as the addition of high value services and more sophisticated manufacturing capabilities. The economic theory of industrial upgrading is that as capital (both human and physical) becomes more abundant (relative to labour and the endowments of other countries), nations develop comparative advantage in higher value-added industries.*
>
> Tam & Gereffi, 1999: 1

These same authors further note the close relationship between upgrading and the concept of economic rent in an alternative conceptualization:

> *Industrial upgrading is at root a problem of rent creation and protection because organisation is a mechanism of rent building through the production of goods and services. Thus in essence economic upgrading is the enhancement of rent creation and protection capabilities via improvements in industrial competence.*
>
> Tam and Gereffi; 1999: 6

According to Gereffi (in Humphrey & Schmitz, 2000: 12), upgrading can take place at various levels within and along the value chain. In his first scheme these levels were noted as being: within factories, within inter-firm enterprise networks, within local or national economies and, within regions. His second scheme defines these levels as being: at a product level, at the level of economic activities, as an intra-sectoral progression, and as an inter-sectoral shift. Humphrey & Schmitz (2000: 12) state that their 'more firm-centred typology' overlaps with the second of Gereffi's categories and distinguishes between process, product and functional upgrading. Kaplinsky and Morris (2000: 38) add a further category to this distinction: chain upgrading. This latter four-way distinction of upgrading trajectories (see Table 2.2.2 below) will predominantly be used in this dissertation.

Table 2.2.2: Four Trajectories for Upgrading

Process Upgrading	Increasing the efficiency of internal processes such that these are significantly better than those of rival, both within individual links in the chain (for example, increased inventory turns, lower scrap), and between the links in the chain (for example, more frequent, smaller and on-time deliveries).
Product Upgrading	Introducing new products or improving old products faster than rival. This involves changing new product development processes both within individual links in the chain and in the relationship between different chain links.
Functional Upgrading	Increasing value-added by changing the mix of activities conducted within the firm (for example, taking responsibility for, or outsourcing of accounting, logistics and quality functions) or moving the locus of activities to different links in the value chain (for example from manufacturing to design)
Chain Upgrading	Moving to a new value chain (for example, Taiwanese firms moved from the manufacture of transistor radios to calculators, to TVs, to computer monitors, to laptops and now to WAP phones)

Source: Kaplinsky & Morris, 2000: 38

In addition to this it has been suggested that there is a hierarchy of upgrading; a well-trodden path along which many international firms have achieved the desired upgrading. This suggested path starts with process upgrading, moves on to product upgrading, then to functional upgrading, and

lastly to chain upgrading. This path matches the transition of numerous East Asian firms that went from OEA (original equipment assembling; a process of minimal value-adding under contract to a global buyer) to OEM (original equipment manufacture; allowing slightly more value-adding locally), to ODM (own design manufacture), and lastly to OBM (own brand manufacture) [Kaplinsky & Morris (2000: 39) and Gereffi (1999b 38)]. Reaching the level of OBM allows the firm to choose to stay in manufacturing itself or to focus on the high rent areas of design and marketing by outsourcing the manufacturing and in so doing providing other firms with the opportunity of entering into these global chains (Gereffi, 1999b 38).

National industrial upgrading is systematically related to the ways in which an economy and its consistent parts is linked to the global value chains. As the national industrial sector is made up of individual firms and the relationships between them, focus on upgrading is usually at the intra- and inter-firm level (Tam & Gereffi, 1999: 3). The concept of upgrading and the various different types of upgrading can therefore be generalized beyond the firm level to assist in gaining an appreciation of how countries form development strategies in an attempt to reposition themselves into comparatively high-value, sustainable niches within the global economy (Gereffi et al, 2001: 5).

The hierarchy of upgrading reinforces the argument made earlier that involvement in the manufacturing portion (whether as a national economy or an individual firm) of the '*design – manufacturing – marketing*' distinction, although the area of least value-added, is not necessarily cause for concern. It has been pointed out that the '(o)rganisation is not only the site of production, it is also the locus of knowledge accumulation' (Tam & Gereffi, 1999: 7) and because of this *participation* in a commodity chain is often a necessary first step for industrial upgrading. Participation does not however mean that upgrading will follow automatically – placing oneself in a position to learn also means assuming a position of dependence – thus the nature of insertion into the chain should create both the opportunity for learning as well as an 'escape route' from the position of dependence once learning has progressed as far as the current situation will allow (Tam & Gereffi, 1999; Gibbon, 2000). Kaplinsky (2000: 78) sums this up as follows: 'It is also important to bear in mind that one of the indicators of power in the value chain reflects the capacity of individual firms to be deaf to the rule-setting agenda of others, that is to over-ride constraints and pressures on their upgrading activities'.

Gereffi's 'learning-by-doing' argument states that upgrading does not occur randomly, but involves making both forward and backward linkages from production. Related to this is the ability of the nation to absorb such learning and thus the importance of human capital and knowledge within the

national labour force (Tam & Gereffi, 1999: 17). Within the progression to functional upgrading the ability to absorb progressive 'shake-outs' along the chain is essential (Gibbon, 2000: 5). Thus although 'learning-by-doing' is imperative in the upgrading process, this seems to refer to a *re-active* type of learning, while the ability to absorb this learning requires *pro-active* learning: learning-in-anticipation-of-learning thus appears to be the step before 'learning-by-doing'.

Humphrey and Schmitz (2000: 7-16) also note the above and question numerous aspects of the 'organisation succession' theory of functional upgrading. Firstly, they question to what extent upward movement is simply a consequence of 'learning-by-exporting' or rather a more active effort of producers to invest in people, organisational arrangements and equipment. Secondly, they question the implicit ease with which functional upgrading will occur, as pro-active rather than reactive functional upgrading may well conflict with the interests of established buyers. This question again links the opportunities for upgrading to issues of chain governance. According to their conceptualisation of governance, in quasi-hierarchical chains, as capabilities of local suppliers improves, the need for governance decreases, thus potentially creating windows of opportunity for upgrading that may not exist in hierarchical type governance chains. Thus the idea of 'organisation succession' in functional upgrading may not be a smooth and easy path for all types of value chains in all geographical regions, but requires qualification depending on local knowledge and human capital, local rent and governance issues, and the type of value chain involved.

In relation to the pursuit of upgrading in developing countries, Humphrey and Schmitz (2000: 20) go on to draw our attention to a series of propositions regarding upgrading in general that bear keeping in mind. Firstly, integration by developing country producers is likely to initially be of the quasi-hierarchical governance type due to questions regarding local performance. This type of governance is very beneficial to these producers as it leads to rapid product and process upgrading, and as local competence increases is likely to reduce to network type governance. Secondly, in the later stages of global value chain integration local producers may find themselves in a situation of 'lock-in' where global buyers may fail to facilitate or even actively prevent functional upgrading. Thirdly, avoiding this state of 'lock-in' will depend on three factors: the control of global lead firms; the quality of local private, state and collective support systems; and the strategic intent of local producers.

2.2.6 Conclusion

This section has attempted to draw out the inherent potential of the value chain framework of analysis as a means of understanding and positively influencing firms' and national economies'

engagement in the global economy. Through a discussion of barriers to entry and rent, as well as issues of governance, it has been highlighted that 'upgrading' is complex, nuanced, multi-layered and multi-dimensional, with many inter-related factors impacting on firms' potential for moving to areas in the chain of higher value-added. Importantly, it should be noted that there is no consensus among the main authors on the subject of whether human resources and thus the ability to learn (which all seem to agree is so essential to upgrading in general) is an independent factor or whether it is in fact itself dependant on a firm's or nation's value chain insertion and the other general possibilities or constraints that are faced in the upgrading process: both possibilities are alluded to.

Section 2.3, which follows, provides a discussion of World Class Manufacturing as a focus on process and product upgrading, while Section 2.4 and Section 2.5 build on the cumulative discussion of VCs and WCM by examining more closely the literature on 'Learning Organisations' and the issues related to the creation of strong human resources bases for the support of upgrading at both the international and national levels.

2.3 World Class Manufacturing

World Class Manufacturing (WCM) means setting, or being able to produce at, global best-practice levels. This is particularly appropriate in the current era of globalisation of trade and the associated fragmentation of production where markets and competitors are global in scale and comparative advantage is gained only by being better than, rather than as good as, ones toughest competitors (Brown, 1996: 327-8; Bessant, 1995).

The concept of WCM is the extension of numerous principles of work re-organisation that were pioneered in Japan in the 1950s and 1960s, but which have been successfully implemented in many other parts of the world. WCM represents a fundamental shift from the mass-production type manufacturing developed at the turn of the twentieth century by Henry Ford at his automobile factory (Womack, Jones & Roos, 1990; Best, 1990; Bessant, 1995). Differences between mass and flexible production (see Table 2.3.1 below) go beyond the physical intra-firm production process and factory layout to include non-physical factors such as intra- and inter- firm social relations and long-term firm survival strategies (Kaplinsky, 1994; Dicken, 1998).

Within the factory, the principles of *flexible production* represent the physical context for achieving WCM, embodying the concept of '*just-in-time*' as opposed to the traditional mass-production view of 'just-in-case'. This forms one of the three principle concepts underlying WCM. The second is the concept of '*continuous improvements*', which has a broader influence than merely the physical and logistical, and embodies human resource inputs through quality circles and suggestion schemes in order to achieve continuous improvements in both product and manufacturing process quality. *Total Quality Management* is the third and broadest of the three principle concepts, umbrella-like in its inclusion of the other two concepts but moving beyond this to include issues such as the idea that long-term strategic intent is the driving force of firm upgrading and therefore firm survival.

Table 2.3.1: Differences between Mass and Flexible Production Systems

Mass Production (Fordism)	Flexible Production (WCM)
Functional Layout with Production Organized According to Process	Cellular Layout with Production Organized According to Products
Maximum Machine Utilization	Machines Operates to Demand Only
Product Standardization	Product Diversity
Long Production Runs	Short Production Runs
Long Manufacturing Throughput Time	Short Manufacturing Throughput Time
Production in Large Batches	Production in Small Batches and Single Units Where Possible
Production Pushing Based on Sales Forecasts	Production Pulling Based on Customer Orders and Internally on the Speed of the Slowest Operator
Product Rectification at End the of the Production Process Undertaken by Skilled Personnel	Quality Built into the Production system and Controlled by Production Workers
Need for Large Numbers of Indirect/ Supporting Workers	Need for Only Small Numbers of Indirect/ Supporting Workers
High Levels of Stock 'Just-in-Case'	Minimal Stocks – 'Just-in-Time'
Complex Management and Production Controls	Simple Management and Production Controls
Single Skill, Single Task Working in Isolation	Multi-Skilled and Multi-Tasked Working in Teams
Improvements Solely the Responsibility of Management	Improvements are Everybody's Responsibility
Improvements Achieved Through 'Big Hits'	Improvements Achieved Continuously Through Small Changes as Well as Through 'Big Hits'
Arms-Length Relationships with Customers and Suppliers	Long-Term Commitment to Suppliers and Customers

Source: Kaplinsky, 1994; Dicken, 1998.

2.3.1 Just-in-Time

The innovation of 'just-in-time' (JIT) was designed to overcome many different types of waste associated with traditional mass-production practices and factory layouts. These 'wastes' included the capital tied up in high levels of inventory at all stages of production; unnecessary effort in moving this inventory across massive distances between functional areas within the factory; lost time while waiting for lengthy machine changeovers or for parts to arrive from some other areas of

the factory when bottlenecks or production failure occurred upstream; and defective products identified at the end of the production line, having wasted not only the materials but also the time the product spent on the production line after the defect occurred and before this was identified (Womack & Jones, 1996: 53-63; Kaplinsky, 1994; Bessant, 1995).

The concept of JIT is closely related to the idea of 'smooth flow'. In an effort to eliminate all the different types of waste that the traditionally structured factory generates, following the principles of 'smoothest flow' allows the parts of the production process to be brought closer together, both literally and figuratively, and in so doing reduces the spaces in which waste is created and where it flourishes (Womack & Jones, 1996: 53-63; Best, 1990: 54-5).

Translated into practical terms, JIT means reducing inventory within and between every stage of the production process. At the inter-firm downstream level this means increasing the frequency of deliveries of finished goods to customers from monthly or weekly, to daily or even bi-daily. This practice reduces the stock of finished goods inventory and through this frees up capital from this stock as well as through the reduction in the need for, and therefore also the cost of, storage space for this inventory type (Kaplinsky, 1994).

But in order that customer delivery at the daily or bi-daily frequency is reliable, processes within the factory need to be reliable and products being generated by these processes need equally to be of a reliably high quality. Thus at the intra-firm level the principles of JIT, improved flow and elimination of waste have been translated into numerous physical and process changes. Firstly, machine changeover times have been drastically reduced. This not only increases capital and labour productivity but also drastically contributes to reducing bottlenecks and increasing the flexibility of production. Secondly, physical plant reorganisation so that machines related to the manufacture of certain products are clustered into production cells has had the multi-beneficial effect of reducing the internal distance of travel for work-in-progress; of permitting greater control by labour over the production process and in so doing allowing quality to be built in at source; of creating the physical environment for realizing multi-skilled production teams and in turn reaping maximum rewards from these; as well as of improving responsiveness to customers because of the factory's increased ability to flexibly produce smaller batches of products with associated reduction in lead times[3] (Womack & Jones, 1996: 69-72).

[3] While robotics and automation do indeed from part of the cellular layout and can of themselves add substantially to increased productivity, Womack, Jones & Roos (1990: 94) estimate that automation accounts for approximately only

Thus clearly the logic of JIT ensures not only that production flows, but also that this happens only when it is *pulled* by the next step. The advantage of this built-in double-feedback system is that it ensures that any problem along the course of the flow will cause the system to stop entirely, freeing all energy to rectify the problem, reducing waste and, of critical importance, allowing and indeed forcing quality to be built in at source (Womack & Jones, 1996: 69-72).

JIT and improved flows at the inter-firm upstream level requires reliable and frequent delivery and quality from raw material or part sources and therefore closer relations with supplier firms and increased demand for quality infra- and info-structure. Within the efficient lean-production supply-chain, production is thus *pulled* by the consumer from the factory, through the factory, and upstream from its suppliers (Womack & Jones, 1996; Kaplinsky, 1994).

Clearly then, the focus on quality as the epitome of waste elimination, and the inter- and intra-firm 'pull' resulting from the implementation of the principles of JIT are closely related to the *concept of the value chain* and intra-firm product and process upgrading as well as to supply-chain upgrading, as discussed in the previous section.

2.3.2 Continuous Improvement (*Kaizen*)

The idea of *kaizen* or continuous improvement assumes that all aspects of life deserve to be constantly bettered, and through this represents a *life-long* commitment to change for the better. Continuous learning and on-going improvements are therefore seen as cornerstones of the concept of *kaizen* (Brown, 1996). Although this assumption flies in the face of the logic that dictates that there must surely be one *best way* of doing something, it makes sense if viewed within the context of the constantly moving targets of quality, flexibility, reliability and innovation demanded by the globalized market (Womack & Jones, 1996: 90-97).

Complimentary to the concept of *kaizen* or continuous improvements is the concept of *kaikadu* or radical improvements. While the traditional mass-production manufacturing view envisaged improvement to consist only of these latter radical innovations, focussing on small or continuous improvements is more likely to lead to radical improvements and can in addition double the productivity gained from these radical improvements. Thus the mutually reinforcing combination of

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one third of productivity differences between plants and that other flexible production principles must be implemented before high-tech process automation if firms want to gain the full benefit of this automation (see also Bessant, 1995).

kaizen and *kaikadu* can lead to continuous rapid advancement (Womack & Jones, 1996: 27; Tidd, Bessant & Pivitt, 1997: 96).

Fundamental to the practical implementation of *kaizen* within organisations wishing to focus on quality and upgrading in all their forms is the formation of *quality circles*. Quality circles bring together people with varying levels and angles of expertise within the organisation to work together on quality related problems. Apart from the actual quality improvements that such initiatives result in, they additionally contribute to human resource development by enhancing worker problem-solving abilities, developing leadership, spreading responsibility and generally enriching worker involvement and morale (Brown, 1996: 198-9).

Supplementary to formal and topic-specified quality circles, *worker suggestion schemes* are a method of formalizing what would otherwise be informal, and therefore mostly under-utilized, worker suggestions. These suggestions can then actively contribute towards the continuous improvement of products and processes that are otherwise perceived to be functioning well and therefore not 'deserving' of quality circle attention (Kaplinsky, 1994).

Labour training and empowerment, in addition to being fundamental for the implementation of production teams as mentioned earlier, is also critical for the implementation of quality circles and worker suggestion schemes. Because the demand for continuous improvements places greater responsibility on workers to produce correctly first time round, as well as to constantly monitor the results of their own work, and because these pressures are backed up by the use of manufacturing cells, internal inventory pulling and reduced stocks, labour requires additional skills to cope with as well as sustain the changes achieved (Humphrey, Kaplinsky & Saraph, 1998). Adopting the principles of *kaizen* therefore means, in addition to committing to continuous product and process improvements, recognizing the need for and committing the firm to continuous upgrading of labour skills and human resources.

2.3.3 Total Quality Management

The loaded phrase 'total quality management' (TQM) stresses that *management* (or running) of the firm should focus *totally* on *continuously improving quality* as the ultimate and strategic firm goal, and that this focus should be infused within every area and aspect of the running of the firm (Brown, 1996: 189).

Quality, when used in the sense of TQM refers not only to the quality of the physical product but more holistically to all aspects of the product, the process and customer-supplier relations. Thus in the inclusive form, quality focus is concerned about inventory levels, market shares, profits and manufacturing costs, labour productivity, product lead-times as well as product defects. And even with regard to the more specific physical product quality, various factors such as product performance, features, reliability, serviceability, durability, standards conformance, aesthetics and 'customer perceived' quality are distinguished. Thus quality in all its forms becomes the pervading company focus and company management and organisation are structured to achieve this goal (Brown, 1996: 181-5).

Employee empowerment is central to employee participation, contribution and commitment. Employees who feel dispensable to the firm, or that their ideas and suggestions, if given, will be dismissed as inferior are unlikely to participate or contribute actively to any firm upgrading drive. Reducing the social and structural management-labour divide, as well as management and labour training, go hand in hand in general employee empowerment. A conscious focus by firms on these human resource related factors sends the message that quality (in all its forms) and therefore ultimately the survival of the firm, is *everybody's* business (Brown, 1996: 197).

Strategic intent is one of the most important factors underlying TQM and success in WCM: without strategic intent attempts to implement the more physical characteristics of WCM are doomed to failure. Cost as a competitive factor, for example, needs to stand alongside other competitive quality-related factors such as flexibility and innovation, delivery speed and reliability, product quality and customer satisfaction, not all of which are served by reducing costs. Thus if the strategic intent of the company is long-term upgrading (whether process, product or functional), then the focus of WCM as being lean and eliminating all waste is seen within the perspective of these longer-term goals with an attendant recognition that reducing all costs at any cost may not necessarily pave the road to sustainable longer-term growth (Brown, 1996:332-3: Bessant, 1995: 4).

2.3.4 Conclusion

World Class Manufacturing, of which the central three concepts are 'just-in-time', 'continuous improvements' and 'total quality management' represents a fundamental shift from the mass production and associated social system initiatied by Henry Ford. Achieving WCM status implies being in a position of continuous upgrading: of being able to respond to, successfully integrate with, and benefit from the fragmented globalized economy. Yet providing a description of the ideal situation of WCM hides the difficult road that firms will need to travel in order to attain this status.

The next section, Section 2.4 will briefly discuss some of these implementation difficulties, with a special focus on the human resource and skill upgrading requirements of WCM as part of product and process value chain upgrading.

2.4 An International Focus on the Human Resource Demands of WCM and Value Chain Upgrading

2.4.1 The 'Learning Organisation': Sustainability in Upgrading

The only way of attaining a sustainable globally competitive edge is for firms to *learn* how to *learn*, and to do so faster than others. This is the view of many authors on organisational learning, including Peter Senge who defines 'learning organisations' as 'organisations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspirations are set free, and where people are continually learning to see the whole together' (Senge, 1990: 8, cited in Smith, 2001: 2). Additionally he highlights the fact that 'organisations learn only through individuals who learn. Individual learning does not guarantee organisational learning. But without it no organisational learning occurs' (ibid p5).

Many key ideas are thus contained in the concept of the 'learning organisation', all of which force a focus on the human resource aspects of global competitiveness and long-term firm survival. Therefore within learning organisations:

- There is a focus on *continuous* learning by *all* within the organisation;
- There is solidarity regarding, and ownership of, the desired outcomes for the firm, i.e. there is a clear long-term *strategy* to which all employees are committed;
- *Innovation* is encouraged and creative thinking welcomed; and
- There exists a *culture* of mutual interdependence, *trust* and respect between all the people in the organisation.

All the key ideas of the concept of 'learning organisations' are thus very closely related to the human resource related ideas of both WCM and value chain upgrading literature.

WCM has as one of its most important foundation stones a commitment to the continual development of human resources within the firm, and a recognition that without this aspect the implementation of principles such as JIT and TQM are unlikely to result in sustainable improvements (Brown, 1996). WCM 'is a system which makes relatively light use of embodied

capital and intensive use of human beings' (Kaplinsky, 1994: 34). Yet in many instances the 'form' of WCM has been focussed on to such an extent that the 'substance' of the concept has been lost. In other words managers have viewed the implementation of the various aspects of WCM as ends in themselves rather than as stepping-stones in the firm's strategically chosen direction, and because of this many firms have met with failure (Hayes & Pisano, 1994: 78). For while several of the physical prescriptions can relatively easily be implemented, they will not deliver as promised, nor will they ultimately be sustainable, if the human-related aspects such as management-labour relations (including trust and mutual commitment), remuneration and incentive schemes, training and multi-skilling, are not given top priority (Brown, 1996:327-37).

