Internal Migration in Malaysia: Spatial and Temporal Analysis

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The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others

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Abstract

Some of the theories in the third world countries claimed that rural to urban migration was the result of rapid urbanisation in many developing countries. With the hypothesis that migration, especially rural to urban migration, is the dominant factor for urbanisation in Malaysia, a study is undertaken to investigate whether this hypothesis is still valid.

Using data from the Malaysian Censuses of 1991 and 2000, this study embarked into some empirical analysis to understand the dynamics of population movements in Malaysia and how this has shaped the population settlement in this country. The study is about time and spatial structure. The urban and rural areas in Malaysia are shaped through time and by population shifts within and between its settlements.

The study analyses the population shifts by looking at internal migration in three different levels, the state level, the district level and the urban/rural level. The empirical analyses and evidences at these levels comprised the major part of this thesis. Conclusions are drawn from these analyses.

The study found that short distance migration is prominent in Malaysia, although the number of population migrated from one area to the other have decreased in recent years. The rate of long distance migration is also increasing which probably the result of higher standard of living and better transportation infrastructures and facilities.

The study also found that urban to urban migration has been dominant both within and between the states in Malaysia in the last few decades. Rural to urban migration is no longer dominant. In fact, rural to rural migration has been shown to be higher in many states than rural to urban migration.

The study also concluded that the expansion of urban areas between the Census periods have contributed to the urbanisation in Malaysia. The increase in urban population is the result of extending boundaries of the cities and urban areas by local authorities as well as the creation of new urban areas when the previously rural areas meet the requirement to become urban areas as defined by the authority.

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INTRODUCTION

1.1 Introduction

Human migration has been an integral part of the history of mankind. The search for new geographic residential locations to satisfy the need of millions of individuals shapes our societies today. Migration contributes to the rich culture and knowledge of many societies. The study of migration has become the focus of interest of anthropologists, geographers, planners, economists and scientists of many other disciplines.

Internal migration between rural and urban areas has acquired a great demographic significance in the developed and developing worlds. The issue of migration can be studied from many perspectives – the factors that stimulate migration, the way in which migration affects population change, the compositional differences in migrant streams, the impact of migration on individuals and societies and the way that areas, origins and destinations, change as a result of migration.

In this thesis, the focus is on internal migration in Malaysia. The research will consider the volume, composition and geographical pattern of movement within Malaysia and the impacts that migration has on areas and on populations. The thesis will look into the urbanisation process in Malaysia and the population change that occurred especially during the periods under study. Then it will analyse the migration for three different levels, the state level, the district level and the urban and rural level. The conclusions will be drawn from these analyses and according to the research questions.

1.2 Problem statement

Historically, internal migration in Malaysia has been characterised by flows from rural areas to cities, creating many problems for urban authorities. Whether due to push or pull factors, migrants have moved to cities because they have wanted or expected to find better living conditions there than existed in their rural villages.

The rapid urbanisation experienced by many developing countries has resulted in higher demand for urban space and services. Migration also occurred from the less developed areas/states to more developed areas/states resulting in the former suffering population declines or lower rates of growth. This may result in the areas being underdeveloped or the services provided by the government become underutilised. To cope with this situation, planners have to analyse the pattern of migration, especially that of rural-urban migration or from one urban area to another urban area, and find solutions to the consequences of this movement.

1.3 Research questions

The main questions for this research are:

1. What are the current patterns of migration occurring within Malaysia and what are the magnitudes, composition and determinants of population movement?
2. How important is the movement from rural to urban areas in comparisons with other population shifts? The other population shifts include the counter-stream urban to rural, urban to urban flows, rural to rural, immigration to urban, immigration to rural, emigration from urban and emigration from rural.
3. What are the impacts of the internal population movement on urban and rural areas in Malaysia?

1.4 Objectives of the study

The objectives of the study are as follows:

1. to review the theories of internal population movement, especially in developing countries;
2. to explore the patterns and trends of internal migration occurring within Malaysia, particularly on rural and urban migration; and
3. to examine the impact of high migration on urban growth and its population distributions.

1.5 Why is this research important?

This research is important because internal migration is a very significant component of local population dynamics and it is necessary to understand the pattern of population movement from one area to another. There are not many existing studies of migration in Malaysia, primarily because of migration data limitations. Thus, relatively little is known about migration patterns in Malaysia. However, over the last few years, Government agencies have produced reports on migration and extensive data have been collected through the Census which can be used to analyse patterns and trends and to gain some insights into the processes at work.

The annual Migration Survey reports produced between 1995 and 2003 are based on 2000 Census data and annual surveys carried out simultaneously or together with the Labour Force Survey for Malaysia (Department of Statistics, 2004b). Census reports on migration and other topics derive from the Censuses of Population and Housing in Malaysia conducted in 1970, 1980, 1991 and 2000.

There is also the issue of assessing what theoretical frameworks have been used in other studies of migration. Are the existing theories applicable to the Malaysian case? Can existing theory be used to study migration in Malaysia? Or is there a need for new theoretical framework within which to study migration in this country?

Historically, rural-urban migration is a particularly important flow in Malaysia because of the country's variations in regional function and level of development. Some regions in Peninsular Malaysia are predominantly agricultural: the East Coast of the Peninsular Malaysia (the states of Kelantan and Terengganu) and the Northern Region (the states of Kedah and Perlis), both the regions have received many agricultural improvement projects. Growth centres have been established in these regions to complement the agricultural sector and, at the same time, urbanise the rural population. These regions also have the highest populations of the Malay ethnic group. Since this study is one of the few studies on the impacts of internal migration in Malaysia, it is anticipated that the study will contribute to the

knowledge and understanding on the process of population movement, especially involving movements to, from and within agriculturally-based regions in the context of a developing country. This is much more comprehensive than other studies of migration which involved whole Malaysia at three different levels, the state level, district level and urban/rural level.

It is important to establish a theoretical framework for this work and hence theories and concepts of internal migration, especially rural-urban migration, will be considered initially. Particular attention will be given to the factors that cause internal migration, especially in developing countries. The characteristics of the migrants are also important in understanding the migration process. This discussion will form the conceptual basis of the study.

While the principal objective is to understand internal migration processes in Malaysia, it will be important to place internal migration within the full demographic context of urban and rural population development. Attention must therefore be paid to both international migration flows and to natural increase components (fertility and mortality) of population change. So the research will seek to establish the contributions of internal migration, external migration, fertility and mortality to demographic change in rural and urban areas between 1991 and 2000. It will also examine the degree to which re-classification of rural areas as urban has influenced the view of urban population change. Over the years between the censuses, new towns emerged as a result of larger population that meet the criteria for urban areas and existing urban boundaries expanded as the urban periphery come under the influence of urban local authorities. The local authorities also acquired the areas to redefine their towns as cities, metropolises, etc.

There will be a need to understand how "rural" and "urban" are defined in the Malaysian context. Although it is statistically convenient for some purposes to classify whole areas as rural or urban, in practice, most territories combine human activities of both kinds and the definitions of urban and rural may be spatially "fuzzy".

