THE SPATIAL DIMENSION OF SOCIO-ECONOMIC DEVELOPMENT IN ZIMBABWE

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Abstract

Inequalities in levels of development between regions within a country are frequently regarded as a problem. The magnitude of the problem is more severe in developing countries than in developed countries. Zimbabwe, as a developing country, is no exception and the country is characterized by severe regional inequalities. This research is concerned with the spatial patterns of socio-economic development in Zimbabwe. The composite index method was used to rank administrative districts of Zimbabwe according to level of development. The composite indices together with socio-economic characteristics were used to demarcate the administrative districts into development regions according to Friedmann's (1966) model. Attention was given to the spatial development policies applied in Zimbabwe. Friedmann's (1966) guidelines, for the development of the different regional types in his model, were applied to the Zimbabwean spatial economy. Suggestions were made regarding possible adjustments to previous strategies used in Zimbabwe, for spatial development planning.

CHAPTER ONE

INTRODUCTION, PROBLEM STATEMENT AND METHOD

1.1 Introduction

Economic development in space is generally uneven at all levels, at city level, national level, continental level and even global level. Perhaps the most evident manifestation of the uneven distribution of economic activities at the national level is the differences in levels of development between urban and rural areas. These economic inequalities within a country arise over a long period of time and are the results of the interaction between people and their physical, social and cultural environments. Regional, economic and socio-economic inequalities within a national economy often create social, political and economic problems.

1.2 Statement of the problem

Zimbabwe is a developing country within Southern Africa. The spatial economy of Zimbabwe, like that of so many other developing countries, is characterised by an uneven spatial pattern of economic activities. Economic activities and thus development and economic development are very unevenly distributed in the Zimbabwean space economy.

Certain areas in Zimbabwe have relatively high levels of development while others have low levels of development or no development at all. This spatial pattern of unequal levels of development and the uneven distribution of economic activities in Zimbabwe is not a random pattern or distribution, but is the result of specific processes operating in space and over time. Historical, economic, political and other forces have influenced the growth and migration of the population and the location of economic activities in the country. The degree of spatial variation in economic activities and levels of development in the

national economy can have far reaching implications in terms of development planning and policy formation.

Recent information on the spatial pattern of economic development (the spatial dimension of economic activities) in Zimbabwe can contribute to development planning, policymaking and implementation. Development planners need information on the spatial distribution of economic activities in the country to formulate relevant policy. There is a need for research that would describe and explain the problem of spatial inequalities in economic development in Zimbabwe as well as proposal of possible strategies, which can be used to develop the country and reduce the regional inequalities. We need to understand the spatial pattern as well as the processes that have shaped the pattern over time.

1.3 Objectives of the study

The purpose of this research is to make an analysis of the Zimbabwean spatial economy and demarcate the country into development regions making use of Friedmann's (1966) model of development regions. An attempt will also be made to formulate some proposal for spatial development planning in Zimbabwe.

The first objective of the study is to investigate the uneven spatial pattern of levels of socio-economic development in Zimbabwe. The exact pattern of spatial imbalances in economic development in Zimbabwe will be determined and the administrative districts in Zimbabwe will be ranked according to their level of socio-economic development through the use of the composite index method. These indices will be used to demarcate the national space economy into development regions according to an extended core-periphery model.

Regional economic development in Zimbabwe has been investigated in the past, and various strategies have been proposed and implemented to bring about a more even spatial pattern of development. These strategies have however not produced the desired results and the spatial imbalances persist.

The second objective of this study is therefore to attempt to formulate some strategies or spatial development policies to reduce or alleviate the problem of spatial inequalities in Zimbabwe.

It is important to do research on the problem of spatial inequalities at national level because so little has thus far been done in this field in Zimbabwe (an overview of research already undertaken within this field will be provided in Chapter 3). The results of this research would allow other academics to have a better knowledge on this topic. Secondly, the results of this research will have a high practical value in that various parties such as development planners, government and non governmental organisations are likely to benefit from the research as it will facilitate development planning and policy formulation.

1.4 Geography and economic geography

Geography, at the beginning of the 21st century, has many definitions. It can be defined as the study of the earth's surface as the home of the human race (Small and Witherick, 1986:89). This means that, that part of the earth, which constitutes man's habitat, is the field of study of geography. The earth's surface together with the human race found on it constitutes the study field of geography. This field of study is the man-environment system or the human-environment-ecosystem. Geographers concentrate mainly on spatial distributions and spatial interactions within this human-environment system. Geography studies the elements of the human-environment system from a space-in-time perspective. The space-in-time perspective enables the geographer to fully expose the spatial and the temporal aspects of phenomena. Whatever is studied in geography, whether it is physical phenomena or human or economic phenomena, it should be studied from a space-in-time perspective.

1.4.1 Economic geography

Economic geography is a part discipline within human geography and its field of study is the economic subsystem of the human-environment ecosystem. Economic geography is primarily concerned with the study of the spatial aspects

of human economic activities. The economic subsystem like the human-environment system is studied from a temperospatial perspective. When undertaking research within economic geography, the main concern is with the spatial pattern of economic activities but also with the changes occurring over time in these patterns. In other words, attention should be given to the temporal and spatial aspects of the phenomena under study.

Economic geography is chiefly concerned with the study of the spatial aspects of human economic activities. There are a large number of research areas in economic geography such as spatial interaction, sectoral studies, locational analysis, spatial processes and economic development. Spatial interaction is chiefly concerned with the flow of goods, people and information between elements of an economic system. The elements of the economic system may be industries, towns or countries. The flow of people, goods and information between the elements may need to be investigated.

Economic geographers are also interested in spatial processes. The processes are those forces that help to contribute to the development of the spatial economic landscape. These processes, according to Mtukudzi (1999: 27-33) include amongst others, the initial trigger action for development, cumulative development in space, agglomeration, centralisation, polarisation, spread effects and other socio-economic and political processes. In the study of these processes, the economic geographer endeavours to explain the spatial processes that operate in an economy to produce specific spatial structures.

In locational analysis, some effort is made to analyse locational choices of economic activities and the motives behind them. People choose such locations and human behaviour is complex. Models have therefore been used to analyse the location of various types of economic activities. Such models are based on simplified assumptions to make analyses easier. Sectoral analysis refers to studies within specific industries for example agriculture, mining, manufacturing or service industries. Sectoral studies cover both the study of individual sectors of the economy and comparison between different sectors. This can involve the

study of a specific sector, for example agriculture, in an economy and also the comparison of this sector with another sector such as manufacturing.

Economic development is another field of interest within economic geography. It is chiefly concerned with people's material prosperity. In this research area geographers tend to investigate and explain temperospatial imbalances in economic development at all scales: local, national, continental and even global. According to Haggett (1983: 531), inequality exists everywhere though the degree of inequality varies.

1.4.2 Paradigm in Economic Geography

All scientists subscribe to a specific paradigm when practicing their subject and geographers are no exception. At the beginning of the 21st century there are a number of different philosophies or approaches available for geography and economic geography within which they can do research. Geography is viewed as a multiparadigmatic science, which implies that geographers and economic geographers have a choice with regard to the paradigm they can use to structure their research.

According to the Habermas' (1978) taxonomy of the different types of science, science can be empirical-analytical, historical hermeneutic or critical. Empirical-analytical science embraces empiricism and positivism. Empiricism refers to the school of thought where facts are believed to speak for themselves (Kitchin & Tate, 2000: 20). In empiricism, there is presentation of facts as gathered and determined by the objective researcher. Positivism differs from empiricism because it requires propositions to be verified or hypothesis falsified rather than just simply presenting findings (Kitchin & Tate, 2000: 7). The verification of propositions is called logical positivism while the hypothesis falsification is called critical rationalism of positivism. This means that there is more than one version of positivism (Kitchin & Tate, 2000: 8) but contemporary positivism can in the main be divided into two streams of thought and that is logical positivism and critical rationalism as indicated above.

Research within economic geography can be within the empirical-analytical approach. Such economic geographic research can for example follow the traditional approach (positivism) and prefer the nomothetic approach to the idiographic approach. The nomothetic approach involves explanation and law giving (Yeates, 1968:21). Such economic geographers try to carry their studies from hypothesis formulation and empirical verification right through to the derivation of valid principles and laws (Harmse, 2001:8). Economic geographers who make use of the empirical-analytical approach can also follow the empiricism methodology. According to Mtukudzi (1999:19), the empirical approach was use as early as the 17th century (when contemporary economic geography was taken as commercial geography).

Historical hermeneutic science embraces many approaches namely behaviouralism, phenomenology, existentialism, idealism and pragmatism (Kitchin & Tate, 2000:20-21). Behaviouralism acknowledges, explicitly or otherwise that human action is mediated through the cognitive processing of information (Kitchin & Tate 2000:20). This school of thought was a reaction against the objectivity, mechanistic and deterministic nature of positivism. Phenomenology on the other hand rejects the scientific, quantitative approaches of positivism and behaviouralism (Kitchin &Tate, 2000:10). It is concerned with in depth understanding of people. Existentialism is based on the notion that reality is created by the free acts of human agents for and by themselves (Johnston, 1986: 60). It differs from phenomenology by its view that they are no general essences, pure consciousness or ultimate knowledge. Each individual is taken to be capable of creating and forging their own essence from existence. Idealism is another school of thought, which posits that the real world does not exist outside its observation and representation by the individual (Johnston, 1986:61). Idealism differs from existentialism in that existentialism focuses on reality as being while idealism views reality as a construction of the mind. People's subjective construction of what constitute reality takes the centre stage in idealism. Pragmatism, whose origin is predominantly identified with the North Americans and includes writers such as Peirce (1839-1914), Dewey (1859-1952) and James (1842-1910), is concerned with construction of meaning through

practical activity (Gregory, 1986: 49). In pragmatism therefore, that knowledge should be linked with practical application.

Economic geographers can also make use of the historical hermeneutic science approach. According to Mtukudzi (1999:19-20), the use of behaviouralism, phenomenology, existentialism, idealism and pragmatism approaches in economic geography began in the late 1960s and early 1970s. Such humanist geographers felt that the positivist approach was too deterministic. They believed that geography should be more anthropocentric and contextually holistic.

Critical science includes Marxism, realism, postmodernism, poststructuralism and feminism. Marxism is a system of thought that claims that the state through history has been a device for the exploitation of the masses by a dominant class and that class struggle has been the main agent of historical change (Peet and Lyons, 1981:207). Marxists accept that capitalism is an inevitable mode of production but are critical of capitalism. It is capitalism, which according to the Marxists, leads to the exploitation of the poor by the rich. Realism, unlike Marxism, has a lot in common with positivism. Realism shares with positivism the aim of explanation rather than understanding (Kitchin & Tate, 2000:15). Realists believe that there is a 'real' world that exists independently of our senses, perceptions and cognitions.

Postmodernism can be taken to refer to a new way of understanding the world. It is a revolt against the rationality of modernism and represents an attack on contemporary philosophy (Dear, 1988: 21). There is no one absolute truth in postmodernism. Poststructuralism, unlike postmodernism, focuses on the individual. For poststructuralists meaning is produced in language and meaning is not fixed but is constantly changing. If we are to understand the relationship between space and society we need to expose the positioning of an individual in relation to language and the individual is configured by language (Kitchin and Tate, 2000:17). Feminism is another school of thought found in critical science. Feminists have argued that geographical research largely ignores the lives of women and the role of patriarchy in society (Kitchin & Tate, 2000:18). Women's lives and views thus have occupied a subordinate position in geographical

research. The position taken by feminist geographers is that of informing researchers and other scientists about the need to emancipate and empower women.

Economic geographers can also use the critical science approach. Social unrest and academic reorientation of the late 1960s and early 1970s led to the search for alternative philosophical perspectives (alternatives of the positivist approach). During that time, radical development geography expanded enormously. Various schools of thought (in the critical science approach) such as structuralism, Marxism, realism, post modernism and feminism started to be in use in economic geography.

1.4.3 Development paradigms

As already indicated in a previous section, some economic geographers are involved in research within the field of economic development and other development issues. The research undertaken for this thesis is also within this field of interest and it is therefore important to investigate the available perspectives (or paradigms) in the field of economic development. A number of different development paradigms are available. According to Fair (1982:3) how one views the origins of spatial inequalities between and within countries depends to a large extent on the particular paradigm or framework of theoretical understanding that one chooses to adopt. In the latter half of the twentieth century development thinking was dominated by the diffusionist or modernisation paradigm (classical paradigm) and dependence paradigm. At the beginning of the 21st century other development paradigms, such as the neoliberal approach and the neo populist approach, are also available to researchers within the field of economic development.

The diffusionist or modernisation paradigm arouse from various streams of thought in Western social science. The essence of the thinking is that, if developing countries are to become developed then they must follow the path taken by the highly developed countries over the past 100 to 200 years (Fair, 1982: 5). Developing countries must duplicate the experience of more developed

countries for development is to occur in their countries. In this paradigm development is equated with economic growth and modernisation. It was generally believed that the answer to all the problems of the developing countries lay in increases of per capita income (Todaro, 1993: 51). Developed countries or developed regions are assumed to be capable of assisting the less developed regions through the diffusion of resources from such developed regions to the less developed ones. In other words, advocates of this paradigm believe in classical equilibrium theory of spread effects leading to spatial equalisation in terms of development.

The modernisation paradigm is usually criticised for its failure to meet its intended goals. Although the aim of development within the modernisation paradigm was to improve the quality of life in less developed regions development resulted in the core gaining more strength instead of the development of spread effects from the core region to the periphery. Although the diffusionist approach aimed at promoting greater democracy this was not achieved.

In the late 1960s and the 1970s there was a growing concern that the conventional (modernisation) approach to development was inadequate to reduce the inequalities that persisted between and within countries (Fair, 1982: 19). More radically minded researchers formulated new explanations for underdevelopment and solutions to it in an alternative paradigm, termed the dependency paradigm. This radical thinking in development studies was a reaction to the inability of the modernisation paradigm to eliminate poverty and spatial inequalities in and between countries. The dependency and modernisation paradigm held opposite views regarding development. According to dependency theorists, development in the developing countries is impossible within a capitalism economic system. The school of thought had it origins in neo-Marxist ideas of structuralism. They held the view that the expansion of the capitalist system was the reason for the underdevelopment of the countries in the periphery of the world economy. The dependency approach was criticised for being too one-sided and for concentrating on the exploitation of the developing countries

by the countries in the core of the world economy instead of concentrating on workable development strategies to reduce poverty in the periphery.

In response to the weakness of the modernisation and dependency approaches, the territorial approach emerged. Various terms are used to describe this approach, for example, Stohr and Taylor (1981: 121) refer to it as the bottom-up approach, while Gore (1984: 65) uses the term neopopulist approach. An important feature of the neopopulist approach is that unlike many other development paradigms, it originated in less developed countries. The territorial approach is a bottom-up approach. The neo-populist development is participatory, bottom-up, process-led, appropriate, sustainable and flexible. The top-down approach (modernisation paradigm) on the other hand takes the position that local resources uses and knowledge should be replaced by official, expert led knowledge which induces rural people to adopt officially sponsored innovations (Blaike, 1997:10). Since the bottom-up approach or the territorial approach is oriented towards the needs of rural regions, it is more appropriate in the less developed countries that are predominantly rural.

In the 1980s and early 1990s the neoliberal approach emerged. The word liberal in this context means free or uncontrolled and the prefix neo-means "new" in order to distinguish them from the earlier liberal theories that were popular before the Second World War (Conyers, 2001: 58). The neoliberal paradigm advocates a drastic reduction in government intervention in the production and pricing of goods and services. Market forces are believed to be capable of determining the production and pricing of the gods and services.

1.5 The spatial economy

The spatial economy refers to the geographical or spatial patterns of economic development or the manner in which the economy is manifested spatially (Fair, 1982: 8). The spatial economy consists of nodes or centres of economic concentration, networks that interconnect all the elements of the economy and surfaces or regions. Taken together in varying combinations these elements give rise to spatial patterns that result in different spatial processes.

1.5.1 Unequal development in space

Development problems are mainly problems of inequality. Spatial and other inequalities in development tend to occur predominantly at two levels. At international or global level we have inequalities between countries and at the national level we have inequalities within countries. Regional disparities and regional inequality on both the international and the national levels is a cause for concern, and over time it has been a focus of much research in economic geography.

The objective of development on a global scale is to reduce the gap in wealth between the developed and the developing countries. On a national scale the object is to reduce poverty and underdevelopment, as well as the inequalities between developed and developing regions within a national space economy (Fair, 1982: 2). Spatial development planning refers to the development strategies or policies that have been formulated to alleviate the problems of inequalities within a national space economy.

1.5.2 The core-periphery model

One of the theories put forward to explain the spatial inequalities or imbalances on all scales is the core-periphery model. The core and the periphery are interdependent although they greatly differ in their characteristics. Spatially the core covers a very small area but economically it is dominant, in other words, it has a heavy concentration of economic activities. Infrastructure is highly developed in the core and the core is the centre of innovation. Population density is usually high in the core and government and administrative functions are concentrated in the core. On the other hand, the periphery covers a very large area and infrastructure is poorly developed. The periphery is economically poorly developed and the economic activities are usually within the primary sector. The gross domestic product per capita is very low in the periphery and the periphery is normally in a subordinate position to the core (Chima, 1995:51).

The core-periphery model is grounded in the modernisation paradigm. The core-periphery concept is derived from the understanding that imbalances in development are inevitable since development can only commence at a few locations in space. The assumption in the core-periphery model is that economic development will diffuse from the core to the periphery and the inequalities between the core and the periphery will disappear in time. No country in the world has as yet managed to reach a stage in which there is no distinction between the core and the periphery (Fair, 1982: 24).

Friedmann (1966: 40-44) extended the binary core-periphery model of disparities in regional development to a model of development regions consisting of five regional types. In his model of development regions, the core still occupies the central position in the spatial system. The periphery is however divided into upward transitional and downward transitional regions. The upward transitional region encircles the core. The upward transitional region is characterised by an inflow of capital and high growth potential. The downward transitional region occupies the largest part of the spatial system and is characterised by a declining economy. Within the downward transitional region there are resource frontier regions, zones of new settlement associated with agriculture or mineral exploitation, and special problem regions. The special problem region usually demands a special development approach. This model of development regions will be used as the basis of analysis for this research and will be discussed in detail in Chapter 2.

1.5.3 Development strategies

Theorists in the modernisation paradigm believed that over a period of time the spatial imbalances in development would be reduced or even eliminated altogether through the normal working of economic processes. Generally, empirical facts tend to support the disequilibrium theories of development. Apparently the unhampered forces of a dynamic market economy tend to counteract the convergence of core and periphery. The result therefore is that regional inequalities persist. Growth has basically failed to diffuse from the core to the periphery or if it has done so it has only been limited to the vicinity of the

core. In many instances inequalities have even increased. Theorists from the more radical dependency paradigm have always believed that spatial inequalities will persist since the core can only prosper by exploiting the periphery. Normal economic development would therefore lead to a widening of the inequalities between the core and the periphery. Over time the regional inequality problem has become a serious problem, which demands some well thought out strategies to solve.

Spatial imbalances in development are a severe problem, especially in developing economies and many strategies have been devised by different researchers to counter the problems of unbalanced development in space. According to Dewar et al. (1986:11), before the Great Depression of 1929 and 1930, governments were adopting a rather laissez faire attitude towards economic development. The Great Depression had far-reaching permanent effects on economic development and spatial planning (Dewar et al., 1986:11). As a result of the crisis brought about by the economic depression, however, governments were forced to intervene in the operation of the market economy. The main aim of the intervention was to counteract the concentration of economic activities and development in the principal metropolitan regions and encourage economic activities in the periphery.

The various strategies are important because they can be used in an attempt to influence the spatial distribution of wealth in a country. The strategies are essential for stimulating development in the stagnant or declining regions and for the reduction of spatial inequalities in the national space economy.

The growth centre or growth pole theory is grounded in the modernisation or diffusionist paradigm. The concept of growth pole can be traced back to the work of Perroux (1955). In Perroux's conception of a growth pole, he was not referring to a geographical location but to a set of rapidly expanding industries with a lot of innovation and linkages. His original theory was adapted and a growth centre refers to a geographical location experiencing a rapid process of growth, innovation and economic development. The growth centre or growth pole theory was rephrased as a development strategy, the growth pole strategy, and applied

in various developing countries. Fundamental to the growth pole or growth centre strategy are three main theoretical underpinnings, namely, agglomeration, diffusion, and spread effects. These concepts of agglomeration, diffusion and spread effects are also central concepts in the modernisation or diffusionist paradigm.

Other well-known development strategies within the modernisation paradigm include the basic needs approach, the development of secondary cities, industrial decentralization and employment-oriented development strategies. These strategies will be discussed in more detail in chapter 2. There is also a discussion in chapter 6 concerning how these strategies have been used in Zimbabwe in the past and how they can be effectively applied in Zimbabwe at present.

Integrated rural development is a popular strategy within the neopopulist strategy. The strategy involves the preparation and implementation of a multisectoral plan for a predominantly rural region, almost always with financial and technical assistance from an external donor agency. The popularity of this strategy is declining because of the fall in donor funding (Blaike, 1997:10).

There are basically three development strategies within the neoliberal development paradigm: free trade zones, local economic development and decentralisation (Conyers, 2001: 58). The most common type of free trade zone is the export-processing zones (EPZ), which are regions where incentives are given to industries to produce goods largely or entirely for export. Local economic development might best be described as the neoliberal version of integrated rural development (Conyers, 2001: 59). It comprises a variety of measures to stimulate private sector investments and growth within a region. Neoliberal decentralisation strategy is on the face of it similar to territorial decentralisation strategy in that they involve the transfer of functions from central government agencies to regional or local governments. However, there is a significant difference in that in this case the aim is not only, or even primarily, to facilitate co-ordination and popular participation, but to reduce the financial burden on the central government.