If competitive success in global markets depends on the identification of a long-term (and evolving) *strategy* and the *continuous movement* in that *direction* (Fleury, 1999), a firm's *capacity to change* is one of its greatest resources (Barnes, 2001: 66; KZN Benchmarking, 2002). And as capacity to change i.e. the firm's ability to innovate, adapt and learn is to a large extent the function of the skills and experience of the individuals within the workforce and the systems that govern their interactions, firms with long-term competitive strategic intent [which can also be read as intentions of upgrading (Fleury & Fleury, 2001)] cannot omit from the equation a continued focus on human resource development. Additionally a focus on strategic intent will highlight the exact nature of the human resource requirements of the firm in the medium to long term, which will allow the firm to direct attention to the development and retention of such skills in the present. For like muscles, human capital requires focussed attention to develop and will atrophy with disuse, in many instances the deterioration being permanent (Hayes & Pisano, 1994). In sum then, the realization of a firm's strategic intent or its proactive upgrading intentions demands in major part a detailed and specific focus on the firm's human resources and management systems, in other words, that the firm become a 'learning organisation'.

Learning organisations with strategic intent understand the importance of the whole system; that every action has consequences, both long and short term and that these influence and are influenced by all other aspects of the system (Smith, 2001). As highlighted by Hayes and Pisano (1994: 84):

> *Thinking about TQM, JIT and other manufacturing-improvement programmes not as ends in themselves, but in terms of the capabilities they both require and create drives one to think differently about solutions. Within a static framework, solutions to problems are regarded as one-shot deals. In a dynamic setting, however, solutions are viewed as part of a longer term* path *of improvement. Individual practices are adopted not just to solve an immediate problem, but also to build new skills that open up new opportunities. From this perspective, manufacturing strategy is not just about aligning operations to current*

competitive priorities but also about selecting and creating the operating capabilities a company will need in the future.

For example, because actions tend to be reinforcing (Hayes & Pisano, 1994), a firm without a strategic long-term view and an understanding of the whole organisational system, might in a period of need for cost reduction cut back spending on training. The short-term impact of this move is indeed very rapid cost savings, but the long-term viability of the organisation is simultaneously placed under severe strain. For while maintenance of cost reduction through a cutback on training may have little impact on workers' skills in the short-term, over the longer term their reduced ability to absorb and utilize new technology, and their reduction in productive and creative ideas will have severe competitiveness penalties for the firm.

Continuous training that is aimed at multi-skilling across functional barriers has the potential to create a virtuous cycle of firm development or upgrading: it is not only a key component of a long-term, firm strategic survival, but additionally enhances the strategic planning capabilities within the firm. Because employees learn to understand and value each other's contributions to the system as a whole the chances of the firm being distracted and diverted to areas of manufacturing in which it is not competitive, or which do not serve the long-term sustainable future of the firm, are drastically reduced. In addition such a training focus enhances the speed and success of new product introduction as the various departments within the firm are more closely bonded and therefore better able to anticipate and serve market requirements (Brown, 1996: 299-300).

Organisational learning is thus also critical to the concept and process of industrial upgrading. According to Gereffi's (1999b: 39) definition, "industrial upgrading involves organisational learning to improve the position of firms or nations in international trade networks'. Fleury and Fleury (2001: 117) highlight from this that upgrading is thus simultaneously a process (organisational learning) and an aim in itself (becoming more competitive in trade networks).

This distinction between the 'process' and the 'aim' of upgrading has led some to argue that more of a separation should be made between 'routinised' or *reactive upgrading* (the type that occurs when for example a firm expends the minimum amount of resources in attaining a quality certification that the main customer or client now demands), and *proactive upgrading* that is linked to the strategic intent of the firm (Fleury & Fleury, 2001: 118). According to Peter Senge, survival, 'adaptive', or reactive learning is not enough for a learning organisation. Although it is indeed necessary and vitally important for maintaining current firm positions, truly *getting ahead* and

internalising learning within the organisation means an additional focus on 'generative' or proactive learning (Senge, discussed in Smith, 2001: 3). So also Fleury and Fleury argue that '*continuous and sustainable* upgrading will take place only if it is a consequence of *purposeful* actions based upon learning processes aiming at an improvement of competitive strengths, consciously established by a firm, region or country' (ibid p118, emphasis added). At the same time undirected training, i.e. 'learning' without strategic intent, is unlikely to yield great results (Humphrey et al, 1998), and is of no value to the firm if it does not lead to an enhanced competitive position. Understanding the political economy or governance issues of the supply chains in which firms operate, as the value chain approach permits us to do, thus allows for a more nuanced look at the juncture between the implementation of competitiveness enhancing processes (such as those prescribed in WCM), the improvements or upgrading that such implementation generates, and the organisational learning which does or does not precede or flow from such implementation (Fleury & Fleury, 2001). Thus the value chain approach should allow more transparency regarding the rationality and sustainability of firms' current upgrading trajectories in relation to their human resource development.

Sections 2.4.2 through 2.4.5 will discuss more specifically some of the aspects of a focus on human resources that are relevant to manufacturing firms wishing to implement WCM as part of a sustainable upgrading path.

2.4.2 Leadership & Management

The establishment of a learning organisation as part of sustainable upgrading via the implementation of World Class Manufacturing demands commitment and support from those in both leadership and management positions. Firm level structural changes of both the physical and social nature will need to be made in order that these may become aligned with the requirements of WCM. Management has both the power and the resources with which to set in motion the desired changes, these including changes such as factory lay-out and production systems, new technology and equipment, as well as the training, multi-skilling and support of labour needed to maximally assist and maintain these changes. Evidence from firm-level studies show that workers only respond to participation and suggestion schemes when there exists some sense of reciprocal obligation; a feeling that management actually values skilled workers, is willing to make sacrifices to retain them, is as willing to demonstrate flexibility as it is to demand it, and is actually willing to delegate responsibility to the created teams (Womack et al 1990; Humphrey et al, 1998; Knell, 1993). Thus labour commitment to quality and productivity, and therein to the firm's ultimate survival, can only be secondary to and dependent upon management's commitment to the long-term strategic goal for

the firm and therein its commitment to upgrading labour skills and improving labour relations (Humphrey et al, 1998).

Senge (1990: 9) points out that the role of the *leader* in a learning organisation is different from that of a charismatic *decision maker*: leaders of such organisations need to be designers, teachers and stewards. As such leaders are responsible for creating in the firm an *attitude* that learning, sharing information and working as teams is important, and no one other than the leader can effectively perform this function (Solomon, 1999: 67). This has led Womack and Jones (1996) to note that there is a paradox inherent in the introduction of WCM. For while lean production is in essence anti-hierarchical and pro-democratic, the initial implementation of such changes from a mass-production, hierarchical-management system needs to be strongly motivated and directed from the top.

Continued shifts within firms towards the more democratic and anti-hierarchical management systems demanded by WCM i.e. labour training and empowerment in order that labour may participate in the multi-skilled teamwork required by cellular factory layout and in the quality circles and suggestion schemes that underlie continuous improvements, requires *on-going* commitment from those in positions of power. Yet in many cases such on-going commitment can be difficult to secure in light of the fact that increasing worker empowerment must be balanced by a reduction in the power of management (Humphrey et al, 1998: 125).

The implementation of WCM principles ultimately changes the nature and role of management itself, and the ability of management personnel to evolve with this role evolution is essential for the sustainability and deepening of the initiative. Worker empowerment cannot stand independently of management relinquishing certain powers, and with the 'squashing out' of middle management being the result of flatter hierarchies in which the 'top' and the 'bottom' grow closer, it is often this group that poses the most significant resistance to change. However such resistance from middle management is not inevitable if training is, as prescribed, directed at all levels of firm employees and 're-training' of this group develops and redirects their skills towards managing human relations through coaching, encouragement, mentorship and co-ordination, and away from policing and discipline. For while the former position leads to adversarial relationships between workers and middle management, the latter requires and builds the relationships of trust and co-operation which are so essential for the development of a learning organisation. Management therefore needs to become increasingly proficient at marrying technical and people skills, and in strategic thinking within a broader understanding of the global manufacturing environment. This change in no way

undermines the importance of middle management, yet highlights the need for change within this group so that members can fulfil their vital role of assisting top management in directing change throughout the organisation (Barnes, Bessant, Dunne & Morris, 2001).

In essence, management commitment to manufacturing according to world class standards needs to include acknowledgment of the need to, as well as a commitment to, evolving its own character in order to compliment the changing nature of the human resource requirements of learning organisations that are continuously upgrading their competitive positions.

2.4.3 Trust

The central element in the success of flatter hierarchies and delegation of responsibility to lower levels, as per WCM prescription, is the issue of trust. The seemingly small and obvious business of delegation of responsibilities in TQM principles involves a fundamental change in factory social relations. Production increasingly depends on relationships of trust between workers and managers. As labour undergoes training, becomes multi-skilled and increases its participation in quality improvements, there needs to be a simultaneous shift in management mindset from regarding labour as a cost to be reduced, to seeing it as an asset to be maintained and upgraded (Kaplinsky, 1994: 26-7).

Both commitment to training and commitment to worker retention when at all possible contribute to building and maintaining relationships of trust between labour and management. Often workers may be very distrustful of initial attempts at training or any other form of workforce reorganisation from a management that has historically not been perceived to have any commitment to human resource needs. This is due to the fact that many workers have come to associate 'restructuring and retraining' with workforce downsizing and with a subsequent loss of employment for certain workers and harder work and often lower wages for those who remain. This is especially true when re-training accompanies the acquisition of new capital equipment that replaces low-skilled jobs (Stanfield, 1992). Trust is thus difficult to build and easy to break, and ad hoc workforce downsizing in periods of market slump, and lack of company spending on training and human resource development, reveals lack of long-term strategic intent within companies and points to a reluctance of management to shift mindset from seeing labour as a cost to viewing labour as an asset worth maintaining and investing in (Brown, 1996: 336). Yet 'trust' should seen as the cement that holds the other elements of WCM together, and building this less tangible (and admittedly very challenging) aspect of WCM should be treated as critical, for 'original ideas for innovations, novel

products and processes etc can only be born of human imagination, zeal and loyalty to the firm, and not from any machine' (Brown, 1996: 336).

2.4.4 Skills

Seen and Unseen Skills

The issue of lack of human resources and skills is a central theme in the debate regarding the implementability of WCM, and thus also the ability of firms to upgrade, in many developing countries (Soderbom & Teal, 2000; Barker, 1999: 140) and even in certain areas of developed countries (Knell, 1993). Looking at skills from a proactive rather than reactive perspective, Hays (1999: 73) notes that firms should not ask themselves what skills they need in order to implement specific improvements, but rather what improvements they have not been able to implement, or which have failed, as a result of low skill levels within the workforce?

Human resources and the workforce skills of nations, regions or individuals need to be described in two distinct but over-lapping and reinforcing ways. The first of these can be portrayed as 'seen' skills; relatively easily measured and identified through the level of formal education or training achieved. The second way of looking at skills is much more difficult to measure. Described as 'unseen' skills, this concept refers to the productivity of the workforce or individual worker and their efficiency of operation (Soderbom & Teal, 2000: 15). While there are obvious overlaps in that persons or nations with greater 'seen' skills are likely to have greater 'unseen' skills, these need to be viewed as distinct because this simple relationship is not always true: factors external to qualifications, such as labour dissatisfaction with working conditions and issues of mistrust, may impact negatively on productivity of workers with all levels of 'seen' skills, and conversely some workers, especially in developing countries, may have few formal qualifications yet be exceptionally intelligent, highly motivated and may have acquired many skills through experience and hard work. Both facets of skills thus need to be taken into account in redesigning workforces and working environments to better cater for WCM, with greater formal recognition of informally acquired skills and incentives based on productivity, in addition to concerted efforts to support and further develop informally acquired skills through greater formal education and training. This is especially important at very low levels of formal education, for the empowerment of shop-floor workers to take responsibility above a certain level is indeed almost impossible if these individuals cannot even read or write (Hays, 1999:72).

The human capital theory postulates that education and training should be regarded not only as a consumption good, but also as an investment, meaning that benefits from training accrue to both

employers and employees, and that these benefits are both short- and long-term. For the employee these short-term benefits include increased subjective satisfaction, stimulation and status, while longer term benefits include potentially greater earnings. For the employer, however, training can be translated into increased enthusiasm and possibly more suggestions for improvement in the short-term and increased worker productivity in the longer term (Barker, 1999: 140).

In sum, if skills are viewed both in 'seen' as well as 'unseen' terms, and as an investment rather than as merely a cost, greater sensitivity can be used in implementing sustainable WCM, in devising fair incentive and remuneration systems, in understanding the specific needs of, and thus supporting the development of, the human resource asset-base of the firm.

Globalisation and Skills

The forces of globalisation and increased international trade have had a profound impact on the way in which local skills are both viewed and used in and between countries. As discussed in Section 2.1, the causes and impacts of globalisation in social and economic terms are many and varied. Of particular relevance to this section is the relationship between globalisation and local skills development in the area of manufacturing. Two main and interrelated themes arise from the literature. The first considers the relationship between exporting capacity and local skills, while the second examines the relationship between skills and technology development.

Regarding the relationship between exporting capacity and skills, a view held by many is that there are externalities of learning involved in operating in export markers. Such externalities are said to originate from the competitive environment of such markets; firstly through the method of sink-or-swim 'learning-by-doing'; and secondly through forcing firms to increase their focus on local skills development through training to improve quality and productivity if they wish to avoid 'immiserising growth' and the 'race to the bottom' through continued commodity product competition or developmentally unsustainable wage cuts to match existing productivity (Kaplinsky & Morris, 2000).

Bigsten et al (2000a in Soderbom & Teal, 2000: 24) conclude that internationally links between exporting and increased firm efficiency are strong and that the causality runs both ways. Firms of greater efficiency are more likely to penetrate the export market, and once in this environment, the efficiency of these firms increases further. However with regards to Africa, Soderbom and Teal (2000: 32) themselves conclude that efficiency had little impact on export *entry* but was significantly correlated with export *exit*, that most exporting firms in Africa, despite having a

theoretical comparative advantage in access to unskilled labour, are capital intensive and that there is virtually no exporting of unskilled labour-intensive manufactures. In partial explanation for this they point to the high factor productivity and transactions costs that exist on the continent relative to region such as South East Asia (ibid p38). Looking at the matter from a slightly different angle, Thrikell (1998: 267) concludes his study of the components of sustained exporting success in manufacturing firms in New Zealand, by suggesting that a focus on human resources and skill upgrading cannot be overlooked in a holistic approach to understanding the dynamics of sustainable exporting performance: 'developing a firm's portfolio of skills over time will bear more fruit than undue emphasis on one or two of the critical success elements'.

A second theme discussed in the literature in relation to globalisation is the link between technology and skills. There is generally consensus that the two are mutually reinforcing yet the link has been explained from many different angles, and as running in both directions. Some authors have argued that the presence of information and other computer technologies complement skills because of the need for machine installation/operation/maintenance/repair, all of which requires workers to have higher levels of literacy, numeracy and in many cases to understand technical manuals which make reference to electricity and chemistry. Other authors point to the higher degree of worker responsibility necessary in WCM, which requires implicit skills such as the ability to detect changes in the status of the production process based on physical cues. Still others have pointed out the high levels of skills required in overseeing the organisation system of the various technologies (Osburn, 2001: 453-4). Acemoglu (1998: 1055) highlights the link in the opposite direction arguing that a 'high proportion of skilled workers in the labour-force implies a large market size for skill-complementary technologies, and encourages faster upgrading of the productivity of skilled workers.'

All of the above factors have resulted internationally in rapid job-redesign, changes in the wage shares of the variously skilled workers (the wage share of production workers fell relative to that of non-production workers, and within both groups, wage shifts simultaneously went towards those with greater skills), and contributed to the massive movements of productive capital to locations where the required technology can most efficiently be served by local skills. Reliance on the production and export of unskilled, labour-intensive manufactures exposes firms and nations to the full force of price competition in which workers' wages are of necessity viewed as a cost to be reduced or at least kept to a minimum. Workers in these firms or nations are thus exposed to a high risk of unemployment, either though disinvestments of firms seeking lower wage regions, or from being replaced by automated machinery. The 'capital-skills complementarity hypothesis' proposes

that skilled workers (involved in higher value-added production where low prices are not the primary competitive advantage) are less easily exchanged with physical capital than are unskilled workers (Osburn, 2001).

Gregory and Machin (2000) support this argument. Drawing on a wide range of cross-country research they conclude that there is strong evidence for the reduction in demand for low-skilled workers in the presence of new forms of technology, and that this was of much greater import in the destruction of low-skilled jobs than the opening of national economies to international trade, an issue which has itself received much attention. The important policy prescription flowing from this, they argue, is therefore not to protect the domestic market in order to retain positions of low-skilled workers, but rather that greater efforts should be directed by all concerned towards the development of education and skills that will link into and take advantage of advancing technological processes as part of a sustainable upgrading path.

Local Labour Pools

At the same time as the forces of globalisation have had an impact on the use and development of skills at the local level, so too has there been a relationship in the opposite direction: local labour pool characteristics have impacted on the way in which global best practices in terms of manufacturing have been implemented.

An interesting study of the manufacturing firms in Northern England by John Knell (1993) revealed that the skills and habits of the local human resource pool had a significant effect on modifying the implementation of WCM principles during the setting up of new Japanese owned and managed firms in the area. While there were initially large differences between these new firms and the existing firms in terms of WCM systems in relation to human resource development and skills upgrading policies, the gap between these narrowed as time passed, with a large portion of this narrowing being a regression by the foreign firms to the more hierarchical human resource systems that were more familiar to the workers. Additionally, due to the greater financial reserves available to the foreign owned firms, their recruitment policies were far more developed, with them often resorting to 'poaching' rather than 'developing' the skills they required. The conclusion from this study was that despite Japanese owned and managed firms having more developed human resource management policies than the domestically owned firms in the area, the character of local labour pools placed limits on the skill-upgrading strategies of the inward investors, who thus in essence accommodated themselves to, rather than transformed, the region's existing human resource endowments (Knell, 1993: 40). This conclusion support Humphrey and Schmitz (2000: 11) in their

argument that the role of the 'local' cannot be ignored in the context of the 'global' value chain (as mentioned briefly in Section 2.2.3).

2.4.5 Training

> *'Active participation and motivation cannot be ensured by organisational means only. Cellular organisation, monetary benefits and boxes waiting to receive the employees suggestions, are not enough to stimulate employees' minds and initiate a continuous flow of bottom-up suggestions,* additional training *is indispensable.'*
>
> Barad & Kayis (1994: 51)

Increasing the skills-base of a firm to support WCM and sustainable upgrading necessarily involves training, with a simultaneous commitment of financial resources for this purpose. Countries with high-performance workforces such as Germany and Japan spend approximately 3.5% of their remuneration bill on training. The training provided should be aimed at all levels of employees (Barnes et al, 2001), should be on-going (Hays, 1999: 78) and should also continuously be re-evaluated in order that it remain in line with the evolving strategic intent of the firm (Humphrey et al, 1998).

Training needs to compose different aspects, which need to be selectively directed at certain sectors of the workforce. Examples of the different elements of training include: basic literacy and numeracy training (Hays, 1999; Stanfield, 1992); training which encourages the identification of employees with corporate objectives (Green, Felstead, Mayhew & Pack, 2000); training for all workers on the basic principles of WCM including the human resource aspects; training on the specific implementation of the principles within the firm; as well as training of particular workers in the more detailed technical skills required (Barad & Kayis, 1994). Additionally, Solomon (1999) points out that increased skills demands in the future will be for problem-solving and inter-personal skills, and that these factors should be worked into all aspects of training.

Labour Mobility: a Real Threat or an Excuse for Not Training?

One of the fears associated with training is that this will increase the value of the employees and thus their 'poach-ability'. Where training has been associated with an increase in labour turnover, this increases the firm's fears that future human resource investments will be lost. The loss in this case being not only the capital invested in the person, but also the cost of recruitment and re-training that will be needed to replace the employee, as well as the loss of productivity while this replacement process is taking place (Green et al, 2000).

However, Green et al (2000) in their study of UK firms conclude that in instances where training generates organisational commitment, mobility may be reduced. This they consider possible even in instances of non-firm-specific training if labour perceives that the training represents a generally increased commitment by management to them. Thus ironically, one of the ways in which firms can improve their chances of skill retention and thus partly insure against loss of investment is precisely *to* invest in labour skill upgrading. A firm's undertaking to bear the financial costs of training (thus all direct and most indirect costs) has been demonstrated to contribute to labour's increased commitment to the organisation, and simultaneously a reduction in labour mobility. On the contrary, however, in cases where part of the training cost is paid for by the individual and/or the firm does not compensate the individual for the additional training in terms of incentives and/or increases in remuneration, increased labour mobility is likely to result.

Training: the Responsibility of the State, the Firm, or the Individual?

As alluded to above, the costs of training can be borne by different parties. These include the individual, the employee, the state, or some combination of the three. Costs include the *direct* costs of the actual training course: the study materials, the wages of the educator, and the venue if not on site; as well as the *indirect* costs: loss of productive employee hours to the firm if undertaken during working hours, or loss of leisure- or family-time to the individual if undertaken outside of working hours. Green and his colleagues argue that there is a pervasive role for the employer to play in contributing to the cost of training, either in conjunction with the employee or with the government, but as benefits accrue to all parties, commitment and costs should be shared as appropriate (Green et al, 2000; Solomon, 1999).

Yet effective training requires not only financial commitment, but also sound organisational systems that link appropriately qualified quality trainers to suitable learners in sufficient numbers so as to reduce costs per head through the generation of economies of scale (Joffe et al, 1995; Barker, 1999, 150). In countries such as Japan, the national Ministry of Labour is responsible for many aspects of vocational training and human resource development related to the needs of the country's manufacturing sector (Kitaura, 1996). In the USA, on the other hand, various states have developed different systems of assisting firms in upgrading human resources for example through interest-free loans for training, or through levies on payroll that either go towards state-run training or can be re-claimed by firms to off-set individual costs of training. The problem with Japanese-type systems are that they demand extremely high levels of capacity and co-ordination from the state, and are therefore, for many reasons, not viable options in most developing countries. The US system of levies, on the other hand, which theoretically allows for much more freedom at the firm level has,

however, for a variety of reasons had an uneven record in meeting employers needs with firms thus not making use of the programs and viewing the levy more as a tax (Stanfield, 1992).

In the end no system can serve equally well all needs, but evidence suggests that responsibility for training should be taken at all levels (the individual, the firms as well as the state) and that the exact nature of the mix should be determined by the specific national needs and context.