Whilst the main focus of the study is to analyse the pattern of rural-urban migration to destination areas and access its impact on urban growth, it will also be interesting to see the characteristics of migration of different ethnic groups in Malaysia. Malaysia has an uneven distribution of ethnic groups across its regions, with the Chinese and Indian population concentrated in urban areas while the majority of the Malays are concentrated in rural areas. Patterns of migration among the ethnic groups will have a considerable impact on future development policies in Malaysia, especially now that the Government has put more emphasis on agricultural policies, particularly those of food production and export-based commodities. However, lack of detailed data and information on ethnic groups' migration pattern reduces further analysis on this topic, hence, not included in this thesis report. The subject can be considered for future research in internal migration in Malaysia.

The Malays are considered to be the most mobile ethnic group in Peninsular Malaysia, especially after independence. Based on the comparison of their representation in the total population, more Malays than Chinese have emigrated from their place of birth and settled elsewhere, mostly in more urban environments (Nagata, 1974). There are several reasons for this. First, the Chinese and many of the Indians traditionally have been concentrated in urban areas as merchants since they migrated to Malaya (Malaya changed its name to Malaysia after independence from British in 1957) during colonial period. The Chinese had been coming to Malaya since the 16th century during the Portuguese and British rules of Malacca (Melaka) and Penang (Pulau Pinang). Second, during the period of Emergency (1948–1960) when Malaysia was threatened by a communist insurgency, many Chinese had been relocated to new towns and other urban areas. The period of Emergency was when the communists in Malaya fought against the British rule after World War II (after Japanese occupation of Malaya) and later against the Government of Malaysia after independence. Thus, the majority of Chinese now reside in urban areas. Finally, the Malays are encouraged to migrate and urbanise through Government policies to reduce rural-urban ethnic imbalance and escape the rural poverty which is prevalent among the Malay communities (Nagata, 1974).

This may well be an important driver for redistributing the Malay population among the regions of Malaysia.

The research seeks to find the latest trend of population redistributions in Malaysia, namely during the last two censuses, 1991 and 2000. These censuses will give the picture of what has happened in internal migration pattern for rural and urban areas. Is the rural-urban migration still prevalent, or has the pattern changed as the country experienced rapid development in the last few decades? The analysis on state migration, district migration and rural/urban migration will show the pattern of migration and furthermore determine the contribution of population change in Malaysia.

The statistical outputs of this research will enable Government and decision makers to assess whether development policies have succeeded in reducing rural issues, such as rural poverty. The outputs will also assist in the formulation of improved regional development policies and thereby minimize the sometimes negative impacts that migration creates in urban areas.

1.6 Organization of the Thesis

This thesis consists of nine chapters. This chapter has given an outline of the research, the background to the research, and the research questions, aims and objectives. Chapter 2 will look at the theories of migration and some relevant empirical work that has been done on internal migration. Findings from previous research will be discussed. This is important in order to understand the conceptual framework of the internal migration and the pattern of migration in Malaysia and other countries, especially in developing countries. Chapter 3 will review the data sources and methods of research. Chapter 4 will introduce the country under study. It will discuss the regions in Malaysia, its state of developments, population compositions and population distributions.

The analysis sections start with Chapter 5, population change and urbanization. This chapter will discuss the urbanisation process occurred in Malaysia since 1950 and

the urban and rural population in the census periods beginning in 1970. The main part of this chapter is constructing the population accounts for Malaysia using data from the latest 2000 census. The population accounts are used to make some projections of the urban and rural populations in the future.

Chapter 6 of the thesis analyses the migration flows at state level. The purpose of this analysis is to understand the pattern of migration both within and between the states. The chapter discusses the aggregate flows of migration both within and between states and the directional flows of migration between states. Furthermore, the chapter also looks into the age and gender of migration between the states. The state is the only level where age and gender variables are available from the census report.

Chapter 7 further analyses migration flows at a smaller level, within and between districts. The pattern of migration at shorter and longer distances can be further evaluated in this chapter. The analysis at this level will confirm which districts in any particular state discussed in chapter 6 that is gaining or losing population.

Chapter 8, the last chapter for analysis section discusses population flows within and between urban and rural areas in each of the fifteen states in Malaysia. The aim of the chapter is to examine the four categories of internal migration: urban to urban; urban to rural; rural to urban and rural to rural migrations. The main objective of the chapter is to find out the effect of internal migration (categories) towards population redistribution to urban and rural areas.

Chapter 9 is the last part of the thesis which provides the summary and conclusions of the research. The overall result of the analysis will be summarized with suggestions for future research as well as future planning for urban and rural areas.

CHAPTER 2

THEORETICAL APPROACHES AND EMPIRICAL FINDINGS

2.1 Introduction

Theories of migration are an important part of the study since they allow us to understand the framework and conceptualize the migration streams occurring within the country, and the forces that underpin the behaviour. This chapter discusses some of the theories involved in explaining the nature of migration and some of the reasons why people migrated.

Some of the empirical findings of previous work are also highlighted in this chapter. A few of them were studies done in Malaysia while others are from elsewhere. Findings from past research in Malaysia as well as from other developing countries give some explanation of why migration occurred in the past. Reasons or factors of migration could be used as indicators for analysing the data, later in this study.

2.2 Theories of migration

2.2.1 The 'laws' of migration

The concept of migration theory can be traced back to the attempt to devise the "laws" of migration by Ravenstein in the 1880s, who was one of the first scholars to study migration, characterising migrants, their origins and destinations and the nature of migration streams. It can be argued that the following laws (Ravenstein, 1885) still remain valid after one hundred years (Ogden, 1984):