1.6 Research design and methodology

1.6.1 Objectives of the research

The purpose of this study is to use the extended core-periphery model of Friedmann (1966), which was developed within logical positivism and the modernisation paradigm, to demarcate development regions in the Zimbabwean space economy. The first part of the research, concerned mainly with the demarcation of Zimbabwe into development regions with the aid of quantitative data analysis, is largely inclined towards the logical positivism paradigm (an empirical-analytical type of science). This is strongly related to the modernisation or classical paradigm in development studies. In Chapter 6, dealing with spatial development planning in Zimbabwe, there was a need to be eclectic and in that chapter the research will no longer be grounded in one specific philosophy but the strategies proposed will take cognisance of relevant aspects from other paradigms.

This research is based on the experience of regional demarcation and spatial planning policies in many different countries in the world. The first objective of the research is to demarcate development regions making use of a theoretical model of development regions and numerical data form the 1992 population census of Zimbabwe. The preposition is put forward that the administrative districts in Zimbabwe can be ranked hierarchically, according to their level of socio-economic development by calculating composite indices based upon indicators and components of socio-economic development. The assumption is further made that these socio-economic indices can be used to demarcate development regions in Zimbabwean space economy according to an extended core-periphery model or model of development regions formulated by Friedmann (1966). The second objective of the research is to propose some spatial development policies that can be used to reduce regional inequalities in the Zimbabwean space economy.

1.6.2 Research method

Economic geographers do research on a wide variety of topics and make use of different methods in their research. Amongst the methods available to collect and analyse socio-economic data are the historical procedure, the survey procedure, the statistical procedure, the case study procedure and the experimental procedure. The statistical method is a procedure for analysing data quantitatively and will be the method used in this research.

The statistical procedure involves the collection, ordering and analysis of numerical data with a view to making logical deductions and decisions (Ebdon, 1985: 57). According to Chatfield (1995: 161), statistical investigation consists of seven stages. The first stage is to understand the problem and its objectives. After that, the data is collected and the quality of the data is investigated. This is followed by an initial examination of the data through the use of descriptive statistics. Appropriate statistical analyses, often suggested by the results of the fourth stage, are selected and carried out. After the analyses the findings are compared with any previous results. Finally, the results are interpreted and communicated. The first four stages are concerned mainly with data generation as well as preparing, exploring and describing quantitative data. The last three are concerned with more formal statistical analyses procedures, the implications of the statistical investigation and placing the results in the wider context of established knowledge as well as in the more immediate context of the research project (Chatfield, 1995:161).

1.6.3 Study area

This study concentrates on the Zimbabwean space economy. Zimbabwe is a landlocked country in Southern Africa, bounded on the northwest by Zambia, on the northeast by Mozambique, on the south by South Africa, on the southwest by Botswana and the Caprivi Strip of Namibia. The capital city of Zimbabwe is Harare.

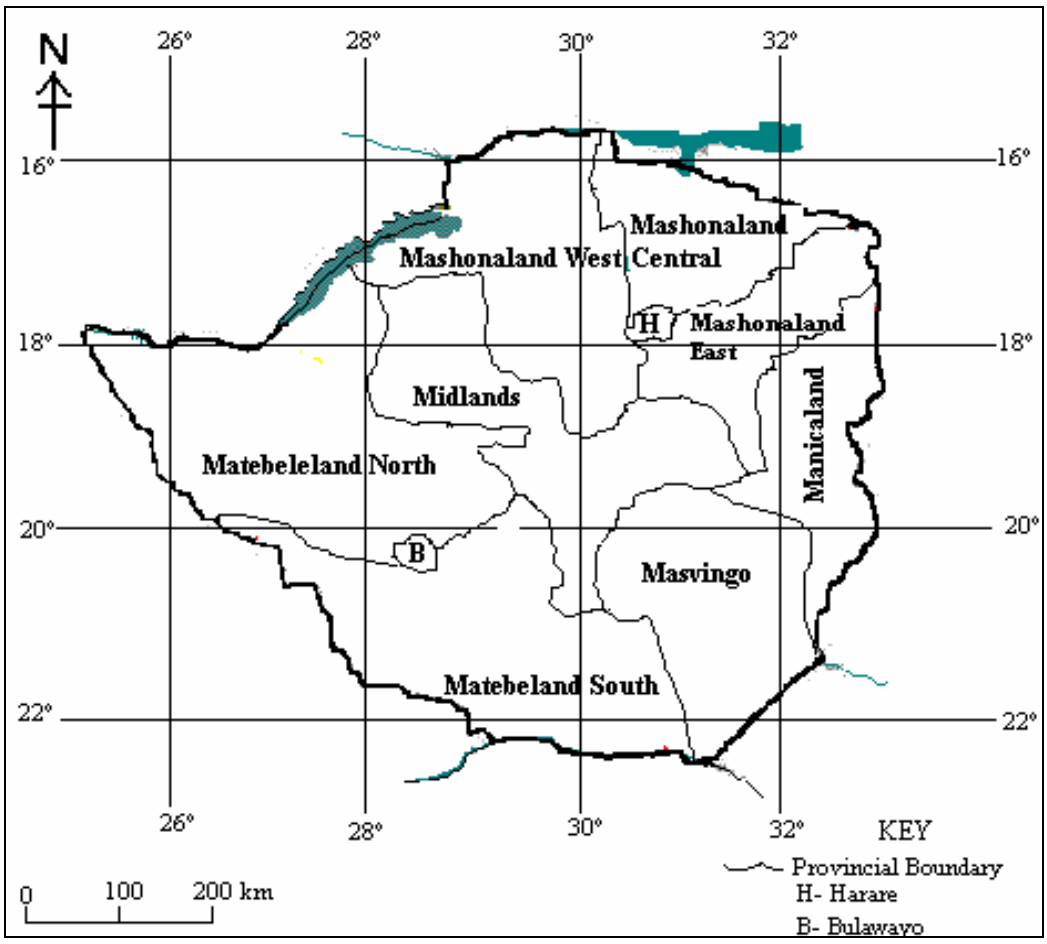

Figure 1.1: Provinces of Zimbabwe
(Source: Adapted from Central Statistics Office: 1994)

Zimbabwe consists of eight provinces namely Masvingo, Matebeleland South, Matebeleland North, Manicaland, Midlands, Mashonaland west, Mashonaland East and Mashonaland central (fig 1.1). Levels of economic development in these provinces is highly unequal. The provinces differ greatly with regard to area, population numbers and levels of socio-economic development. This can be attributed to various factors including physical differences e.g. climate, relief, and soils, historical factors such as colonialism, socio-political factors (including government) political, and economic factors (including cumulative causation).

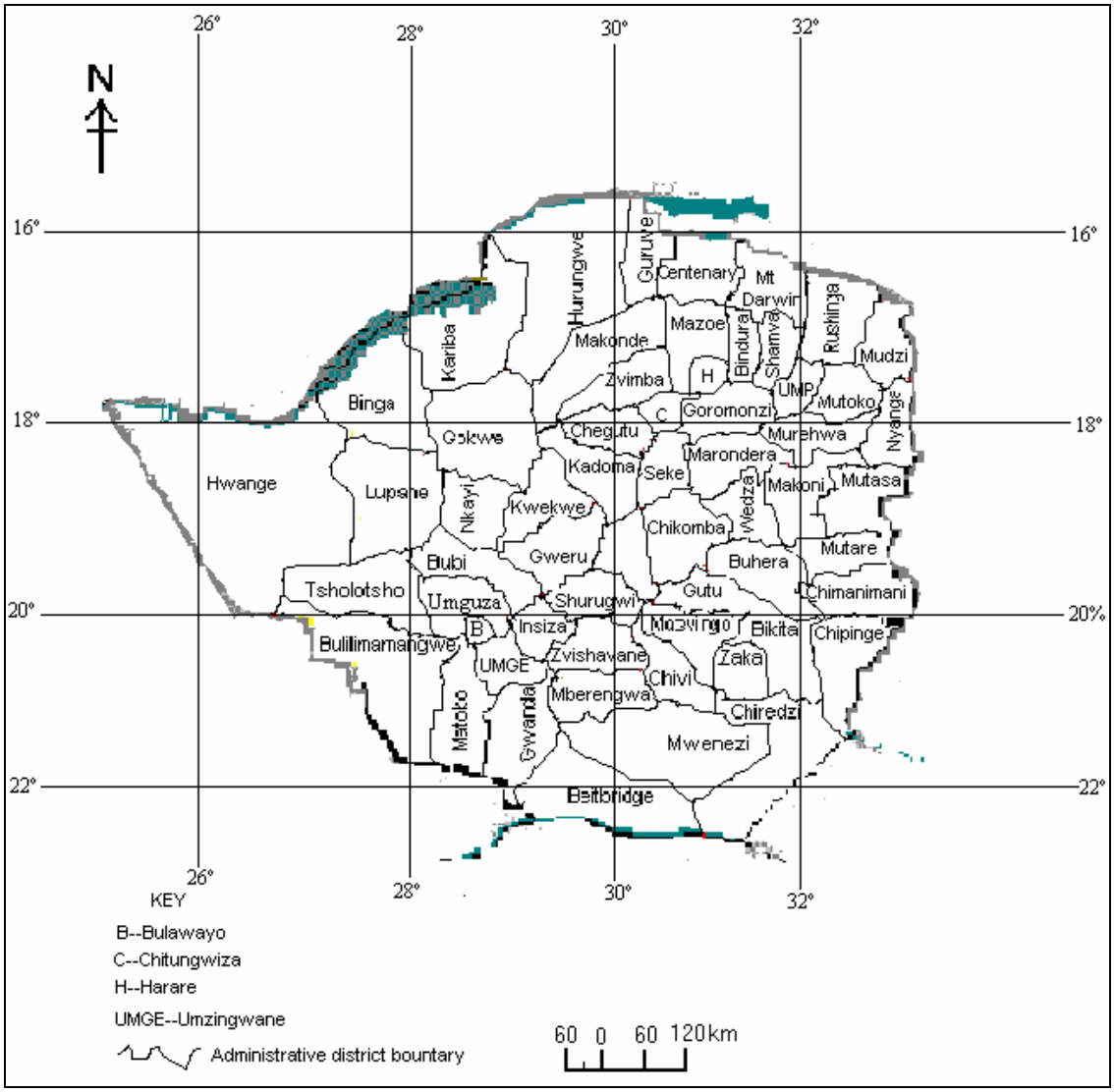

Figure 1.2 Administrative districts of Zimbabwe
(Source: Central Statistics Office: 1994)

The provinces have on average about seven administrative districts each. In Zimbabwe the boundaries of census districts normally coincide with those of administrative districts. There are fifty-nine (59) administrative or census districts in Zimbabwe (fig 1.2). These census districts, like provinces, also show significant variation in terms of area, population characteristics and levels of socio-economic development. Indeed, the census (administrative) districts show severe inequalities in terms of economic development. The reasons, like in the case of provinces, are found in historical physical, economic and socio-political circumstances that have been and are still prevailing in the country.

1.6.4 Time period

Census data is usually the best data source to use when attempting to demarcate development regions in a national economy. In Zimbabwe national censuses are held every ten years. A population census was held in 1992 and another census was held in 2002. The census data for 2002 has not yet been published. The data from the 2002 census can therefore not be used since it will take about two to four years for the census data to be processed and published. To use earlier census data (e.g. the 1982 census data) would be relatively inappropriate because a lot of changes have taken place in the population characteristics and structure as well as in socio-economic development of the districts.

The census data that is used in this research is that collected during the 1992 census. The 1992 data is the latest information available on population characteristics and socio-economic development on Zimbabwe and will be used to demarcate Zimbabwe into development regions according to with Friedmann's (1966) model of development regions (core, upward transitional, downward transitional, resource frontier and special problem region).

1.6.5 Data gathering

To establish the spatial pattern of economic activities in Zimbabwe, socio-economic data was collected for administrative districts from the Statistics Department of Zimbabwe (the reports of the 1992 census), the Ministry of Public Service, Labour and Social Welfare (Keogh 1997) and from the poverty assessment survey conducted by the Ministry of Public Service, Labour and Social Welfare (1995). The data sources and the process of gathering and ordering the data are described in chapter 4. The components and indicators of socio-economic development used in the analyses are described in table 1.1.

The spatial units (census districts or administrative districts) differ greatly with regard to area and population numbers. All data will therefore be reduced to per unit area or per person. Once the data has been collected, the composite method

will be used to analyse the data. The composite method is a statistical technique that involves the quantitative analysis of statistical data.

Table 1.1: Components and indicators of socio-economic development

Components	**Indicators**
A: Population	(A1) Crude birth rate (A2) Crude death rate (A3) Life expectancy at birth (A4) Crude rates of natural increase (A5) Population density
B: Economic prosperity	(B1) Percentage of households above the poverty line (B2) Unemployment rate (B3) Percentage of households that use electricity (B4) Poverty measured by Foster-Green-Tharbecke Measure
C: Education	(C1) Illiteracy rate (C2) Percentage of children aged 8-14 years not at school (C3) Percentage of the population older than 15 years who have not completed grade 7
D: Health	(D1) Percentage of the population without toilet facilities (D2) Percentage households without safe drinking water, sanitation and adequate housing

1.6.6 Data analysis

Once data on all the indicators is collected from the Central Statistics Department of Zimbabwe, the data will be organised according to the components of socio-economic development as indicated in table 1.1. Before any simple indices can be calculated, the correlation of each indicator with the general level of development must be established. In cases where a specific indicator has a negative correlation with the general level of socio-economic development the reciprocal of the values for all the administrative districts for that specific indicator must be calculated. After the calculation of the reciprocals all the indicators have a positive correlation with the general level of socio-economic development.

The second phase of the analysis entails the calculation of the simple indices for each of the indicators for each of the components of socio-economic development. This is followed by the calculation of the composite index for each of the four components of socio-economic development. Finally, an index of overall socio-economic development is calculated for each administrative district.

Once these indices have been calculated for all administrative districts, the indices are ranked hierarchically from high to low. These indices together with the socio-economic and physical characteristics of the districts are then used to demarcate the country (Zimbabwe) into development regions according to Friedmann's (1966) model of development regions.

After demarcation of development regions the spatial distribution of the regions will be mapped and the spatial pattern evaluated and interpreted. In the last instance, strategies will be proposed which can be employed to develop the different development regions demarcated in the spatial economy of Zimbabwe. The aim of these policies is the reduction of inequalities in the spatial economy.

1.7 Organisation of the thesis

Chapter 2 contains a review of spatial development theory, policy and practice. The chapter covers the discussion of what spatial economic development means. The chapter also include a discussion on models of spatial economic development and the demarcation of development regions in different parts of the world. Finally, there is a discussion of strategies and policies devised to "regulate" spatial economic development.

The development situation in Zimbabwe is the topic of Chapter 3. The chapter begins with a geographical perspective of Zimbabwe and goes on to provide an overview of the evolution of the Zimbabwean space economy and economic geographic research already undertaken on the space economy. The methodology used for the regional demarcation of the Zimbabwean space economy is described in Chapter 4. The chapter begins with a discussion of regional

demarcation in geography and the methods and indicators available to researchers. Then the specific indicators and method chosen for the regional demarcation of Zimbabwe will receive attention. This is followed by a discussion of how and from what sources the data on the identified indicators were gathered. In the last part of the results obtained from the analyses of the data are presented and discussed.

The presentation and processing of data is followed by data interpretation in Chapter 5. This chapter is concerned with the interpretation of the data analysed in Chapter 4 and the drawing of some conclusions on the spatial economy of Zimbabwe. The first part of this chapter deals with map interpretation. The spatial variations in the components population, health, education and economic prosperity and the spatial variation in overall socio-economic development were mapped with the aid of choropleth maps compiled from the composite indices of development. The spatial distribution of levels of development, based on these maps, will be interpreted and discussed. The demarcation of the development regions, in line with Friedmann's (1966) model of development will then be attempted. In the last section of this chapter the demarcated development regions will be evaluated.

In Chapter 6 spatial development planning in Zimbabwe will be discussed. The first aim of Chapter 6 is to provide an overview of spatial development planning strategies and policies in Zimbabwe in the past and to evaluate why these strategies and policies were not successful. Proposals will also be made on how to improve on some of the old strategies. The second aim of this chapter is to apply the spatial development planning strategies for the different regional types proposed by Friedmann (1966) for Venezuela to the demarcated regions in the Zimbabwean space economy. Chapter 7 is the final chapter and it provides an overview of the main conclusions and a short discussion of the problems encountered during the research.

CHAPTER 2

SPATIAL ECONOMIC DEVELOPMENT: THEORY, POLICY AND PRACTICE

2.1 Introduction

An examination of the spatial distribution of levels of socio-economic development generally shows that a spatially unbalanced pattern of socio-economic development has evolved in many countries. In this chapter the concern is with the theory, policy and practice of spatial economic development. The chapter opens up with a discussion of what development and spatial economic development mean. This is followed by an exposition of some of the models of spatial economic development. Finally, some of the strategies and policies devised to "regulate" spatial economic development are considered.

2.2 Spatial economic development

Development is a complex process. It is the end product of a wide variety of interrelated social, economic, political and cultural factors and processes. Development is a loaded word. Todaro (1993:56) sees the concept "development" as a multi-dimensional process involving the reorganization and reorientation of the entire social and economic systems. He points out that it typically involves radical changes in institutional, social and administrative structures as well as in popular attitudes, and in many cases even customs and believes, to bring about the desired changes. From the preceding discussion it is evident that development is a multi-dimensional concept that implies both structure and process.

In geography and economic geography the term is just as complex as confirmed by the definition of Conyers (2001:93). She defines “development” as a process of economic, social and political change, which enhances the well being of the inhabitants of a region or place. Economic development on the other hand is a dimension of development that it is primarily concerned with people's material

prosperity. Development is thus a broader concept than economic development and development encompasses economic development. According to Hanink (1994: 13) "….. economic development can be defined in two ways. One definition is that of outcome, or state, and the other that of process. The two definitions are linked, however, because one's view of the appropriate outcome, or state of being developed, determines one's view of the process".

Development in general and economic development in particular, shows a spatial variation and it is the spatial patterns of economic development that interest the economic geographer. Spatial economic development is economic development as it manifests in space. The major concern in this dimension of development is the spatial organisation of economic development. Spatial economic development can be studied both as a process and a structure. Spatial economic development implies a process since there is movement or gradual growth or change from one state or form to another. Spatial economic development also implies structure because it involves the creation or emergence of a particular spatial structure once development has taken place.

Geographers can study spatial economic development in a national system by using an analytical research framework, which addresses aspects such as processes, structure, problem and strategy (Harmse, 2001: 229). When studying processes in the national spatial economy, the geographer attempts to answer questions such as: Which processes helped to create and contribute to the development of the spatial economic system, and how has the economic landscape evolved and changed over time? When attempting to answer such questions, one should bear in mind that the processes that are usually at play include the initial trigger action of development, agglomeration, spread effects, backwash effects, multiplier effect, principle of diminishing returns and other social, economic and political processes. The geographer should not only describe these processes but also be able to indicate how they operate in the national spatial system in question (Harmse, 2001: 230).

In terms of structure, the geographer should address questions such as: What type of spatial structure or pattern of economic development can be distinguished in the particular national system in question? and how does the spatial distribution of resources and population influence the spatial pattern of economic activities in the national system in question? To answer such questions, it is necessary for the geographer to realise that "structure" refers to aspects such as spatial imbalances, core-periphery development, the sectoral division of labour and structural imbalances that may exist in the national system due to development taking place in the spatial economy (Harmse, 2001: 230).

The geographer should also be able to describe the problems that a specific spatial structure poses for economic development. The problems usually include aspects such as core dominance, unequal development, stagnation of the periphery and unemployment. Such problems retard spatial economic development in the national system therefore they must be identified and considered during a study of spatial economic development of a national spatial economic system (Harmse, 2001: 230).

The last aspect that the geographer must address is the strategies that are available for alleviating the problem of uneven spatial economic development in a national system. The strategies are the methods or the means that can be used to tackle the identified problems. Available strategies include the growth pole strategy, local economic development, development of secondary cites, decentralisation of industries and rural development. Appropriate strategies must be identified and discussed during any study of spatial economic development in a national system (Harmse, 2001: 231).

2.3 Models of spatial economic development

The real world is very complex and in trying to make sense of the structure of a particular region, geographers often attempt to simulate reality by substituting similar but simpler forms for those they are studying (Haggett, 1983: 18). A model is a simplified or idealised representation of reality in order to demonstrate

certain of the properties or relationships in a generalised form (Haggett, 1983: 20). Models being simplified approximations of reality are thus very useful as aids to our understanding of the world in which we live. One of the models devised to explain inequalities in spatial economic development is the core-periphery model.

2.3.1. The core-periphery model

The origin of the core-periphery model can be traced back to a number of interrelated developments, which occurred during the mid twentieth century. It was suggested that resource-base theories are inadequate for explaining the nature, rate and level of regional development in space. These developments included, in the first place, theories on the location of economic activity, and especially industrial activity, by economists such as Isard (1956), Hirschman (1958), Myrdal (1957) and Meier and Baldwin (1957). Secondly, there was the re-emergence of central place theory based on the work of Christaller (1933) and Lösch (1939, 1954). Finally, there was the introduction of the concept of polarised regions, which is more useful than homogeneous regions for analysing patterns of industrial and urban development. European geographers, regional scientists and town planners in the first half of the twentieth century developed the concept of polarised region (Conyers, 2001:39). This was a time of rapid industrialisation and urbanisation in Western Europe and the polarised region was found to be a useful tool for analysing patterns of industrial and urban growth that, tended particularly at that time, to be highly concentrated (Conyers, 2001:39).