2.4.6 Conclusion

This section has outlined the concept of the 'learning organisation' as an integral part of both WCM and value chain upgrading by stressing that if competitive success in global markets depends on the identification of a long-term and continuously evolving strategy and the continuous movement in that direction, a firm's capacity to change (in other words its human resources) is one of its greatest assets. Additionally, development of human resources and the firm's ability to learn should be proactive or 'learning-in-anticipation-of-learning', rather than reactive or merely 'learning-by-doing' if the firm truly wishes to 'get ahead' as opposed to merely 'keeping up'. As such the importance and significance of issues such as leadership and management, trust, skills development and training all need to be understood in and of themselves, as well as within the local context, and such understanding applied in a way that creates in firms rent-generating human resources and the ability to sustainably upgrade.

Section 2.5 extends the above themes by relating them to the South African national context.

2.5 South Africa: Human Resources in Relation to Value Chain Trajectories

If value chain upgrading is seen as a way in which individual firms and whole national economies can avoid the trap of 'immiserising growth', and if both the implementation of WCM principles as well as an increased focus on human resource development are of critical importance in achieving this, what does the current situation in South Africa with regards to these latter objectives tell us about its chances of achieving the main goal; an upgrading trajectory at the level of national industry? This section looks at some of the available evidence, especially in terms of human resources, and takes as its starting point South Africa's recent history of Apartheid and ISI policies, and its current rapid trade liberalisation with firms' sharp exposure to globalisation's forces of strong competition, production fragmentation and a general climate of uncertainty.

2.5.1 Management and Labour: Issues of Trust

The interaction of ISI, Fordist principles of production and Apartheid, led in South Africa to the development of what Gelb (1991: 13) has referred to as 'racial Fordism', where mass production and mass consumption are constructed on racial lines, with managers being predominantly white males and workers black, the predominant gender being determined by the type of industry. This, in addition to the fact that South Africa has emerged very rapidly from a fairly extreme insulation from global trends has resulted in massive challenges for management, who find themselves having to implement restructuring and evolve their own roles in a highly condensed period of time (Barnes et al, 2001: 297).

Mistrust and resistance to change in South Africa comes from both management and workers. This has led, in many instances, to vicious cycles of self-fulfilling prophecies within which the focus on the *substance* of WCM is lost. On the one hand South African managers, whose culture is strongly linked to the prejudices that pervade society in general, have been slow to react to changes in international philosophy on management techniques, perceiving as they do South African workers to be unreliable, militant and with few insights to offer (Barnes et al, 2001: 298). The Industrial Strategy Project report (1995) points out that the paternal, racial, and hierarchical systems of management evident in most South African factories have resulted in certain elements of lean production being severely 'misinterpreted'. Thus collaboration has been used as a way of pre-empting union movements, rather than as part of the democratisation process of the workplace; multi-skilling has become multi-tasking, with little or no commitment to training and skill-upgrading; new technologies have been used to increase supervision and control rather than as a means of improving quality, reducing waste, and enhancing efficiency; and cost reduction has come to mean increasing use of the sub-contractors and temporary or part-time staff, rather than improving multi-factor productivity and work organisation (Joffe et al, 1995: 195).

On the other hand, the long history of authoritarian and racist management has created a legacy of worker resistance and alienation (Barnes et al, 2001: 298), which is fuelled by the types of management responses such as those described above. Worker resistance however, manifest in low levels of productivity, high levels of absenteeism, quick involvement of unions in situations of dispute, and little enthusiasm for training (Desai & Habib, 1997: 503-7), serves only to reinforce management's low expectations of labour in terms of their ability to absorb skills, improve their levels of productivity, contribute valuable suggestions or to take on more responsibility. Thus the vicious cycle of suspicion and reactive attitudes on both sides becomes starkly evident.

In this difficult context a few firms have managed, however, to implement some of the more human resource related techniques of WCM, with pressure for change coming from two different directions: the competitiveness crisis arising from increased global trade integration; and a 'grudging acceptance' that a shift to greater democratisation within work practices is essential for firm survival in the face of the democratic changes that have taken place in the country as a whole (Barnes et al, 2001: 298).

Even in firms where existing managers are making attempts to change, past habits and cultures, and the slow movement of black people into higher positions has restricted results. Kaplinsky and Mhlongo (1997) give the example of Bell Equipment Ltd where it took a new black HR manager to discover that the reason workers had not been contributing to shop-floor meetings was the fact that these were conducted in Afrikaans, a language which they barely understood. Hunter (2000) confirms the important impact of black managers on aspects of TQM such as suggestion schemes, arguing that black managers are perceived by workers to be far more accessible than their white counterparts, as elements of fear in approaching white management persists. Additionally when the management body is purely white, many workers will not make suggestions as they feel that these will not be taken seriously.

Unsurprisingly worker morale remains low and while it is internationally accepted that restructuring towards a more democratic working system is initially a top-down process the situation in South Africa is ironic, with the unique history of extreme militant and adversarial relations between labour and management possibly requiring a larger role for labour from the outset. For while elements of WCM and lean production have been nominally implemented since the late 1980s, such implementation has often been far from successful, to a large extent because of the lack of attention paid to human resources at both management and worker levels in terms of appropriate training as well as responsibility devolution (Barnes et al, 2001: 298-9).

In sum, the production ideology of 'racial Fordism' has proved particularly tenacious in South Africa and despite the repeal of all Apartheid laws, additional affirmative action policies and a general recognition by firms' that WCM is critical in order to survive in the global market, mistrust by all parties continues to negatively constrain the pace at which upgrading can occur. Looking at matters from the point of view of labour relations and trust, it is thus unsurprising that successes in true shifts towards WCM and sustainable upgrading have so far been limited.

2.5.2 Skills in the South African National Economy

A factor other than trust, which limits the implementation of WCM and upgrading in general in South Africa, is the massive skills shortage that exist at almost every level of the labour market (Barnes et al, 2001; Joffe et al, 1995). Neither the past formal education system, nor the intra-firm systems of promotion and training have been conducive to developing the skills appropriate for survival in the context of global competition. The need to become globally competitive requires that *each and every* worker become more flexible and innovative (Barker, 1999).

Barker (1999) argues that South Africa's recent re-engagement with the global economy will lead to increasing demands for skills at all levels of the labour market, and that such demands are likely to come from two directions: firstly through the increasing shift from primary sectors (agriculture and mining) to secondary (manufacturing) and tertiary sectors (services); and secondly through the increasing demand within each sector for greater skills and productivity.

Yet the 'high' skill requirements of WCM are perceived by management in South Africa to be one of the greatest obstacles to its implementation (Barnes et al, 2001: 303). Apart from the general issues of mistrust discussed above, this view is partly accurately rooted in the fact that the highly unequal and fragmented educational institutions of the past *have* resulted in the situation where in 1996, according to official government statistics, a massive 36% of the over age-20 population was functionally illiterate, while at the other end of the scale, only 22.6% had achieved an education level of grade 12 or higher (Statistics South Africa, Census 1996).

Beyond the level of general education, the tertiary education system has also failed to cater for the longer-term artisanal needs of industry, especially in terms of engineering and the sciences. Technikon enrolment in 1994 was half that of university enrolment, in other words only one quarter of the desirable double university intake (Barker, 1999: 147).

This lack of broad-spectrum skills has been compounded within factories. The National Training Board, while admitting that the extent and quality of in-service training has been very difficult to measure, estimated that in 1994 most firms in South Africa were spending less than 1% of remuneration on training, a miniscule amount compared to competitor countries (Barker, 1999: 148). Added to this lack of in-service training the current worker skill levels are additionally the outcome of the principles of 'Taylorism', where tasks are broken down into very specific units and simultaneously separated from knowledge of the production process as a whole (Joffe et al, 1995: 187). Reality has not changed much with the supposed implementation of WCM principles for, as

mentioned above, 'multi-skilling' has often been interpreted as 'multi-tasking', or merely increasing the number of unskilled tasks that one individual is able to perform, which only has a very limited impact on the individual's real productivity levels. And at the level of management much of the fault for lack of appropriate skills lies at the level of the individual firm's promotional systems. Most persons, especially in middle management positions, started their careers as technical specialists and have received little or no formal management training at all (Barnes et al, 2001: 303). It thus seems extremely unlikely that the mere implementation of lean production principles will have much of an impact on raising the general skill levels of the workforces of most factories: it is critical that specific attention be given directly to training (Hunter, 2000).

Training: the Role undertaken by the South African State

Since 1995 the government has clearly identified that sustainable employment creation, one of its greatest challenges, will demand that South Africa follow a high value-added growth path while at the same time addressing the massive skills shortages which exist in the country and eradicating the inequalities in the labour market created by past Apartheid policies. In line with this thinking a body of legislation designed to assist and also push them in the right direction at the same time as supporting in the restructuring of the education system, has been put in place (Daniels, 2002). This legislation encompasses the Skills Development Act, 1998; the Skills Development Levies Act, 1999; and the Green Paper on Further Education and Training, April 1998.

The *Skills Development Act, 1998* aims to provide an institutional framework through which to formulate and execute national, sector and workplace strategies that will create and enhance the skills of the South African workforce. As such it aims to integrate these formulated strategies within the National Qualifications Framework; to provide for the development of 'learnerships' that will lead to recognised occupational qualifications; and to assist in providing the financing of skills development through the implementation of a levy-grant scheme and a National Skills Fund.

Furthermore, the Skills Development Act identifies that the main aims of the skills strategy is to: develop a culture of life-long learning; build the skills required by the formal economy; improve general skills so that people have the opportunity of viable self-employment; and attempt to assist new job-seekers so that they may gain opportunities to access the formal labour market and thus contribute to building the national economy.

The *Skills Development Levies Act, 1999* is essentially the legislation that supports the levy-grant scheme of the Skills Development Act. Accordingly, every employer (with a few exceptions) had

had to pay a skill development levy from 1 April 2000 at a rate of 0.5% of the remuneration bill, and from 1 April 2001 at a rate of 1% of the remuneration bill. These funds, collected through the South African Revenue Services are then disbursed for training and sectoral skills development through one of the twenty-five established Sector Education and Training Authorities (SETAs). When taken in comparison to international levels of firm spending on training, this levy is a reasonable minimum, especially as the SETAs not only reimburse individual firms for training expenses but are also responsible for undertaking and co-ordinating training activities at the sector level where economies of scale can be reached in terms of the cost of trainers and the consistency of quality (Barker, 1999: 150).

Barker (1999: 50) does however point out that such training is likely to benefit the industry as a whole more than the individual employers, and Brandon Pearce, CEO of MERSETA (Pearce, 2002: 4) confirms this, stating that most companies have failed to take advantage of the resources available to them as 'many companies still regard the levy imposed by the Skills Development Act as an added-burden tax than as a training incentive'.

The basic premise of the *Green Paper of Further Education and Training, April 1998*, is that a well developed Further education and Training (FET) Sector will have a considerable contribution to make towards the anticipated national economic growth in the light of South Africa's shift towards a value-added and information-based economy (Prof S.M.E. Bengu, Minister of Education, April 1998 in Green Paper on Further Education and Training, 1998). As such the FET Green Paper supports the Skills Development Act in recognising the importance of values in life-long learning, and that as education and training are the foundations for growth in any globalised economy, it is essential that the very fragmented system of tertiary education in the country become more integrated with and aligned to the needs of the general economy. At the same time it attempts to create some sort of funding coherence, to standardise the quality of FET, to marry the previously separate education and training tracks, and to assist in overcoming the Apartheid education and training legacy.

A recent development supporting this process has been the South African Qualifications Authority launching of the 'Prior-Learning Policy' in September 2002 a the National Skills Development Conference in Sandton, Johannesburg. The purpose of this policy is to recognise skills gained in previous learning experiences and to grant credits for such learning towards unit standards and qualifications registered on the National Qualifications Framework (Naude & Pillay, 2002).

2.5.3 Training

Additional training aimed at raising specific skill levels is thus highlighted as a necessity for all levels within firms wishing to embark on an upgrading path. The study by Barnes et al (2001: 301) shows that many middle managers concede that both labour and management need more skills in order to fully implement the changes demanded by WCM but that attitudinal difficulties in both groups will likely form substantial obstacles for acquiring these, and because of this advocate that additional training should not only focus on technical skills and an understanding of WCM principles, but also on improving the attitudes of both groups towards each other.

The Industrial Strategy Project report (Joffe et al, 1995: 191-2) attributes the lack of investment in human resources at the firm level in South Africa to numerous factors. Firstly, firms perceive that training holds benefits only in the medium- to long-term but substantial costs in the short term. Secondly, management of firms feel threatened by the fact that increasing the skills of labour will result in an increase in their bargaining power and also demand a simultaneous reduction in the power of management. Thirdly, companies fear that any substantial amount of training will result in increased labour mobility and a concurrent loss of investment. Finally, individual companies are unlikely to achieve the economies of scale needed to justify the economic costs of training, and low levels of inter-firm trust as well as low past competitive pressures have not stimulated incentives to form networks for cost reduction.

The discussions above in Section 2.4.3 and 2.4.4 have already undermined the first two of these arguments. The third, the issue of the relationship between labour mobility training, and the fourth, that individual companies are unlikely to achieve the economies of scale needed to justify the economic costs of training, needs further expansion at this point due to the complex context of the South African situation.

Labour Mobility and Skills

Because of generally low levels of education within the South African workforce, a substantial amount of non-firm specific training (e.g. ABET) is needed as foundational training. While the conclusion of a British study (Green et al, 2000) was that such non-firm specific training was indeed more likely to lead to increased labour mobility, this was potentially balanced by firms' undertaking to bear the costs for the training, in which case the loyalty to the firm often increased. The argument in South Africa for not training because of fear of labour mobility is further undermined by the fact that the labour market is especially tight, with thousands of literate and

numerate school-leavers unable to find work each year (Statistics South Africa, Census 1996), as well as the fact that for most people, relocating on account of a semi-skilled job is a cost and risk too high to be undertaken lightly. Additionally, much non-firm specific training will be directed at the older, existing labour force, a group for which even non-firm specific training did not significantly increase labour mobility in the British study (Green et al, 2000). At the other end of scale however, high skills levels are at such a premium in the country that developing human resources to the critical level of staff being able to contribute to the strategic planning within the organisation *is* however very likely to carry a risk of employee loss due the myriad of opportunities which exist for such skilled individuals.

2.5.4 Conclusion

Recognising that a high value-added path is the only way to sustainably grow the economy in the future at the same time as overcoming the legacy of inequality, massive skills shortages and the crippling lack of trust between sectors of the workforce, the South African government has developed a body of legislation which provides a framework for assisting firms in developing their human resources. The practical implementation of this legislation is still in progress, and it is too early for any real assessment of the outcomes.

Consequently, with regards specifically to the impact on the value chain trajectories of the current human resource situation in South Africa the picture is mixed. Significant positive steps have been made especially in relation to national policy and the implementation of changes to the broader framework of skills development, yet these changes seem to be infiltrating the firm level much more slowly, despite firm level enthusiasm about other aspects of WCM. Thus while it seems one may be tentatively positive about the direction of movement with regards to human resource development in the country as a whole, the literature also indicates that much more proactivity is necessary at the firm level if truly sustainable upgrading paths are to be the outcome.

CHAPTER THREE
METHODOLOGY

3.1 Choice of the Study Population

The research undertaken for this dissertation attempts to begin an exploration of the extent to which the value chain framework of analysis can be used to examine and explain differences in commitment to human resource upgrading in a group of firms that are committed to upgrading in general through the implementation of WCM principles. To this end a very specific group of firms was sought:

- The group had to be similar enough to be subjected to the same sectoral pressures, but diverse enough to occupy slightly different positions within their value chains;
- All firms in the group had to have demonstrated commitment to embarking on an upgrading path through the implementation of WCM principles; and
- Detailed historical data for the group was needed if any trends over time were to be obtained.

Thus the automotive components manufacturing firms belonging to the KZN, Gauteng and Eastern-Cape Benchmarking Clubs of South Africa provided the ideal population for this case study.

The following two sections provide firstly, a general overview and brief historical contextualisation of the political economy factors impacting the automotive components sector in South Africa (Section 3.1.1); and secondly, some additional basic facts about the specific firms belonging to the Benchmarking Clubs and about the data collected by these Clubs (Section 3.1.2).

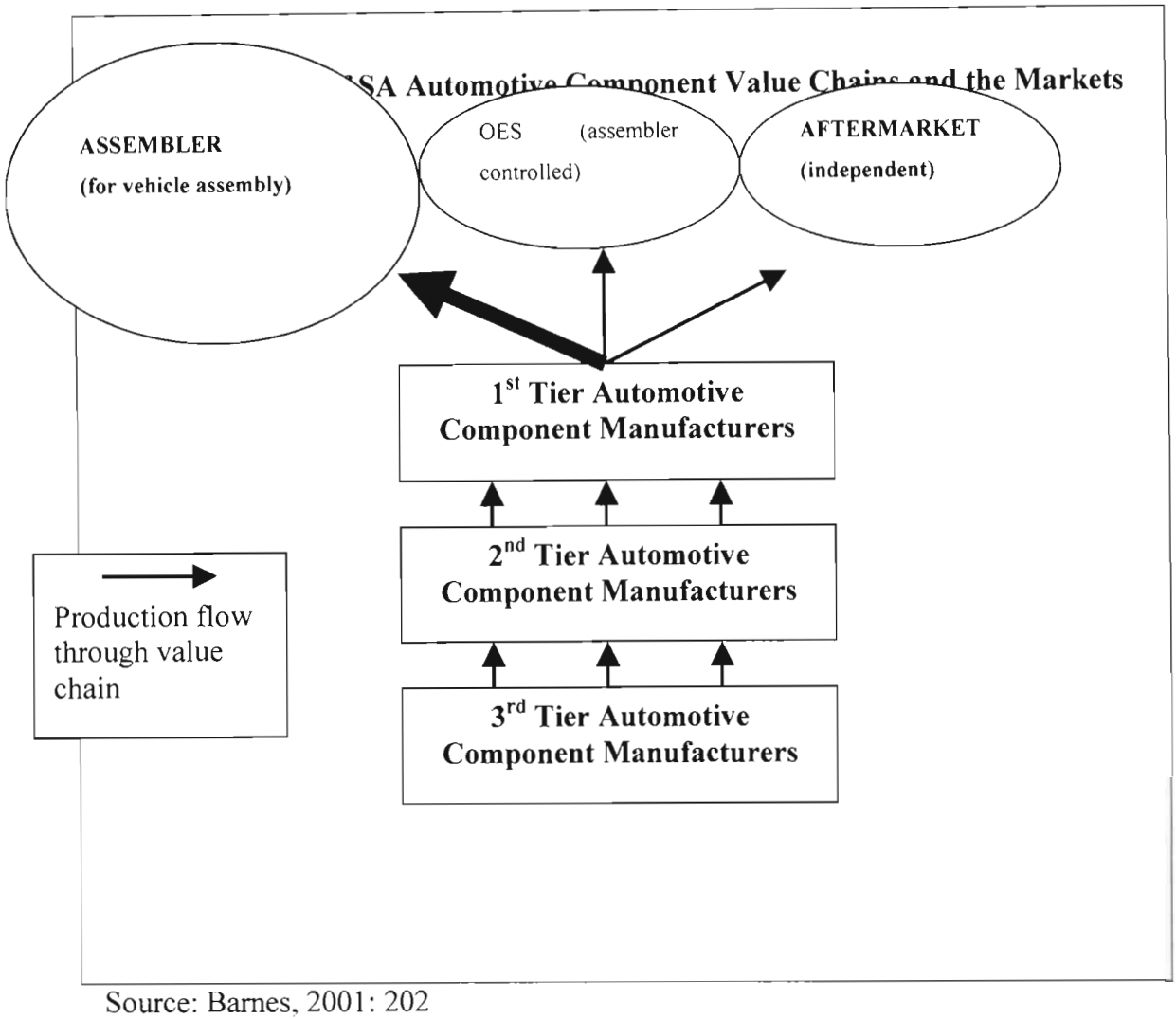
3.1.2 History and Current Situation of the South African Automotive Sector

The automotive value chain is one of the classic examples of a producer driven value chain, in this case the producer and also the major chain governor being the final assembler. However in South Africa additional local and international policy choices have had a profound influence in shaping the nature of the chain, an outline of which is provided in Figure 3.1.1 overleaf.

The development of the automotive value chain in South Africa dates back to the 1920s when Ford and General Motors established local assembly plants in anticipation of policies of tariff barriers and import permits. The realisation of these policies resulted in the establishment of the first local components manufacturers who catered predominantly for the aftermarket for these vehicles.

Growth in the sector was however slow and the low levels of value-added, continuing high levels of imports (15% of total SA's imports in 1960) and the potential for positive externalities led the government to specifically target the sector for development (Barnes, 2001: 203-4).

Figure 3.1.1



Source: Barnes, 2001: 202

Beginning in 1961 and ending in 1995 the government implemented a total of six local content programmes, which involved changing combinations of tariffs and import permits designed to progressively increase the amount of local content and thus increase the linkages between local assemblers and local components manufacturing firms (Barnes & Kaplinsky, 2000a: 219).

One of the greatest ironies of the local contents programmes was that from the first of these until the 1980s local content was determined by weight rather than value, so that at the time when the global market was moving to increasing value in light-weight electronic components and energy-saving light-weight materials, the incentive system in South Africa was pushing for the development of

supplier firms specializing in heavy lower value-added components (Barnes & Kaplinsky, 2000a: 220).

At the international level, and in response to local racial Apartheid policies, the 1970s saw the beginning of two decades of political trade sanctions against South Africa with the associated disinvestment of the two largest and earliest assemblers. While the new Japanese assemblers (Toyota and Nissan) did enter the local market during this period, they produced under franchise rather than through ownership. In other words, by the early 1990s there was very little foreign influence within the domestic automotive industry (besides German, which remained consistent throughout the sanction period), with domestic assemblers producing for the domestic market and sourcing predominantly from domestic suppliers (Barnes, 2001: 203). Thus the combination of the various local content programmes and the polices of international trade sanctions led to the creation in South Africa of an artificially diverse locally owned automotive components manufacturing industry, a situation which remained relatively stable until the mid-1990s (Barnes, 2001: 203).

The election of the first democratic government in 1994 with the associated end of international sanction policies and the liberalisation of the domestic economy resulted, not surprisingly, in a massive upheaval for the South African automotive industry. Having been excluded from international trends in new designs and state of the art production processes, much of the sector was uncompetitive within the global market, both in terms of exporting as well as in terms of holding domestic market shares against imports (Barnes, 2001). Yet recognising the importance of the sector to the South African national economy in terms of value-added, exporting and formal employment, the government launched the Motor Industry Development Programme (MIDP) in September 1995 (Barnes & Kaplinsky, 2000b: 798).