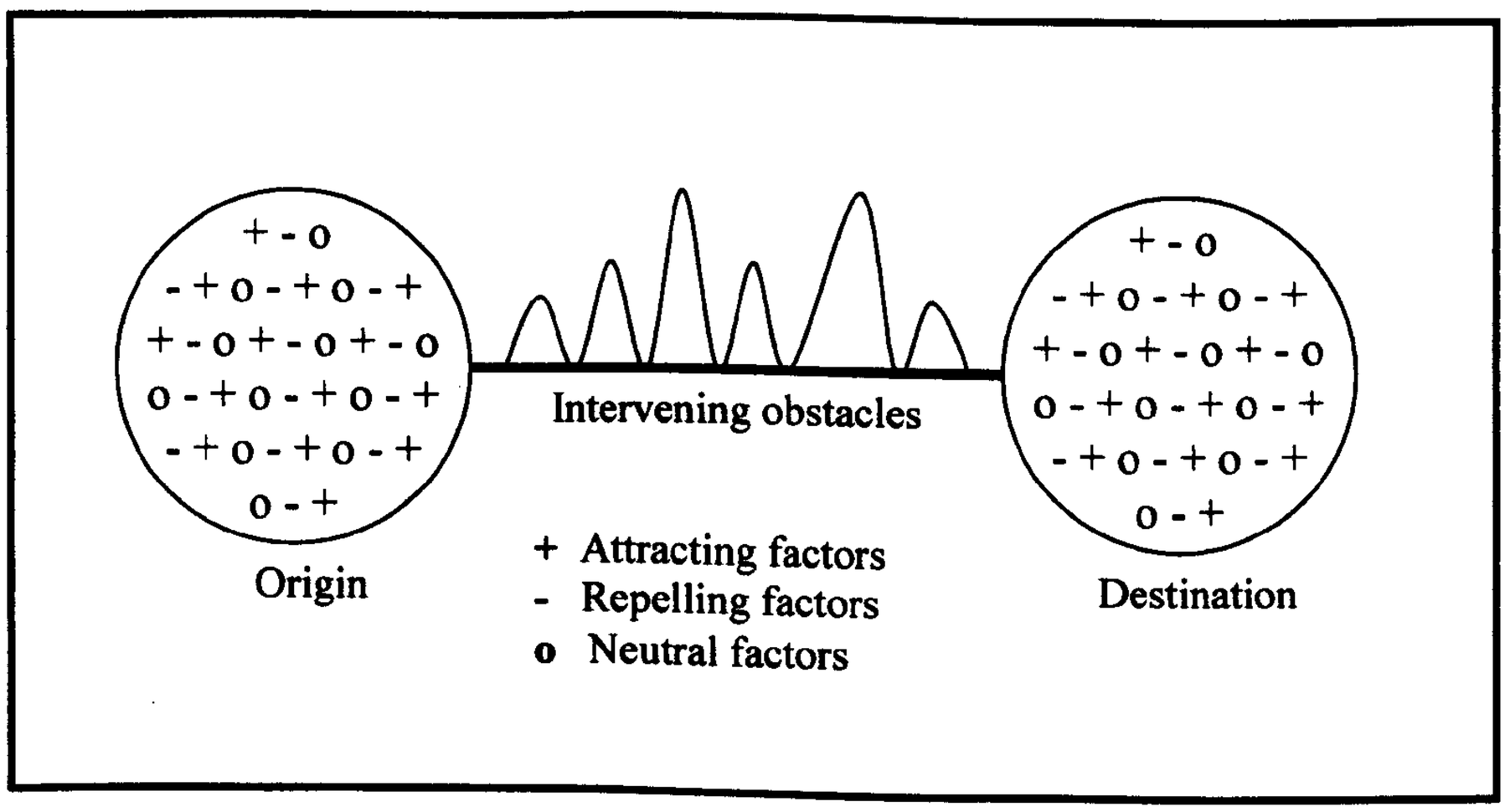
- the majority of migrants travel short distances and there is an inverse relationship between migration and distance;
- the natives of towns are less migratory than those of rural areas;
- females are more migratory than males within their areas of birth but more males than females migrate beyond their areas of birth;
- most migrants are adult;
- migration rather than natural increase causes large towns to grow;
- the volume of migration increases as industries and commerce develop and as transport improves;

- the direction of migration is predominantly from agricultural areas to industrial and commercial areas and there is a link between economic development and migration; and
- the major causes of migration are economic.

It should be noted that these are empirical generalisations based on the situation in the British Isles in the mid-19th century. However, these generalisations can be tested for relevance in contemporary Malaysia.

2.2.2 Determinants of migration

Generations of researchers have refined Ravenstein's ideas over the last 125 years. According to Lee (1966) and Rhoda (1983), for example, there are many factors that influence migration, and each place of origin or destination has numerous attracting and repelling factors as well as neutral factors. Factors associated with areas of origin and destination and intervening obstacles between them are indicated schematically in Figure 2.1. Every area has factors that attract people and other factors which repel them. The + and - signs represent these factors. There are other factors, shown as Os, to which people are indifferent.



Source: Lee (1966)

Figure 2.1: General model of factors influencing migration

Lee uses these ideas to formulate a series of hypotheses about the volume of movement, about how the streams and counter-streams of migrants develop, and about the characteristics of the migrants. He claims that migrants are not merely random samples of the population at origin but they are influenced by characteristics such as education, health or economic status.

According to Champion et al. (1998), the determinants of migration can be categorised into several groups as follows:

- demographic factors (age, life course, gender, etc.);
- social and cultural factors (ethnic groups);
- economic factors;
- housing factors (public sector housing, owner occupied, privately rented, etc.); and
- spatial and environmental factors.

There are other theories that can be used to explain migration decision making. According to Rhoda (1983) there are four general factors which influence migration decisions, origin factors, destination factors, intervening obstacles and personal factors.

2.2.2.1 Origin factors

Some factors tend to retain people in a particular area while other factors tend to encourage them to leave. Some of the policies implemented by Governments are rural development interventions which are designed to improve the quality of life in the rural areas and also to increase agricultural production. The agricultural development programmes have supported the development of irrigation systems, the improvement of product varieties, the increases in yields, and opened up new land for plantation and agricultural production. Infrastructures such as clean water, electricity, construction of roads, etc. improve the overall conditions of the rural areas. The interventions should increase the attractiveness of rural areas, and consequently reduce the propensity to move out of these places. Thus, it is believed that rural development policies reduce rural out-migration.

2.2.2.2 Destination factors

Destination factors in urban areas are very important in determining rural to urban migration. Recent policies concerning industrial development mainly focus on urban areas because they have the necessary conditions to support industrial development. Urban areas usually have the infrastructure needed for most industries, so the cost of providing them can be reduced. The additional costs are usually for improvements of existing infrastructure already in place in most urban areas.

Industrial development provides more jobs for the population, attracting labourers from rural areas especially if rural areas do not have agricultural improvement projects. Even if they do have improvement projects, migrants have to consider which is more preferable: remaining in a rural area or moving to an urban area where jobs may be more available or lucrative.

It can be argued that during industrialization, internal migration in Malaysia occurred due to the pull of employment opportunities in cities. However, there is the alternative argument that migration was caused by push factors in rural areas (Brown, 2000; Ariffin, 1990). Job opportunities in rural areas were limited and plots of farmland were divided into smaller units, making it hard for farmers to earn a good living from their increasingly smaller farmlands. Unemployment, landless farmers and high poverty levels, were all rural push factors. Members of the rural population moved to towns or cities in search of better jobs and better living conditions. Some found jobs on production lines in industrial estates in towns experiencing industrial development. These jobs usually required workers with low education levels and with low skills. Many young women from rural areas without tertiary education and skills found jobs in the industrial sector. The majority of them were Malay women aged below thirty who could not find jobs in the rural areas, or who did not want to work in the agricultural sector.

Ariffin (1990) found that family kinship played an important role in terms of inducing rural to urban migration in Malaysia. Migrants, especially females, who

had family members living in urban areas were more likely to move because of the assistance or help from relatives migrants among the Malay communities. This support would help them to start living in their new environments. Previous migrants who worked in industry were able to get jobs for their relatives. They were paid to get new workers, especially in plants that required many unskilled workers on their production lines.