These developments all pointed to the fact that, in the words of Hilhorst (1990:56), "there are tendencies in human economic behaviour that, regardless of land quality or natural accidents cause economic activity to cluster in space". This in turn led to attempts to explain patterns of regional development in terms of the polarisation economic activities. Such developments led to the emergence of the core-periphery model.

The core-periphery model describes the spatial imbalances in economic development at all scales. The main argument of the model is that, because of the economies of agglomeration (the advantages for an economic activity to locate near other activities) there is a tendency for economic activities to concentrate around a central point. Such agglomeration usually occurs in urban centres. The hinterland of the urban centre benefits from the economic activities in the centre (core) through spread or trickle down effects (through access to employment, markets for agricultural produce and access to services). In many countries, particularly the less developed countries, the concentration of activities at certain points result in the division of the country into two main types of regions namely, the flourishing core region (e.g. urban, mining or commercial agricultural areas) and the disadvantaged peripheral region (i.e. areas which are socially, economically and politically less developed). The inequality is not restricted to the country level but occur at all geographical scales such as district, provincial and continental scales and even on a global level (Mtukudzi, 1999: 91).

The core-periphery model is associated with the work of regional scientists such as Perroux (1955), Myrdal (1957), Hirschman (1958), Boudeville (1966) and Friedmann (1966) and the model dominated regional development thinking in the 1960s and 1970s. Hirschman (1958) and Myrdal (1957) attacked equilibrium notions in economic theory and suggested basic ideas about polarized development (de Souza & Foust, 1979: 572). According to Myrdal (1957), the core regions of the space economy are progressively becoming more and more developed. He argues that if events or economic activities follow an uncontrolled course, backwash effects perpetuates growth in the expanding core region and retards growth elsewhere. The result would be the widening of the gap between the rich and the poor (de Souza & Foust, 1979: 572).

Albert Hirschman advanced a similar model of economic development and pointed out that polarisation effects are "neutral" in the early stages of development. His model shows that once an industry has been located at a specific point, multiplier effect sets in. The central idea of Hirschman's model is that these polarisation effects are offset eventually by trickling down effects, the

equivalent of Myrdal's spread effects. According to de Souza & Foust, (1979:574-576), trickling down effects include the purchase of commodities produced in the periphery by the core, the movement of capital from the core to the peripheral region and the movement of labour from the periphery to the core.

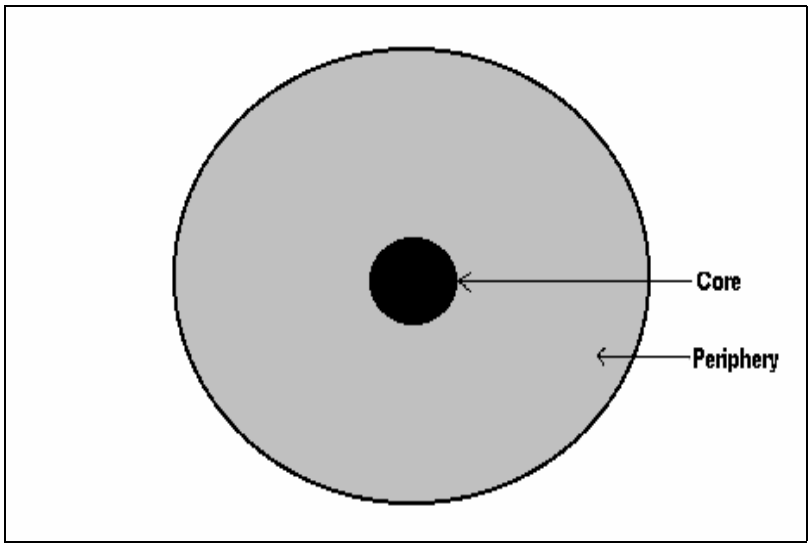

Figure 2.1: A schematic representation of the core-periphery model
(Source: Adapted from Harmse, 2001: 29)

It is clear from figure 2.1 that the existence of a core-periphery structure implies that economic development in space is usually uneven. The core is highly developed while the periphery is socially, economically and politically backward and in some cases even declining. The level of development has a negative correlation with distance from the centre. In other words, the level of development decreases as distance from the core increases.

2.3.2 Model of development regions

Friedmann (1966: 41-44) extended the original core-periphery model to include core, upward transitional, downward transitional, resource frontier, and special problem regions (figure 2.2). In the model of development regions (Friedmann, 1966:41-44), the core remains unchanged and continues to occupy the central position in the system (just like in the original core-periphery model). The

periphery however is divided into upward transitional, downward transitional, resource frontier and special problem regions. The upward transitional regions are characterised by net immigration, rapid economic growth and improvements in infrastructure although these are usually smaller urban centres than the core regions. The downward transitional regions are predominantly rural economies that are stagnant or declining. The resource frontier regions are zones of new settlement in which virgin territory is occupied and made productive (Friedmann, 1966:43). Development in the resource frontier regions usually involves large-scale investment in a natural resource. The special problem regions are those regions, which require a special development approach because of the peculiarity of their resources or location.

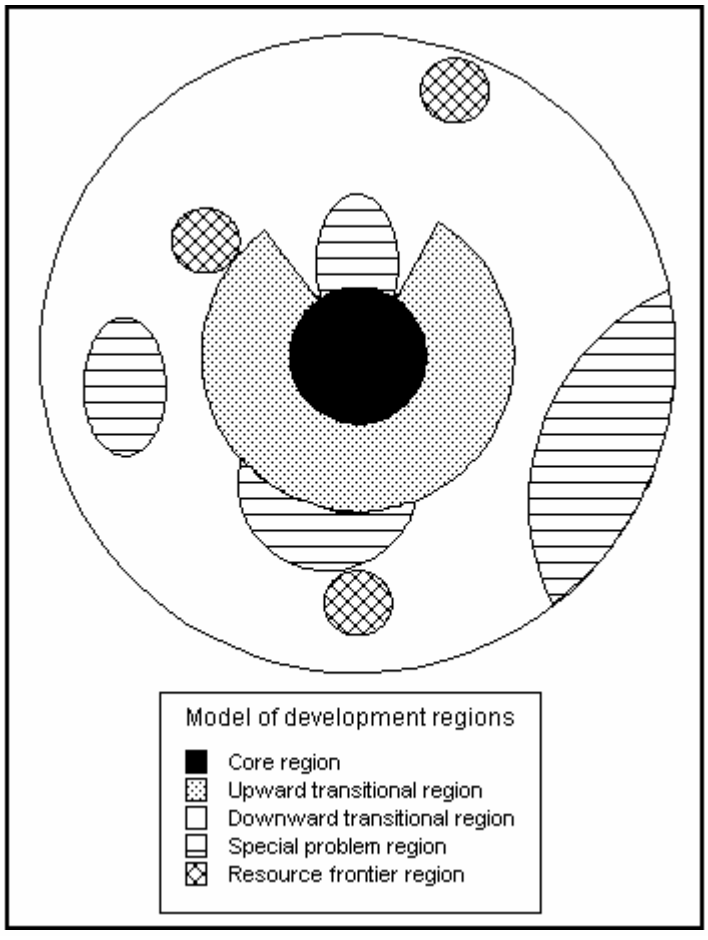

Figure 2.2: Friedmann's model of development regions
(Source: Harmse 2001: 41, figure 2.3)

2.3.2.1 The core region

According to Friedmann (1966:41) core regions are characterized by their promise for economic growth. Hanekom (1985:1-2) also gives the following as characteristics of the core region. It has a huge concentration of economic activities. The core region is spatially a small area but it has highly developed infrastructure [such as running water, transport services, health facilities and educational facilities]. The core has a high capacity for innovation and change. Population and cultural diversity are usually high in the core region. Politically, the core region is very powerful. Political decision-makers normally stay in the core region.

The core region has to deal with a multitude of problems. The problems include how to sustain growth, how to absorb newcomers into the local labour force and provide for their needs, how to organise a liveable space (physical environment) that is also efficient and how to manage the increasingly complex affairs of a metropolitan society voracious in its hamper for space (Friedmann, 1966:41). The problems of the core are usually due to diseconomies of scale. Some of the national core regions especially in developing countries have grown too rapidly (in terms of population) but resources have not been expanded fast enough to meet the needs of the population. According to Mutsvangwa (1989: 118), Lagos in Nigeria, Cairo in Egypt and Bombay and Calcutta in India are notable examples of national cores where population growth has severely outstripped available resources and serious socio-economic problems are being experienced. The socio-economic problems include shortage of basic services such as accommodation, health facilities and educational facilities. Unemployment is severe in such core regions.

2.3.2.2 Upward transitional region

Upward transitional areas include all settled regions whose natural resource endowment and location relative to the core region suggest the possibility of a greatly intensified use of resources (Friedmann, 1966:41). This type of region is

also characterized by large-scale immigration. A special type of upward transitional region is the development corridor which exists between two major cities (de Souza & Foust, 1979:570). An example is the corridor between Rio de Janeiro and Sao Paulo in Brazil. Development corridors may in some cases connect more than two cities. The economic activities attracted to areas along the development corridor or development axis will be approximately proportional to the product of the populations of the cities, divided by a function of the distance between them (Friedmann, 1966:31). This means that big cities that are close to each other would result in a development axis or development corridor with a large number of economic activities. An upward transitional region does not consist of a single dominant urban concentration but of various smaller urban centres. This type of region usually produces economic development due to increasing commercial demand in the core region.

The problems of the upward transitional region are associated with rapid economic growth, agricultural adjustment to more capital intensive farming, improvements in marketing organisation, and improvements in transportation, urbanization and industrial development (Friedmann, 1966:42). These problems occur because the pace of economic development is usually faster than the region's adjustment to the new conditions. An example would be the sudden inflow of a huge volume of immigrants who have a high demand of several basic amenities and which the region does not have the capacity to provide immediately.

2.3.2.3 Resource frontier region

These are zones of new settlement in which virgin territory is occupied and made productive (Friedmann, 1966:42). New resources are discovered and exploited in these areas. Primary industries such as agriculture, mining and forestry are usually the economic activities found in the resource frontier region. There is usually large-scale development in a natural resource. Resource frontier regions are usually situated in remote peripheral areas, surrounded by downward

transitional regions. Two types of resource frontier regions may be distinguished; these are the contiguous and the non-contiguous resource frontier regions.

In the contiguous frontier region, movement of people into new areas occurs, usually along a broad front adjacent to already settled regions. New areas will be incorporated into the existing structure of the national economy. Friedmann (1966:42) holds that in this type of region, new colonization will be predominantly agriculture. Problems of the contiguous frontier region include the building of transport and communication lines, the founding of agricultural communities and marketing centres, construction of irrigation works and extension of basic services to the new communities.

In the case of the non-contiguous type, the regions tend to occur as isolated pockets of development at considerable distance from the core but may become core regions themselves. Non-contiguous frontier regions are usually associated with large-scale investment in a mineral or forest development scheme and involve ~~s~~ substantial urbanis~~a~~tion (Friedmann, 1966:42). The major problems of this type of frontier region arise from the need to integrate the new regional complex into the national space economy and create a new locational matrix on the settlement frontier that is competitive with already established centres in attracting and holding a suitable labour force.

2.3.2.4 Downward transitional regions

The downward transitional regions are old established settlements whose essentially rural economies are stagnant or in decline, and whose peculiar resource endowments suggest as optimal a less intensive development than in the past (Friedmann, 1966:43). Such regions provide most of the migrant workers for the areas of concentrated development (the core regions). Such areas are, however, not necessarily rural economies but may be a city whose economy is declining due to an aging industrial structure or the loss of the primary resource base such as in a mining region (Friedmann, 1966:43).

The problems of downward transitional regions are usually associated with obsolescence and overpopulation relative to the existing possibilities for development. In addition to the above problems, there are also problems related to adaptation to new external conditions and transition to an economic order in which they can become reintegrated into the national space economy (Friedmann, 1966:43).

2.3.2.5 Special problem region

The special problem regions belong to a category of area that, because of the peculiarity of the resource or location, demands a specialized development approach (Friedmann, 1966:43). They often include areas situated on the country's borders, water resource areas, areas that are suitable for intensive tourism development and fisheries and military zones. Special problem regions are generally dispersed throughout the national space economy.

2.3.3 Application of the model of development regions

Researchers in many parts of the world have applied the model of development regions to specific countries and regions. In the following section the application of the model in Venezuela, South Africa and Swaziland will be investigated.

2.3.3.1 Application of the model in Venezuela

Friedmann (1966) applied his extended core-periphery model in his analysis of the spatial economy of Venezuela. After Friedmann (1966: 103-236) made a study of the population characteristics, settlement patterns, patterns of structural persistence and elements of structural change he demarcated the space economy of Venezuela into development regions according to the model he formulated. He also suggested planning approaches, which would provide guidelines for development of each regional type.

A strong point of Friedmann's (1966) research is that the use of the extended model (where there is the core and four types of peripheries) is more realistic than the use of the original core-periphery model. In reality, regions of a country or continent show a lot of variation in development levels and it is unfair to simply make a distinction between only two categories (core and periphery). Friedmann's (1966) extended model distinguishes more regional types in the periphery. This definitely increases the level of accuracy when such an extended model is used for the demarcation of a national space economy such as Venezuela. Another merit of Friedmann's (1966) research is that, he did not only demarcate the space economy of Venezuela, but proceeded to suggest development strategies suitable for each regional type that was demarcated. This is of value because apart from indicating the nature of the spatial structure and its related problems, solutions to the identified problems have been suggested.

There are, however, also some problems associated with the application of the extended core periphery model. Different researchers working on the same spatial economy and using the same extended core periphery model may come up with slightly different demarcations of the spatial economy. This is because there are no fixed, quantitative values or indicators on which Friedmann (1966) relied when he demarcated Venezuela in development regions. For example, an area considered by some researchers to fall in the core region may be considered by others to form part of the upward transitional region. Despite these shortcomings Friedmann's (1966) extended model remains useful because he very clearly distinguishes the characteristics of each type of development region.

In the present research, Friedmann's (1966) model of development regions forms the foundation of the analysis. The extended core-periphery model formulated by Friedmann (1966) is applied to the Zimbabwean spatial economy and following Friedmann's example development strategies to be used in Zimbabwe will be formulated.

2.3.3.2 Application of the model in South Africa

Fair (1965:59-71) was the first South African geographer to analyse the South African spatial economy on the basis of the core-periphery model. He used GDP data for 1960 to demarcate regions. The space economy was demarcated into a core and a periphery on the basis of the GDP per square mile. The core consisted of a main core region and a number of secondary and tertiary core regions. The periphery was divided into an inner and an outer zone (Fair, 1965: 59-71).

Fair (1965:62) was able to portray the varying contribution of the core and peripheral regions (in thousands of rand) to the GDP of South Africa in 1960. After the portrayal, Fair (1965:63) raised an important question "…… whether at that particular stage the differentiation was intensifying or diminishing? That is, is the gap between the core and the periphery widening or diminishing?" From his analysis of the South African spatial economy (from 1911 up to 1960), Fair (1965:68) identified certain definite trends. The core areas were growing larger and more powerful, not only in terms of population, but also in terms of physical size and complexity. The once independent centre of Pretoria, the Witwatersrand settlements and Vereniging increasingly tended towards an agglomerated unity. Similar core expansion was discernible around Cape Town and Durban. A process of external additions and incorporation of the nearby towns was resulting in rapid growth and ever-expanding metropolitan complex.

Board et al. (1970:367-392) undertook a comprehensive study of the structure of the South African space economy. This was an integrated approach, which was achieved through relating surfaces of socio-economic character, the status and character of nodes and flows and networks of traffic and communication. This was quite a detailed study of the South African spatial economy in terms of the structure of the economic surfaces, structure of the nodal system and structure of the networks and flows. This was done to clearly expose the nature of the total spatial structure of the South Africa economy. A major strength of this research is that detailed attention was given to each component of the South African spatial economy. A detailed quantitative analysis was done of levels of economic

welfare, socio-economic surfaces, population distribution, the nodal system and networks and flows. This enabled the researchers to make a detailed analysis of the South African spatial economy. Another important feature of this research is the fact that the researchers used fifteen variables on economic, social and political aspects of development in their analysis of the spatial economy of South Africa. They reduced these variables to a smaller number of principal components, which they used to make a detailed analysis of the South African space economy

A shortcoming of this research is that the researchers demarcated the South African space economy into five economic surfaces of development based on the judgments of the researchers. The researchers used the contribution to gross domestic product as a yardstick to produce the economic surfaces (categories). The determination of what GDP figures should constitute the high (surface 1), upper (surface 2) and so on, depended on the researchers' thinking with the result that different researchers using the same data may come up with slightly different surfaces. This is because people may differ on what GDP figures should mark the upper limit or the lower limit of an economic surface. The varying perceptions of such an important indicator reduce the scientific value of research of this kind. Overall, however, the researchers produced useful analysis of the South African space economy even though there may be slight difference in the determination of economic surfaces. It is believed that different researchers using the same data are likely to come up with basically the same analysis. For example, areas deemed to be in the high (surface 1) would basically remain in that category although there are likely to be some small difference here and there (Board et al., 1970: 367-392).

Fair's (1965) delimitation of South Africa according to the core periphery-model was followed by several other delimitations, which more or less corresponded to Fair’s demarcation. Hanekom (1976) demarcated the South African space economy into development regions according to Friedmann’s model using gross geographic product per square kilometre, labour compensation and population as variables. With these indicators he demarcated the South African spatial

economy into core regions, strong upward transitional regions, upward transitional regions, downward transitional regions and strong downward transitional regions (Hanekom 1976: 56, figure 12). Hanekom's (1976:32) findings were largely in agreement with Fair's (1965) findings. The major trend he identified was that the inequality gap between the core regions and the peripheral regions was widening.

Harmse (1989) applied Friedmann's (1966) model of development regions and used seventeen variables from the 1980 census to demarcate the South African spatial economy into development regions. Since Friedmann (1966) did not use fixed, quantitative values in the construction of his development regions, the variables used by Harmse (1989) depended on the researcher's judgement and the availability of data. In processing the variables, she used multivariate analysis and the South African spatial system was demarcated into core, upward transitional, downward transitional, resource frontier region and special problem regions. Harmse (1989:204) agree with Fair (1965) and Hanekom (1976) that the core region of the South African spatial economy consists of a number of non-contiguous cores. Upward transitional regions tend to occur around these core regions. The rest of the system is regarded as the periphery or the downward transitional region in which resource frontier and special problem regions are found. The core is spatially small but economically dominant. The periphery is spatially large but its contribution to gross domestic product is very low (Harmse, 1989: 203-204).

A distinctive feature of Harmse's (1989) research is that the data was processed and analysed quantitatively with the aid of principal component, cluster and discriminant analyses. This made the processing of the data more objective and less biased or impartial as well as prejudice free. Although the data was analysed with the use of multivariate statistical procedures, the grouping of the South African magisterial districts into development regions was, however, not without bias. The number of grouping used for regional demarcation relied on the judgement of the researcher and another independent researcher provided with the same data would obtain a slightly different demarcation of the South African

space. This type of problem is however unavoidable in many types of research. The fact that a researcher uses his or her personal judgement does not automatically imply that the findings are flawed because even fixed quantitative values are established through human judgement. The conclusion therefore, is that Friedmann's (1966) model of development regions can be applied to a national economy through the use of numerical data and multivariate analysis.

2.3.3.3 Application of the model in Swaziland

Research was also conducted in Swaziland in order to demarcate the spatial economy of that country into development regions. Fair (1969) undertook regional analysis of the spatial economy of Swaziland. The research confirmed that Swaziland like other developing countries shows severe spatial inequalities in levels of development. In 1968, 78 percent of the Swazi population lived in rural areas in the periphery at subsistence level. Fair (1969:63) indicated that he gap between the core and the periphery had increased and that regional inequalities in health and wealth have intensified. He also identified that the colonial legacy, with its distinctive human landscape, was still a very distinctive feature of the Swazi space economy. The core areas developed through the agency of a small elite, usually colonially oriented and outward looking (Fair, 1969:58). Core regions such as Mbabane grew quite rapidly. Such growth was however accompanied by problems such as crime, slum conditions, food shortages, insufficient educational facilities, and a shortage of health services.

2.4 Policy and practice

Many strategies have been devised to 'regulate' spatial economic development. In the following sections a number of these strategies will receive attention. The growth pole and secondary city strategies and well as some strategies and plans from the perspective of the dependency school will be discussed. During the discussion of each strategy, attempts will be made to give details of each strategy and in the case of the growth pole strategy, give an indication of how the strategy has been used in Zimbabwe as well as other parts of the world. The guidelines or

strategies devised by Friedmann (1966) for the development of the different regional types in his model of development regions will also come under the spotlight.

2.4.1 Growth pole strategy

The concept of growth pole can be traced back to the work of Perroux (1955). This is one of the best-known strategies for the development of stagnant or undeveloped rural areas in the national spatial system. Perroux defined a growth pole in terms of abstract economic space and not in terms of geographical space (Moody, 1975:22). In terms of Perroux (1955) therefore, "poles" are industries or firms and not geographical locations. Today however, the terms "growth centre" and "growth point" are used in various sources to refer to growth pole strategy. Perroux (1955) observed that economic activity seldom takes place evenly and that certain points or poles grow more rapidly than others. He used the term "growth pole" to refer to key industries (a set of rapidly expanding industries) that generate economic forces and attract other related industries. Perroux's concept growth pole has more recently been used as a development tool in a spatial sense. Planners attempted the stimulation of poles of development by creating artificially the conditions which Perroux has described existing and this led to the development of national growth poles.