The MIDP was set up after extensive collaboration with all industry stakeholders and had five major objectives, which were to: improve the international competitiveness of both assemblers and component firms; improve vehicle affordability in real terms; promote exporting as a means of enhancing the growth of both assembly and components industries; reduce the highly skewed trade balance within the industry; and stabilise employment levels. These objectives were not deemed mutually exclusive, and were envisioned to be the result of the implementation of a variety of supply-side measures which would compensate firms for the elimination of past demand side support (Barnes & Kaplinsky, 2000a: 222).

The outcome of the MIDP was not only that the industry was reoriented from an inward to an outward focus, but also that the entire nature of the political relationship between local assemblers and components manufacturing firms changed. One of reasons for this has been the reintegration of the assemblers into international chains through ownership changes[4], which have strongly influenced the global-connectedness of these assembler firms and in turn had a considerable impact on the components firms feeding into them through increasing demands by assemblers for supplier firms' competitiveness in all aspects (Barnes, 2001: 204) including quality, price, delivery reliability, conformance to standards, packaging, flexibility, capacity to develop new products, capacity to modify new products, and process innovation capacity (ibid p157).

Thus the political economy[5], of the South African automotive value chain has rapidly been changing over the last decade, partly in response to the changing political economy within South Africa as a whole and partly due to the changing nature of the political economy of the international automotive value chains (Barnes, 2001: 200). These latter international automotive value chain specific factors can be summarised as follows:

1. the automobile as a product has become increasingly technology intensive, with the assemblers concentrating more on research regarding the overall design;
2. first tier suppliers are correspondingly having to shoulder more of the responsibility for the design and assembly of modules, only some of the components of which they personally manufacture;
3. the pace of innovation has increased with new models reaching the market in less than 30 months, which demands that assemblers and the various tiers of suppliers work simultaneously on the overall product and its component parts;
4. world class manufacturing requires the very close integration of logistics and quality procedures between assemblers and their component suppliers; and
5. all this is occurring in the context of growing liberalisation of trade and investment flows in the industry internationally with an associated increase in global over-capacity

(Barnes & Kaplinsky, 2000a: 226-7).

All of these trends have resulted in increasing demands for what has come to be known as 'follower supply' where many first tier suppliers and some second tier suppliers are required to serve the entire global operations of the assembler and establish plants in close proximity to these assemblers

[4] In 1990 four of seven assemblers were predominantly South Africa owned, while one was a joint venture and only two were MNC owned. By 2000 five out of the seven were MNC owned and two were run through joint venture.

in order to satisfy their demands for competitive prices, adequate quality, high delivery frequency and reliability, and conformance to specifications. This requires that first tier suppliers have adequate size and technological capabilities with assemblers increasingly demanding equity share relationships with global parent firms as prerequisites for supply contracts, and global suppliers increasingly looking at setting up Greenfield sites close to assemblers or taking over existing supplier firms in the area (Barnes & Kaplinsky, 2000a: 222-9).

Thus in South Africa the release of assemblers from the obligation to source locally has resulted in massive pressures on domestic suppliers to upgrade their performance to the levels of international competitiveness, with a simultaneous increase in the demand by assemblers for suppliers to have access to international technology such as that gained through equity share relationships. This has resulted in dramatic ownership changes taking place in the components industry with the majority of firms now feeding into the assemblers being MNC owned or joint ventures (Barnes, 2001: 210).

At the same time the components industry is finding it increasingly difficult to rely solely on the domestic OEMs and aftermarket for survival and has increased its focus on the export market. Exports of components are growing rapidly with around two-thirds of these channelled through the assemblers, either as incorporated in the exported built-up vehicles, or under the brand name of the assemblers and to their designs (Barnes & Kaplinsky, 2000b: 808).

In sum the promise for the domestic components industry lies in a combination of factors: proximity to final assemblers; a few pockets of technological expertise; some sectors where local raw materials provide an advantage; component exports to the after-market in the region; and scale economies built on the back of MIDP-incentive driven component exports (Barnes & Kaplinsky, 2000b: 804).

Yet while the pressures experienced by the components manufacturing firms have been similar, they have not been uniform but directly related to issues such as ownership, level of tier and market focus (Barnes, 2001: 209). Understanding the components industry is therefore impossible without placing it in relation to the assemblers who have primary governance over the chain, and in relation to the political economy factors that are exerting pressures on these assemblers. Thus understanding the value chain, of which political economy factors are an integral part, is of critical importance in understanding the future developments of this industry.

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[5] Political economy in this sense is used to allude to factors such as power, global market changes, institutional

3.1.2 The KZN, Eastern Cape and Gauteng Benchmarking Clubs

The quantitative data analysed for this dissertation represents the sum of the data collected by the KZN, Eastern Cape and Gauteng Benchmarking Clubs from their member firms by the end of 2001. At this stage the total population size was 32 firms. Although a number of additional firms joined the Benchmarking Clubs during 2002, data from these firms has not been used.

While some information was available for the year 1997, many firms were not monitoring their own performances at this stage and data was thus most populous for the period 1998-2001. Static analysis of 2001 data includes all firms for which data was available in that year, while the longitudinal 1998/9-2000/1 analyses includes only firms for which specific data was available over the full period. This was done in order that the number of firms (N) remained constant over the years in that particular comparison. If, however, a firm changed in terms of it's value chain positional indicator during the period i.e. from local to MNC ownership, its data was included and registered accordingly. Thus while the N for the total group remains constant, the numbers within the sub-groups (n) may alter slightly over the period in the longitudinal analyses.

3.2 Methods of Statistical Analysis and Presentation of the Data

The Benchmarking Clubs capture and record all their data in the form of Microsoft Excel. For the purposes of the statistical analyses required for this study all the relevant Benchmarking Club data was transferred into the SPSS program. Once results had been obtained, these were transferred back into Excel in order to better graphically present the findings.

Static single year analysis was done using the Mann-Whitney non-parametric test comparing the sub-group means. This was used because of the small numbers involved in each of the sub-groups. Statistically significant relationships of 'p' values less than or equal to 0.1, or statistically suggestive relationships of 'p' values between 0.1 and 0.2 are referred to in the text, while bar graphs visually present the comparisons of all sub-group means regardless of statistical significance.

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relationships, ownership, trade regimes and governance structures, (Barnes, 2001: 200).

Historical data was analysed using the means-comparing one-way Anova test, this on account of the fact that there was only one dependent and one independent variable in each of the analyses. Basically, data for each sub-group over the three or four-year period was summed and the means between these two 'expanded' sub-groups compared.

3.3 Independent Variables: Value Chain Positional Indicators

Four value chain positional indicators, or indicators of specific political economy pressures, were given to each of the firms: **Ownership**, **Tier**, **Market Focus** and **Export Orientation** (see Table 3.1, below). These formed the independent variables in all of the analyses.

With regards to Ownership, firms were either owned by *Local* or *MNC* capital. None of the firms in the population were jointly owned. Division by Tier revealed that all the firms in the population were either *First Tier* or *Second Tier* suppliers within their respective chains. *Aftermarket* (AM) or *OEM* Market Focus was determined by a 50% or greater value of turnover being obtained from either market. With regards to the classification of Export Orientation, firms that directly exported 10% or more of their output were classified as *Exporters* while the remainder were classified as *Non-Exporters*.

The specific choice of these indicators is based on the argument that the political economy factors acting on each of these categories, as understood through a value chain framework of analysis of the sector, are significantly different. Thus if the same group of firms was split four ways according to these 'value chain positional indicators', any differences emerging between sub-groups should be comprehensible from a value chain perspective.

Table 3.1 presents a summary of the size of each of the sub-groups used in the analysis, as well as showing the movement of firms between these sub-groups over the 1998 to 2001 period. Thus with regards to **Ownership**, it is evident that three of the firms changed from local to foreign ownership during the period, but the sub-groups remained relatively evenly sized. Division of the group according to **Tier** and **Market Focus** respectively shows that no changes occurred in either classification for any of the firms over the period. It is also apparent that division of the group according to these characteristics led to the creation of relatively unequally sized sub-groups with 2^{nd} *tier* supplier firms and *Aftermarket* focussed firms being under-represented. Division according to **Export Orientation** shows relatively evenly sized sub-groups, with only one firm changing from being a *Non-Exporter* to an *Exporter* during the period.

Table 3.1 Value Chain Positional Divisions of the Study Population

Value Chain Positional Divisions		1998	1999	2000	2001
Ownership	**Local**	21	21	19	18
	MNC	11	11	13	14
	TOTAL	**32**	**32**	**32**	**32**
Tier	**1st Tier**	27	27	27	27
	2nd Tier	5	5	5	5
	TOTAL	**32**	**32**	**32**	**32**
Market Focus	**OEM**	24	24	24	24
	Aftermarket	8	8	8	8
	TOTAL	**32**	**32**	**32**	**32**
Export Orientation	**Direct Exporter**	14	14	15	15
	Non-Exporter	18	18	17	17
	TOTAL	**32**	**32**	**32**	**32**

Table 3.2 below provides a breakdown of the year 2001 value chain positional divisions constructed for the purposes of cross-divisional analysis. The table reveals that there are no purely confounding sub-groups i.e. where one sub-group falls entirely within another sub-group, however it should be noted that of the 14 MNC owned firms only one is a 2nd Tier supplier, and similarly of the 8 Aftermarket focussed firms only one is a 2nd Tier supplier. This confounding lack of balance has been borne in mind in analyses of the findings.

Table 3.2 A Breakdown of the Year 2001 Value Chain Positional Divisions

		Tier		Ownership		Market Focus		Exporting	
		1st	2nd	Local	MNC	OEM	AM	Export	Non-Export
Tier	1st	27		14	13	20	7	13	14
	2nd		5	4	1	4	1	2	3
Ownership	Local	14	4	18		15	3	8	10
	MNC	13	1		14	9	5	7	7
Market Focus	OEM	20	4	15	9	24		9	15
	AM	7	1	3	5		8	6	2

Exporting	Exporter	13	2	8	7	9	6	**15**	
	Non-Exporter	14	3	10	7	15	2		**17**

3.4 Dependent Variables: Human Resource and Economic Indicators

3.4.1 Human Resource Indicators

The human resource indicators analysed were grouped according to three main categories: HR Input/Management Commitment, Labour Commitment and Labour Skills. Proxy measures for **HR Input/Management Commitment** included the amount spent on *Training as a % of Remuneration*, and the annual average number of *Formal Off-Line Days of Training per Employee*; proxy measures for **Labour Commitment** were *% Absenteeism* and *% Labour Turnover*; while the proxy measures for **Labour Skills** for were *% Literacy* and *% Numeracy* for 'seen skills' and *Labour Productivity* for 'unseen skills'[6].

3.4.2 Economic Indicators

Although it is recognised that the economic well-being of a firm is dependent on more than its commitment to its human resources, it was decided to add in three economic indicators of firm well-being to determine to what extent the results matched the findings from the analysis of the human resource indicators. The economic indicators chosen were Consumer Price Index (CPI) adjusted Rand *Turnover* figures; *% Profit Before Income Tax*; and Indexed, CPI adjusted *Turnover Growth*, the latter two indicators diminishing the influence of variations in firm size.

3.5 Validity and Reliability

The *validity* of the proxy measures for both dependent and independent variables is well established in the literature (Barnes, 2001: 66). *Reliability* of the human resource and economic indicators is established through the fact that these measurements are well defined and well known within global best-practice manufacturing and business literature (Brown, 1996). *Reliability* of value chain positional indicators may not be taken for granted, however. Since no previous attempts to classify firms in this way could be found in the literature, definitions of the various classifications were determined through consensus of the staff at the Benchmarking Clubs, and have been described in

[6] These variables were chosen after extensive consultation with Dr. Justin Barnes and Mr Sean Ellis of the Benchmarking Clubs.

detail so as to enable repeatability or criticism. In future studies it may however be found that issues such as joint ownership will come up, or it may be deemed better to set the exporting requirement at some value other than the 10% of output chosen for use in this study. Thus assignment to the firms of the various value chain positional indicator variables has been as transparent as possible in the knowledge that somewhat arbitrary decisions needed to be made, and that future studies may choose to redefine some of these categories.

Lastly, in an attempt to maintain consistency, when data was adjusted using the Consumer Price Index, it is presented in year 2000 Rand equivalent, even when presented statically for the year 2001.

3.6 Limitations of the Study

One limitation of this study is that due to the fact that the automotive value chain is highly specific and considered to be a 'producer-driven' chain it is unlikely that the results will shed much light on the more common 'buyer-driven' type value chain. A second limitation is that this study is based purely on quantitative data collected by the Benchmarking Clubs. Thus besides for not having access any critical information such as the quality and type of training (the proxy indicators of commitment to training, % of remuneration spent on training and the number of formal days of off-line training per employee cannot possibly reveal this), the discussion lacks qualitative support in understanding nuances that emerge from the findings. Thirdly, it is accepted that multivariate rather than univariate analysis of the data would have been preferable, but unfortunately the nature of data collected did not allow for this. A final limitation is that as this research cannot account for all factors acting on this group of firms, the implications of the results can merely be presented as strongly suggestive. Additional and more specific research would be necessary in order to address these limitations.

CHAPTER FOUR

RESEARCH FINDINGS

This chapter presents the findings of the analysis of the data of the 32 firms belonging to the KZN, Eastern Cape and Gauteng Benchmarking Clubs by the end of 2001. The findings are presented in four sections according to the groups of dependent variables identified. Thus Section 4.1 presents the outcomes of analyses of the Human Resource Input/Management Commitment Indicators; Section 4.2 the Labour Commitment Indicators; Section 4.3 the Labour Skills Indicators and Section 4.4 the Economic Indicators.

Bar graphs visually present the comparisons of all sub-group means for all single-year analysis undertaken regardless of statistical significance, while exact figures and statistical significance are given in the text. The line graphs visually present historical trends when one sub-group consistently outperformed it counter sub-group. As such only selected graphs are presented here for the total of historical analyses undertaken.

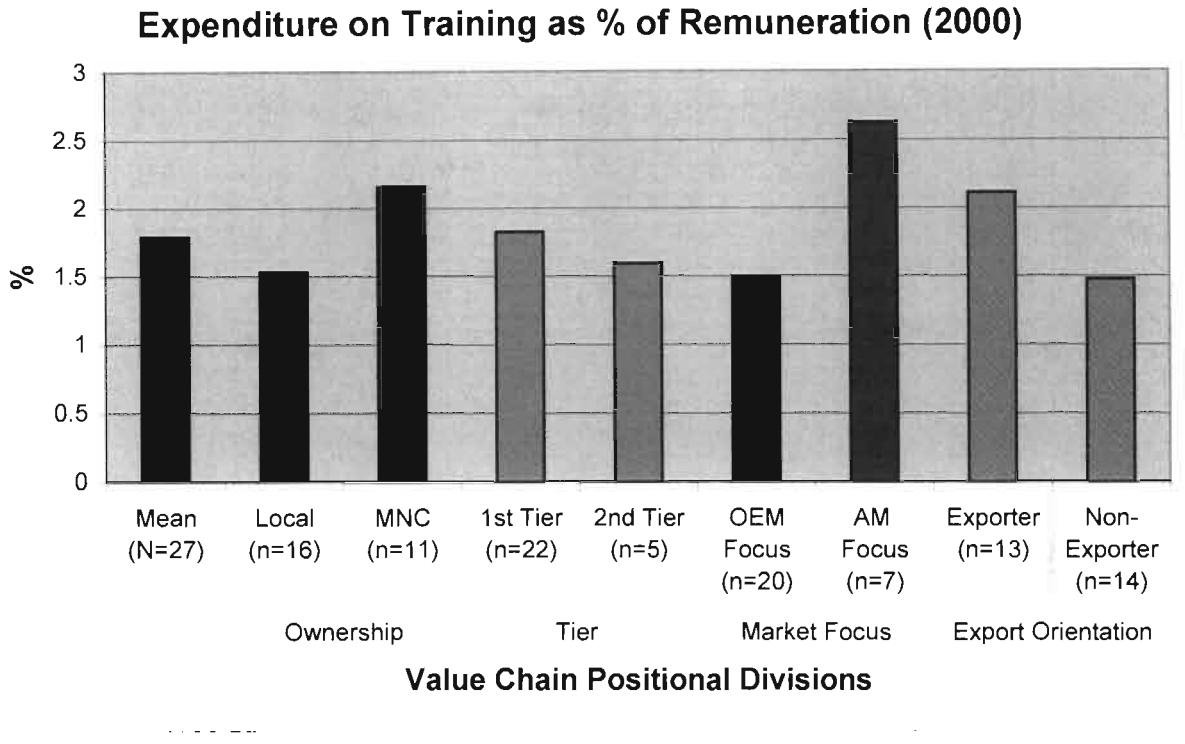
4.1 Human Resource Input / Management Commitment Indicators

4.1.1 Spending on Training as a % of Remuneration

For the group as a whole an average of 1.78% of remuneration was spent on training in the year 2000, this being the latest year for which most of the firms have supplied data (see Figure 4.1).

A further breakdown of this figure is also presented in Figure 4.1. This reveals that MNC owned firms outperformed locally owned firms (2.16% as compared to 1.53%); 1st Tier suppliers outperformed 2nd Tier suppliers (1.82% as compared to 1.59%); Aftermarket focused firms outperformed OEM focused firms (2.62% as compared to 1.48%); while Exporters outperformed Non-Exporters (2.11% as compared to 1.48%). Of these, the differences between the sub-groups for Market Focus and Export Orientation were statistically suggestive with p values of between 0.15 and 0.18 respectively.

Figure 4.1



Analysis of historical trends for spending on training as a % of remuneration further supported these static year 2000 findings. While for Ownership and Tier no clear relationships emerged, Aftermarket focused firms performed consistently better than OEM focused firms with a statistically suggestive p=0.187 (Figure 4.2), while Exporter firms significantly outperformed Non-Exporter firms with p=0.021 (Figure 4.3).

Figure 4.2

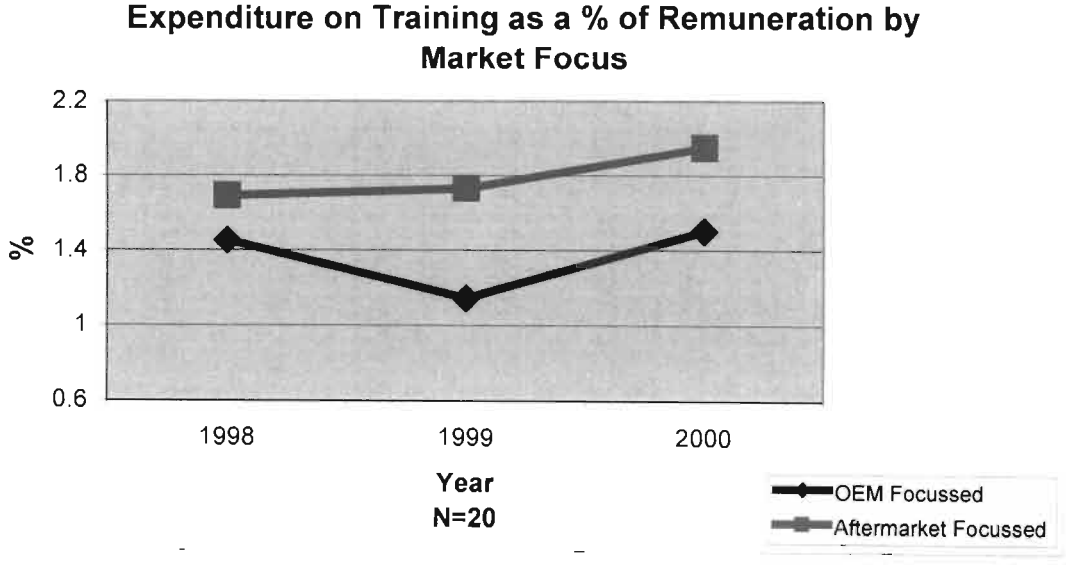
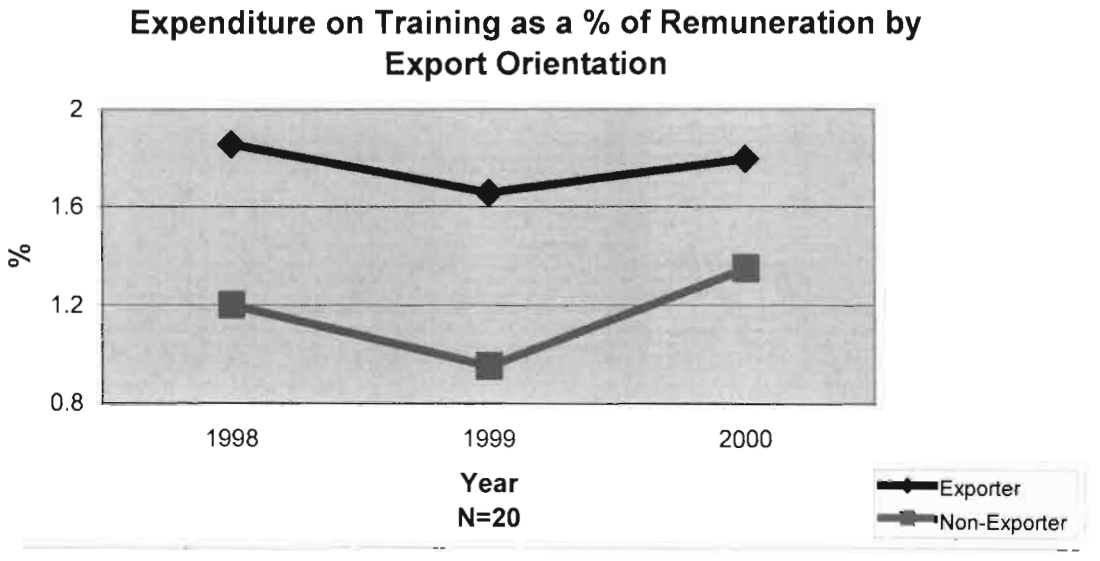