2.2.2.3 Intervening obstacles

Sometimes the origin and destination factors are not the only ones that determine the propensity and direction of migration. There are other variables and obstacles between the origin and destination that have some impacts on the decision making of whether to move or not. Distance is an important variable that has a negative relationship with migration. Distance can be categorised as physical distance or socio-cultural distance. Physical distance can be measured in terms of time or cost involved to travel to the destination or urban areas rather than mileage. The longer the distance, the higher is the cost for a potential migrant, and thus the less likely it is that the move will occur. Thus few people move longer distances. The negative correlation between migration and distance is also a function of the psychological costs related to separation from friends and family. It is suggested that these factors can be measured in terms of the permanent transportation costs resulting from a migration (Spilimbergo and Ubeda, 2004).

Socio-cultural distance includes differences between origin and destination in terms of ethnicity, language, religion, degree of modernity and social behaviour systems. Information or lack of it concerning the characteristics of the destination may be used to measure socio-cultural distance. For example it is possible that a migrant does not know whether the destination has the same characteristics as the origin or not, in which case, the migrant might experience a total change of culture if he moves. The socio-cultural distance is very large in this example and may dissuade the individual from making the move.

Some of the policies on development interventions can reduce the intervening obstacles associated with rural to urban migration. The improvement of existing roads or the building of new ones and the improvement of overall transportation systems reduces the physical distance, for example. Agricultural-related projects increase rural incomes and reduce financial obstacles, encouraging the rural population to move to urban areas so as the socio-cultural differences are less extreme.

Formal education in rural areas is also an important variable that reduces the intervening socio-cultural obstacles. Educational programmes enable young people to acquire knowledge about other cultures and language and skills required to live elsewhere (Rhoda, 1983). The more education the person has, the more it reduces socio-cultural distance and may result in more rural to urban migration.

2.2.2.4 Personal factors

Perceptions of the origin and destination factors and the intervening obstacles vary from individual to individual, family to family and household to household. This is because each individual decision-making unit has different characteristics that will influence migration propensity. However, it might be possible to make some generalizations about types or classes of migrant decision makers. It has also been suggested that family heads often make decisions on behalf of the members of their household on whether to migrate or not.

The increased level of education of an individual, age, aspiration and awareness of opportunities in urban areas are some of personal factors that influence and stimulate migration decisions. Developments either in rural or urban areas tend to increase or decrease the propensity for rural-urban migration. However, since each individual is different and the level of development ranges from place to place, propensity to migrate will also vary from place to place and from individual to individual (Rhoda, 1983).

2.2.3 Todaro model

Todaro's model of internal migration can be used as a good starting point for looking at rural to urban migration in developing countries. According to Todaro (2000), rural to urban migration depends on expected rural-urban income differentials rather than absolute income differentials. In other words, the potential migrant will weigh up the probability of obtaining employment and consider the expected wage rate at alternative destinations. Even in urban areas where there is high urban unemployment, inward migration may still continue if expected urban wages are sufficiently high to offset the risk of unemployment.

The Todaro model also assumes that each migrant is forward-looking and is motivated by expected income streams over time rather than by current income (Seeborg, 2000). Thus, migration may occur even when urban real income is less than rural real income for a short period of time after migration. Migrants may be willing to accept short-term low wage earnings at a new destination if there is a good chance of higher income in the longer run. Migrants calculated the discounted present value of the expected income stream for the urban job. Thus, Todaro's migration model has four basic characteristics (Todaro, 2000: 309-310):

1. Migration is stimulated by rational economic considerations of relative costs and benefits.
2. The migrant's decision is based on expected rather than actual urban-rural real wage differentials. It is also based on probability of successfully obtaining urban sector employment.
3. The probability of obtaining an urban job is related to urban employment and unemployment rates.
4. Migration rates in excess of urban job growth rates are possible and rational. High rates of urban unemployment are the inevitable outcome of the serious imbalance of economic opportunities between urban and rural areas.

2.2.4 Economic models

Three economic approaches are usually used to study migration caused by rural or urban development (Rhoda, 1983). These are the cost-benefit model, the expected income model and the intersectoral linkage model.

2.2.4.1 Expected income model

This model was developed by Todaro to explain rural to urban migration and the resulting high unemployment rate in urban areas. It was based on the idea that the decision to migrate is based on the perception of expected income rather than the actual wage rate. In urban areas, expected income is thought to be higher because of high urban sector minimum wage and the probability of getting employment in the cities. The decision to move to urban areas will continue until the expected urban wage is equal to the expected rural wage.

According to Todaro (2000), migrants from rural areas moved to cities because they perceived that cities would give them better incomes. This expected higher income rather than actual earnings prompted them to move. In reality, there were not many jobs in the city. Moreover, the cost of living in the cities was higher than it was in the villages. Even if they received higher incomes, the cost of living would mean that their relative net disposable income was smaller. The better jobs were for those with higher educational levels. The rural dwellers were actually attracted by the perceived better living conditions and bright lights of the cities rather than knowledge of the real life of urban communities (Guinness, 2002).

The expected income model suggests that policies for rural development will reduce rural-urban wage differentials and will result in lower rural to urban migration. This means that there is negative relationship between rural development and rural to urban migration.

2.2.4.2 The cost-benefit model

The cost-benefit model or human capital approach focuses on the costs and benefits of migration. The model assumes that people will migrate to a particular place when

the benefits that accrue from migration outweigh the costs (Sjaastad, 1962). Benefits are defined as the present value of potential gains received or the difference between potential income received at the destination and that received at the origin. Non-monetary benefits can also be included in the model. As indicated above, costs of migration include transportation costs, moving expenses, opportunity costs of foregone income at the origin and the non-monetary costs such as the disutility of leaving the familiar rural community and family and settling in a new environment.

The cost-benefit model is preferred by some researchers because it uses a monetary value to represent the rural to urban migration decision (Rhoda, 1983). It was found that younger, more educated people tend to be more mobile because the benefit of migrating is higher than the cost. The expected income at their selected destination location over their longer lifespan definitely offsets the cost of moving. They also have more knowledge in terms of urban lifestyle because they have more information and probably have lived in urban areas previously while pursuing their education. Older people are less likely to move because the expected income over their remaining working ages is smaller than the cost of moving and other costs associated with migration, such as leaving their community, family and friends.

Policies for rural development may have considerable advanced impacts on the benefits and costs of migration. The construction and improvement of roads reduces costs of transportation to urban areas, thereby encouraging migration. Time spent on long distance travelling is cut short by highway and bridge construction. Rural development also increases the benefits that accrue to rural residents, and in so doing, discourages migration. Access to education improves occupational and communication skills, preparing for intercultural and social tolerance and enabling rural residents to exploit urban economic opportunities. On the other hand, rural improvement or development also reduces the tendency to migrate because it increases the benefits by improving rural incomes and creating better living conditions.