According to Fair (1982:13) the major theoretical underpinnings of the growth pole/growth centre strategy rests on the basic ideas that the concentration of investment at a few centres will achieve economies of scale. These economies of scale, particularly external economies of scale or agglomeration economies will be enjoyed by industries. Once this has happened, economic growth will diffuse to less developed regions by spreading the effects of growth from the centre to the poorer regions. The success of this strategy would mean that regional inequalities would be reduced or eliminated. Its proponents believe that as the economy expands in the periphery, there will be a gradual shift from growth centres to an integrated system of cities (Fair, 1982:13).

The growth pole strategy was also used in South Africa. The regional development policy implemented in 1960 relied heavily on the growth pole strategy and industrial decentralization of secondary industries to the less development regions of South Africa. It was felt that government investment and the establishment of industries at a few chosen concentration points would have more influence than the establishment of isolated points of development in various parts of the country. One of the objectives was to reduce congestion in the urban core areas in order to provide employment for the population living in the peripheral regions around the cities (Fair, 1982:16-17). The other objective was to decentralize the national system and to reduce polarization. The main aim of the policy was political rather than economic, however, and many of the towns selected were not in the depressed areas but on the borders of such areas. The policy is often called the development of border industries.

2.4.2 Development of secondary cities

International experience has shown that the growth pole or growth centre strategy has failed in small and remote towns. As a result, its focus shifted to secondary cities and centres with development potential for self-sustaining growth (Conyers, 2001:201). The development of secondary cities as a strategy, involves the selection of a smaller city in the periphery and targeting it as a growth centre so that development can be attracted to the city and the city can develop into a larger and therefore a secondary core in the national space economy. This is also in agreement with Friedmann's (1973:167) view that a more balanced spatial structure can be developed by creating subcentres or subcores in the periphery which will eventually lead to the development of an interdependent system of cities and the almost entire elimination of the periphery. There would be reduction of inequality between the core and the periphery. It is clear from the discussion on this strategy that it is related to the growth pole strategy.

2.4.3 Basic needs strategy

The world employment conference (WEC) in 1976 looked for a strategy that would be directed at people and their needs. The WEC envisaged a strategy that would focus more directly on people than on the economic growth of a country and the fulfilment of the basic needs of people was a strategy directed at people. The basic needs strategy would therefore have to give attention to specific problems, such as malnutrition, diseases, shelter, access to land and other such basic human needs. Coetzee et al (1985: 7) however warns that this strategy is not the alpha and omega of development. It does not claim to provide all answers to poverty problems, nor does it imply that all previous attempts were total failures. The basic needs strategy aimed at incorporating the diffusionist and dependency paradigms by focusing mainly on people and their needs. In this strategy, emphasis is on shifting investment from physical to human capital, from urban to rural development, and from capital intensive to labour intensive activities.

Self-reliant indigenous development of the local resource base as well as appropriate technology is the cornerstone of the basic needs strategy. Self-reliance is achieved through people's participation in decision-making that affects their well being. Appropriate technology and labour intensive industries should however not exclude the use of sophisticated technology. In other words, self-reliance does not imply a return to a traditional society that is no longer capable of meeting the needs of its people (Coetzee et al, 1985:21)

2.4.4 Employment creation strategy

The International Labour Organisation (ILO) brought the employment creation strategy into existence during the late 1960s and early 1970s. It recognized that both mounting unemployment and under-employment were the most serious manifestation of mass poverty. The employment creation strategy was based on the belief that the key target of any development strategy was to generate productive employment (Lee, 1981:110). The basic way in which it tried to reach

its goal was to promote labour intensive industries rather than capital-intensive industries, and new projects were biased towards the creation of productive jobs. It was also necessary to encourage small scale and informal sector production, as they would be powerful means of raising the income of the poor (Goulet, 1985:67).

The employment-oriented strategy failed to produce the expected results. After five years of existence, 200 million people in the world were still living in acute poverty and were destitute. An estimated minimum 460 million people suffered from severe degree of protein energy malnutrition. Countless millions of others suffered from various debilitation diseases and lacked access to the most basic medical services. The number of illiterate adults was estimated to have grown from 700 million in 1960 to 760 million towards the seventies (Mtukudzi, 1999: 67).

2.4.5 Industrial decentralisation.

Industrial decentralisation is a strategy whereby industries are set up in the remote areas or simply outside the urban centre. Governments normally offer incentives to industrialists for them to locate in the designated zones outside the industrialised core regions. Such incentives can be in the form of tax concessions or subsidised infrastructure. Industrial decentralisation would permit the development of a more balanced spatial structure. This is because once the industries are set in the remote regions they are likely to stimulate development in those regions. It is like transferring some of the development from the core regions to the periphery and this permits the development of a more balanced spatial structure (Mtukudzi, 1999: 90).

In Zimbabwe this policy has been adopted especially during the first five-year Development Plan introduced in 1980 (after attaining independence). Incentives were given to industrialists who located their industries outside Harare, Bulawayo and other urban industrial cores and chose to locate at designated centres such as Growth Points. According to Conyers (2001:182-183), the

strategy was, to a large extent, a failure because of lack of markets, insufficient government support, lack of title deeds in communal areas and inadequate infrastructure (among other things) at the designated centres.

2.5 Conclusion

The present chapter focused on the theory, policy and practice of spatial economic development. Attention was given to models of spatial economic development. The theory and application of the core-periphery and the development region model received attention and the application of these models in different parts of the world such as Venezuela, South Africa and Swaziland received attention. Finally the discussion focussed on development strategies, which can be used in regional development planning.

In the next chapter the development situation in Zimbabwe will be under the spotlight. The spatial economy of Zimbabwe and the spatio-temporal development of the Zimbabwean space economy will receive attention.

CHAPTER 3

THE DEVELOPMENT SITUATION IN ZIMBABWE

3.1. Introduction

The uneven spatial development of the Zimbabwean economy has over the years attracted the attention of many researchers in Zimbabwe. The researchers have, apart from exposing the regional inequalities of the spatial economy, also endeavoured to propose strategies for the development of the spatial economy. In this chapter an overview will be provided of the Zimbabwean space economy. The geographical, demographic and economic situation in the country will be sketched and attention will then be given to the evolution of the Zimbabwean space economy. Finally the literature on economic geographic research already undertaken in Zimbabwe will be reviewed.

3.2 Zimbabwe: a geographical perspective

Zimbabwe (the map given in figure 3.1 below) occupies part of the great plateau of Southern Africa. The most prominent physical feature is a broad upland, which runs southwest to northwest across the country and is most extensive in the northeast. It has an average height of about 1 525m above sea level and is known as the highveld. On either side of the highveld the land slopes downward, in the north towards the River Zambezi and in the south towards the River Limpopo. These areas are called the midddleveld and the average height is about 1 065m. The basins of the Zambezi, the Limpopo and in the southeast, the Sabi-Lundi system is known as the lowveld. In the eastern border is a mountainous range, the eastern highlands, which rises to a maximum elevation of 2 592m at Inyangani Mountain. Apart from this region the land is generally gently undulating, except for a narrow belt of rugged hills associated with fault lines along the Zambezi valley. There is also the great dyke, which has given rise to prominent ranges of hills (Michie and Nhandara, 1996:49).

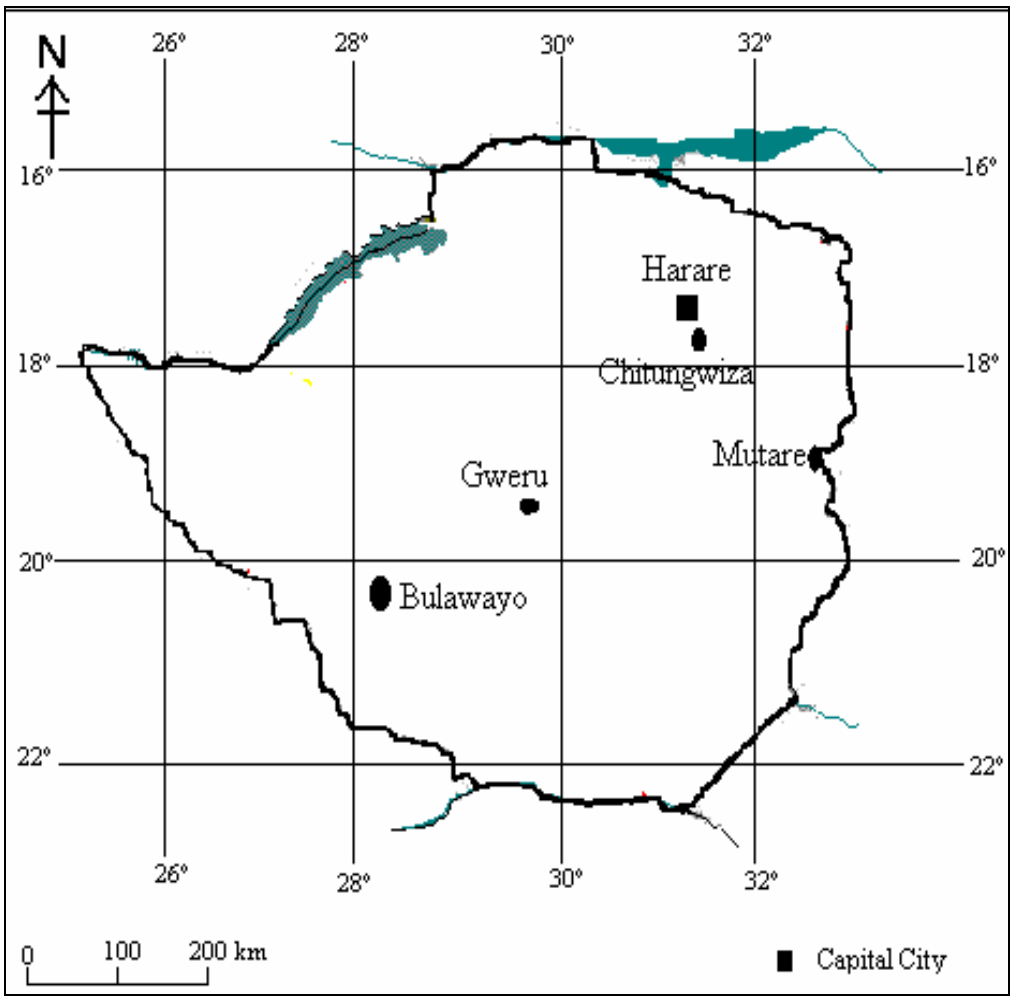

Figure 3.1 Map of Zimbabwe
(Adapted from Central Statistics, 1994: 3)

Although Zimbabwe lies in the subtropics, its climate is moderated by altitude. The average temperature is 15,1ºC in July (winter) and 21,1ºC in January (summer) and average annual rainfall is about 890mm in the highveld and less than 610mm in most parts of the lowveld (Michie and Nhandara, 1996:50). Most rainfall occurs in October to March and the rest of the year is relatively dry which means that rainfall has a seasonal pattern.

Michie and Nhandara (1996: 147) point out that the population of Zimbabwe is about 11 271 300 (1996 estimate), giving the country an average population density of only 29 people per km². In 1996, population growth was estimated at 1, 4%. About 75% of the population lives in the rural areas. There is a small but steady flow of Zimbabweans into South Africa in search of better-paid

employment. Life expectancy is about 42 years, although it is higher for the white population.

According to the Central Statistics Office (1994: 22); Harare, the largest city, main commercial and cultural centre as well as the capital, had a population of 1 184 169 in 1992. Bulawayo is the second largest city. It is an important manufacturing centre and railway junction. Chitungwiza, with a population of 274 035 in 1997, is a black dormitory town. Gweru, with a population of 124 735 in 1992, is a mining centre. Mutare with a population of 131 808, is located in an agricultural and forestry region and Kwekwe with a population of 94 982 in 1992, is an industrial and mining centre.

Around 70% of Zimbabwe's economically active population is engaged in agriculture, which contributes about 40% to exports earnings (Michie and Nhandara, 1996:71). The main cash crops are tobacco and maize, which are grown mainly in the northern and central regions. Livestock is also of major importance. Beef, which is of high quality, is exported to the European Union. In 1994, the country had about 4, 5 million cattle, 215 million goats, 550 00 sheep, 280 000 pigs and millions of chickens. In terms of crops, annual production of tobacco totalled 182 000 tones and 2, 3 million tones of maize was produced in 1994 (Michie and Nhandara, 1996:81). Other cash crops include tea, coffee, cotton, sugar cane, groundnuts, peanuts, citrus fruits, wheat and sorghum.

Manufacturing grew in Zimbabwe after World War II. The leading manufacturers include food products, machinery, metal products, textiles, fertilisers, clothing, footwear, chemicals and alcoholic beverages. Other important manufacturers are transport equipment, electrical machinery, mining machinery, pulp and paper products and tobacco products. Since independence, there have been significant increases in manufacturing exports, especially to countries in the Southern African region. Industries are mainly concentrated in Harare and Bulawayo.

Until 1990, annual export earnings were usually greater than imports costs but in 1991 the trade balance shifted into deficit with export earning of US $1.76 billion and imports costs of US $1,8 billion (Michie and Nhandara, 1996:123). The leading exports included tobacco, gold, cotton, steel, ferrochrome, nickel, textiles and meat. Among the major imports were petroleum products, machinery and transport equipment. The United Kingdom, South Africa, The United States and Germany are the leading trade partners.

Zimbabwe became one of the fastest growing African tourist destinations during the 1980's. The country has a number of national parks, safari areas, sanctuaries, recreational parks, botanical reserves, monuments and urban attractions. The country also has a well-developed transport and infrastructure and international class hotels to support the tourism.

According to the Central Statistics Office (2003: 13), the economy at present is dominated by tobacco, gold, cotton, steel, ferrochrome, nickel, textiles and sugar. The exports, however, show a deficit of Z$365 million on the balance of payments account in 2002. Unemployment is at over 70% and the gross domestic product at market price was at Z$21 285 million in 2002 (Central Statistics Office 2003: 13).

3.3 The evolution of the Zimbabwean space economy

The Zimbabwean space economy has been evolving since the pre-colonial times (Gumbo et al, 1985: 28). The discussion below will focus on the evolution of the Zimbabwean space economy during three major time periods, the pre-colonial time, the colonial time and the post-colonial period. This is because the economy has shown some major changes during these delimited periods.

3.3.1 The traditional economy

During the traditional stage (the period prior to 1890) of economic development in Zimbabwe, methods of production were unscientific. The population in the early part of this stage was engaged in hunting and food gathering. Food

gathering and hunting was dominant up to about 5 BC (Gumbo et al, 1985: 44). Later however, but still during the traditional economy stage, the bulk of the population was engaged in subsistence farming. The spatial pattern of the territory was conspicuously lacking clear, dominant core regions. There was little contact between the nodes. The integration of the spatial economy was very weak during that time. Production took place on a small scale. People were generally self-sufficient and trade was confined to barter on a limited scale. This stage lasted up to about 1890 in the Zimbabwe spatial economy. The major reason to support this view is that up to that time the country was not yet colonised and western, modern methods of production have not yet started to be utilised. This stage in Zimbabwe's economic development history coincides with the first stage of Rostow's five stages of economic growth. It also resembles Friedmann's pre-industrial stage in his 1966 model of temporal spatial development.

3.3.2 The colonial period

The colonial period started in 1890 and lasted until 1980. During this period there was a weakening of the traditional society to give scope for the advent of men of enterprise, the spread of education and the development of transport. According to Kadzombe et al (1983:137) this time period was characterised by the construction of railway lines to join places such as Beira in Mozambique, Zambia and South Africa with local production areas. These railway lines facilitated international trade. An adequate road network that was utilised competitively by numerous road haulers was also developed during this period. Air transport was also developed during the same period and in the year 1975, Rhodesian Airways carried some 452 000 domestic passengers (Kadzombe et al, 1983:140). The country had an export orientation in its trade during this period and the large-scale development of transport was intended to facilitate international trade and especially the export of minerals (Kadzombe et al, 1983: 142). In spite of sanctions in the latter part of the colonial period, trade increased rapidly and during the seventies a favourable balance of trade was maintained (Kadzombe et al, 1983: 140). The country had already established trade links

with countries such South Africa, United Kingdom, Germany, Japan, Zambia, France.

When looking at the characteristics of the Zimbabwean space economy during the colonial period it is clear that it conforms to stage two of Rostow's model of economic growth, which is the period in which the preconditions to takeoff develops. The country was mainly concerned with infrastructure development and creating an environment that was conducive for economic growth take off. According to Friedmann's (1966:50) model of national development, Zimbabwe was at this time in the early part of the transitional phase. This is because in Friedmann's (1966) model of national development, the transitional phase is composed of the preconditions to the take off stage. In terms of the spatial pattern a core-peripheral structure began and in this period Harare emerged as the dominant core. The foundation of an unbalanced spatial pattern of economic activities was laid in the country during this period.

3.3.3 The post colonial period

Immediately after independence, in 1980, Zimbabwe experienced positive economic growth, with a peak of 13 percent growth in 1981 (Ncube, 1991:6). Ncube maintains that this growth can be attributed to the opening up of the economy in 1980 following a sanctions period, which ensured more imported raw materials for full capacity production. The influx of returning citizens after the war also contributed to the growth. According to Ncube (1991:6) "… manufacturing contributes more than 22 percent to GDP and accounts for more than 56 percent of industrial output". During this period there was a rapid expansion of production in a greater variety of industries and the exploitation of hitherto unused resources. There was also commercialisation of agriculture and the utilisation of unrealised productivity in both the agricultural and industrial sectors.

From the description of the Zimbabwean economy above, it is clear that the country has been in the take off stage of Rostow's model of economic growth since 1980. The old blocks and resistances to steady growth characteristic of

much of the colonial period had been overcome. Secondary economic activities were developing and manufacturing's share of GDP was more than 22 percent (Ncube, 1991:6).

According to Friedmann (1966:8) the transitional phase of spatiotemperal development is a combination of the attainment of the preconditions for take off and Rostow's takeoff phase. Having argued above that Zimbabwe is in the take off stage it follows that if Friedmann's (1966:6) model were adopted then postcolonial Zimbabwe would be in the transitional phase. During this phase, subsistence farming has become profit-oriented. A dualistic structure has however emerged. First one core and then other core regions began growing faster than the surrounding periphery. The largest part of the periphery was mostly unaffected by the economic development in the core regions.

Zimbabwe is not yet in the drive to maturity stage of Rostow's economic growth model or the industrial phase in Friedmann (1966:36) model. Ncube (1991:4) maintains that for a country to be recognized as industrialised, the industrial sector should contribute 25 percent to GDP, manufacturing should contribute at least 60 percent to industrial output and at least 10 percent of its population should be in industrial employment. According to Ncube (1991:4) Zimbabwe has not yet attained such a high level of industrial activities and it cannot, therefore, be classified as being in Friedmann’s industrial stage. Although the country meets the first two conditions, it fails to meet the third condition. Less than 10 percent of the country’s population is active in industrial employment and there are no capital-intensive models of production in the country.

Zimbabwe today is crippled by an unfavourable political climate and a severe shortage of foreign currency for the necessary imports to add value to the country’s raw materials. This situation reduces the prospects for the country to reach the industrial phase (of Friedmann 1966) or the drive to maturity of Rostow in the near future.

3.4 The Zimbabwean space economy

As indicated in the introduction, this section will provide a literature review of research already undertaken regarding the problem of spatial inequalities in socio-economic development in Zimbabwe in the past. The research done by Rudd (1975), Davies (1988), and Chima (1995) on the Zimbabwean economy will be reviewed.

Rudd's (1975) main objective was to analyse the Zimbabwean (the then Rhodesian) space economy. The objective of the research was to assess the degree of imbalance in the distribution of natural, human and developmental resources and to relate the findings to the type of economic conditions characteristic of developing countries. The emphasis was on the components of the space economy such as climate, agriculture, natural resources, forestry, minerals, human resources, infrastructure and industry. The distribution of these economic development resources were analysed and from the analysis, the researcher was able to conclude that spatially these economic development resources are not uniformly distributed in the Rhodesian space economy. The unequal distribution of economic development resources has undoubtedly given rise to unequal development of the Rhodesian space economy (Rudd, 1975:57-76).

A major strength of the research by Rudd (1975) is that the conclusions made by the researcher have been backed by quantitative data. This has enabled the researcher to make an objective and scientific analysis of the Rhodesian (as Zimbabwe was then known) spatial economy with a relatively high degree of accuracy. The researcher's conclusions also agree with the findings of other researchers such as Davies (1988) and Chima (1995). The research done by Rudd (1975) provides evidence that there are severe regional inequalities in development in the spatial economy of Rhodesia. Rudd (1975) points out that there was severe racial inequality in Rhodesia, at that time. The later conclusion was not surprising given the fact that in 1975 the country was still under minority rule.

The major gap in Rudd's (1975) research is however that the researcher did not describe in detail the structure and magnitude of the Rhodesian space economy and its components. The researcher made a significant contribution in exposing the imbalance in the distribution of each of the economic development resources discussed but there was need for more clarity on the overall economic development landscape. This was implied in the discussion of the different economic development resources but more clarity was needed since this was the main objective of the research. In fact, an integrated approach could have enabled the researcher to give a better analysis of the "Rhodesian" space economy rather than treating the various components of the spatial economy as unrelated components of the spatial economy yet they all apply to the same economy.

Davies (1988:141-147) analysed spatial development planning in Zimbabwe from the pre-independence period to 1985. Davies' approach was to analyse the spatial development planning that was adopted in Zimbabwe during different periods of time (the pre-independence, 1978-1979, and lastly 1980-1985). Davies (1988:141) maintains that during the pre-independence period up to 1977, the country was divided into European and African owned areas and during that period, national spatial planning was constrained by such divisions and policies could not be formulated across the boundaries of these divisions. According to Davies (1988:141) planned development in African areas consisted mainly of local irrigation and other intensive agriculture largely framed in growth centre terms. Large-scale resettlement occurred from densely to more sparsely settled tribal lands, but not into European owned farmlands. In urban areas there was concern over the perceived excessive growth of the capital city (Harare today) and this led to a white paper proposing a decentralization policy (Davies, 1988:143).