Figure 4.3



4.1.2 Days of Formal Off-Line Training per Employee

Figure 4.4

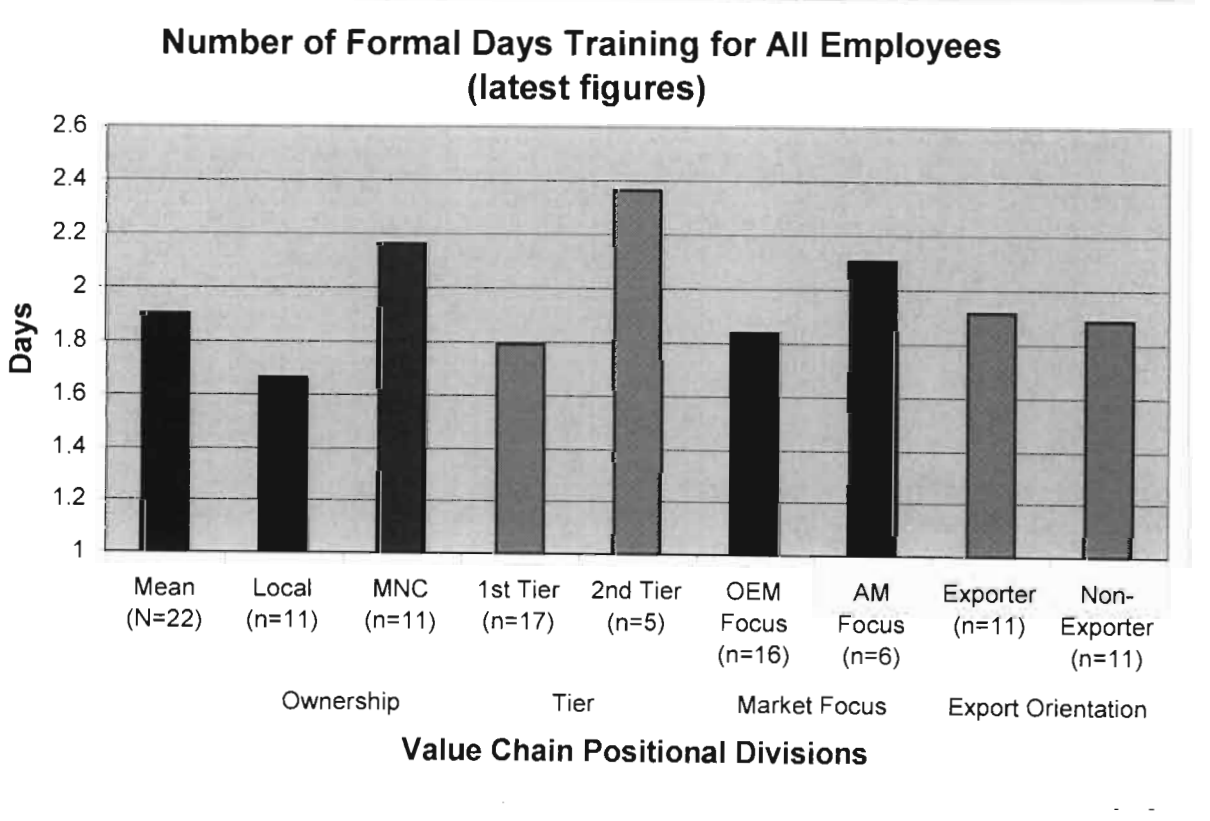


Figure 4.4 reveals the analysis of the average number of days spent on formal off-line training per employee with the group as a whole presenting an average of 2.2 days of formal off-line training per employee. Barring analysis by Tier, where 2nd Tier supplier firms outperformed 1st Tier supplier

firms by a statistically suggestive margin (3.6 days of training per employee as compared to 1.8 days), static analysis of the latest figures available for each firm reveals a similar pattern to that of spending on training. Thus the performance of the sub-groups of MNC owned (2.7days), Aftermarket focused (3.2 days) and Exporter firms (2.5 days) outperformed the sub-groups of Locally owned (1.7 days), OEM focused (1.8 days) and Non-Exporter firms (1.9 days). None of these differences were, however, statistically significant. Unfortunately data was not available for any historical comparisons.

4.2 Labour Commitment Indicators

4.2.1 % Absenteeism

Analysis of the % absenteeism figures for 2001 revealed a high average of 4.59%, with all of the means for the sub-groups falling between the 4% and 5% marks. Despite the fact that none of the differences for the static 2001 sub-group comparisons were statistically significant, it is notable that MNC owned firms, 1st Tier suppliers, Aftermarket focused firms and Exporter firms showed the lower absenteeism rates in each of their groups (Figure 4.5).

Figure 4.5

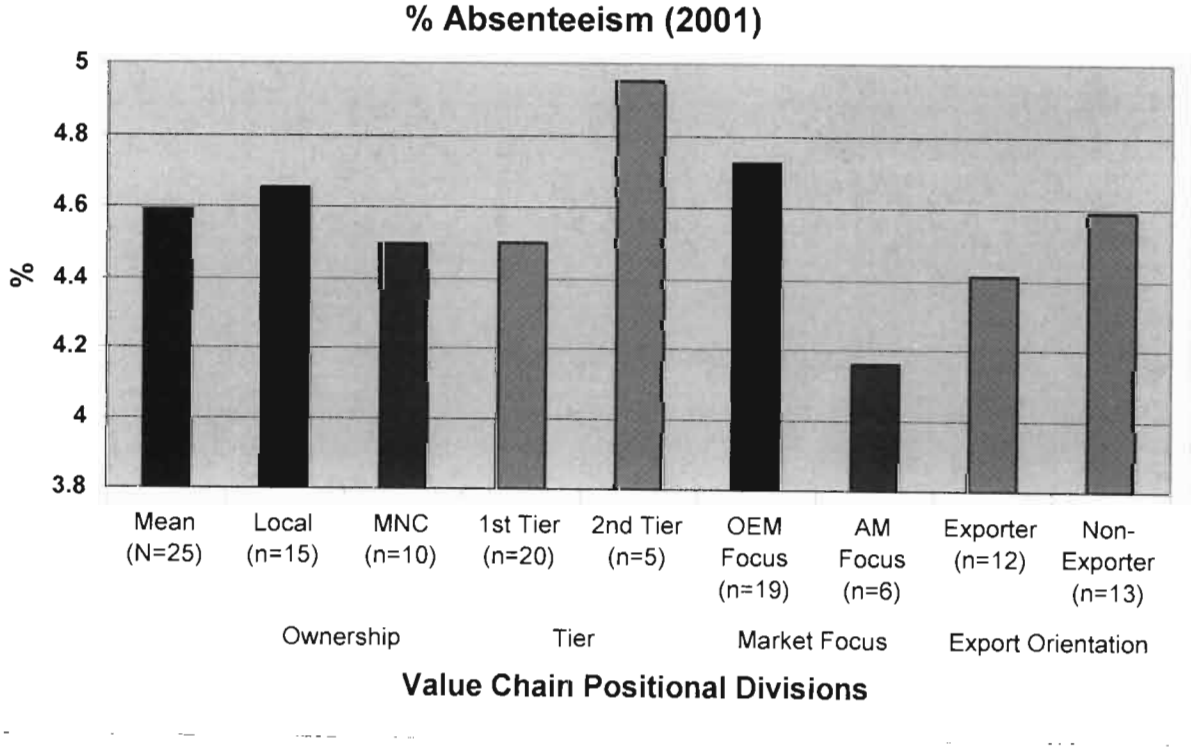


Figure 4.6

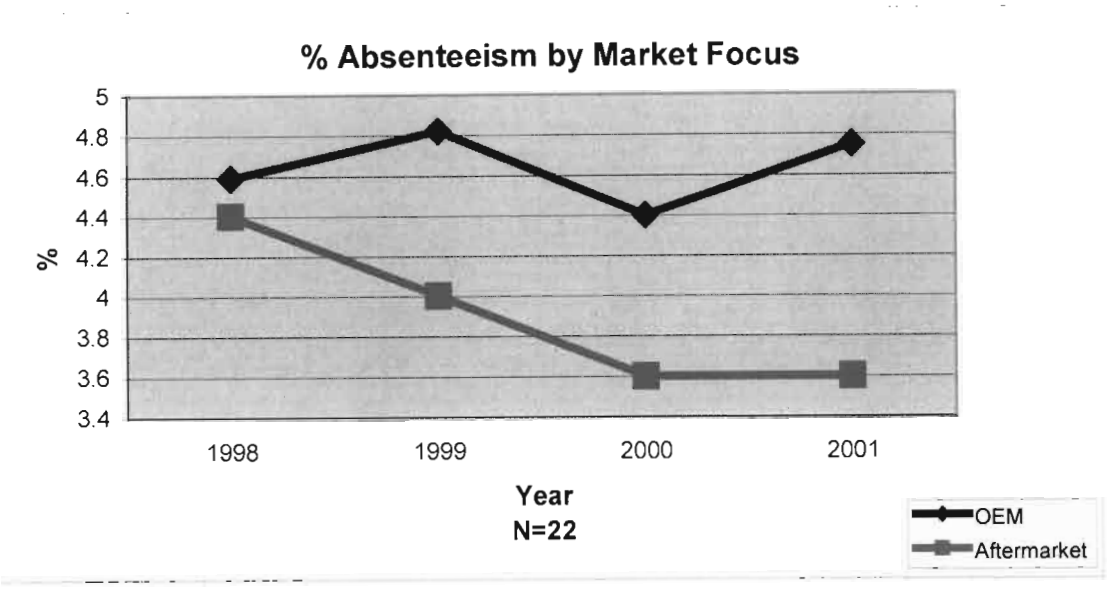
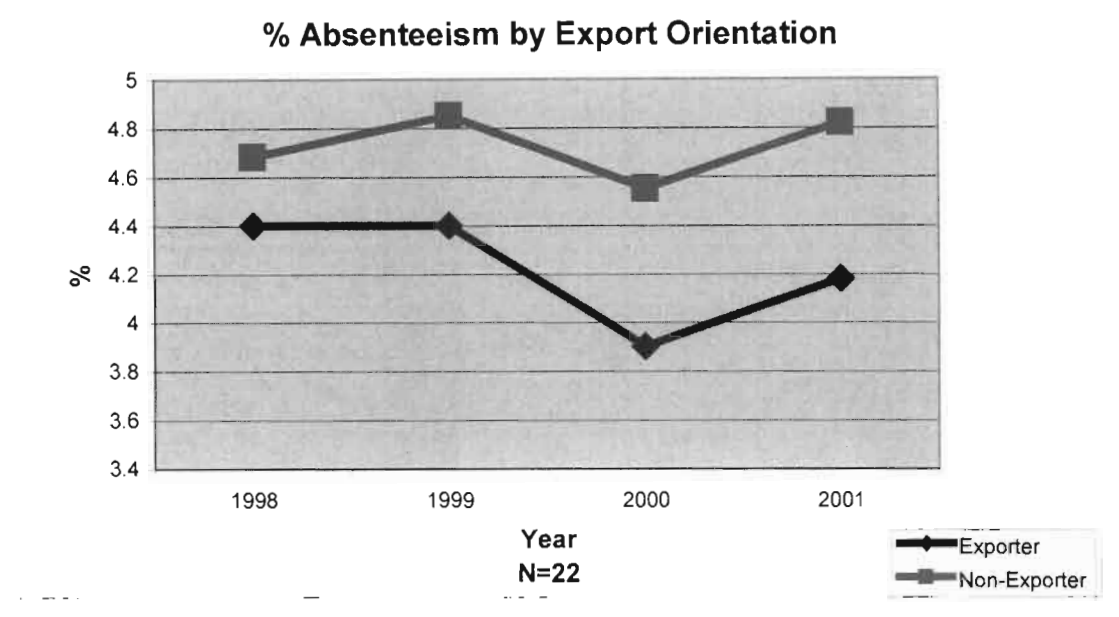


Figure 4.7



As can be seen above, the differences for the sub-groups of Market Focus and Export Orientation were supported by historical trend analysis with a significance level of p=0.08 for the former (see Figure 4.6), and a statistically suggestive p=0.172 for the latter (Figure 4.7).

4.2.2 % Labour Turnover

The group as a whole had an annual average labour turnover of 5.49% (Figure 4.8). Turnover was lower for MNC owed firms than for Locally owned firms (2.71% compared to 6.88%), for 1st Tier

suppliers than for 2nd Tier suppliers (4.81% compared to 4.67%), for Aftermarket focused firms than for OEM focused firms (4.50% compared to 5.72%), and for Exporter firms than for Non-Exporter firms (4.44% compared to 6.28%). Of these, the difference between 1st and 2nd Tier suppliers was statistically significant with p=0.08, while the difference between Local and MNC owned firms was statistically suggestive with p=0.184.

Historical analysis of labour turnover data from 1999 to 2001 supported the static 2001 analysis by revealing that MNC owned firms, 1st Tier suppliers and Aftermarket focused firms performed better, with lower labour turnover rates in all of the three years, than Locally owned firms (Figure 4.9), 2nd Tier suppliers (Figure 4.10), and OEM focused firms (Figure 4.11). Of these, however, only ownership differences were statistically suggestive with p=0.105. Historical analysis by Export Orientation revealed no clear relationship.

Figure 4.8

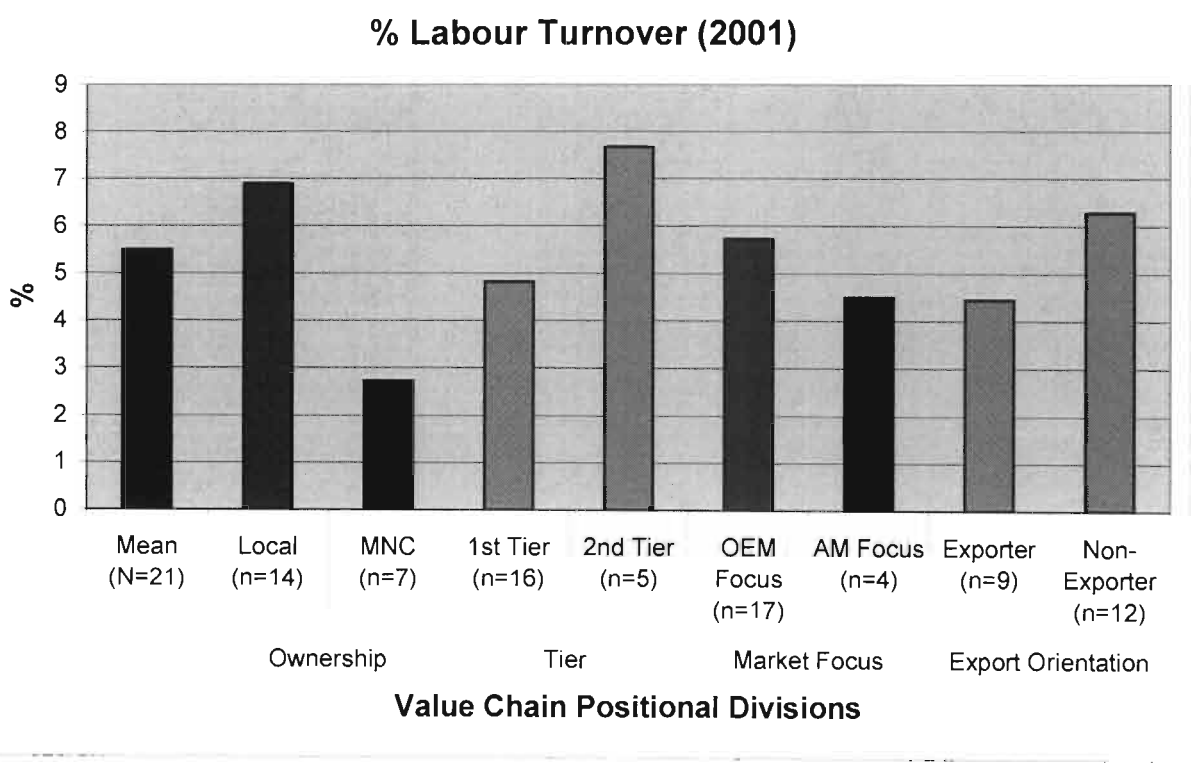


Figure 4.9

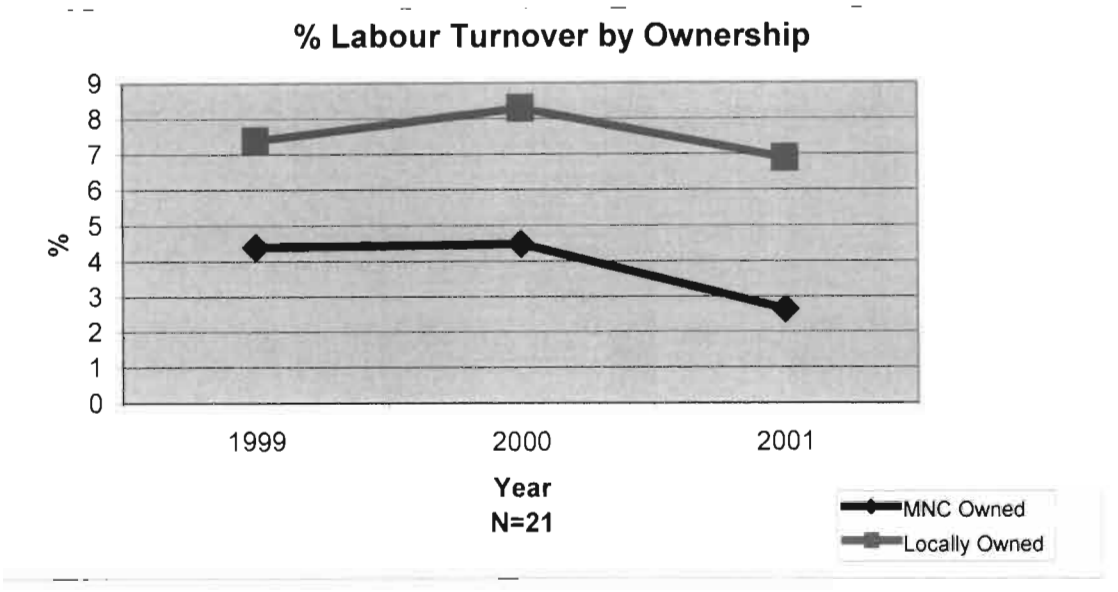


Figure 4.10

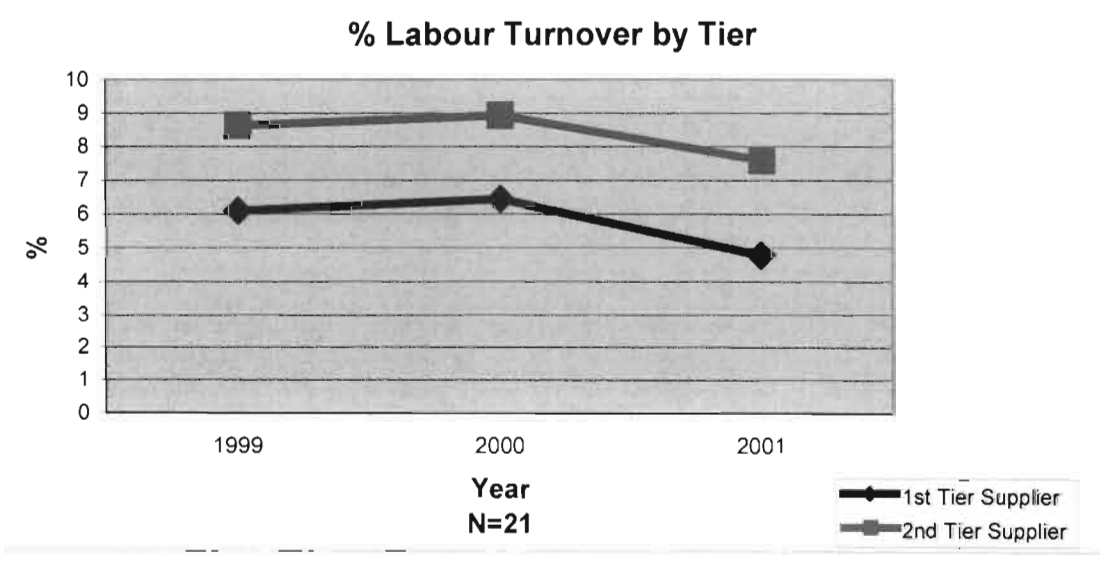
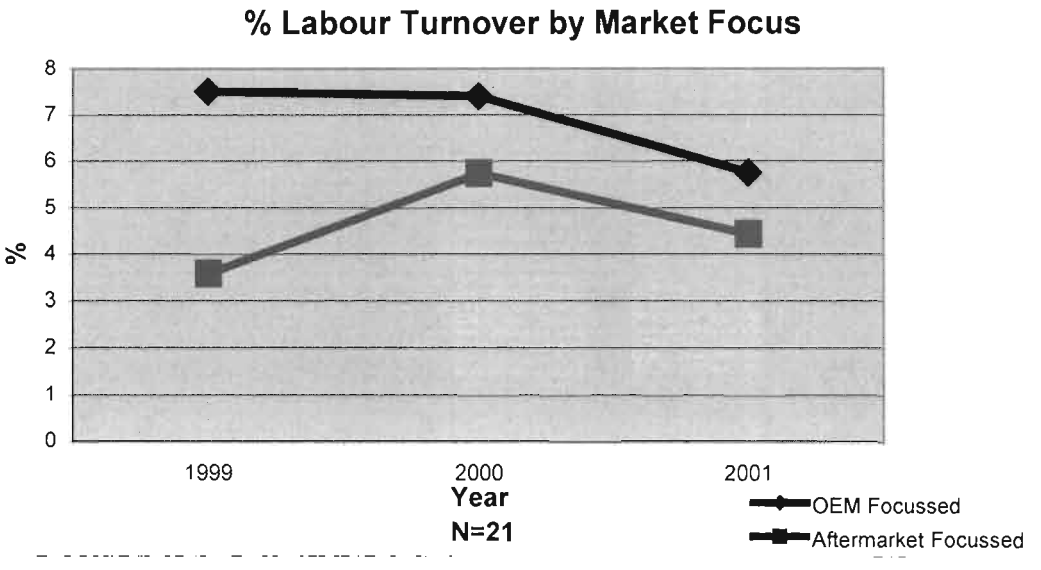