2.2.4.3 Intersectoral linkage model

The model is based on the idea that there are linkages between different sectors in rural and urban areas. Through these interconnections, development in rural areas will have impacts on economic activities in urban areas (Rhoda, 1983). For example, rural development in a sector, such as agriculture will cause an increase demand for farming input requirements, resulting in the growth of urban industrial activities like production and distribution of agricultural tools, machinery, fertilizer, etc. Furthermore, there is need for transport and storage facilities for agricultural commodities, processing and retailing. Generally, goods produced in rural areas are income-inelastic while goods produced in urban areas are income-elastic. Therefore, as rural income rise, rural consumers will spend a higher proportion of their added income on urban goods and services. Consequently, urban production will increase resulting in more employment opportunities in urban areas. This, in turn will induce rural to urban migration.

2.3 Empirical studies of migration and development

Several studies of the relationship between development and migration show different results. The study by Baydar et al. (1990) found that the degree of urbanisation of the origin and destination are strong determinants of the migration decision and the choice of destination. Migration from very rural areas to urbanized areas is not likely in Malaysia. Rural development policies have an effect on migration rates in Peninsular Malaysia; they have substantially reduced out-migration from rural areas.

Baydar et al. (1990) conclude that rural development policies retard migration out of rural areas. Their study also indicates that older persons with location specific resources are less likely to move. Rural land development schemes by the Federal Land Development Authority (FELDA) also reduce out-migration because settlers are given ownership of the land they cultivate, thus, having something to hang on to. One of the objectives of land development in Malaysia was to increase the well being of rural inhabitants by raising productivity of their land and thus, raising their income earning capacity. The other objective was to reduce the number of landless

people who needs land for agricultural purposes (Bahrin, 1984). However, this will induce rural to rural migration because the settlers are those who did not own the land and came from other rural areas.

It has been argued that rural and agricultural development could reduce the high rate of urbanisation in developing countries. Such development would increase rural income and make the rural population better off. However, studies indicate that this is not the case. A study by Rhoda (1983) provides evidence for the rejection of the belief that rural development generally reduces rural to urban migration. On the other hand, it is suggested that rural development tends to stimulate additional urban migration. But there are reservations that the actual migration impact of development interaction depends in some ways upon the specific characteristics of the project (agricultural development) and the area where it is introduced.

A study in Vietnam (Dang et al., 1997) found that more developed regions attracted higher volumes of in-migrants. Less developed regions, on the other hand, produced more out-migrants. This is against the Government policy in Vietnam which is to encourage rural to rural and urban to rural migration, and discouraging rural to urban migration (Dang et al., 1997).

In Malaysia the majority of rural to urban migrants are young people who have just finished school and who do not have a career in agriculture.

> *"The drift to the urban areas is accelerated as many villagers are unwilling to work in the poorly paid plantations when there are other far more attractive employment options in urban centres. The labour vacuum in plantation is filled by cheap Indonesian labour from across the permeable border."*
>
> (Hew, 2003:105)

Young people move to urban areas to find better jobs and are not interested in agricultural jobs. As a result, the abundance of low skill jobs in agricultural sectors are grabbed by the immigrants, many of those are illegal immigrants.

Education plays an important role in the migration decision. It is seen as an avenue in Malaysia for upward social mobility and to get government jobs (Asan Ali, 2003). Parents send their children for higher education in urban areas with the hope that they will get jobs in the urban sector and remit part of their wages to ease hardship at home (Hew, 2003).

In Malaysia's plantation sector, however, children do not share the opportunities for improved education. Like any other very rural areas, education is only available at primary level, secondary schools are located in urban areas. Thus, inferior education facilities make upward social mobility very difficult for the population (Ramachandran, 1995). Rural people are not likely to move to urban areas where employment requires a high degree of education.

Spilimbergo and Ubeda (2004) found that race can be a key determinant of the migration decision. In a study in the United States, they use several independent variables to determine migration: number of years schooling, unemployment status, race, ownership of house, marital status, number of children and employment status of spouse. They conclude that younger, educated, unemployed and single people move more frequently. Those who rarely move, on the other hand, are people with children, a working spouse and a person who owns a house. Family attachment is considered a significant determinant of migration propensity. They also found that the effect of family attachment for black people was significantly stronger than for whites, and thus, blacks are less mobile, although Newbold (1997) found that this is changing.

Gender also plays an important role in migration. In the Malaysian labour market, women workers are preferred by employers to men. This preference is attributed to demand for female skills in jobs requiring precise work in the electronic industry (Chattopadhyay, 1998). The gender role is also an important determinant for migration decisions in Thailand (De Jong, 2000). However, women who are married or have families are less likely to move compared to married men (Bilsborrow et al., 1987) who usually make the decision to move as the head of the

family. In Vietnam, more females move to more urbanized and industrialized areas where there are job opportunities for them, especially in factories where they are preferred to male workers (Dang et al., 1997).

In the study by Hirschman (1976), it is reported that Malaysia experienced rapid growth of urbanisation but not because of rural to urban migration. Rural areas were also experiencing rapid growth, in some cases higher than in urban areas. This rejects the theory or claim that developing countries were experiencing high migration and rapid urban growth. Urban growth was probably the result of natural increase and change of urban boundaries for administrative purposes.

A study in Thailand (De Jong, 2000) indicates that prior experience is a strong influence on migration decision. However, in this country, the usual explanatory variables such as education, household income level and land ownership do not have a significant relationship with the migration decision.

Another reason for migration which is rarely touched on in the literature is job transfer. Menon (1987) claims that job transfer can become an important determinant of migration. People move because they have to, because their jobs and their careers depend on it. Among the transferees are public servants, those with managerial positions and those with higher education. This means that migration is the result of forced employment and the migrants have certain characteristics.

Portnov (2001), on the other hand, found that employment and housing plays some roles in determining migration patterns. These factors have a combined effect on the attractiveness of geographic areas to internal migrants. Portnov's study in Norway found that inter-area migration is caused by disequilibrium of employment and housing. Migration patterns change significantly when employment and housing are not evenly available, or where there is mismatch between the two. If both of them are available in abundance, migration patterns do not change very much. In short, the supply of housing, together with greater employment opportunities, will attract

labour outside the area but if one of these factors is not available, then labour will not be attracted to the region.

A study in the United States (Schlottmann and Herzog, 1981) made a comparison between the employed and the unemployed. This study suggested that young people were more likely to be unemployed than the middle aged, and thus, they had higher migration rates. The condition of unemployment increases the likelihood of migration. Schlottmann and Herzog also found that the migration rate for the unemployed, who have moved before, is higher than that of unemployed who have not moved previously. Thus, the potential repeat migration occurs because of experience in migration. This means that those who have migrated before have a higher tendency to move because they have experience and may decide to move again compared to those who have never moved before.

Cooke and Bailey (1996) found that women who migrated with their family in the mid-western part of the United States increased their probability of getting employment. A study by Chattopadhyay (1997), however, concludes that women who accompany their husbands to new places in Malaysia disrupt their own economic activity. They do so at the cost of their own economic welfare. Family migration usually causes disruption to women's careers since by moving, they have lower chances of being employed. Only by migrating alone can they develop their careers and increase their socioeconomic status. Thus, family migration has a significant impact on the socioeconomic status of women. The finding is supported by Boyle et al. (2001) who demonstrated that in the Great Britain and the United States, family migration causes more harm to the women's employment status. Women were less likely to be employed than men.