During the period of transition to independence (1978-1979), the government produced a public sector development program (Davies, 1988:143). This program mainly concentrated on the development of the public sector. There was no clear urbanization strategy. The rural development plans, however, emphasised resettlement. The resettlement programme was accompanied by the

creation of the credit facilities, infrastructure development, growth point development and intensive rural development areas.

During the period from 1980 to 1985, development planning mainly continued along the lines of the 1979 program. No radical changes were introduction in this period, partly due to financial and manpower constraints (Davies, 1988:142). The main idea behind the post-independence development program was the replacement of the dualistic space economy by an integrated national space economy. This was done through commercialisation of peasant agriculture, the establishment of growth centres, improvement of the infrastructure, and the resettlement of peasant farmers on commercial farmland (Davies, 1988-142). All this was an attempt to reduce the dualism in the space economy.

Davies's (1988) research was very significant as it highlighted the various development strategies that were adopted in Zimbabwe from the pre-independence period up to 1985. The researcher however acknowledged that spatial analysis hardly suited Third World conditions. In line with this view, Allonso (1975) holds that spatial analysis is Eurocentric in its assumptions of perfect information, predictability, ample entrepreneurship, efficient transportation linkages and so on. Despite these limitations of spatial analysis, as applied to Zimbabwe, Davies's (1988) research raised quite a number of useful insights, especially on how Zimbabwe's spatial planning evolved over the period from pre-independence to 1985.

The research undertaken by Davies (1988) is very relative to the present research especially in chapter 6 where the strategies for spatial development planning in Zimbabwe is investigated and proposal made on how present strategies can be adapted. The shortcomings in development strategies in Zimbabwe, as indicated by Davies (1988), will be taken into consideration and an attempt will be made to propose new and more effective strategies.

Chima (1995) also made a study of the Zimbabwean space economy. The researcher demonstrated how and why regional imbalances in development have occurred in Zimbabwe. The researcher acknowledged that the core-periphery

model can be applied to Zimbabwe and pointed out that the urban areas are the cores while the rural areas are the peripheries. According to him (Chima 1995:53) the core region consisted of primary cores (Harare and Bulawayo) and secondary cores (Mutare, Gweru, Kadoma and Chitungwiza).

Chima (1995:51-53) then applied Fridmann's (1966) model of development regions and he came to the conclusion that Harare and Bulawayo constitute the core region of the spatial economy. He further indicated that Mutare, Gweru, Kadoma and Chitungwiza are part of the upward transitional region. Hwange and Mahangura were demarcated as resource frontier regions. The rest of the country was considered to be the downward transitional region.

An interesting part of the research by Chima (1995) is that the researcher did not merely indicate that regional inequalities exist in Zimbabwe, but there was a discussion of the causes of such regional imbalances in the Zimbabwean space economy. Chima (1995:55) also discussed the growth pole policy as a method of solving the regional inequality problem in Zimbabwe.

A major shortcoming of Chima's (1995) research, however, was that it was not backed by quantitative data. Chima's (1995:53) demarcation was based on statements about the spatial economy and it resulted in some controversy among researchers of different backgrounds and experience. Chima's (1995) research did not indicate the type of variables or indicators he used in coming up with the demarcation of the Zimbabwean space economy into the various development regions. He just made statements indicating that specific places in Zimbabwe are part of a specific type of development region as formulated by Friedmann (1966). It seems that the major thrust of Chima's (1995) research was on the discussion of the core-periphery model and the expanded core-periphery model as well as the causes of regional inequalities in the Zimbabwean space economy.

3.5 Conclusion

The Zimbabwean space economy has been evolving since pre-colonial times. Despite of the fact that its evolution, in development terms, can be modelled on

developments taking place elsewhere in the world the country has not yet achieved a stage where it can be said to be a developed one. Even though various strategies have been implemented in an attempt to stimulate development of the economy the country still has got a long way to go before it becomes an industrial country.

A number of researchers have investigated the economic development situation in the country in the past. This research covered the Zimbabwean space economy as well as the evolutions of the spatial economy. From this research it is evident that the Zimbabwean space economy exhibits an unequal spatial pattern of economic development.

In the next few chapter an attempt will be made to investigate this unequal spatial pattern in more detail by making use of census data and statistical techniques. In Chapter 4 the gathering of the data for the analysis will be discussed while the processing of the data receives attention in Chapter 5.

CHAPTER 4

DATA GATHERING FOR REGIONAL DEMARCATION

4.1 Introduction

Before regional demarcation can be attempted appropriate indicators, measuring development, must be chosen. After appropriate indicators have been identified, data on the indicators must be gathered, organized and analysed. This chapter begins with a discussion of regional demarcation in geography and the methods and indicators available to researchers to demarcate development regions. A section follows this on the specific indicators chosen for the regional demarcation of Zimbabwe, and on the gathering of the data for the identified indicators. In the final section the method used for the analyses of the data is discussed.

4.2. Regional demarcation in geography

From the earliest times geographers have been dividing or demarcating large areas into smaller regions that are more homogeneous. To geographers the concept of regions is very important and many geographers have found it necessary to divide the total geographical space, which they study, into units or subdivisions in order to facilitate description and analysis. Regions provide a logical and useful means of classifying geographical information. Subdivisions of this kind are used in most disciplines and in fact in many other types of activities. Thus, for example historians divide time into periods or eras. A region is therefore a basic analytical tool which geographers use to facilitate their work.

4.2.1 Defining a region

The basic unit or subdivision in geography is a region and a region is a unit of geographical space (Conyers, 2001:10). According to Conyers (2001: 8), the

word region (which is derived from the Latin word "*regio*" meaning region or province) is used in many different ways. Drury (1978:12) maintains that the word “region” originally meant an area subject to a single governing authority. It meaning was wholly political.

A region may be regarded as an area that is uniform in respect of certain criteria. A region is a territory that exhibits certain uniformity and the choice of criteria to define a region takes place in a geographers mind (Bergman and Renwick, 1999: 13). The word region has various different meanings as the following two definitions illustrate.

> “A homogeneous area with physical and cultural characteristics distinct from those of neighbouring areas” (Vance, quoted in Hilhorst, 1990: 111).

> “A major division of a country, however that division is determined” (Green and Clough, 1982:20).

Although there are many definitions of the term region, the definition that a region is a unit of geographical space identified for a particular purpose will be used for the purpose of this study. This is a broad definition designed to incorporate most types of regions. It emphasizes two main characteristics of a region: a region as unit of geographical space and a region identified for a particular purpose.

4.2.2 Types of regions

There are many types of regions. Geographers and regional scientists however normally recognize three main types of regions namely: homogeneous (formal), polarised (functional) and administrative regions (Conyers, 2001: 26). These three different types of regions serve different purposes and are demarcated in different ways. A homogeneous region is a region that is uniform in nature. In other words, there is relatively little variation from one part of the region to the other. A homogeneous region does not have to be uniform in all respects, it is

only uniform in terms of the particular characteristic, which one is concerned about. Thus for example, a homogeneous topographical region is one in which the topography or relief is the same throughout the region but other characteristics such as population distribution may not be necessarily the same. Glasson (1978:145) calls homogeneous regions formal regions.

Polarised regions are often called nodal or functional regions. Glasson (1978:152) defines a functional region as "---- a geographical area which displays a certain functional coherence, an interdependence of parts, when defined on the basis of certain criteria". A polarised (nodal or functional) region is a region because the various parts of the region are functionally interrelated. The urban region is an example of polarised region. In an urban region the central point is the urban centre and the movement of people, goods and services links it with its hinterland. The boundary of the urban region is the boundaries of the hinterland. Nodal regions may be spatially adjacent or non-adjacent and are described on the basis of the links between pairs of places. Unlike uniform regions, nodal regions may overlap (Haggett, 1983:42).

Administrative regions are also called planning regions or policy-oriented regions. A spatial system can include several types of administrative regions, of different sizes, each delineated for a specific administrative function (Richardson, 1978/79:23). The concept of an administrative region is therefore different from that of either a homogeneous or a polarised region in that it is defined not on the basis of characteristics (as a homogeneous region is) or the way it functions (as a polarised region is), but on the basis of the purpose for which it is used. There are many examples of administrative regions because the exercise of power is a central feature of human society. Countries, continents and even the world are subdivided into administrative or jurisdictional units. In a country like Zimbabwe, the main administrative subdivisions today are provinces, districts, wards and villages (in communal areas).

4.2.3 Regional demarcation methods

Various methods are available for regional demarcation in geography, depending on the number and type of criteria used and the purpose of the division. The process of regional demarcation can be viewed as a special type of classification. According to Abler et al (1972: 149) "The purpose of classification is to give order to things we experience." Classification is the systematic grouping of objects or regions into classes on the basis of properties or relations they have in common. Classification can be based on a single criterion or on a number of criteria or variables. Many geographers have, over time, been engaged in the identification, delimitation and study of regions. Regional delimitation is always done with a specific purpose in mind and the type of regions delimited varies according to the aim of the delimitation.

When regions are delimited, geographers are usually confronted with information that pertains to existing or established spatial units such as districts, provinces or states. When regions are delimited these spatial units are classified according to specific criteria into a number of classes. Geographers have in the past undertaken regional demarcations for diverse reasons using various criteria and methods.

For example, a geographer studying population distribution in Zimbabwe would divide the country into regions of different population density, while an economic geographer would divide the country into regions with different types of economic activity. In other words, a region is identified for a particular purpose. Whatever the purpose and however or whatever the type of region, it is crucial to appreciate the fact that in geography regions are mainly used to describe and explain patterns formed by geographical phenomena.

During the demarcation of administrative regions, the criteria used are usually based on administrative convenience, such as population size or ease of access. The actual boundaries are also often drawn fairly arbitrarily. They tend to follow prominent features, which can be easily identified on a map and or on the

ground, such as rivers, main roads, or lines of longitude or latitude. The map in figure 1.1 shows the different provinces and figure 1.2 shows the aadministrative districts demarcated for the 1992 census in Zimbabwe.

In the demarcation of homogeneous regions there is normally only one main factor or feature that is used to distinguish between one region and the other. For example, in the demarcation of climatic regions rainfall and temperature would be used and population density in the demarcation of population regions. It is also necessary to decide how many regions to have and where to draw the boundaries between them. The determination of boundaries is often very difficult. In some cases, there is a clear dividing line between one region and another, but often the transition is gradual and the researcher must decide what the most appropriate point to use as the boundary would be.

In terms of the demarcation of polarised regions, it is first necessary to identify the central point of each region. Having done this, one must then examine the movements of people, goods and services in order to determine the extent of the boundaries of the regions. It has been noted that it is more difficult to define the boundaries of polarised regions than homogeneous regions because some movements of people, goods and services tend to be localized while some may extend far from the central point and even into other countries (Conyers, 2001:34). The other difficulty is that there may be spaces or even overlaps between regions. Figure 4.1 is an example of a polarised region demarcated around Harare.

Berry (1960, 1967), Haggett at al. (1977) and Ginsburg at al. (1986) developed a methodology of sophisticated numerical techniques for regionalisation that have been used by various geographers to demarcate regions in different parts of the world. These techniques include principal component, factor, cluster, and discriminate analysis (Harmse, 1989:65-89). These multivariate techniques require an exact database in the form of a matrix in which each variable is numerically measurable. This type of multivariate analysis can, however, only be done with sophisticated computer programs such as Software System for data

Analysis (SAS) or Statistical programs for Social Sciences (SPSS) and require a certain degree of expertise to interpret the results of the analyses.

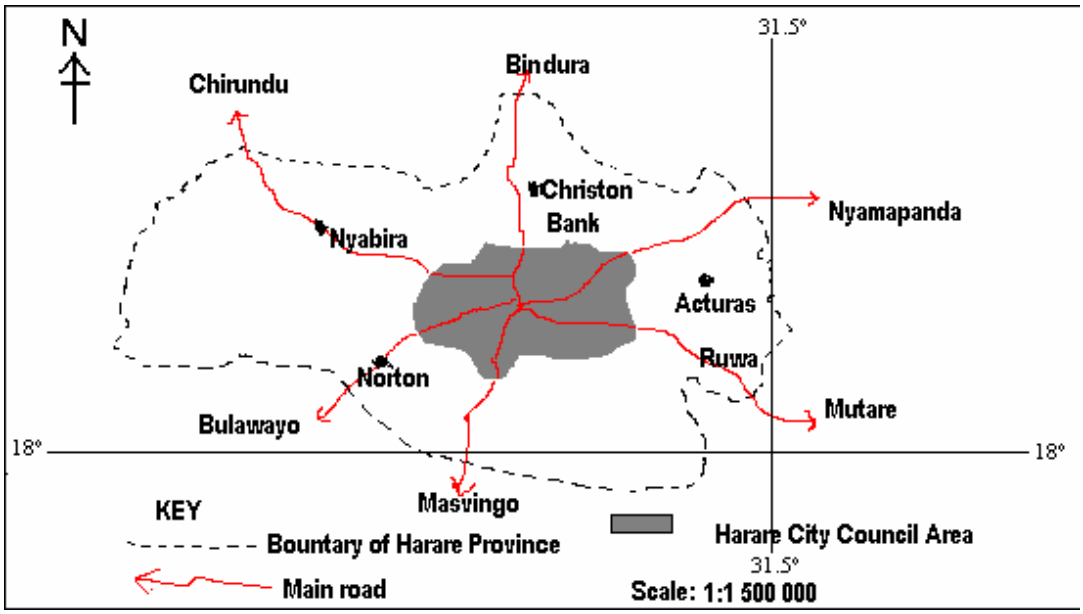

Figure 4.1: Greater Harare Area: polarised region demarcated around Harare (Source: Adapted from Harare Combination Master Plan Authority, 1992)

Although the main aim of composite indices is to measure levels of development, geographers have used the calculated composite indices as a method for mapping the spatial distribution of development and in that way demarcate regions. Composite indices represent measures derived at through some empirical process of aggregation of a number of economic, social and political variables (Babbie, 1995:161-175). According to Sainz (1989; 156 as quoted in Booysen, 2002: 118) composite indices are those measurement efforts that require "a synthesis of numerous factors into one factor". In other words, composite indices integrate various social, political and economic aspects of development in the measurement of the level of development of a region.

An index is defined as a ratio, calculated with a denominator that is a standard base number, such as a national average (Rogerson, 1989: 98). The relationship between an observed indicator value and a particular base number (such as average) is calculated and expressed as a percentage. This enables different values (measured in different units or at different times) to be compared easily since all the data is evaluated in terms of the extent to which they compare with

a value set as an expectation. Indices are mainly quantitative insofar as the indices are all presented in numerical format. Booysen (2002:115) however maintains that composite indices are inclined to subjectivity despite the relative objectivity of the methods employed in calculating the indices.

Liebenberg (1993: 237-265) used the composite index method to map the spatial distribution of overall socio-economic welfare in Africa. She analysed the data on twenty indicators of development and demarcated the African countries into four development categories, using quartiles. These four categories can be seen as four types of regions based on overall socio-economic development. The spatial variation in overall socio-economic welfare was represented with the aid of a chloropleth map and one of the deductions made (Liebenberg, 1993: 266) was that a definite spatial pattern is visible and that countries lying close together tend to form blocks having the same characteristics. This classification is therefore a type of regional demarcation and Africa is seen to consist of four regional types.

Conyers (2001) also used the composite index method to demarcated the Zimbabwean space economy into development regions. She used nine variables as indicated in Chapter 3. She ranked the census districts of Zimbabwe according to the levels of socio-economic development. The Plan and Budget Organization of the Government of Iran and the United Nations (PBOUN 1999) applied the composite index method in the demarcation of the spatial economy of Iran. The 26 provinces of Iran where demarcated into higher, medium and lower level of development according to the value of their human development index (HDI) which is a type of composite index. To do the demarcation and ranking, sixteen indicators where used.

4.3 Indicators for regional demarcation

Measuring development has been a matter of debate for nearly half a century. As early as 1954, a report by the United Nations (quoted in Mtukudzi, 1999:56) on social policy and planning made particular recommendations on the use of specific indicators in measuring development. The selection of the variables is generally based on theory, empirical analysis, and pragmatism of intuitive appeal or a combination thereof (Adelman & Morris, 1972: 117; and Diener and Suh, 1997: 192-200). Political and policy considerations also figure in the selection in so far as composite indices are in some cases developed with a view to informing particular audiences regarding certain issues (Stewart: 1985:1-2).

In order to demarcate development regions, specific indicators must be identified and data must be collected for these indicators. In the selection of the indicators, there must be consideration of the effectiveness of the indicators in measuring development. If the purpose of the demarcation is to demarcate development regions, the variables must reflect levels of socio-economic development. Since one of the objectives the present research is to demarcate development regions according to Friedmann's (1966) model, the variables chosen must reflect the characteristics of the regions as described by Friedmann (1966). Friedmann (1966:41-44) demarcated the spatial economy of Venezuela into a core region, upward transitional regions, downward transitional regions, special problem regions and resources frontier regions using social-economic conditions in the regions. Friedmann (1966) did not specify the particular indicators he used for the demarcation, but he defined the socio-economic and physical characteristics that characterize particular development regions. In addition to reflecting the characteristics of Friedmann's development regions, the variables or indicators chosen will also have to take into account variables and indicators used by other researchers as well as the availability of data on specific variables. The fact that developing countries have a scarcity of information means that the choice of indicators is also governed by availability of data.

4.3.1 Indicators used by other researchers

As mentioned in Chapter 2, Fair (1965) was one of the first geographers to analyse the South African space economy in relation to the core-periphery model. He demarcated the South Africa space economy into regions using only one variable or indicator, the percentage contribution of gross domestic product per square mile. Hanekom (1976: 56) demarcated the spatial economic of South Africa into development regions using gross domestic product against factor income per magisterial district in 1968, the area of each magisterial district and the total remuneration of employees.

In her study of the spatial variation in levels of development in Africa, Liebenberg (1993: 237, table 8.2) used a large number of variables. She identified 20 variables to investigate the problem of unequal socio-economic development in Africa. For the sake of convenience these variables were broken down into six components. She used population density, urbanisation rate, population growth, fertility rate, life expectancy, persons per medical doctor, persons per hospital bed, food availability, illiteracy rate, expenditure on education, percentage of primary school children, agricultural workforce, agricultural exports, agricultural land, gross national product, energy consumption, development of road network, supply of telephones, telephone reception and radio reception, to demarcate the African countries into social-economic developments regions. The components used were population, health, education, agriculture, economic prosperity and communication (Liebenberg, 1993: 237).

Harmse (1989) demarcated the spatial economy of South Africa into developments regions using seventeen variables. The variables she used were related to Friedmann's (1966) model of development regions. She used the following variables: population density per square kilometre, the absolute % increase in population, the relative population increase, birth-rate per 1 000 of the population, personal disposable income in rand, growth in personal income, labour compensation, number of persons per 1 000 of the total population

earning more than R30 000.00 per year, number of persons per 1 000 employed in factories, number of persons per 1 000 employed in the agricultural sector, high level workforce as a percentage of the total population, economically active persons per 1 000 of the total population, percentage of the population living in urban areas, number of persons per 1 000 with 12 year or more schooling, the youthful dependency ratio and number of doctor (medical workers) per 10 000 of the population (Harmse, 1989: 104-113). Data relating to these variables were gathered from the 1980 population census of South Africa per magisterial district and processed with the aid of multivariate analysis.

Although it seems as if the researchers, mentioned above, used different variables and indicators to measure development, when we look more closely, it becomes evident that the variables used are basically the same. The variables, though different, are related in the sense that they were all effectively used to measure the level of political, social and economic development of a region. For a comprehensive measurement of development of a region, a researcher should use as many variables as possible. The problem is usually that data is not always available for the variables identified. The availability of data for specific variables identified is especially problematic in developing countries such as Zimbabwe.

4.3.2 Indicators and components used in this research

In this research an effort will be made to demarcate Zimbabwe into development regions according to Friedmann's (1966) model, by making use data on socio-economic conditions in the Zimbabwe. Taking account of the data available, the characteristics of the development regions and variables used by other researchers to measure levels of development, the components and indicators as set out in table 4.1 were identified for this research. Although these identified indicators are all effective in characterizing development for the demarcation of development regions, not all of them are directly related to the characteristics of Friedman's development regions.

Table 4.1: Components and indicators of socio-economic development

Components	**Indicators**
A: Population	(A1) Crude birth rate (A2) Crude death rate (A3) Life expectancy at birth (A4) Crude rates of natural increase (A5) Population density
B: Economic prosperity	(B1) Percentage of households above the poverty line (B2) Unemployment rate (B3) Percentage of households that use electricity (B4) Poverty measured by Foster-Green-Tharbecke Measure
C: Education	(C1) Illiteracy rate (C2) Percentage of children aged 8-14 years not at school (C3) Percentage of the population older than 15 years who have not completed grade 7
D: Health	(D1) Percentage of the population without toilet facilities (D2) Percentage households with safe drinking water, sanitation and adequate housing

The population component and its indicators, the economic component and its indicators, the education component and its indicators and finally the health component and its indicators will be used to demarcate the spatial economy of Zimbabwe into regions according to Friedmann's (1966) model of development regions. The indicators which are explicitly or directly linked to Friedmann's (1966) model of development regions are population density, unemployment rate, percentage of households that use electricity and percentage of the population above the poverty line. These indicators are part of the population and economic components.