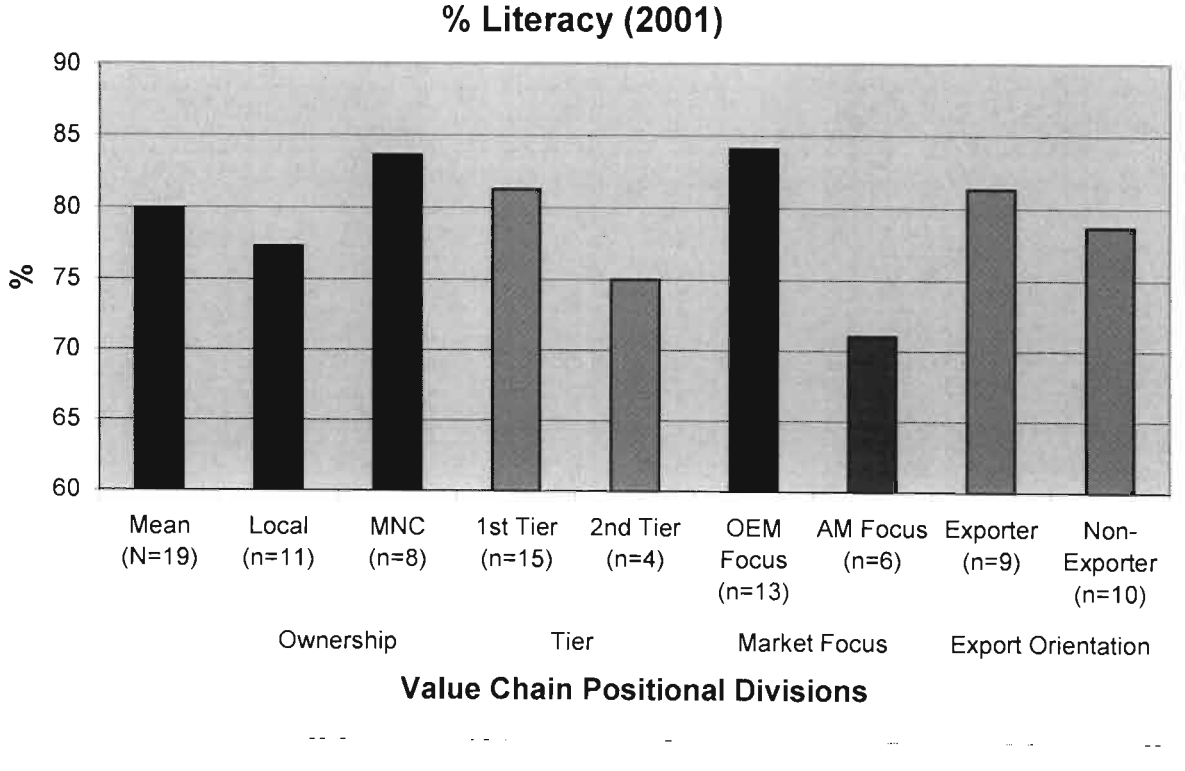
Figure 4.11



4.3 Labour Skills Indicators

4.3.1 % Labour Force Literacy

Figure 4.12

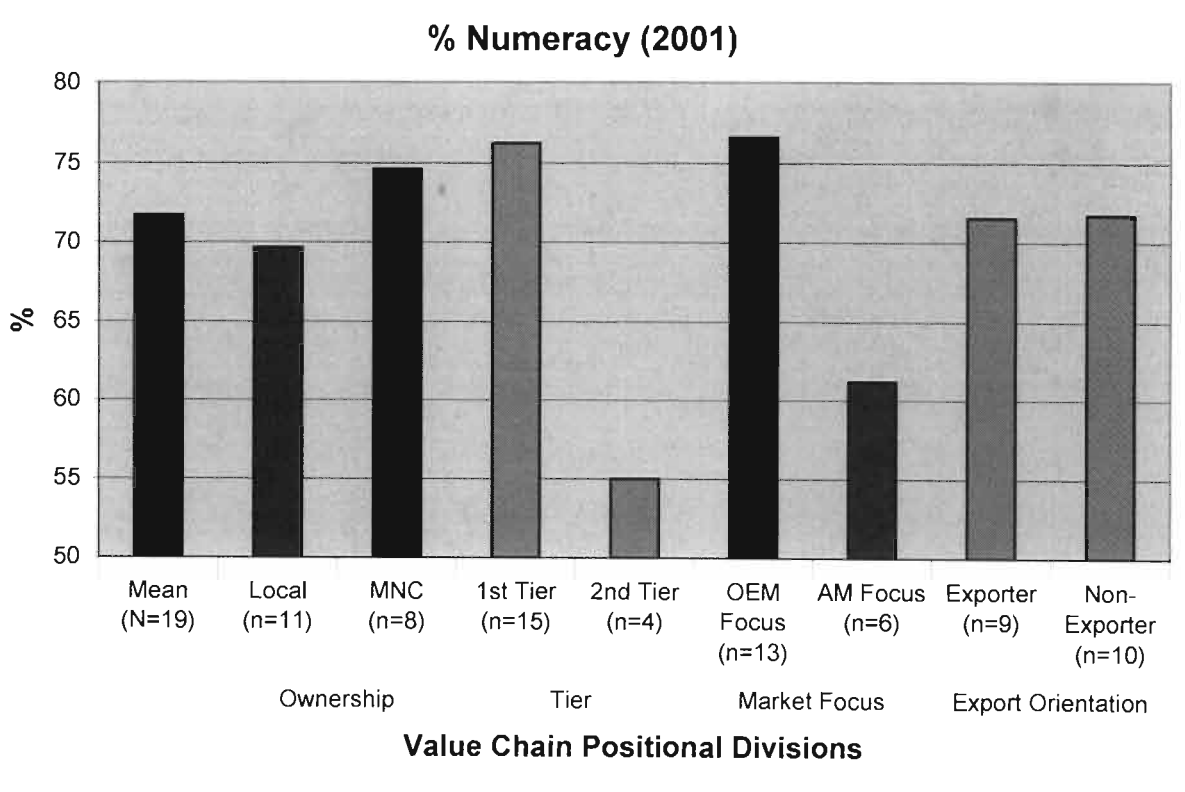


Average Literacy levels for the whole population of firms was 79.95% (Figure 4.12), however the sub-groups which performed better were MNC owned firms, 1st Tier suppliers, OEM focused firms and Exporter firms. Of these, only the difference between OEM focused firms (84.08%) and Aftermarket focused firms (71.95%) was statistically significant with p=0.074. Historical data for literacy as well as numeracy levels within firm labour forces was unreliable; many firms admitted to the Benchmarking Clubs that they only provided rough estimates when first asked to supply this data. Reliable historical trends were thus unfortunately not able to be obtained.

4.3.2 % Labour Force Numeracy

For the population of firms as a whole, a mean rate of 71.74% numeracy among the labour force was reported (Figure 4.13). The difference between Exporter (71.5%) and Non-Exporter firms (71.9%) is negligible. And while MNC owned firms (74.6%) outperformed Locally owned firms (69.6%), this was only by a small margin. Statistically significant differences emerged for Tier (p=0.063) with 1st Tier suppliers at 76.2% and 2nd Tier suppliers at only 55.0%, and statistically suggestive (p=0.123) results emerged for differences according to Market Focus with OEM focused firms at 65.6% and Aftermarket firms at 61.2%.

Figure 4.13



4.3.3 Employee Output

Mean employee output for all firms for 2001 (measured as Turnover divided by the number of employees with turnover adjusted to year 2000 Rands for the sake of historical trend analysis) was R 412 071 (Figure 4.14). Besides for analysis by Tier (where 1st Tier suppliers employees generated more output than 2nd Tier suppliers), all differences that emerged between the sub-groups were statistically significant. Employees from MNC owned firms, having generated an average output of R545 278 each, significantly (p= 0.030) outperformed those from Locally owned firms whose annual average was R332 153. Employees from Aftermarket focused firms (with average output of R643 066 per employee) generated almost twice as much output as those from OEM focused firms (with average employee output of R335 073), with p=0.023. Exporter firms average employee output was R482 149 while for Non-Exporters the figure was R370 071. In this instance the value of p was 0.040.

Although differences for Tier were not statistically significant for the year 2001 static analysis, historical trend analysis statistically supported the higher output levels of 1st Tier supplier firm employees (p=0.043), as well as confirming all the above relationships: Ownership p=0.016; Market Focus p=0.000; and Export Orientation p=0.029 (see Figures 4.15 to 4.18).

Figure 4.14

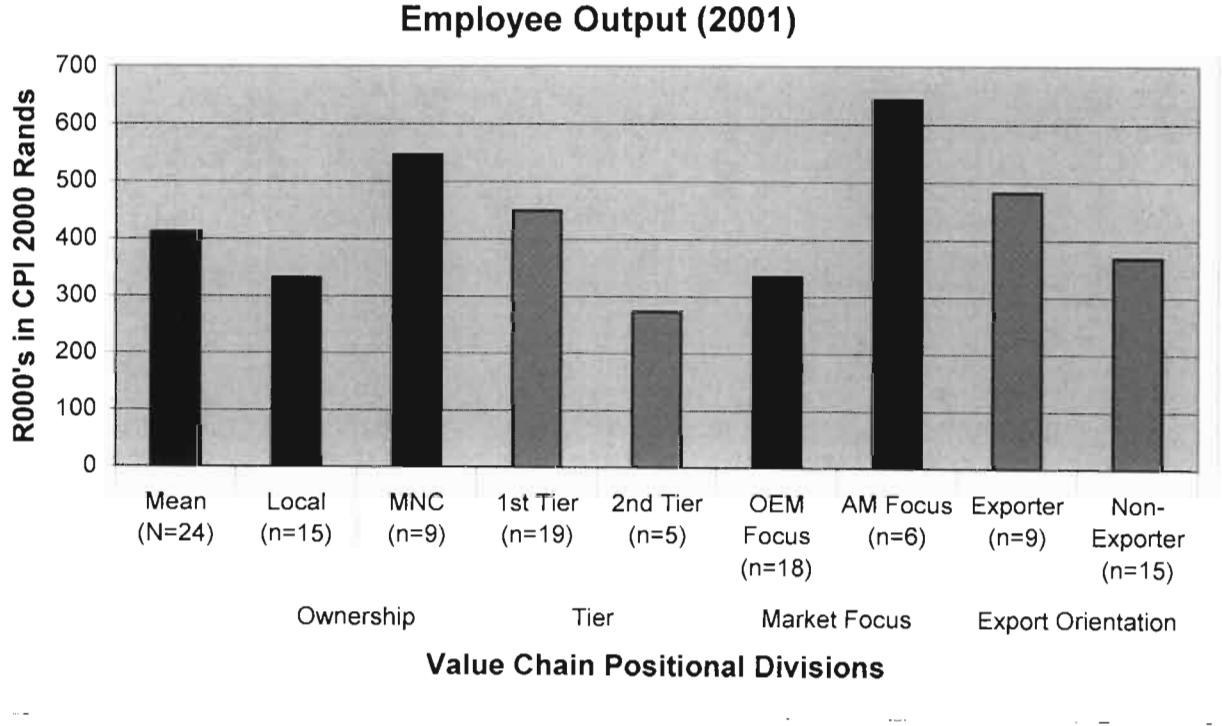


Figure 4.15

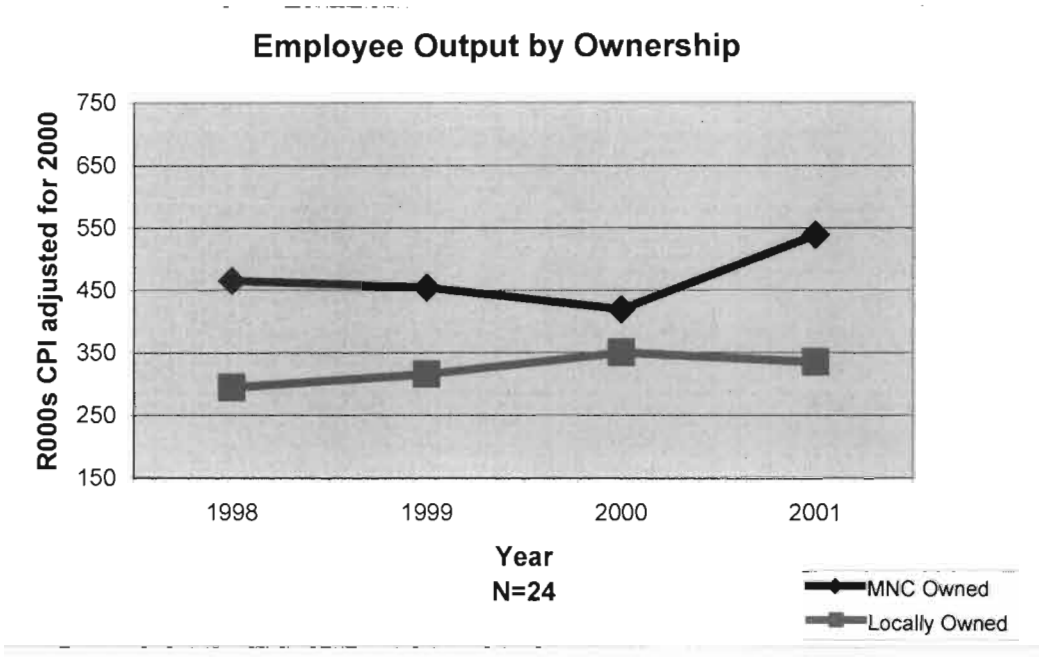


Figure 4.16

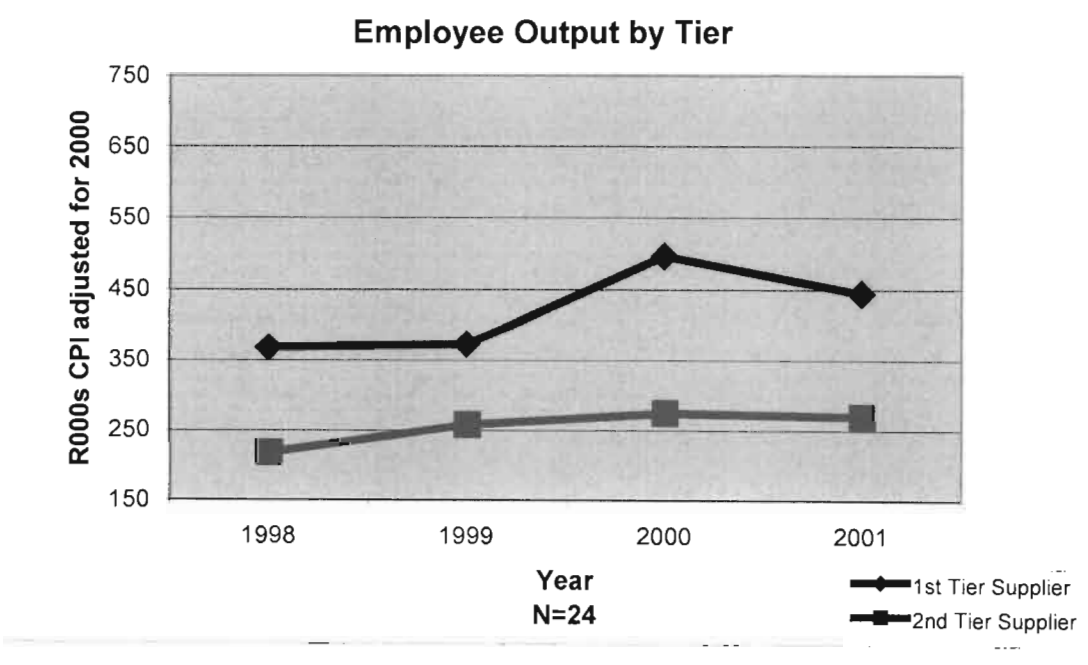


Figure 4.17

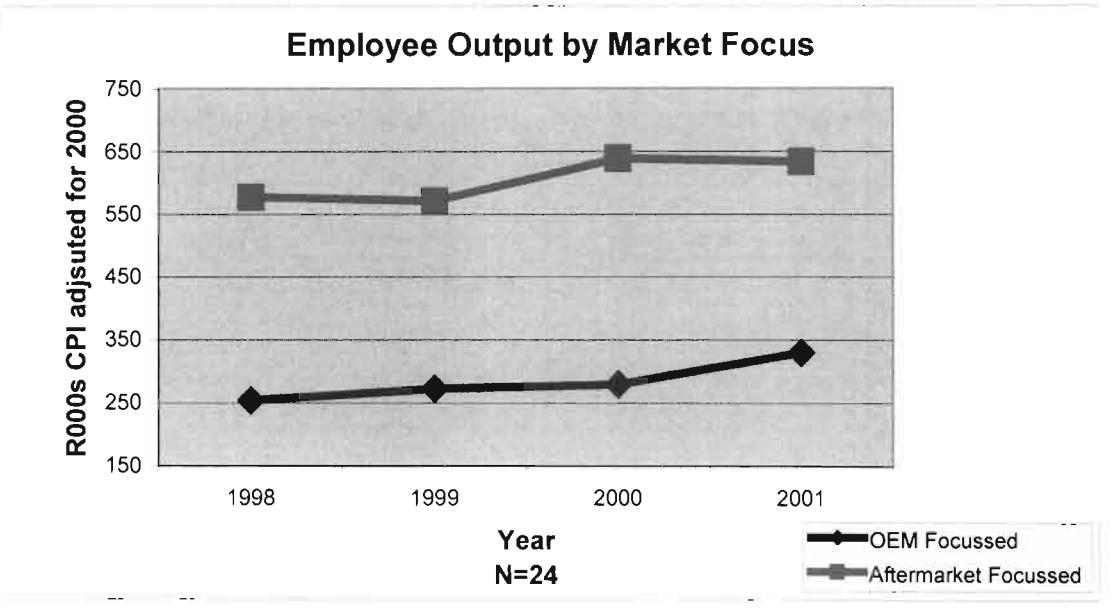
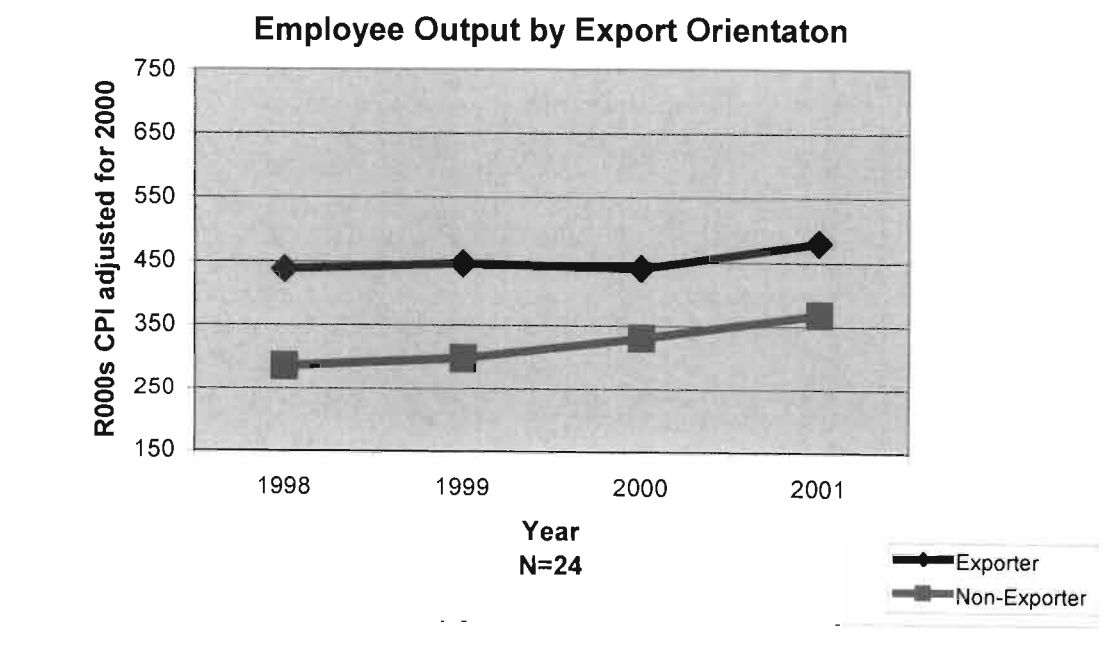


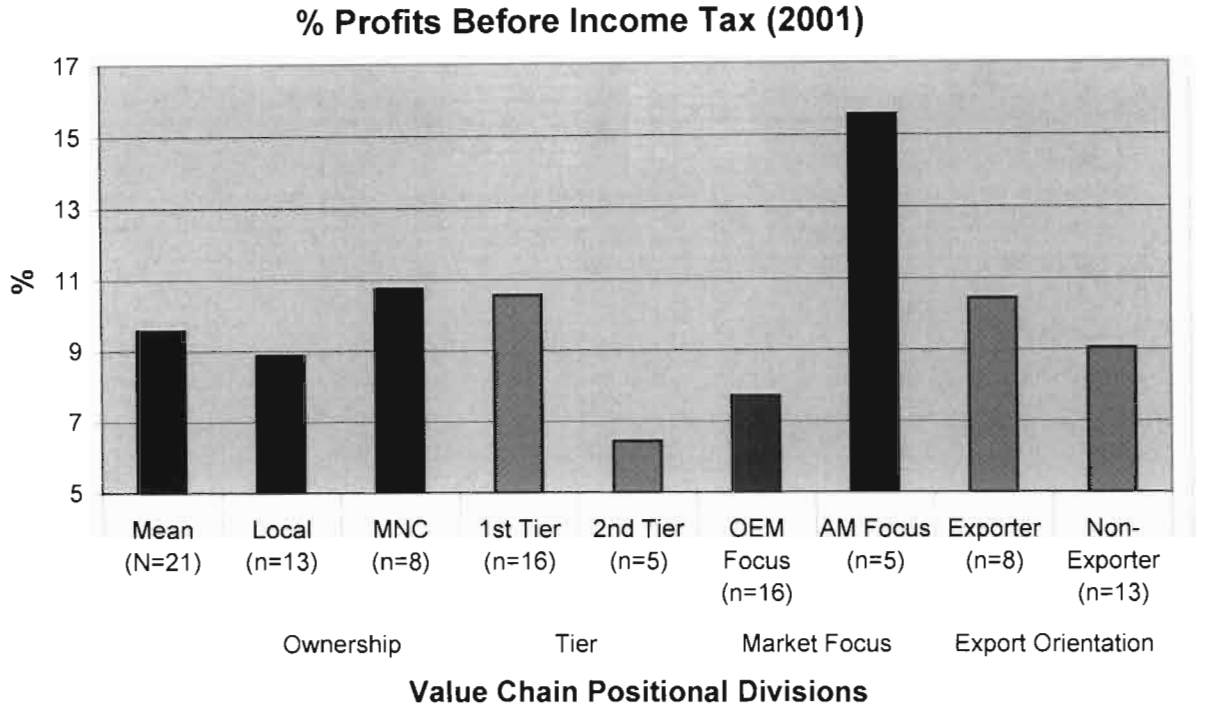
Figure 4.18



4.4 Economic Indicators

4.4.1 % Profits Before Income Tax (PBIT)

Figure 4.19



As can be seen from Figure 4.19 above, the mean PBIT for 2001 was 9.58%. While MNC owned and Exporter firms performed slightly better than their counterparts in that year, these differences were not statistically significant, and were not supported by any regular relationships in the historical data analysis. Differences for Tier in 2001 (PBIT for 1st Tier suppliers was 10.56% and for 2nd Tier suppliers 6.44%) were suggestive with p=0.148, and significant over the period 1999-2001 with p=0.077, while differences for Market Focus (Aftermarket focused firms at 15.6% PBIT and OEM focused firms at 4.71% PBIT) were statistically significant for both the 2001 static analysis (p=0.032) and the 1999-2001 period (p=0.000), (see Figures 4.20 and Figure 4.21).