Migrants remain poor because of their educational background. They tend to have less education than non-migrants, so they cannot compete for jobs in urban sector (Skeldon, 1997). On the other hand, those who do not move from rural areas also remain in poverty. They are poor because they have an even lower educational background than the migrants. Another reason for being poor is because they are

already in poverty in the first place. They are unable to migrate because they simply cannot afford to move out.

Siwar and Kassim (1997) claim that urban poverty in Malaysia is low compared to rural poverty. However, this might be because of the way poverty is measured. Using income alone may not be sufficient enough. The cost of living in rural and urban areas is different. Using a standard income measure will result in a lower poverty rate in urban areas than in rural areas. Using other socio-economic variables such as housing conditions, amenities, etc. in measuring the incidence of poverty, we might find higher proportion of poverty in urban areas.

Malaysia has been experiencing rapid economic growth over the past few decades, becoming one of the fastest growing economies of the world. Its economy grew by 6.7 percent per annum during 1971-1990 (Economic Planning Unit, 1991). Its gross domestic product (GDP) has been growing by more than 8 percent for many years (Economic Planning Unit, 2001a). The study by Asian Development Bank on urban development in Malaysia indicates that periods of economic growth have been associated with the periods of rapid urban growth. The 'rate' of development is related to the 'level' of development (Siwar and Kassim, 1997). The increasing trend of urbanisation is characterised not only by the doubling of the number of urban areas (from 67 in 1980 to 129 in 1991) but is also accompanied by a concentration of people in these areas.

Rapid urban growth and a high concentration of people and economic activities will lead to increasing urban diseconomies and higher social costs, as well as an uneven distribution of development benefit between rural and urban areas as well as between urban centres.

Migration requires money. As well as the cost of passage from the origin to the destination, there are other costs involved. There are expenses that will be incurred at the destination unless either a friend or relative or some kind of employment can meet those expenses. The evidence also suggests that poor people are not the ones

who move (Skeldon, 1997), since the costs are sometimes too high for them. Those who move tend to be from wealthier families or among those better educated. These groups can afford to send their children, who are not tied up in household labour force, to school. They are also the ones who can more readily respond to information on economic opportunities in areas and are best prepared to meet them.

The poor people are the ones most likely to stay in villages. Migration is seen to exacerbate rather than to alleviate poverty in rural areas. When the more educated ones move, the village loses its potential labour force, those who are more prepared to face more challenges in changing and modernising rural areas. There is also the tendency that the young adults are the ones more likely to move. Over the long term, assuming there is no remittance, circulation and return to the villages, the fertility rate of the community will decrease through migration. Rural areas will lose their populations not only as a result of migration but also by a reduction in natural increase.

Although it has been said that the more educated young people are the ones who migrate, they are still more likely to be poorer and less educated than the majority of urban residents (Skeldon, 1997). Without proper preparation for the urban life and urban jobs, the migrants from poor rural areas may end up with low wage employment or being unemployed at their urban destinations.

Whether or not urban poverty will become a problem as a result of migration will depend on the characteristics of the migrants themselves. Are they well prepared to enter the job market in urban centres? The pace of urbanisation can also become a contributing factor to urban poverty. Urban problems such as congestion, inadequate amenities and shortage of housing can cause urban life to deteriorate. Funds to tackle urban problems in high urban growth centres can siphon off funds necessary for rural areas, thus, resulting to the persistence of regional and rural-urban disparities.

It has been said that rapid industrialisation in urban locations increases rural to urban migration. Although population growth in Malaysia has not reached a critical limit, the problems associated with rapid urban growth are evident. The rate of urban growth has outpaced the ability to provide adequate urban housing, infrastructure and waste disposal systems. Congestion and air-borne pollution are also increasing as a result of extensive private vehicle use (Mohamed Ishak, 1990).

As the analysis and discussions in the following chapters will touch on the pattern of internal migration in Malaysia, this section will also discuss the pattern of migration occurred in different parts of the world.

The pattern of human migration has changed greatly through time and space. With limited mobility, people can move short distances as the transportation pose the limit to the long distance travelling. As societies become more modernized, people move forward and backwards to other parts of the world with fewer obstacles. Physically human can move freely and at much higher rates than the past (Zelinsky, 1971). Thus, as the country becomes more developed, people can move longer distances through better and more modern transportation modes.

Different countries show some similar as well as different pattern of population movements depending on political, economic and development level of the country or region. In the less developed countries, developing countries or developing economies, rural-to-urban migration is seen to be a very dominant pattern. In China, the government's push to populate the northern frontier provinces resulted in migration to these areas. As China's transition into market oriented economy, population mobility of its people increases not only to targeted areas but to many urban centres and municipal provinces such as Beijing and Shanghai (Liang and White, 1996).

As in China, the former Soviet Union also has some restricted and unrestricted cities. Some cities are restricted because of the government policy that did not allow some non-residents of the city to migrate. It was found that unrestricted cities grew

very rapidly from 1940s to 1960s (Gong and Stuart, 1999). It shows that migration to cities or urban areas were quite dominant in the Soviet Union, not only to unrestricted cities but also to some cities that were restricted.

Another study shows that during the era of Soviet Union, rural-to-urban migration had been the major migration pattern. This pattern had transformed the peasant Soviet society into an urban society. However, the post-Soviet Russia has seen the Russia's countryside receiving the net in-migration for the most of the 1990s. The pattern was the result of the Russian state withdrawing the regulation of internal migration, giving the right for the people to migrate freely and as a response to the more favourable regional economic characteristics in the new market economy (Wegren and Drury, 2001). People do not only migrated to cities to find jobs but also other areas where there are economic opportunities and job availability.

The study on internal migration by Dang, Goldstein and McNally (1997) found a pattern of internal migration in Vietnam which shows that high volume of migrants moved into the more developed provinces whereas the less developed provinces produced more out-migrants. It was also found that many female migrants moved to the more urbanised and industrialised areas, presumably to work in the manufacturing sector.

South American countries were also experiencing the rural-urban migration pattern in the past. The post war years of migration pattern in Brazil are the dominant rural-to-urban migration. People moved to urban centres to find better employment and resulted in growth of cities. This migration pattern has also resulted in increased economic growth and distribution of its national product (Yap, 1976).

In Africa, rural-to-urban migration accounted for over half of the growth of African cities. There has been an out-migration of labour from agricultural sector to urban employment and urban informal sectors (Byerlee, 1974). Rural-urban migration has also been an important factor for urban growth in the less developed country of

Bangladesh. It is also found that the rate of migration is higher for the people aged 20-29 years, a particularly young labour age with high mobility (Hossain, 2001).

Columbia is another country that experienced high rural-urban migration in the 1960s. Among those involved in this migration pattern are students and rural labours at the young age who are actively seeking for urban employment opportunities (Schultz, 1971). Thailand, on the other hand, experienced a circular rural-urban movement, although rural out-migration is an important part of the population movement (Fuller, Lightfoot and Kamnuansilpa, 1985). Circular movement is quite common in some areas as people do not want to give up their attachment to the countryside. They still want to move back to their villages in case their migrations do not work out. They might also have families in the villages who are still working in the plantation field and provide jobs for them in case they do not have jobs in the city.