4.4 Data gathering

It is important that the data used to demarcate regions be collected by accurate methods from reliable sources. Geographical data can be either observed (from field observation or through survey) or it can be obtained from published or archival or secondary data sources. Data for the indicators identified in the previous section for a whole country cannot normally be obtained through direct measurement. Data on social, economic and physical variables for a country are mainly available from secondary sources such as census reports and other government reports. Secondary data sources and derived variables will, therefore, be used to obtain the data for the identified variables. Derived data are normally a ratio of one kind or another. This means that the raw data obtained from secondary data sources are usually expressed as a ratio to the national average and not used in its original format.

4.4.1 Data sources

Most of the data for this research were obtained from the 1992 population census conducted by the Central Statistics Office of Zimbabwe (Central statistics office, 1994). The data from the published reports of the 1992 census was used because it is the latest census for which published reports are available. A census was conducted in 2002, but it will take about two years for the census reports to be published. Data from additional data sources had to be gathered because the census reports of 1992 do not contain data on some of the identified indicators at magisterial district level.

Data were obtained from the report on geographic targeting done for the Ministry of public service, labour and social welfare (Keogh, 1997), from the poverty assessment survey conducted by the Ministry of public service, labour and social welfare (1995) and from the national health profile conducted by the Ministry of health and child welfare (1998). The data from the national health profile (1998) and the poverty assessment survey (1995) was used because the published reports of the 1992 census do not contain information on some important

indicators especially at district levels (spatial units of analysis). The data collected in different years, stretching from 1992 to 1998 were combined in one index. Although this is not the best way to calculate an overall socio-economic index, it was the only data available for the defined spatial units.

4.4.2 Data for identified indicators of development

The following is the description of the various components and indicators used in this research and an explanation of where the data for each was obtained from.

4.4.2.1 Population component (A)

The population component of development can be described by making use of five different indicators that characterize population conditions in the development regions. The crude birth rate (indicated as A1 in table 4.1 and in the tables in the appendix) refers to the number of live births per one thousand of the population per year. The crude birth rate figures used in this research were enumerated during the 1992 census and are contained in table 7.9 of the census report (Central Statistics Office, 1994: 86) for each administrative unit.

The crude death rate (A2) refers to the number of deaths per one thousand of the population per year. The crude death rate figures used in this research were enumerated during the 1992 census and are contained in table 7.9 of the census report (Central Statistics Office, 1994: 86) for each administrative unit. Life expectancy (A3) at birth is an indicator within the population component of development. Life expectancy refers to the average age to which people are expected to live. The life expectancy figures dealt with in this research were enumerated in the 1992 census and are contained in table 7.3 of the census report (Central Statistics Office, 1994: 86) for each administrative unit.

Crude rate of natural increase (A4) is an indicator in the population component of development in this research. Crude rate of natural increase refers to the increase in population that is attributed to the differences between the crude birth

rate and crude death rate. The crude rate of natural increase was enumerated in the 1992 census and the figures are contained in table 1.3 of the census report (Central Statistics Office, 1994:13).

Population density (A5) refers to the number of people per square kilometre. Population density is often used as an indicator when the level of development is measured. Population density is an indicator within the population component of development. Population density was obtained from figure 2.2 of the 1992 census report (Central Statistics Office, 1994:22) for each administrative unit. The population density figures are given in that figure. The data for the population component is included in table 4.4.1 in the appendix.

4.4.2.2 Economic prosperity component

The economic prosperity component of development can be described by making use of four different indicators that characterize conditions in the development regions. The first indicator is the percentage of households above the poverty datum line (indicated as B1 in table 4.1). The poverty datum line represents the cost of a given level of living, which must be attained if a person is deemed not to be poor (Central Statistics Office, 1998:26). The number of people above the poverty datum line was expressed as a percentage. The poverty datum line employed in this study used a "representative basket" of food items that are consistent with expenditure patterns in Zimbabwe providing reasonable dietary diversity and provide a minimum amount of food. The figures on percentage of households above the poverty datum line used in this research were collected in the 1995 Poverty Assessment Survey Study and are available in table 1.3 (Ministry of public service, labour and social welfare, 1995:15).

Unemployment rate (B2) is the next indicator in the economic prosperity component of development. Unemployment rate is a situation where the supply of labour exceeds the demand for labour. The unemployment rate is calculated by expressing the number of unemployed persons, aged 15 and above, as a percentage of the economically active population in that age group (Central

Statistics Office, 1994:54). Communal farm workers were included in the unemployment rate for the figures used. The data was obtained from table 5.11 in the 1992 census report (Central Statistics Office, 1994: 66).

The percentage households that use electricity (B3) is an indicator in the economic prosperity component of development. The number of households that had dwelling units with electricity was expressed as a percentage. The data was obtained from table 8.3 of the census report (Central Statistics Office, 1994:96).

The Foster-Green Tharbecke poverty measure (B4) is an indicator in the economic prosperity component and measures the severity of poverty (Ministry of public service, labour and social welfare, 1995:54). It is calculated as the product of the gap between the poverty line and the mean income of the poor expressed as a ratio to the poverty line and the head count index. The head count index refers to the proportion of the population below the poverty line. The measure is an indication of the poverty gap and gives greater weight to those further below the poverty line. The data were obtained from table 3.2.3 in the report of the 1995 Poverty Assessment Survey Study (Ministry of public service, labour and social welfare, 1995: 56).

Per capita gross domestic product (GDP or gross geographical product, GGP) is usually a good indicator or variable for measuring economic prosperity. This indicator was not used because data per spatial unit for the time frame could not be obtained.

4.4.2.3 Education Component

The education component of development can be described by making use of three different indicators that characterize conditions in the development regions. The first indicator is the illiteracy rate (indicated as C1 in table 4.1). In the 1992-population census, all people older than 15 years who had not completed grade three was classified as illiterate (Central Statistics Office, 1994:88). The illiteracy rate is the number of persons older than fifteen years who had not completed at

least grade three expressed per one hundred of the population. The data was obtained from table 4.7 of the 1992 census report (in Central Statistics Office, 1994:49).

The percentage children aged between 8 and 14 years not at school (C2) is an indicator in the education component of development that was used to characterize education conditions in the development regions. The percentage of children aged between the ages of 8 and 14 not at school and not receiving instruction at school was expressed as a percentage (Central Statistics Office, 1994: 41) of the total population. The data was obtained from table 4.4 of the 1992 census report (Central Statistics Office, 1994: 47)

The percentage of the population older than 5 years who have not completed grade 7 (C3) is another indicator in the education component. The data for this indicator was obtained from table 4.4 of the 1992 census report (Central Statistics Office, 1994: 38).

4.4.2.4 Health component

The health component of development can be described by making use of three different indicators that characterize health conditions in the development regions. The incidence of measles per 100 000 of the population (D1) is one of the indicators in the health component. The incidence of measles per 100 000 people refers to the number of people per 100 000 of the population who suffered from measles and were reported in 1988 (Ministry of Health and Child Welfare, 1998:62). Data on the incidence of measles per 100 000 of the population figures were obtained from table 4.2.4.5d of the National Profile report (Ministry of Health and Child Welfare, 1998:62).

The percentage of the population without any toilet facilities (D2 in table 4.1) is another indicator used to characterize health conditions in the development regions. The number of people without any toilet facility was expressed as a

percentage of the total population. The figures were obtained from table 8.22 of the 1992 census report (Central Statistics Office, 1994:88).

The percentage of households without safe drinking water, sanitation and adequate housing (D3) is the last indicator in the health component. Adequate housing refers to a maximum of three people per room. Unsafe drinking water refers to water from sources such as unprotected wells, dams, rivers and streams. Sanitation refers to hygienic or health condition. The data for this indicator was obtained from table 8:5 of the geographical targeting report (Keogh, 1997:56).

4.5 Conclusion

Regional demarcation of development regions can be performed through a range of methods and using a wide variety of variables. In the chapter an overview was provided of regional demarcations methods and a number of variables were identified to use in the demarcation of development regions in Zimbabwe.

The only major problem was however that some important data that are required were not obtainable, for example data on gross geographical product per administrative district. This, however is not surprising since Zimbabwe is a developing country and like many other developing countries, it is difficult to have data available on a variety of variables. The available data however provided sufficient indicators to give an indication of the spatial variation in levels of development in Zimbabwe.

In Chapter 5 the data on the selected indicators and components of socio-economic development will be analysed with the use of the composite index method to facilitate regional demarcation of the Zimbabwean space economy.

CHAPTER 5

DATA ANALYSIS FOR REGIONAL DEMARCATION

5.1 Introduction

This chapter is concerned with the analysis and interpretation of the socio-economic data for Zimbabwe. The first part of the chapter focuses on the organisation and analysis of the data gathered from the 1992 census. The method used to calculate a composite index of overall socio-economic development for each administrative district in Zimbabwe will be explained and the simple and composite indices will be calculated.

The second part of the chapter is concerned with the interpretation of the results from the analyses. The calculated composite indices for each of the components as well as for the index of overall socio-economic development will be represented on maps. The spatial variations in the components population, health, education and economic prosperity and the spatial variation in overall socio-economic development are displayed with the aid of choropleth maps, compiled from the composite indices of development. The spatial distribution of levels of development, based on these maps, will be interpreted and discussed.

The last part of the chapter deals with the demarcation of development regions, in line with Friedmann's (1966) model of development. After the development regions are demarcated the regions will be evaluated and the demarcation will be compared with other similar demarcations.

5.2 Method of data analysis

In the previous chapter it was established that it is necessary to analyse a number of different variables in order to demarcate development regions according to the

model. The demarcation method used must therefore provide for multiple variables. The fact that the multivariate procedures used by Berry (1960, 1967), Haggett et. al, (1977), Ginsburg (1986) and Harmse (1989) entail the use of sophisticated computer programs and a degree of expertise to interpret the results, has encouraged the researcher to use a simpler method. The composite index method will therefore be used to analyse the selected socio-economic indicators and calculate indices of development for the identified spatial units.

5.3 Organisation of the data

The data collected for each indicator within each of the four components of socio-economic development were entered in a data matrix, created in a Microsoft Excel spreadsheet. The data were organised alphabetically according to the names of the administrative districts.

5.3.1 Determining the correlation of the variables

Before the simple indices can be calculated it is necessary to determine the direction of the correlation of each indicator with the general level of socio-economic development. The reason why this is done is because all the variables are not directly comparable, owing to the nature of the data available. For example a high value for crude birth rate (A1) indicates a negative relationship with level of development whereas a high value for life expectancy (A3) indicates a positive relationship with the general level of development. These two indicators do not vary in the same direction and cannot be used directly in relation to one another to calculate an index value for the population component (A).

The values of indicators can only be transformed into an index value if all the indicators within a component vary in the same direction. If there is a negative correlation between the general level of development and a specific indicator in a component, the reciprocal of all the values of that indicator must be calculated

before the simple index for that component can be calculated. The inverse (reciprocal) of a variable is calculated to ensure that all variables in a component vary in the same direction.

It is generally accepted that as the general level of development increases, the crude birth rate (A1) tends to decrease. Crude birth rate therefore has a negative correlation with the general level of development. Before the simple indices can be calculated the reciprocals of the observed values of crude birth rate must be calculated (refer to table 5.2.1 in the appendix). The crude death rate (A2) also has a negative correlation with the general level of development. As the general level of development increases, the death rate tends to decrease. The crude rate of natural increase (A3) has a negative correlation with the general level of development. As the general level of development increases, the crude rate of natural increase tends to increase as well. The unemployment rate (B2) also has a negative correlation with the general level of development. As the general level of development increases, unemployment rate tends to decrease. The Foster- Green Tharbecke measure (B4) has a negative correlation with the general level of development. As the general level of development increases, the Foster-Green Tharbecke measure value tends to decrease. The relationship between illiteracy rate (C1) and the general level of development is also negative. Illiteracy tends to decrease with an increase in levels of development. The percentage of the population over 15 years who have not completed grade 7 has a negative correlation with the general level of development. As the general level of development increases the percentage of the population over 15 years who have not completed grade 7 tends to decrease. The percentage children, between the ages of 8 and 14 years, not at school (C2) have a negative correlation with the general level of development. As the general level of development increases the percentage of children aged 8-14 years not at school tends to fall.

The incidence of measles per 100 000 of the population (D1) has a negative correlation with general level of development, as the general level of development

increases the incidence of measles per 100 000 people of total population decreases. The percentage of people without any toilet facility (D2) has a negative correlation with the general level of development, since the percentage of people without any toilet facility tends to decrease with an increase in levels of development. This also applies to the percentage of households without safe drinking water, sanitation and adequate housing (D3). The indicator has a negative correlation with the general level of development. The correlations with general level of development of all the indicators are summarised in table 5.1

Table 5.1: Correlation of indicators

Components	**Indicators**
A: Population	(A1) Crude birth rate (correlation with general level of development negative) (A2) Crude death rate (correlation with general level of development negative) (A3) Life expectancy at birth (correlation with general level of development positive) (A4) Crude rates of natural increase (correlation with general level of development negative) (A5) Population density (correlation with general level of development positive)
B: Economic prosperity	(B1) Percentage of households above the poverty line (correlation with general level of development positive) (B2) Unemployment rate (correlation with general level of development negative) (B3) Percentage of households that use electricity (correlation with general level of development positive) (B4) Poverty measured by Foster-Green-Tharbecke Measure (correlation with general level of development negative)
C: Education	(C1) Illiteracy rate (correlation with general level of development negative) (C2) Percentage of children aged 8-14 years not at school (correlation with general level of development negative) (C3) Percentage of the population older than 15 years who have not completed grade 7 (Correlation with general level of development negative)
D: Health	(D1) Percentage of the population without toilet facilities (Correlation with income general level of development negative) (D2) Percentage households with safe drinking water, sanitation and adequate housing (correlation with general level of development positive)

The reciprocals of the values of all the indicators in each component that have a negative correlation with the general level of development must be calculated before simple indices can be calculated.

5.3.2 Calculation of reciprocals

The calculation of the reciprocal values for the indicators in the population component is illustrated in table 5.2. To get all the indicators in the population component in table 5.2 to vary in the same direction (in this instance, positively) the reciprocal values for each of the indicators **A1, A2** and **A4**, which have negative correlation with the general level of development, is calculated. The reciprocal is obtained by dividing each of the values for indicator of **A1** into 1. Because the values, obtained in this way, are frequently very small, the computation can be facilitate by multiplying each of the values by a constant such as 100 or 1000. For example, the reciprocal for Beitbridge in respect of indicator **A1** is (1/37.4) x 1000 = 26.74. The calculated reciprocal for Beitbridge for **A1** is shown in the column with the heading **A1!** in table 5.2. The reciprocals of **A2** and **A4** of Beitbridge were calculated in the same manner. This procedure was followed for all the administrative districts in Zimbabwe for all the indicators that have a negative correlation with the general level of development.

Table 5.2 Calculation of reciprocals for four districts in Zimbabwe

District	**A1**	**A1!**	**A2**	**A2!**	**A3**	**A4**	**A4!**	**A5**
Beitbridge	37.4	26.74	10.1	99.01	61	27.3	36.63	12
Bikita	32.4	30.86	10.4	96.58	59	22	45.45	30
Bindura	42.4	23.58	13.1	76.34	61	29.3	34.13	52
Binga	47.7	20.96	7.9	126.58	60	39.8	25.13	7
National average		28.21		101.75	61.38		39.5	106.27

A1! = Reciprocal of crude birth rate
A2! = Reciprocal of crude death rate
A4! = Reciprocal of crude rate of natural increase
(Source of data: Central Statistics Office 1994)

Life expectancy (**A3**) for example, has a positive correlation with the general level of development. The tendency is that, as the general level of development increases, life expectancy tends to increase as well. Regions with high life expectancy tend to have high levels of development. It is therefore not necessary to determine the reciprocals of the observed values of life expectancy when calculating simple indices. Population density (**A5**), percentage of households above the poverty datum line (**B1**), and the percentage of households that use electricity (**B3**) all have a positive correlation with the general level of development and the reciprocals of these indicators need not be calculated.

The reciprocals were calculated for the values of all the indicators in the components population (A), economic prosperity (B) and health (D) that have a negative correlation with general level of development. After the calculation of these reciprocals, the three components (population, economic prosperity and health) have positive correlations with the general level of development. Since all three indicators in the education component (C) have negative correlations, this component as a whole has a negative correlation with the general level of development. The reciprocal value of the whole component will be calculated before the index of overall socio-economic development is calculated.

5.4 Data analysis

5.4.1 The calculation of simple indices

A simple index is calculated by dividing the value for the indicator with a base number (in this instance the mean value for all the regions) and multiplying it by a constant such as 100 or 1 000. The following formula was used:

$\mathbf{I_{A1}}$= (A1/Base) x 100
Where $\mathbf{I_{A1}}$ = the index for the indicator
A1 = the observed value for the indicator **A1**

Base = the base number used as a standard (in this case it is the average of the organised indicator values).

In the case were reciprocals values were calculated the simple indices were calculated using the following formula:

$\mathbf{I_{A1}}$= (**A1!**/Base) x 100
Where $\mathbf{I_{A1}}$ = the index for the indicator
A1! = the reciprocal value calculated for the indicator **A1**
Base = the base number used as a standard (in this case it is the average of the indicator values).

The example below shows how the simple index ($\mathbf{I_{A1!}}$, $\mathbf{I_{A2!}}$, $\mathbf{I_{A3}}$, $\mathbf{I_{A4!}}$, and $\mathbf{I_{A5}}$) for each indicator of the population component (**A1!, A2!, A3, A4!,** and **A5**) for the Beitbridge district in Zimbabwe was calculated.

$\mathbf{I_{A1!}}$= (26.74/28.21) x 100 = 94.79
$\mathbf{I_{A2!}}$= (99.01/101.75) x 100 = 97.3
$\mathbf{I_{A3}}$= (61/61.38) x 100 = 99.38
$\mathbf{I_{A4!}}$= (36.63/39.5) x 100 = 92.73
$\mathbf{I_{A5}}$= (12/106.27) x 100 = 11.29

Table 5.3 Calculation of the simple indices

	A1!	$\mathbf{I_{A1!}}$	**A2!**	$\mathbf{I_{A2!}}$	**A3**	$\mathbf{I_{A3}}$	**A4!**	$\mathbf{I_{A4!}}$	**A5**	$\mathbf{I_{A5}}$
Beitbridge	26.74	94.79	99.01	97.3	61	99.38	36.63	92.73	12	11.29
Bikita	30.86	109.42	96.58	94.5	59	96.12	45.45	115.06	30	28.22
Bindura	23.58	83.61	76.34	75.02	61	99.38	34.13	86.4	52	48.92
Binga	20.96	74.32	126.58	124.4	60	97.75	25.13	63.6	7	6.59
National average	28.21		101.75		61.38		39.5		106.27	

The simple index for each spatial unit in Zimbabwe for each indicator was calculated in the same manner. The tables reflecting the calculation of the simple

indices for the four components of socio-economic development are given in tables 5.2.1 to 5.2.4 in appendix A.

5.4.2 Calculation of composite index per component

The geometric mean of the simple indices of each indicator of a specific component can now be calculated to obtain the composite index ($\mathbf{I_A}$, $\mathbf{I_B}$, $\mathbf{I_C}$ and $\mathbf{I_D}$) for each of the components A, B, C and D. To calculate the composite indices, the geometric mean of the indices for all the components must be calculated. The geometric mean was calculated within the Microsoft Excel spreadsheet, where a formula is available for the calculation of the geometric mean. Table 5.4 shows how the indicator values for a specific district in Zimbabwe have been combined into a composite index for that district.

Table 5.4: Calculation of the composite index of the chosen districts

	A	*B*	*C*	*D*	*E*	*F*	*G*
1		$\mathbf{I_{A1!}}$	$\mathbf{I_{A2!}}$	$\mathbf{I_{A3}}$	$\mathbf{I_{A4!}}$	$\mathbf{I_{A5}}$	$\mathbf{I_A}$
2	Beitbridge	94.79	97.3	99.38	92.73	11.29	62.58
3	Bikita	109.42	94.5	96.12	115.06	28.22	79.76
4	Bindura	83.61	75.02	99.38	86.4	48.92	76.58
5	Binga	74.32	124.4	97.75	63.6	6.59	51.95

To calculate the composite index ($\mathbf{I_A}$) for Beitbridge the geometric mean of the simple indices for the district was calculated using the GEOMEAN function available in Microsoft Excel. GEOMEAN returns the geometric mean of an array or range of positive data. The syntax for calculating the geometric mean for the population component for Beitbridge in table 5.4 is GEOMEAN [*B2, C2, D2, E2*, *F2]*. The geometric mean of the index values for Beitbridge [94.79, 97.3, 99.38, 92.73 and 11.29] is calculated. The composite index for the population component ($\mathbf{I_A}$) for the Beitbridge district using the five simple indices is 62.58. The calculation for the different simple indices and the composite indices for the indicators and

components of general level of development are shown in tables 5.2.1 to 5.2.4 in appendix A.

5.4.3 Calculation of composite index for each district

After the calculation of the index for each component for each administrative district, the composite index of overall socio-economic development for each administrate district must be calculated. The final index ($\mathbf{I_{OED}}$) reflects the general level of development for each administrative district. Before this final index can be calculated, all the components must vary in the same direction, as with the individual indicators.

In table 5.2, all the indicators in the components population, economic prosperity and health that had negative correlations with the general level of development were transformed to have a positive correlation. All three indicators in the education component (C) had negative correlations with socio-economic development (table 5.1) and the calculated composite index for education ($\mathbf{I_C}$) has a negative correlation with general level of socio-economic development. The reciprocal values for the education index for each of the administrative districts were calculated before the composite index for overall socio-economic development was calculated (refer to table 5.2.3 in the appendix).