Figure 4.20

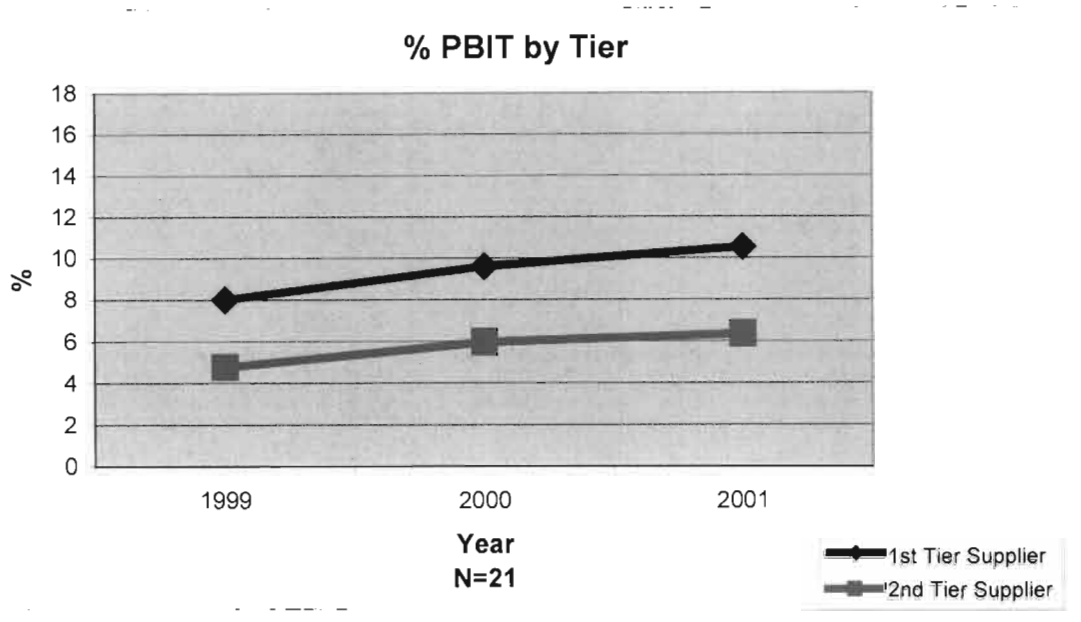
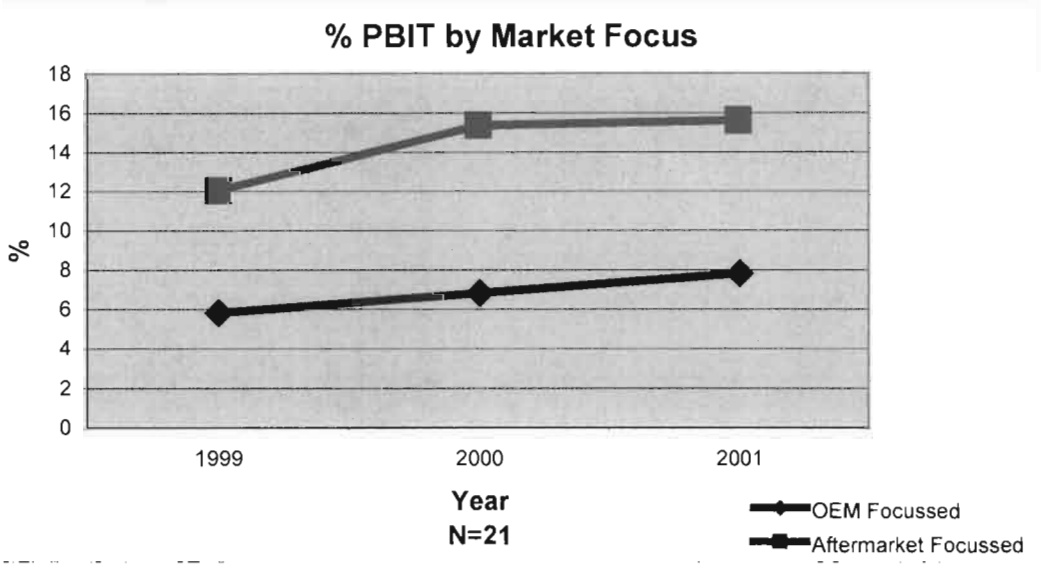


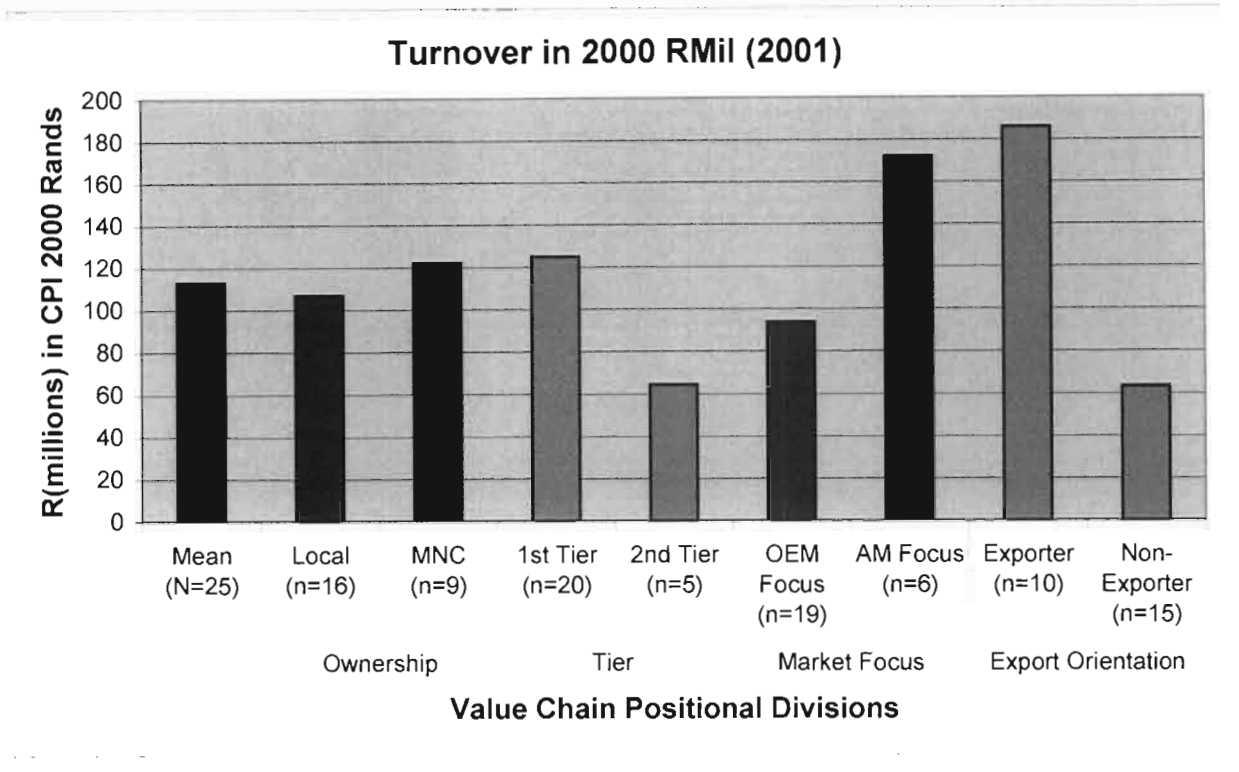
Figure 4.21



4.4.2 Firm Monetary Turnover

Mean monetary turnover for the whole population of firms in 2001 was 113 Million year 2000 Rands (Figure 4.22). While MNC owned firms turned over slightly higher figures than Locally owned firms in 2001 (122 Rmil compared to 107 Rmil) as well as over each of the preceding three years (Figure 4.23), the difference were not statistically significant for either the static or the historical analysis.

Figure 4.22



On the 2001 static analysis, 1st Tier suppliers, with annual turnover of 125 Rmil, were turning over suggestively more (p=0.174) than 2nd Tier suppliers, with annual turnover of 64 Rmil. Historical analysis over the period 1998-2001 however supported this suggestive relationship with a significance level of p=0.025 (Figure 4.24). Differences for Market Focus and Export Orientation were statistically significant on the both static 2001 and historical analyses with Aftermarket and Exporter firms outperforming their counterparts (Figures 4.25 & 4.26). In 2001 Aftermarket focused firms had an annual turnover of 172 Rmil compared to OEM focused firms with 94 Rmil. The p value on this difference was 0.036, while on the historical analysis it become even more significant with p=0.000. For Exporter firms the mean turnover in 2001 was 186 Rmil while for Non-Exporter firms it was 63 Rmil. The statistical significance of the year 2001 difference was p=0.001, while for the historical analyses it was 0.000.

Figure 4.23

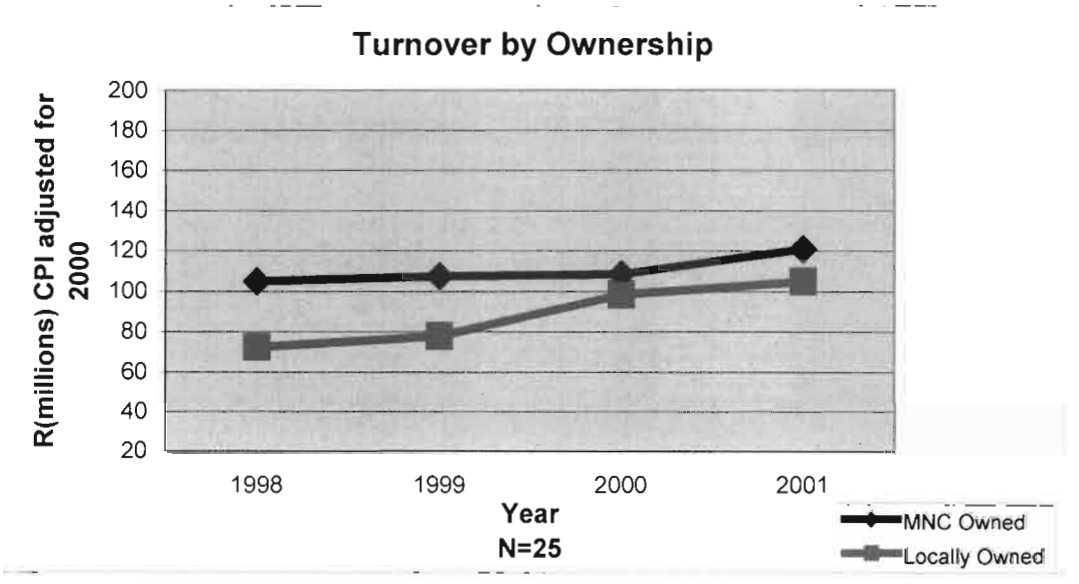


Figure 4.24

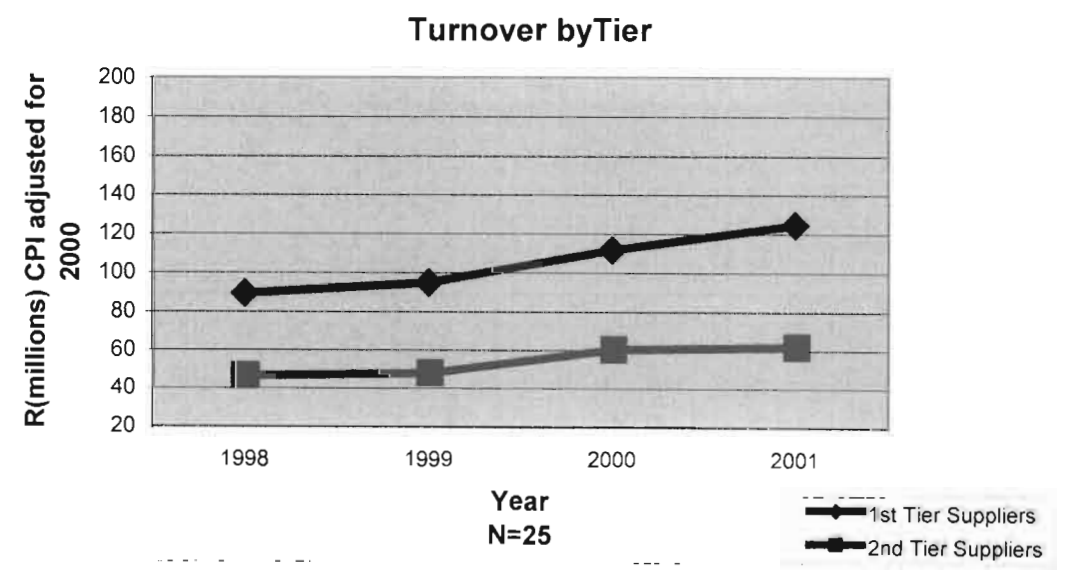


Figure 4.25

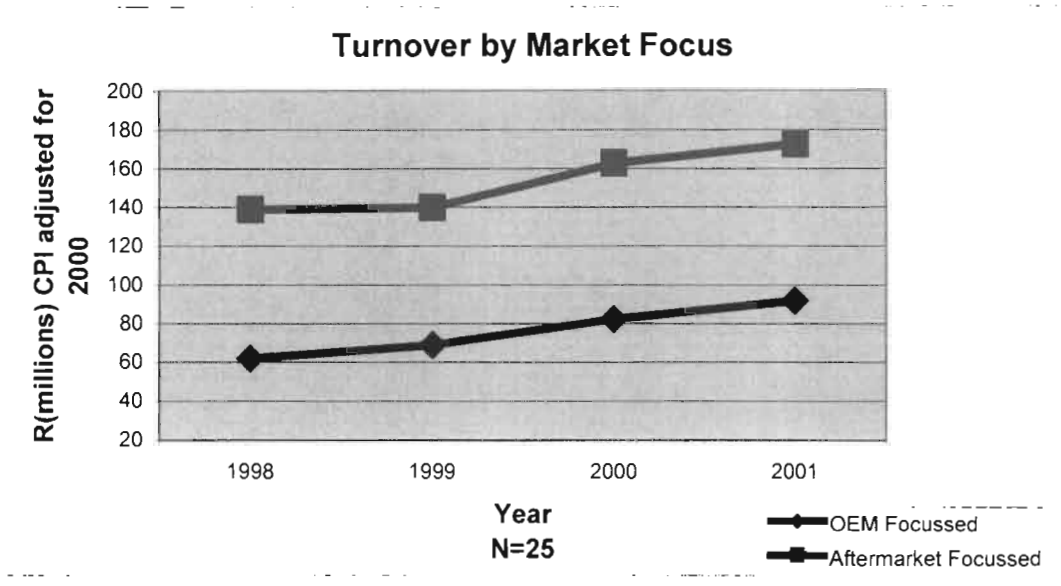
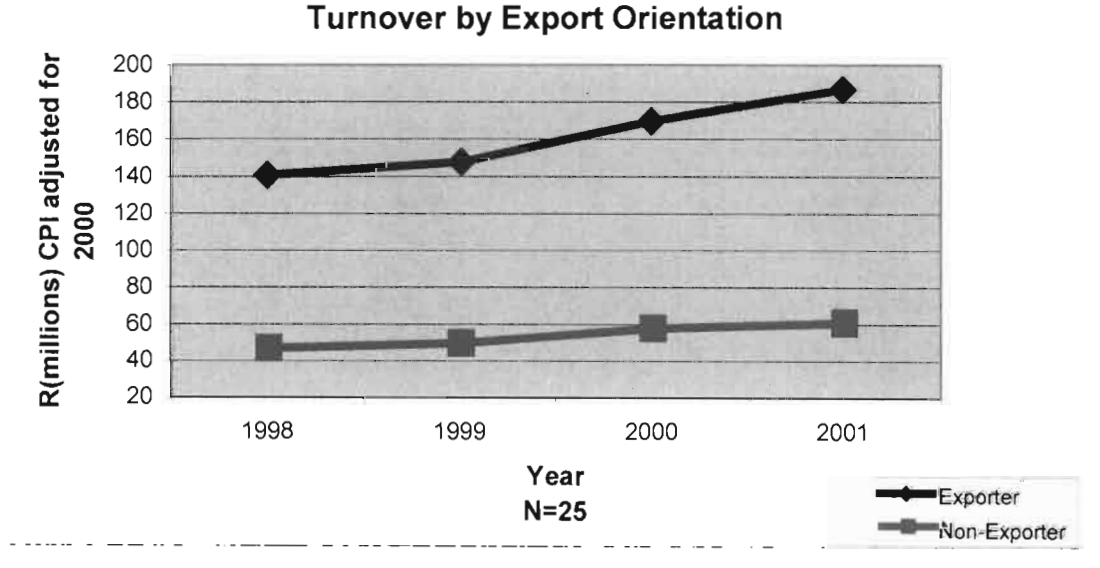


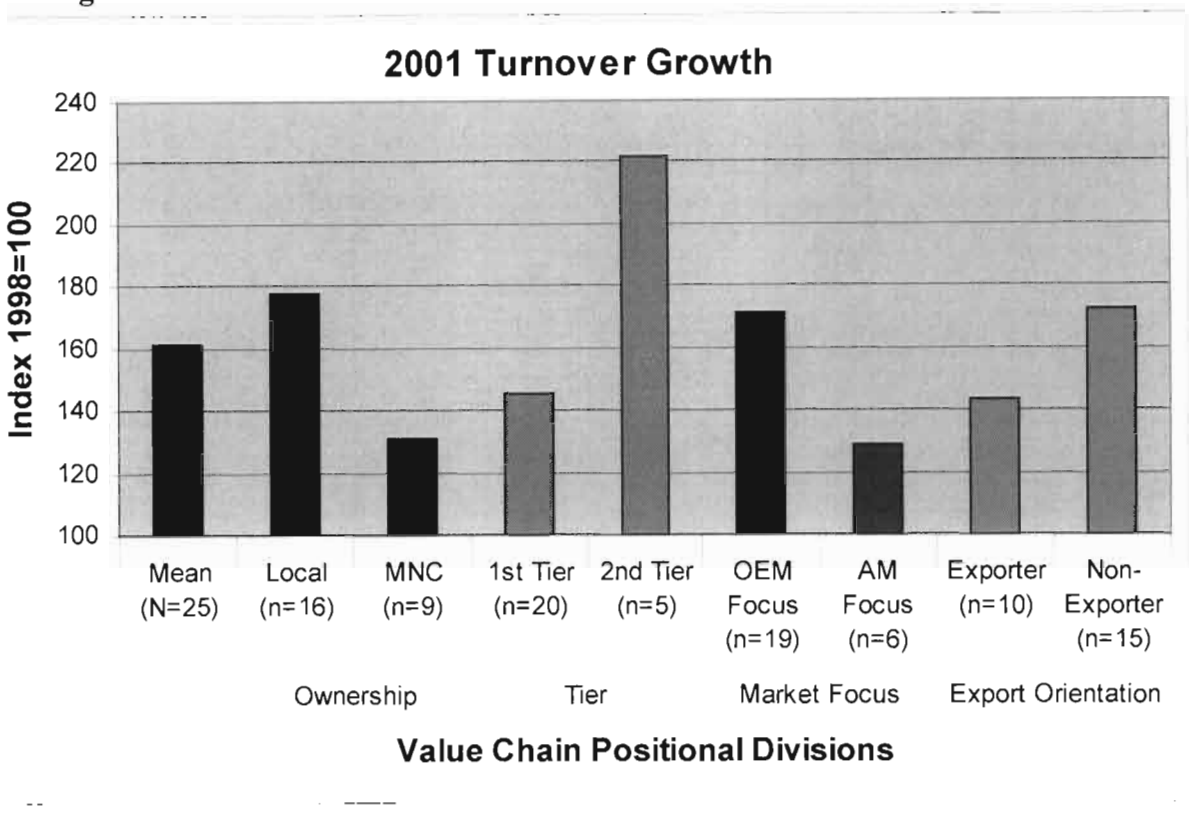
Figure 4.26



4.4.3 Turnover Growth

Despite the fact that MNC owned firms, 1st Tier suppliers, Aftermarket focused and Exporter firms generated more revenue than their counterparts in terms of real turnover, the direct opposite was true for indexed turnover growth (1998=100). Although none of the differences were statistically significant by 2001, it is notable that Locally owned firms, 2nd Tier suppliers, OEM focused firms and Non-Exporters had demonstrated higher turnover growth than their opposite sub-group categories (figure 4.27), with 2nd Tier suppliers showing the greatest improvement.

Figure 4.27



Thus by 2001 (from the base year 1998), Locally owned firms had improved by 74.7% compared with 30.8% for MNC owned firms; 2nd Tier suppliers improved by 121.8% compared to 45.6% for 1st Tier suppliers; OEM focused firms improved by 70.9% compared to 29.1% for Aftermarket focused firms; and Non-Exporter firms improved by 72.4% compared to 43.6% for Exporter firms.

4.5 Conclusion

This chapter has presented the basic findings of the statistical analysis of the data of the 32 member firms of the KZN, Eastern Cape and Gauteng Benchmarking Clubs over the period 1998 – 2001. The following chapter will use these findings, in combination with the literature reviewed in Chapter Two in proposing answers the research questions posed at the beginning of this dissertation.