India experienced a different pattern of migration from the countries mentioned above. Its natural increase component is very high and the migration component has been quite low. However, there has been a shift of urban labour force in urban areas especially for industries and the large scale construction projects in rural areas. The population shift would be the urban-to-urban and rural-to-rural migration. India has many large and densely populated cities and this type of migration pattern would be expected to continue in the future (Rele, 1969).

The developed countries share the same experience in the past with the less developed countries, while having different migration pattern during recent years. In the United States, between 1960 and 1994 the population increase was the result of changing boundaries of the metropolitan areas. The rises in the percentage of Americans who live in metropolitan areas were attributed by the reclassification of the metropolitan areas from the non-metropolitan areas in their surroundings. The pattern of the US population for many decades has been on the suburbanization or counterurbanization as the growth reached beyond metropolitan areas (Nucci and Long, 1995).

Elliot (1997) claimed that during the 1970s more Americans migrated from metropolitan to non-metropolitan counties and said that many scholars suggested the trend might reflect the metropolitan system that is approaching saturation. He also suggested that the US settlement system is deconcentrating outward to less densely populated areas which is the common sub-process of metropolitanization in the US.

In Denmark, high migration gains to urban areas have resulted in strong urbanization. In 1970s, however, the counterurbanization took place with the population gains in small towns and rural areas. During the 1980s there was a pattern of stable population in all town and settlements (Kupiszenski, Illeris, Durham and Rees, 2001).

In the United Kingdom, the largest metropolises experienced the deconcentration from the cores of city regions. There was also the loss of population in regions with declining resources but population gains in developing regions. There were also strong preferences towards living in low density areas with evidence from shifts towards rural districts and by net flow to other low density areas (Rees, Durham and Kupiszenski, 1996).

According to Champion (1989), in Britain, population deconcentration or counterurbanization had occurred in the 1990s and experienced its highest rates in the early 1970s. Moreover, the dynamics of population shifts at several region had occurred during the 1950s (Champion, 1976). Thus, as in many developed countries, population distribution and counterurbanization as a result of the population shifts had occurred quite some time ago after they had experienced rural-urban migration in their early years of development.

2.4 Conclusion

The theory of migration is important in understanding why the migrants move. There could be several reasons for the population to move, which could be origin

factors, destination factors or personal factors. Intervening obstacles such as distance, however, could change the propensity to move for potential migrants.

There are also some models developed by geographers and development analysts in explaining why people migrated from one place to another. It could be the expectations by the potential migrants of better living conditions at their destinations, which is also the destination factor. The models relate back to the determinants of migration such as origin and destination factors and intervening obstacles such as distance, education and socio-cultural differences.

The empirical studies show reasons for migration to take place in Malaysia and some developing countries, especially in South East Asia. The studies indicate that there are many determinants of migration such as those mentioned in the theories plus some other determining variables such as job transfers, housing, the experiences of living outside their place of birth, etc.

The studies also indicated that Malaysia's urban growth was not the result of rural to urban migration. In fact rural to urban migration has been retarded or reduced by development policies in Malaysia. Improvements in living conditions through rural development and the creations of rural growth centres have reduced the tendency for the people to move to urban areas. This could lead to the change of earlier beliefs that rural to urban migration is dominant in Malaysia. Analyses of data in the later chapters will prove or disapprove this hypothesis.

Earlier studies also show that economic characteristics of the people, their age and gender, education level and family have also been the influences of migration decision if not the major determinants. Many migrants are young, educated and single people. They are more mobile because of these characteristics and they do not have to think about their family (spouse, children, etc.) in order to move. In Malaysia, more women were migrating because of job opportunities in the manufacturing sector.

The studies also show that rapid urban growth in Malaysia has resulted in many urban problems; from urban poverty and slum areas to inadequate shelters and infrastructures. This indicated that urban areas in Malaysia have been experiencing high urban migration. Migration, both in the developing countries and developed countries, shows patterns common to the levels of development in the country. At the early stage of development, growth and urbanisation took place in almost every country. With the urbanisation process, rural-to-urban migration is very high. Many developing countries are experiencing high internal migration from the countryside to urban areas, while the developed countries recorded the same migration process in the past.

As the countries developed further, many of them experienced the expansion of their urban areas. The peripheries surrounding the urban areas are reclassified as urban areas and movement to these areas are considered as urban-to-urban migration, while those moving to outside the urban areas, the less densely populated areas are considered as urban-to-rural migration. The process of suburbanisation or counterurbanisation took place in many developed as their metropolitan areas expanded beyond their previous boundaries and transformed the previously non-metropolitan areas to the metropolitan areas.

Chapter 6 to 8 will try to answer the three research questions posed in the previous chapter. What are the current pattern of migration occurring within Malaysia and what are the magnitudes, compositions and determinants of population movement? Chapter 6 will show the pattern of migration that are occurring at the state level. The distance (within-state and between-state), gender migration and age migration are some of the patterns analysed in the chapter. The patterns of migration in the past have been discussed earlier in this chapter from the literature reviews. Further analysis will be done in Chapter 7, the district migration to see the pattern of migration at a small level.

The second research question, how important is the movement from rural to urban areas in comparisons with other population shifts, and the third research question,

what are the impacts of the internal movement on urban and rural areas in Malaysia, will be answered in Chapters 5 and 8. Chapter 5 will discuss the components of urban and rural population change, whilst Chapter 8 will look into the pattern of migration both within and between rural and urban areas. We will see from Chapter 8 whether internal migration fits the migration patterns experienced in other countries. Does rural to urban migration still prevailing in Malaysia, or has the suburbanisation or counterurbanisation has been in the process? These questions will be answered in these Chapters. The next Chapter will discuss the methodology and data sources for this research.

CHAPTER 3

METHODOLOGY AND DATA SOURCES

3.1 Introduction

Data collection is one of the most important activities in a study. Finding data is not an easy task since quality data are needed to ensure conclusions drawn from the analysis can represent the population under study. This chapter will discuss the data sources available for the study, the type of data needed for the study and where these data were collected. The type of data available will determine the type of analyses that will be conducted in this research. The research agenda for the study is also outlined.

3.2 Main types of data

The United Nations suggested three different sources of information to estimate migration: population registers, surveys and censuses (Arriaga, 1977). While population registers contribute the best source (it is the most current) of information about migrants, not all moves and address changes are reported or registered. In Malaysia, population registers per se are not used, and the only register available is the electoral voter register. This is not reliable because some voters still maintain their old address when they move so that they can still vote in their home town.

Surveys can be a very good source of information not only to estimate migration but also to obtain the characteristics and motivations of the migrants. The problem with survey is the need to design and undertake surveys at national level which give a comprehensive and accurate measure of internal migration (Arriaga, 1977). This is rarely the case.