The geometric mean can now be used to combine the composite indices of each component to establish an overall index of development. To obtain the overall index the geometric mean of the composite index of population, the composite index of health, the composite index of education and the composite index of health (table 5.4) were calculated.

Table 5.5: Calculation of composite index for each district

	A	*B*	*C*	*D*	*E*	*F*	*G*
1	**District**	**I_A**	**I_B**	**I_C**	**I_D**	**$I_{C!}$**	**I_{OED}**
2	Beitbridge	62.58	75.37	123.96	53.22	8.07	37.72
3	Bikita	79.76	31.48	92.11	50.26	10.86	34.21
4	Bindura	76.59	133.98	107.05	86.16	9.34	53.61
5	Binga	51.96	23.93	180.20	42.84	5.55	23.32

The syntax, for calculating the composite index of overall socio-economic development (**I_{OED}**) for Beitbridge (table 5.5) is GEOMEAN [*B2, C2, E2, F2]*. This calculates the geometric mean of the index values for Beitbridge (62.58, 75.26, 53.22 and 8.07). The composite index for the overall socio-economic development for Beitbridge (**I_{OED}**) is 37.72. The calculation of the composite indices for overall socio-economic development for all the administrative districts is shown in table 5.2.5 in the Appendix.

5.5 The spatial distribution of results

Simple and composite indices were calculated for the 59 administrative districts in Zimbabwe and the districts were ranked hierarchically in terms of the calculated composite indices for each component as well as the composite index of overall socio-economic development (tables 5.2.1 to 5.2.5 in the appendix). The indices showed a very wide variation and confirmed that great spatial inequalities exist in all the components of socio-economic development in Zimbabwe. Certain administrative districts in Zimbabwe have relatively high levels of development in all the components while others have generally very low levels of development.

5.5.1 Cartographic representation of results

The data for the composite index of each component was ranked from high values to

low values (tables 5.2.1 to 5.2.4 in the appendix) and class intervals were established on the basis of the quartile values. Quartiles values divide data into four equal parts. To calculate the quartiles, the formulae 1(n+1)/4 (for the lower quartile), 2(n+1)/4 (for semi quartile), and 3(n+1)/4 (for the upper quartile) was used.

The quartile values were used to compile chloropleth maps of the spatial variation in levels of development of each of the four components of development in Zimbabwe (fig 5.1 to 5.4). The maps give an overview of the spatial variation in population, education, economic prosperity and health in Zimbabwe. A chloropleth map was also compiled from the calculated $\mathbf{I_{OED}}$ values (fig 5.5). This map is a reflection of the spatial variation in overall levels of socio-economic development in the administrative districts of Zimbabwe. For the purposes of this research, the map in figure 5.5 is the most important because of certain specific patterns that can be discerned from the map.

5.5.2 Map interpretation

The main spatial variations in the components population, health, education and economic prosperity and the spatial variation in overall socio-economic development are displayed by the choropleth maps, compiled from the composite indices of development. On the maps quartiles values were used to determine class boundaries. In the following section the discussion focuses on an interpretation of these maps.

5.5.2.1 Population component

In table 5.2.1 (in the appendix) the composite indices of the population component of socio-economic development in Zimbabwe were calculated and the results were represented on the map in Figure 5.1. The spatial variation in the composite indices of population reveals two striking patterns. In the first place, districts lying close to each other tend to form "blocks" that have the same population features. For example, the western part of the country shows the lowest levels of development in

terms of the population features. Figure 5.1 shows that the highest level of development of population features is mainly found in the central high-veld of the country. This can possibly be attributed to high precipitation, good soil and cool climate of that region. The districts in this category include Harare, Chitungwiza, Bulawayo, Goromonzi, Zaka, Chivi, Mutare, Mutasa, Gweru, Murehwa, Marondera, Masvingo, Zvimba and Gwanda.

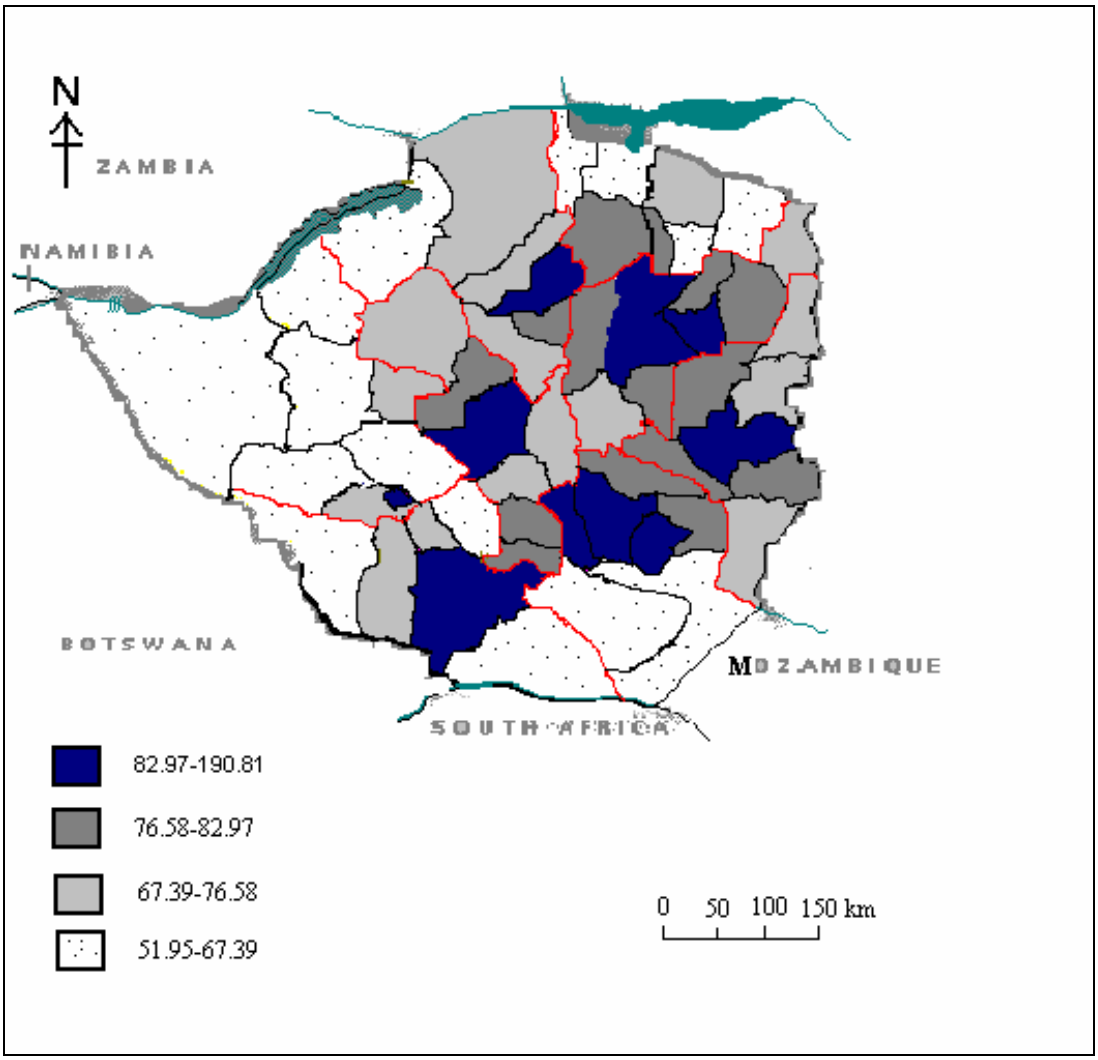

Figure 5.1: Spatial distribution of the composite index of population

The second interesting spatial pattern visible on figure 5.1 is that districts with high levels of development in terms of population features (in the central high-veld) are surrounded by districts with progressively lower levels of development of

population features. Generally there is a trend where the districts with the highest level of development of population features are located in the central high-veld, and as one moves away from the central high-veld region, the level of development of population features declines outwards.

Low levels of development in population features are therefore found in the districts near the borders of the country or mainly in the low-veld districts. The districts with low levels of development in population features include Insiza, Tsholotsho, Shamva, Lupane, Bulilimamangwe, Beitbridge, Bubi, Rushinga, Chiredzi, Hwange, Mwenezi, Guruve, Centenery, Kariba and Binga. These districts are in the northern and southern low-veld of the country as well as to the western part of the country. The low levels development in population features can possibly be attributed to very high temperatures, low precipitation and generally poor soils especially in the western part.

5.5.5.2 Economic prosperity

The spatial variation of the calculated indices of the economic prosperity component of socio-economic development is represented in figure 5.2. It is clear from the map that the central part of the country and of as well as Hwange district in the west are generally characterized by high levels of economic prosperity. The districts in the centre of the country with high level of economic prosperity are Makonde, Chegutu, Kadoma, Kwekwe, Gweru, Shurugwi and Chirumanzi. A notable spatial pattern is the fact that the districts lying close to each other tend to form a "block" having the same economic prosperity. Districts lying to the north and south of the country have the second highest level of development of economic prosperity. Such districts also form "blocks" having the same level of development of economic prosperity. These districts include Hurungwe and Kariba in the north and Matobo, Gwanda, Umzingwane in the southwestern part of the country and Chiredzi in the south.

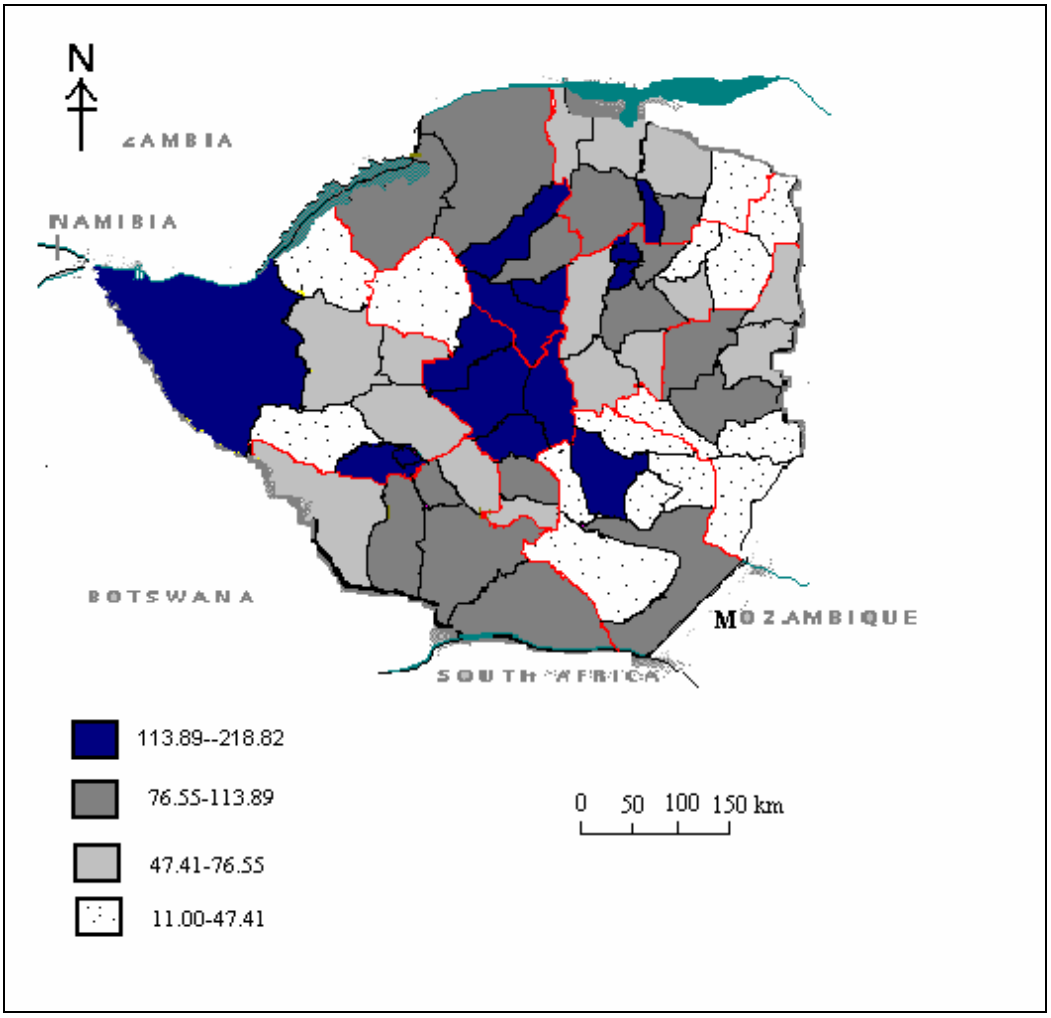

Figure 5.2: Spatial distribution of the composite index of economic prosperity

Districts with the lowest level of economic prosperity are scattered all over the country. These include Mudzi, Rushinga, Uzumbamarambapfungwe, and Mutasa (in the north eastern part of the country), Binga and Gokwe (in the north western part of the country), Tsholotsho in the Southwestern part of the country and Mwenezi, Gutu, Zaka, Bikita, Chipinge, Chimanimani and Chivi in the south and eastern part of the country.

5.5.2.3 Education component

The composite indices of the education component of socio-economic development are represented in figure 5.3. It is clear from figure 5.3 that the concept of

autocorrelation is just as applicable as it was in figure 5.1 and 5.2 as discussed in the previous paragraphs. Autocorrelation is the tendency for similar things to be close to each other (McBride, 1989:34). Generally districts near each other show the same level of educational development, unlike in other choropleth maps however, high indices (dark shading) indicate very low levels of educational development. This is because in essence the whole education component has a negative correlation with overall socio-economic development.

Low levels of educational development mainly occur in the southern, northern, northwest and northern eastern part of Zimbabwe as shown in figure 5.3. In the north, districts such as Guruve, Centenery, Makonde, Zvimba, Mazoe, Shamva and Mount Darwin have very low levels of educational development. In the north-eastern part of the country, it is Mudzi district, which has got very low level of educational development. In the Southern part of the country, it is the districts, Beitbridge, Mwenezi, Chiredzi and Chipinge that show very low levels of educational development. The districts indicated above show an example of the influence of autocorrelation. In addition, these districts are found near the borders of the country and mainly in the low-veld of the country (generally hot and dry).

In the central high-veld of Zimbabwe, that is where there are generally high levels of educational development. The districts with very high level of educational development found here are Uzumbamarambapfungwe, Bulawayo, Gwanda, Matobo, Shurugwi, Zvishavane, Insiza, Gweru, Gutu, Chikomba, Marondera, Chitungwiza, Harare and Makoni. It is interesting to note that these districts also form "blocks" having the same level of educational development. Generally districts near each other show the same level of educational development. Unlike in the other choropleth maps however, high indices (dark shading) indicate very low levels of educational development. Bordering these districts however, there are districts with progressively diminishing levels of educational development.

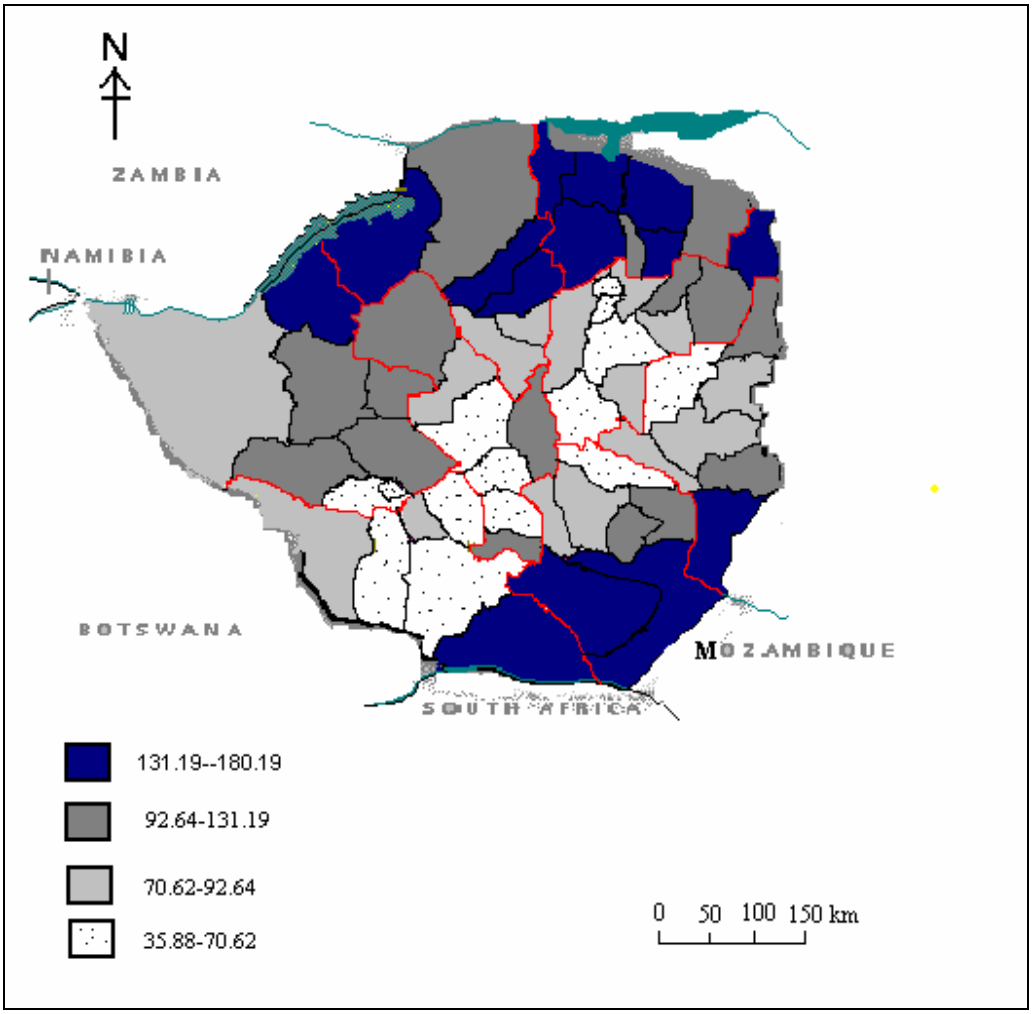

Figure 5.3: The spatial distribution of the composite index of education

5.5.2.4 Health component

The composite indices of the health component of socio-economic development are represented in figure 5.4. It is evident from figure 5.4 that districts showing the highest levels of development of health services are scattered almost all over the country although there is a concentration of districts along the central axis (which extends from east to west). Districts with the highest levels of development in terms of health services include Bulawayo, Hwange, Harare, Chitungwiza, Mutare, Mutasa, Shurugwi, Goromonzi, Chimanimani, Zvishavane, Chegutu, Kwekwe, Bindura and Marondera.

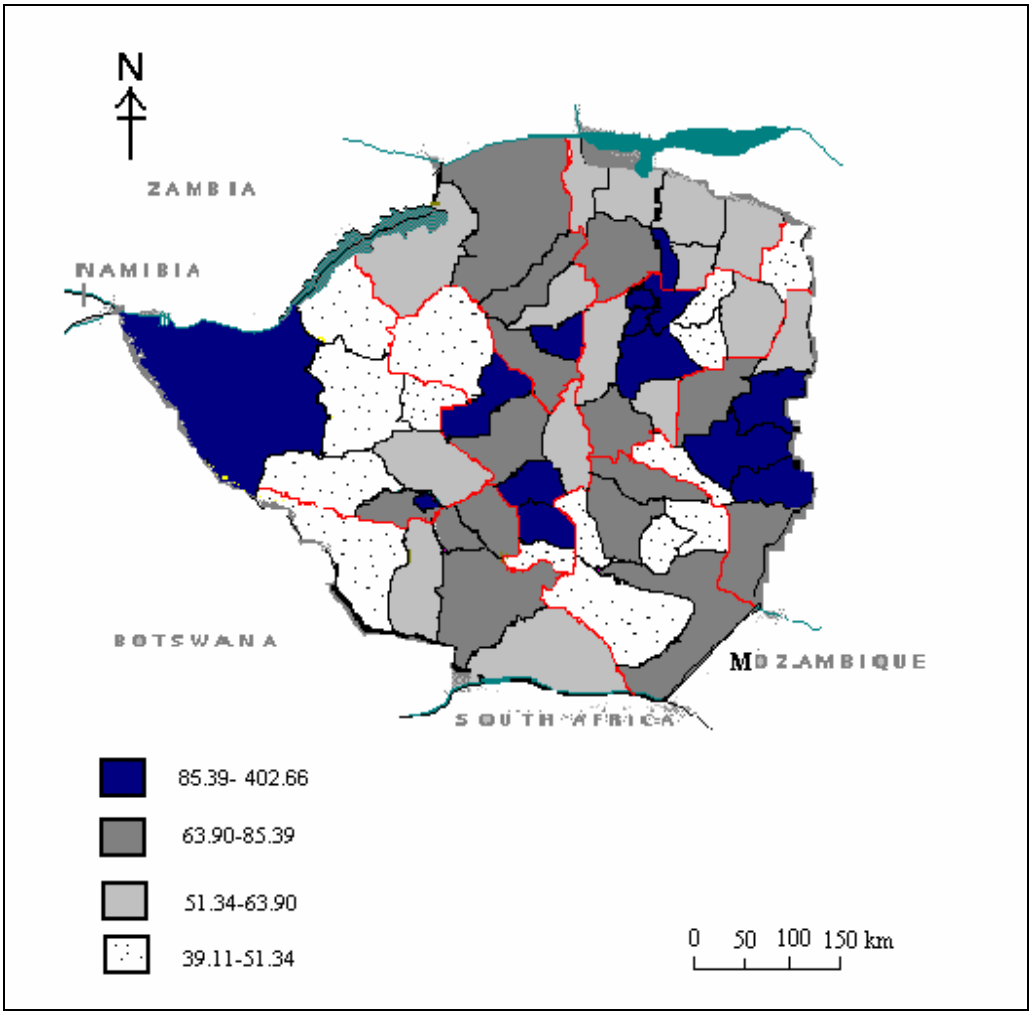

Figure 5.4: The spatial distribution of the composite index of health

Districts showing the lowest levels of development of health services are also scattered almost all over the country but are concentrated in the west, except for the Hwange district. The districts in this category include Lupane, Gokwe, Nkayi, Binga, Tsholotsho and Bulilimamangwe. Unlike the other spatial patterns discussed in the previous paragraphs, the districts with the second highest level of development of health services are not necessarily the ones bordering those with the highest level of development of health services. In some cases, however, districts with very low levels of development border on those with very high levels of

development of health services. Hwange, for example, falls in the category of districts with the highest level of development of health services, but it is fully surrounded by districts with the lowest level of development of health services. It is also evident from figure 5.4 that districts that fall in the same category of the level of development of health services generally form "blocks" and they are in many cases not separated but are joined.