CHAPTER FIVE
COMMITMENT TO HUMAN RESOURCE UPGRADING IN THE FRAMEWORK OF THE VALUE CHAIN

This chapter aims to address, by using the findings presented in Chapter Four in conjunction with the literature reviewed in Chapter Two and the specific history of the SA automotive value chain presented in Section 3.1.1, the first two questions posed at the outset of this dissertation:

1. Do firms that are subjected to similar sectoral pressures demonstrate different levels of commitment to human resource upgrading according the different value chain positions that they occupy? In other words, is there an element of value chain positional dependency in commitment to HR upgrading, a factor which is often discussed in the literature as an independent variable?
2. To what extent can such value chain positional differences, if they exist, be explained by the value chain framework of analysis, which magnifies intra-sectoral political economy pressures, and as such opportunities and constraints for upgrading?

The simple answer to the first of these questions seems to be 'yes'. The findings presented in Chapter 4 show striking consistency in the better performing sub-group 'positions', a summary of which are presented in Table 5.1 and Table 5.2 below. The answer to the second question is not simple, with the attempt to do so simultaneously providing a more nuanced answer to the first question. The third question posed at the outset of this dissertation i.e. what are the policy implications flowing from these findings, will be addressed specifically in Chapter Six.

Section 5.1 provides a summary of the key findings and provides possible explanations for these based on the value chain framework of analysis in conjunction with the literature reviewed. Section 5.2 focuses on other findings of interest and importance that have emerged from this research, whilst Section 5.3 uses the discussion emerging from the previous two sections and returns specifically but briefly to the questions posed above.

5.1 Summary of the Key Findings and Potential Value Chain/Political Economy Explanations

By drawing on the summary presented in Table 5.1 and Table 5.2 below, this section discusses the findings according to each of the four assigned 'value chain positional indicators': Ownership, Export Orientation, Tier and Market Focus.

Table 5.1 Summary of Single Year 2000/1 Analyses

		Management Commitment		Labour Commitment		Labour Skills			Economic Strength	
		% Remuneration on Spent on Training	No. of Formal Off-Line Days of Training	% Absenteeism	% Labour Turnover	% Numeracy	% Literacy	Employee Output	Firm Turnover	% PBIT
Ownership	Relationship	0	0	0	1	0	0	3	0	0
	Better Performer	MNC	MNC	MNC	MNC	MNC	MNC	MNC	MNC	MNC
Tier	Relationship	0	1	0	2	2	0	0	1	1
	Better Performer	1st	2nd	1st	1st	1st	1st	1st	1st	1st
Market Focus	Relationship	1	0	0	0	1	2	3	3	3
	Better Performer	AM	AM	AM	AM	OEM	OEM	AM	AM	AM
Export Orientation	Relationship	1	0	0	0	0	0	3	0	3
	Better Performer	Ex	Ex	Ex	Ex	+++	Ex	Ex	Ex	Ex

KEY:

0 = No Statistical Relationship
1 = Suggestive Relationship with p<0.2
2 = Statistically Significant with p<0.1
3 = Statistically Significant with p<0.05

MNC = Multi-National Corporation Owned
Loc = Locally Owned
1st /2nd = First / Second Tier Supplier
AM = Aftermarket Focused
OEM = Original Equipment Manufacturer Focused
Ex = Exporting Firm
N-Ex = Non-Exporting Firm

+++ = No Clearly Better Performer

Table 5.2 Summary of Historical Trend Analyses

		Management Commitment		Labour Commitment		Labour Skills			Economic Strength		
		% Remuneration on Spent on Training	No. of Formal Off-Line Days of Training	% Absenteeism	% Labour Turnover	% Numeracy	% Literacy	Employee Output	Firm Turnover	% PBIT	Turnover Growth
Ownership	Relationship	0	-----	0	1	----	----	3	0	0	1
	Better Performer	+++	------	+++	MNC	-----	-----	MNC	+++	MNC	Loc
Tier	Relationship	0	-----	0	0	----	----	3	2	3	3
	Better Performer	+++	------	+++	1st	-----	-----	1st	1st	1st	2nd
Market Focus	Relationship	1	-----	2	0	----	----	3	3	3	0
	Better Performer	AM	------	AM	AM	-----	-----	AM	AM	AM	OEM
Export Orientation	Relationship	3	-----	1	0	----	----	3	0	3	0
	Better Performer	Ex	------	Ex	+++	-----	-----	Ex	Ex	Ex	N-Ex

KEY:

0 = No Statistical Relationship
1 = Suggestive Relationship with p<0.2
2 = Statistically Significant with p<0.1
3 = Statistically Significant with p<0.05

MNC = Multi-National Corporation Owned
Loc = Locally Owned
1st /2nd = First / Second Tier Supplier
AM = Aftermarket Focused
OEM = Original Equipment Manufacturer Focused
Ex = Exporting Firm
N-Ex = Non-Exporting Firm

+++ = No Clearly Better Performer
------ = No Historical Data Available

5.1 Summary of the Key Findings and Potential Value Chain/Political Economy Explanations

Table 5.1 presents a summary of the single year 2000/2001 figures. At an overall glance it becomes evident that the better performing firms (with only a few exceptions) are those that are MNC owned, 1st Tier suppliers, Aftermarket focused and Exporters. Another striking and related point is the relative consistency within each value chain positional division with regards to input indicators (management commitment) and output indicators (labour commitment, labour skills, and economic strength), at simplest suggesting that firms demonstrating a commitment to human resources, even in countries such as South Africa with its notoriously poor management/labour relations, are rewarded with increased labour commitment in terms of decreased absenteeism and labour turnover and improved labour skills, which may together be contributing to their generally better economic strength.

Table 5.2 presents a summary of the historical trend analyses that were undertaken. Unfortunately information for one of the management commitment indicators (the number of formal days of off-line training per employee) and both the indicators of 'seen' skills (% literacy and % numeracy) did not allow for such historical trend analysis. Broadly, however, the results of the historical analysis support the single year 2000/1 findings, with MNC owned, 1st Tier suppliers, Aftermarket focused and Exporting firms performing consistently better. The only striking exception relates to indexed turnover growth, an indicator that only exists through historical analysis, which gives diametrically opposite results: that Locally owned firms, 2nd Tier suppliers, OEM focused firms and Non-Exporters have demonstrated the most rapid sales growth.

The following sections will take a more in-depth look at each of the value chain positional divisions (except in terms of turnover growth, which will be dealt with in Section 5.2) and attempt to analyse the findings in relation to the political economy factors of the value chain in which these firms operate.

5.1.1 Relating to Ownership[7]

MNC owned firms consistently outperformed locally owned firms in all indicators for single year analysis, and while it is worth noting that the relationship was less strong for the historical analyses with only one of the relationships in each set of analyses (employee output) being statistically significant, this may be due to the fact that the impact of recent changes in ownership status takes

time to show up in the statistics of the firms. In terms of value chain analysis, the better performance of MNC owned firms may be explained by the better connectedness that such firms have with global parent companies and with the associated increased pressure by these chain governors for implementation in SA subsidiaries of the more people-centred 'substance', as opposed to merely the operational and systemic 'form', of WCM.

5.1.2 Relating to Export Orientation

The greater pressure demanded from successful operation in export markets makes it unsurprising that exporting firms consistently outperformed (both in single year and historical analyses) those firms that did not export any significant volume of their output. While these findings cannot establish causality (i.e. if exporting reactively forced firms into upgrading amongst other things their HR or if firms that had proactively developed amongst other things their HR are the ones who succeeded in exporting markets[8]), the bottom line remains: engagement of firms in international markets is highly correlated with a greater commitment to HR and with stronger HR and economic output indicators.

5.1.3 Relating to Tier

1st Tier suppliers outperformed 2nd Tier suppliers in almost all indicators for the most recent year i.e. 2000/2001. Although 2nd Tier suppliers demonstrated a statistically suggestive higher margin of formal days of training per employee than 1st Tier suppliers, the quality of this greater quantity of training is questionable as these firms have statistically significant lower levels of monetary turnover and profits before income tax, besides spending a lower percentage of their remuneration on training than 1st Tier supplier firms. The fact that neither the HR input and output indicators for the historical analysis strongly support the stronger position of 1st Tier suppliers may be due to the relatively recent increase in pressure on 1st Tier suppliers internationally (as discussed in Section 3.1.2), which has only very recently impacted significantly on the SA automotive sector and as such has not yet had a chance to translate into historical consistency.

One additional point to note with regards to 2nd Tier suppliers is that these firms tend also to occupy the weaker of the sub-groups for the other value chain positional indicators: of the five firms in the 2nd Tier sub-group, four are Locally owned, four are OEM focused and three are Non-Exporters.

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[7] It is worth recalling at this stage that only one of the MNC owned firms is a 2nd Tier supplier and that as such what is here attributed to MNC ownership could just as easily be the result of 1st Tier supplier status.

[8] See Valodia, 1999 for a fuller discussion on the links between exporting and competitiveness performance.

Thus a question of interest that can unfortunately not be answered with this research is to what extent these independent indicators are compounding each other?

5.1.4 Relating to Market Focus

The findings with regard to the strongly superior position of Aftermarket focused firms as opposed to OEM focused firms were unexpected: AM focused firms performed better both in terms of single year 2000/2001 figures as well as in the historical trends analyses, for all but the 'seen' skills output indicators (% literacy and % numeracy). An initial expectation using the VC approach suggested that OEM focused firms, being closer to the 'driver' of the chain, would show superiority in terms of both HR input and output. This expectation may still be valid if we question our earlier assumption that belonging to the Benchmarking Clubs is an indicator of proactivity: the fact that of the 32 firms in the population only 7 are AM focused may suggest that what this research has assumed to be proactivity may in fact have some reactive aspects to upgrading pressure from chain drivers. Thus those AM focused firm who joined despite less pressure, may in this sample have the truer edge of proactivity and thus show a consistently better performance, yet not be representative of AM focused firms more generally. However, retaining our earlier assumption that club membership demonstrates proactivity for all firms, a couple of other plausible explanations that are still within the framework of the VC approach are proposed for the findings from this research.

Firstly, the explanation for the higher 'seen' skills levels of OEM focused firms may lie in more stringent recruitment policies, with the higher literacy and numeracy levels having been 'recruited' as opposed to 'created', which could explain why despite lower 'seen' skill levels, the AM focused firms supported their superiority in input indicators by demonstrating statistically significant higher 'unseen' skills in terms of employee output for both single year and historical analyses.

Secondly, as our definition of AM focused firms included those who had a greater than 50% value of turnover coming from sales into the AM, this does *not* however mean that such firms are *not* subjected to the pressures of the chain drivers, the OEMs, as relatively large percentages of sales are still being generated from this more stringent market. However, the additional focus on the AM may be allowing a much greater freedom for these firms in terms of product upgrading, as well as in the non-manufacturing areas of marketing and design. Thus while the OEMs remain the critical chain drivers, firms that additionally manufacture for a chain in which they perceive themselves to be less 'locked in' and where they are able to generate some rents from areas of the chain outside of 'manufacturing' may demonstrate greater pro-activity to HR and skills development than firms which do not see many options for upgrading beyond process and product, whose rent is generated

only from manufacturing to specific standards set by the OEMs, and who have to rely heavily on these chain drivers for 'shaking out' upgrading opportunities in their direction.

Unfortunately this dissertation can do no more than put forward some possibilities, the data does simply not allow us to answer the question with any greater certainty.

5.2 Discussion of Additional Findings of Interest and Importance

A number of other findings of interest and importance emerged from the research. Firstly, the fact that the group average for training as a percentage of remuneration was 1.78% indicates that despite all the differences according to value chain position discussed above, and despite the fact this is still slightly lower than for international competitor firms[9], the group as whole performed substantially better than the literature has suggested for SA firms generally. This strongly suggests that a high degree of pro-activity in terms of upgrading does exists for *all* firms belonging to the Benchmarking Clubs, regardless of their positions in the VC.

Secondly, the fact that no historical trend analysis for either literacy or numeracy was possible indicates how little importance has historically been placed on monitoring HR indicators in general even up to the very recent past and in firms that, as mentioned above, *have* demonstrated pro-activity with regards to HR as part of upgrading more generally. This suggests that the situation, in terms of awareness of the problem, is likely to be even worse outside of cluster monitoring arrangements such as the Benchmarking Clubs. Additionally this supports the organisation development stream of literature, by suggesting that current general poor performance of firms is highly related to their past ignorance of the importance of human resources and its continued development.

Thirdly, the importance of including labour productivity as an indicator of 'unseen' skills (despite the fact that it is understood that this indicator does not only reflect such skills but also the capital intensiveness of a firm) is highlighted through its highly statistically significant relationships in support of the sub-groups demonstrating better HR input. Reactive workforce learning that occurs simultaneously to the mere implementation of the 'form' of WCM is most likely to be picked up by this indicator, even if a firm has not yet advanced to a deeper understanding of the 'substance' of WCM and the specific increase in more formal training that such awareness brings. Thus this

indicator is crucially important in the context of historically low levels of literacy and numeracy and where recruitment policies may be influencing individual firms' levels of such 'seen' skills more than any current commitments to HR development.

Fourthly, it was extremely interesting to note that AM focused firms managed to command a sustained *decrease* in levels of absenteeism in the face of the rapidly growing national levels of absenteeism due to the growing HIV/AIDS epidemic in the country (Whiteside, 2002) and despite having workforces with the lowest levels of literacy and the second lowest levels of numeracy. This suggests very strongly that current high levels of absenteeism may not only be due to HIV/AIDS and that while such genuine absenteeism will inevitably continue to grow, a reduction in absenteeism resulting from labour dissatisfaction may assist in reducing the economic impact of the epidemic.

Lastly, with regards to the surprising finding that turnover growth was highest for all sub-groups that performed less well in other indicators i.e. Locally owned firms, 2nd Tier suppliers, Non-Exporters and OEM focused firms, it is postulated that this is the result of such firms having improved (within the context of the Benchmarking Clubs) off a much lower base and that these firms are reaping the initial rewards of focusing more on the 'form' aspects of WCM. While this is positive in the sense that it suggests that rapid growth is possible for firms who have lower levels of value chain pressures if they demonstrate some proactivity with regards to upgrading and improvement, it also suggests caution that unless the growth and increased commitment is gradually channelled more towards developing the conditions for sustainability i.e. human resources, such growth in turnover may not be long-lived.

5.3 Specifically Addressing the Research Questions

With regards to the first of the research questions posed for this dissertation, whether there is an element of value chain positional dependency in commitment to HR upgrading, a factor which is often discussed in the literature as an independent variable, this research strongly supports a positive response. Commitment to upgrading of human resources within firms does appear to have a high degree of dependency on their value chain positions, yet the findings also suggest that this statement needs to be qualified. If merely belonging to the Benchmarking Clubs is an indication of proactivity regarding upgrading and learning, then such proactivity does not seem to be especially

[9] International firms benchmarked through the three Benchmarking Clubs (N= 9) in 2000 spent the equivalent of 1.9%

dependent on value chain position as all positions are represented within the population of firms. However, it is worth noting that 2nd Tier supplier firms and AM focused firms are relatively under-represented, and that such under-representation may be the result of lower levels of pressures from the main chain drivers, the OEMs. Therefore the issue of dependency so suggestive in this research seems to relate more to reactive upgrading of human resources: the response by firms to the political economy pressures of the value chains in which they operate. Thus at the same time this research suggests that commitment to human resource upgrading can be both reactive and proactive, dependent and independent of the value chain, which supports both Kaplinsky's point that part of the upgrading path involves firms being 'deaf' to the value chain constraints to their upgrading, and Fleury and Fleury's calls that more of a distinction needs to be made between reactive upgrading undertaken in order to satisfy customer demands or value chain pressures, and proactive upgrading which is linked to the long-term strategic intent of the firm. Finally, however, this research also indicates that such a distinction between reactive and proactive will not be easy as both types of commitment to upgrading can exist simultaneously and are likely to be mutually reinforcing.

With regards to the second question, to what extent such dependency can be explained by the Value Chain framework of analysis, the answer is again a positive one: through the above discussion it is evident that the value chain framework of analysis provides a sound and useful framework from which policy decisions can be informed.

5.4 Conclusion

This chapter has briefly discussed the main findings of this research in light of the existing literature on the SA automotive value chain and with reference to the local historical and current contexts of human resource and skills development in the country. It has also specifically addressed the first two research questions posed in this dissertation. The final chapter of this dissertation, Chapter Six, will build on this discussion and provide the conclusions and policy recommendations that these findings support.

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of their remuneration bill on training.

CHAPTER SIX
CONCLUSION & POLICY RECOMMENDATIONS

This dissertation started by outlining the potential benefits of national engagement in global markets and the hopes pinned by national government to the development of an internationally competitive South African manufacturing sector in terms of its ability to simultaneously contribute to national economic growth, a reduction of labour-force inequalities, the creation of formal employment and the development of increased national skills.

The value chain framework of analysis promises, through an understanding of the various opportunities and constraints linked to both firms' and national economies' 'mode of insertion' into global production chains, to assist in the identification of realistic long-term upgrading strategies. As a policy instrument it thus offers the chance of avoiding adverse modes of insertion which lead to 'immiserising growth'.

However the major authors on the subject are not clear with regards to exactly where human resources and a commitment to their development fits into the greater picture, although they mention human resources both as necessary and parallel to all levels of upgrading, at the same time as distinguishing it as a potential area of rent generation for both individual firms and national economies. The literature on World Class Manufacturing, the implementation of which can be regarded as part of the product- and process-upgrading path for manufacturing specifically, is quite explicit in its support of the integral part that human resource development plays in attaining the maximum benefits from the implementation of its principles and in the ultimate sustainability of the initiative. At the other end of the scale the Human Resource and Organisation Development literature argues that commitment to the development of human resources is the *most important* ingredient of long-term firm and national economic survival and growth. Additionally it was noted that superimposed on these primary ideas regarding the relative importance of human resources on firm-level development is another very subtle secondary concept: that there is a difference between reactive and proactive human resource upgrading or learning.

The research questions posed for this dissertation thus sought to examine the viability of the very challenging demands pinned to the South African manufacturing sector by starting to unpack and examine the relationship between human resource development and the automotive components manufacturing value chain, through an analysis of the data of the 32 firms belonging to the KZN,

Eastern Cape and Gauteng Benchmarking Clubs by the end of 2001, and by relating these findings back to the theoretical literature described above and to the specific historical and current context of the country. The importance of focusing on the automotive components manufacturing sector is that the automotive industry has been identified by government as one of the sectors contributing most significantly to the South African national economy in terms of value-added, exporting and formal employment, all of which are critical factors for a national economy striving to embark on a sustainable upgrading path.

Thus the research questions that addressed were as follows:

1. Do firms that are subjected to similar sectoral pressures demonstrate different levels of commitment to human resource upgrading according the different value chain positions that they occupy? In other words is there an element of *value chain positional dependency* in commitment to HR upgrading, a factor which is often discussed in the literature as an independent variable?
2. To what extent can such value chain positional differences, if they exist, be explained by the value chain framework of analysis, which magnifies intra-sectoral political economy pressures, and as such opportunities and constraints for upgrading?
3. What are the policy implications of the results, bearing in mind that South Africa has the dual goals of sustainably growing its manufacturing sector and upgrading its human resources more generally?

The findings from the data analysed strongly suggest that firms' positions in the value chains in which they operate does have a substantial impact on their commitment to human resource inputs and through this on their human resource outputs. The fact that MNC owned firms, 1st Tier suppliers and Exporting firms were among the better performing sub-group positions provides support for current trade liberalisation policies which are based on the argument that engagement in global markets subjects firms to positive pressures that encourages (reactive) upgrading and learning.

The fact that these value chain differentials are evident even for this group of firms who through the mere fact that they belong to the various benchmarking clubs of South Africa have demonstrated a high degree of proactivity towards upgrading, additionally supports the current government policy of pushing and at the same time assisting firms in developing their human resource asset bases. South Africa's legacy of low human resource development as well as the lack of skills and the mistrust and adversary between labour and management is likely to have a continued impact into

the foreseeable future, and the pressure currently placed on firms through economic liberalisation in the context of globalisation is likely to mean that few firms, at this stage, have developed long-term strategies which are serving as guides and prompts for proactive learning. Thus current government policies aimed at pushing firms to develop their human resources can be seen as 'assisted proactivity', supporting and reinforcing pressure for reactive learning that is being disseminated through individual value chains. And while such 'assisted proactivity' may at this stage still be regarded by many firms as a tax rather than as an incentive, the skills development levy and the training potential of the various SETAs (in addition to the current restructuring of the entire national education system) need to be seen as extremely important in the current period as they have the potential to create a climate for proactive learning in the future, while in the present they can be seen as increasing the foundation of skills and human resource development that will support the reactive learning accompanying firms' engagement in global value chains.

Government should be making every effort to bring about the implementation of the crucial policies on skills development and education restructuring as quickly as possible. This may demand a level of 'proactivity' beyond policy formulation. More direct government engagement with industry has the potential to foster closer relations based on deeper understanding and trust and can go a long way towards meeting specific needs and demonstrating directly the desired intra-firm human relations espoused by both the WCM and Organisation Development literature and which the government seems so keen to develop. Thus more direct government involvement at the industry level may go a long way towards ensuring industry compliance with the IMS, a situation that would have beneficial outcomes for all involved.

A final point suggested by this research relates to the methodology. A value chain framework of analysis needs to be nurtured in the policy making process of the DTI, as cognisance of the trajectories of the various sectors and their specific upgrading paths in relation to the goals of the country's Integrated Manufacturing Strategy would result in more specific and valuable support with potentially greater beneficial spillover effects for all aspects of national development.

In summary, it is hoped that this study contributes in a small way to debates concerning: the value of the value chain framework of analysis as a tool for assisting firms in developing and attaining their long-term strategies and governments in developing appropriate supportive policies; the importance of human resource development for long-term firm and national economy sustainability in a globally fragmented production environment; the very recent ideas regarding the distinction between proactive and reactive upgrading and learning; and most importantly, the ability of South

Africa to achieve its multiple goals of sustainably increasing formal employment, reducing labour market inequalities and developing human capital through supply-side support of the local manufacturing sector.

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