5.5.2.5 Overall socio-economic development.

The composite indices for overall socio-economic development for Zimbabwe are represented on the map in figure 5.5. From figure 5.5 it is clear that the districts with the highest levels of overall socio-economic development are mostly urban districts such as Chitungwiza, Bulawayo and Harare. These are the three biggest cities in Zimbabwe. The most developed districts are found in the central high-veld of the country.

It is also interesting to note that the districts with the second and third highest levels of development are often adjacent to the districts with the highest levels of development. Autocorrelation (as defined in section 5.2.3) tends to manifest in all the spatial patterns. The districts with second highest level of development are also generally found in the central highveld of the country and are districts that contain one or two towns or cities. These districts include Zvishavane, Marondera, Gweru, Shurugwi, Kwekwe, Gwanda, Goromonzi, Chegutu, Masvingo, Makoni, Mutare, Umguza, Kadoma, Umzingwane and Bindura.

Districts displaying the lowest level of overall socio-economic development are mainly found in the low-veld of the country. This is possibly because these areas are hot, dry and have a lot of pests. The districts in this category include Tsholotsho, Mwenezi, UPM, Binga and Mudzi.

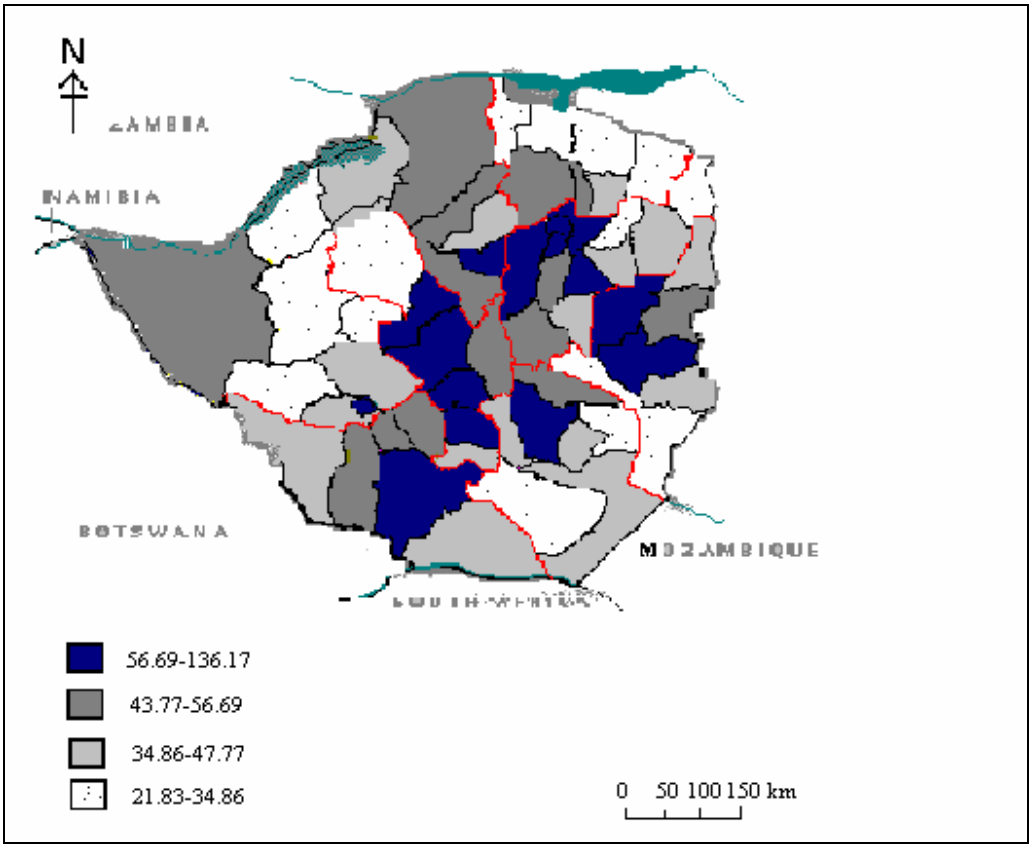

Figure 5.5: The spatial distribution of the index of overall socio-economic development.

5.6 Demarcation of regions

The composite indices for overall socio-economic development (table 5.6) calculated in section 5.4.3 can now be used to demarcate development regions for Zimbabwe. The results of the demarcation will be interpreted to demarcate the Zimbabwean space economy into core, upward transitional, downward transitional resource frontier and special problem regions, in line with Friedmann's (1966) model of development regions.

Table 5.6: Districts of Zimbabwe ranked according to level of overall socio-economic development

District	IOED
Chitungwiza	136.17
Bulawayo	132.98
Harare	99.08
Zvishavane	67.75
Marondera	64.30
Gweru	64.01
Shurugwi	62.99
Kwekwe	61.94
Gwanda	59.89
Goromonzi	58.48
Chegutu	58.42
Masvingo	57.31
Makoni	56.80
Mutare	56.69
Umguza	55.73
Kadoma	53.70
Bindura	53.61
Umzingwane	53.12
Insiza	52.08
Hwange	51.70
Mutasa	51.55
Chirumanzi	49.92
Matobo	49.64
Chikomba	48.36
Makonde	47.01
Hurungwe	46.12
Mazoe	44.84
Seke	43.87
Gutu	43.77
Hwedza	43.25
Zvimba	42.58
Chimanimani	41.38
Chiredzi	40.91
Nyanga	39.95
Mberengwa	39.69
Shamva	39.28
Murehwa	39.11
Bulilimamangwe	38.70
Beitbridge	37.72
Kariba	36.96
Chivi	36.73
Bubi	35.69

District	IOED
Mutoko	35.57
Zaka	34.86
Guruve	34.7
Nkayi	34.47
Bikita	34.21
Mount Darwin	33.96
Lupane	33.76
Chipinge	33.63
Rushinga	33.28
Buhera	33.22
Centenery	33.18
Gokwe	31.1
Tsholotsho	28.81
Mwenezi	28.72
UMP	27.51
Binga	23.32
Mudzi	21.83

5.6.1 Method used for regional demarcation

It is important to note the fact that it is was not possible to demarcate the administrative regions according to Friedmann's (1966) model of development regions by simply making use of only the calculated composite indices (as represented in figure 5.5). The composite indices serve two main purposes, firstly to rank the districts using the composite index method. Secondly, the calculated composite indices together with the socio-economic and physical characteristics of the districts are used in the demarcation of the country according to Friedmann's (1966) model of development regions. The determination of cut-off points for the different regional types was determined more by socio-economic and physical characteristics of the regions than through the direct use of the ranked composite indices. The demarcation of the regions is shown in table 5.7.

Table 5.7: Administrative districts demarcated according to Friedmann's (1966) model of development regions

Core region	**Upward transitional Region**	**Downward transitional region**	**Special problem region**	**Resource frontier region**
Bulawayo Chitungwiza Harare	Zvishavane Marondera Gweru Shurugwi Kwekwe Gwanda Goromonzi Chegutu Masvingo Makoni Mutare Umguza Kadoma Umzingwane Bindura	Insiza Mutasa Chirumanzi Matobo Chikomba Makonde Hurungwe Mazoe Seke Gutu Hwedza Zvimba Chimanimani Nyanga Mberengwa Shamva Murehwa Bulilimamangwe Beitbridge Kariba Chivi Bubi Centenery Mutoko Zaka Guruve Nkayi Bikita	Mount Darwin Lupane Chipinge Rushinga Buhera Gokwe Tsholotsho Mwenezi UMP Binga Mudzi	Hwange Chiredzi

5.6.2 The core region

Only three districts are categorised as part of the core region and these are Bulawayo, Chitungwiza and Harare (refer to table 5.7). The districts are spatially very small, are entirely urban districts, have high population density and are socially

and economically highly developed. In Zimbabwe, the core region is not a single continuous area. It is a non-continuous core region or a multi-core system. These three districts have the highest composite indices (above 99.04).

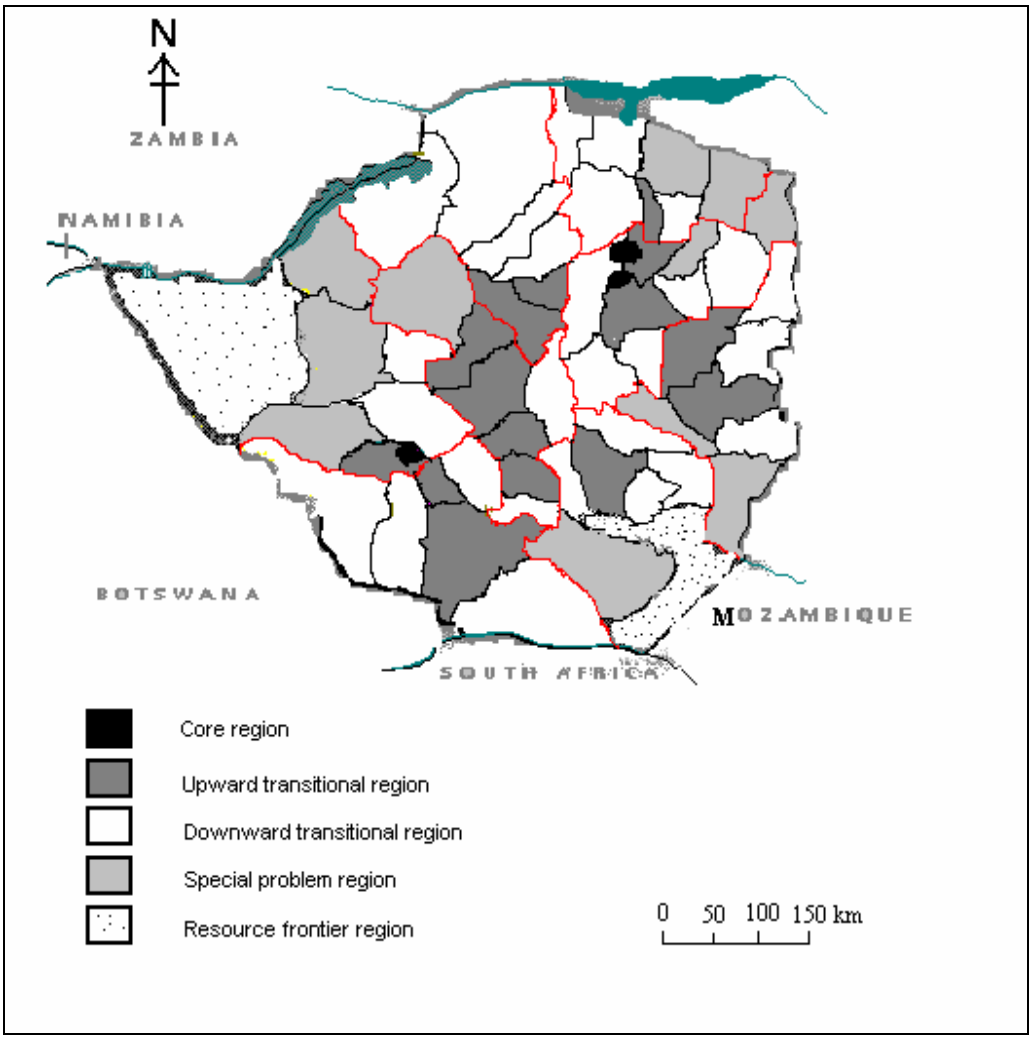

Figure 5.6: Application of Friedmann's (1966) model of development regions on the Zimbabwean space economy

The value 99.08 was taken as cut-off point because Bulawayo and Chitungwiza have high indices and Harare with that value, is the capital City. The level of socio-

economic development is relatively high in these districts. In this research, the three administrative districts above have been considered to constitute the core region because apart from the high composite indices (which are reflections of high level of socio-economic development) these districts satisfy the conditions of the core region set out in Friedmann's (1966) model of development regions. They are small as regards physical area and they have a high potential for economic growth (as physical and socio-economic growth factors are available). Structurally, the core region consists of cities (wholly urban areas).

The problems of this core region include how to absorb newcomers (due to high rate of immigration) and how to sustain growth (to maintain it at a high level). The above conditions agree with the characteristics of a core region put forward by Friedmann (1966:41). The fact that the demarcation of development regions in this research has been done according to Friedmann's (1966) model of development regions, means that it is justified to classify the above districts as constituting the core region. Per capita socio-economic conditions in these districts are at the highest level encountered within the system. Economically, socially and politically these districts dominate the spatial system.

5.6.3 The upward transitional region

In Friedmann's (1966) model of development regions, the upward transitional region ranks second in the hierarchy. Friedmann (1966:41) characterizes the upward transitional region as an area that includes settled regions whose natural resource endowments and location relative to the core region suggest the possibility of greatly intensified use of resources. They too are areas of net immigration. Instead of being focused on a single, dominant centre, however, they may encompass several smaller urban complexes. The problems of the upward transitional region are consequently associated with rapid economic growth: agricultural adjustment to more capital-intensive farming improvements, industrial development and urbanization.

The fifteen (15) administrative districts that generally satisfy the above conditions are Zvishavane, Marondera, Gweru, Shurugwi, Kwekwe, Gwanda, Goromonzi, Chegutu, Masvingo, Makoni, Mutare, Umguza, Kadoma, Umzingwane and Bindura (as indicated in table 5.6). These districts have composite indices that are the second highest in the country and they range from 67.72 to 52.91. These administrative districts are generally found around the core region or on the development axis between two core regions and show evidence of upward development. The districts forming the upward transitional region of Zimbabwe are generally smaller urban concentrations which are less urbanized than the districts classified as part of the core region. These districts are characterised by rapid economic and social development and relatively high population growth rates. Most of the districts forming the upward transitional region are located in the central watershed (highveld) of Zimbabwe.

5.6.4 The special problem region

The special problem region belongs to the category of area that, because of the peculiarity of their resources or location, demands a specialized development approach (Friedmann, 1966:43). Friedmann (1966:43) further maintained that they often include areas along national borders, water resource development regions, regions suited to intensive tourism development and fisheries and military zones. Eleven districts were demarcated as part of the special problem region. The districts are: Mount Darwin, Lupane, Chipinge, Rushinga, Buhera, Gokwe, Tsholotsho, Mwenezi, UMP, Binga and Mudzi.

The characteristics of the districts classified as special problem regions are generally similar to those described by Friedmann (1966). These districts are generally located along the national boundary of the country and are suited to the intensive development of tourism. In Zimbabwe the populations, of the districts that fall in this category, still predominantly follow a traditional way of life and are dependent for their income on subsistence farming. These districts are regarded as part of the

special problem region on account of the very depressed socio-economic conditions and the high rate of population growth. The level of education of the inhabitants is also very low.

5.6.5 The resource frontier region

A resource frontier region is a zone of new settlement in which virgin territory is occupied and made productive (Friedmann, 1966:42). These zones may or may not be contiguous to settled areas. According to Hanekom (1976:6), a resource frontier region can either develop into a core region in its own right or become a satellite of a dominant core. 'Satellite' in the sense that the greater part of the income from the region ends up outside the region and the survival of the area depends largely on the demand from the core region. Friedmann (1966:42) maintains that the resource frontier region is usually associated with large-scale investments in a mineral, forest development scheme or agricultural development.

In Zimbabwe two districts, Hwange and Chiredzi, satisfy the characteristics of the resource frontier region. The composite indices of these districts are 51.68 for Hwange and 40.89 for Chiredzi. The resource frontier region in Zimbabwe is non-contiguous. The two districts within this region are areas in which there is large-scale exploitation of an extensive natural resource or areas that are predominantly agricultural zones, where there is large-scale investment in agriculture. Hwange is primarily concerned with mining while Chiredzi is primarily concerned with agriculture. Both these districts lie in the remote areas of the periphery. They are zones of relatively new settlement in which new virgin territory has been occupied and made productive. Each resource frontier region is generally based upon a large town as the agent for transforming the wilderness into an environment suitable for long-term habitation. The demarcated resource frontier region has characteristics similar to that described by Friedmann (1966) and is in agreement with the characteristics described by Hanekom (1976).

5.6.6 The downward transitional region

Friedmann (1966:42) defines the downward transitional region as old, established settlement areas whose essentially rural economies are stagnant or in decline, and whose peculiar resource combination suggests as optimal a less intensive development than in the past. They furnish the bulk of the migrant workers to the points of concentrated development. There are twenty-seven (27) districts that satisfy the characteristics of the downward transitional region in Zimbabwe. The districts are: Insiza, Mutasa, Chirumanzi, Matobo, Chikomba Makonde, Hurungwe, Mazoe, Seke, Gutu, Hwedza, Zvimba, Chimanimani, Nyanga, Mberengwa, Shamva, Murehwa, Bulilimamangwe, Beitbridge, Kariba, Chivi, Bubi, Centenery, Mutoko, Zaka, Nkayi and Bikita. These districts are either stagnant or declining as far as development is concerned. The composite indices of these regions range from 52.07 to 34.02. These districts are characterized by very low socio-economic development and they make up the greater part of the spatial economy of Zimbabwe. These districts represent the rural areas of Zimbabwean spatial economic system. In spatial terms, the downward transitional region is usually the largest area but the region's contribution to the economy of the country is usually very small. Downward transitional region comprise the largest part of the country.

5.7 Evaluation of demarcated development regions

The spatial as well as the socio-economic inequalities in the Zimbabwe economy is very evident from the demarcation of development regions. The non-contiguous core region dominates the system in socio-economic and political terms. The relatively weak (in terms of development) and unintegrated outer periphery (downward transitional and special problem regions) takes up the largest part of the system. Although the downward transitional and special problem regions are much larger in terms of area than the core and the upward transitional regions, their contribution to the total income of the country is very low. The lack of large-scale economic ventures and diversity of economic activities in the downward transitional and special problem regions are evidence of this.

The demarcation of the spatial economy of Zimbabwe into core, upward transitional, downward transitional, resource frontier and special problem regions was quite effective. The demarcation confirms that there is an unbalanced core-periphery structure in the Zimbabwean economy. The persistence of the core-periphery structure in the Zimbabwean economy confirms that the country is in the second phase of the space-time development of the national system (Friedmann, 1966:36). The composite index method was quite effective for the demarcation of the different regional types.

The present research is very similar to research undertaken by other researchers in other parts of Africa and the developing world. The only significant difference is on the variables used to distinguish the development regions. The present research bears a strong relationship with Friedmann's (1966) research in that the development regions (core region, upward transitional region, downward transitional region, special problem region and resource frontier region) demarcated were developed by Friedmann for Venezuela. The major difference between the present research and that of Friedmann (1966) is that, in the present research, the composite index method was used to demarcate the spatial economy of Zimbabwe into development regions while in Friedmann's (1966) work, the demarcation had a qualitative base. The demarcation by Friedmann was based on qualitative characteristics and not quantitative indicators of socio-economic development.

Harmse (1989) demarcated the South African spatial economy into development regions according to Friedmann's (1966) model of development regions. There is a lot of similarity between the present research and the research undertaken by Harmse (1989). In both cases Friedmann's (1966) model of development regions is used as basis for regional demarcation. The major difference between this research and that of Harmse (1989) is in the quantitative indicators used and the method of analysis. In the present research the demarcation is based on an analysis of indicators through the composite index method while Harmse (1989) based her

demarcation on multivariate statistical analysis analyses of 17 socio-economic variables.

5.8 Conclusion

The use of the composite method to determine the spatial distribution of socio-economic development in Zimbabwe proved to be successful. The researcher was able to use the composite indices to demarcate development regions. One major problem, however, was that some important data that were required were not obtainable, for example data on gross geographical product. This is however not surprising since Zimbabwe is a developing country and that like many other developing countries, it is difficult to have data available on a variety of variables. The available data however provided sufficient indicators to give an indication of the spatial variation in levels of development in Zimbabwe

It can be concluded from the interpretation of the results in this chapter that unequal or uneven socio-economic development can be explained by quite a number of factors. Health facilities, for example, contribute to the level of socio-economic development. Unequal or uneven socio-economic development can also be ascribed to different levels of economic prosperity in the country. In this research the unemployment rate, percentage of households that use electricity, percentage of households above the poverty datum line and severity of poverty, strongly influences the level of development of a district. Educational factors also have an influence on the levels of socio-economic development in Zimbabwe. Finally, population features such as the death rate, life expectancy, birth rate and population density also have a bearing on the different levels of socio-economic development.

In the next chapter the demarcated regions will be used for planning purposes. The first part of the chapter will provide an overview of spatial development planning strategies and policies in Zimbabwe in the past and an evaluation will be made as to why these strategies and policies were not successful. Proposal will also be made on

how to improve on some of the old strategies. In the second part of the chapter the spatial development planning strategies for the different regional types proposed by Friedmann (1966) for Venezuela is going to applied to the demarcated regions in the Zimbabwean space economy