The Census can be a very useful as a source of migration data. A census aims to cover the whole population and usually includes the characteristics of the population, including ethnic group, socioeconomic status, place of origin and other variables that are necessary to form the profile of the population.

3.3 Methodology

The main method adopted in this research study is the analysis of secondary data relevant to the research questions posed in Chapter 1. The principal strength of secondary data analysis is that it aims for generalisations about large populations, in the present case, of Malaysia. Such data cannot be gathered by a single researcher. Governments through programmes of household and business surveys and through censuses of residential populations and businesses aim to generate a wealth of statistics (literally facts about the state) about a country, as a basis for monitoring its development and planning its improvement. These official survey/census instruments are necessarily limited in their scope of questions and topics, because of costs considerations, the need to be nationally comprehensive in coverage and the need to avoid excessive respondent burden which leads to non-response. However, an enormous amount can be learnt about the patterns, processes and determinants of migration from secondary data, particularly by a native scholar thoroughly familiar with the geographical, social, economic and cultural context of the country being studied.

The analysis methods to be used include the following: assembly of statistics in meaningful tables, computation of derived indicators from the statistics, the graphical representation of the statistics in chart and map form, driven and informed by the questions and objectives set out earlier. The results of these analyses will be interpreted in the light of existing theories, case study literature from Malaysia and planning documents. Analyses will suggest further refined analyses and identify the need for further information to achieve a proper understanding. The subsequent step will be to see if the migration pattern in Malaysia supports the hypotheses of migration in a developing country or the similar state of development. Where appropriate, formal models will be proposed to explain particular findings and tested where possible. In all these analyses considerable attention will be given to changes over time as migration processes in Malaysia could be changing currently.

3.4 Data sources

Data for this research come from secondary sources, through library research. The data mainly come from books, reports, journals, seminar papers, periodicals and Government publications. Library research was done in United Kingdom and Malaysia. Most of the library research in United Kingdom was undertaken at the University of Leeds libraries, the University of Sheffield libraries and the British Library. In Malaysia, library research was done in local universities' libraries, the National Library, the Economic Planning Unit library and the Statistics Department library. The Statistics Department is very important because they have data on the Population and Housing Census survey, migration survey and annual reports.

The principal source of data on housing and population for this study is the population census in Malaysia produced by the Statistics Department. The Department has data from population censuses in 1970, 1980, 1991 and 2000 (Department of Statistics, 2004a). These publications provide extensive data at country, state, regional and local levels. Since some information is not available in electronic form, manual searches have to be carried out to identify textual information in terms of migration and population in the rural and urban areas under study. Moreover, the Statistics Department also produces an annual Report on Migration (Department of Statistics, 2004b). The information can then be captured to analyse the impacts of Government policies on migration patterns, especially rural to urban migration as well as other migration categories in the country.

Data from the Statistics Department are obtained by visiting the Department's main office in Putrajaya Malaysia. The researcher has tried to obtain the data through internet and mail, but there was a slow and inadequate response from the Department. This is the difficulty that the researcher has to face when trying to get the data from the United Kingdom. A personal visit to the Department in Malaysia gives better result in obtaining the necessary data.

The Department's main office has the list of the reports and data/spreadsheets available for purchase. Other data, if required but not available in the report, can be

purchased by direct negotiation with the Department's staff. However, this process takes time and the researcher has to know exactly what type of data are needed. The cost of data is also quite expensive. There was also no guarantee the data would be available or the time it would take to obtain the necessary tables.

The five-year development plans produced by the Economic Planning Unit are an excellent source of Government policies and Government plans starting from 1965 to 2000 (Economic Planning Unit, 2001a). Moreover, there is the Outline Perspective Plan 1 to 3 (long term plan - 10 years) starting from 1970 (Economic Planning Unit, 2001b). The Government policies are spelled out explicitly in these plans together with outlines of how they are going to be carried out. There are other supplements for these policies published separately with more details such as the National Economic Policy (NEP), the National Agriçultural Policy (NAP), the National Development Plan (NDP), and the Industrial Development Plan (IDP) (Economic Planning Unit, 2001a)

This study will summarize Government policies implemented from 1970 to 2000. Major policies are available in the five year development plans, publications of major policies such as NEP, Agricultural Policies (First, second and third), Industrial Policy, National Development Policy, Vision 2020 and so forth. The year they were planned and implemented could be important to determine the extent of migration (either rural or urban) at that time.

However, the review of policies is used only for the purpose of understanding regional development in Malaysia. Although it is not being studied as a direct causal effect of migration, it is important in understanding how regional policies have shaped regional development and consequently have an indirect relationship with migration.

In censuses or surveys, there are four main questions usually needed to estimate migration flow and characteristics of the migrants (Zachariah, 1977):

1. place of birth;
2. duration of residence;
3. place of last residence; and
4. place of residence at a fixed prior date.

These questions will enable us to identify the migrants and non-migrants (Table 3.1).

Table 3.1: Questions distinguishing migrants from non-migrants

Questions	**Migrants**	**Non-migrants**
Place of birth	Person who is enumerated in a place different from the place where he/she was born	Person who is enumerated in the place where he/she was born
Duration of residence	Person who has lived in the place of enumeration for a period less than his/her age	Person who has lived in the place of enumeration all his/her life
Place of last residence	Person whose place of last residence is different from the place of enumeration	Person who has lived in the place of enumeration all his/her life
Place of residence at a fixed prior date	Person whose place of residence at the census date differs from his/her place of residence at the specified prior date	Person whose residence at the census date is the same as that at the specified prior date

Source: Zachariah (1977: 125)

According to the Department of Statistics, Malaysia (2004a), the five year internal migrants reported in the Census 2000 are "those who reported their usual place of residence in Malaysia five years ago was different from their current usual place of residence at the time of the 2000 Census".

The study of the characteristics of migrants can usefully involve a comparison with characteristics of non-migrants. For comparisons, all the census tabulations produced for the migrants should also be available for the non-migrants. The strength of the census as a source of migration data is the ability to provide data on a

range of characteristics for both the migrants and non-migrants. Thus, it is possible to classify the migrants and non-migrants by all the characteristics obtained in census – ethnic origin, age, sex, education attainment, marital status, occupation, etc.

3.5 Data availability

Data collection has been conducted in Malaysia during the summer (June – August) of 2005. Most of the data available have been obtained from the Malaysian Statistics Department and in Malaysian public or university libraries. Data acquired are based primarily on the Population and Housing Census of Malaysia for the year 2000. The relevant reports include the migration and population distributions which have data on both internal and international migration. It is a five year migration stream, 1995-2000 with origins and destinations being all the states and administrative districts in Malaysia. The boundary maps of the population distribution in the states and districts are also available separately from the Statistics Department. There are a total of 136 districts in Malaysia for the year 2000.

It is fortunate that the Statistics Department also produces data in digital format (computer files), which make it convenient for a researcher to capture the data for computerized analysis. Several of these sets are available in spreadsheets (Microsoft Excel). The availability of these data sets saves a lot of time since the researcher does not have to key in the data manually, thus, avoiding the human error when keying in too many numbers in the spreadsheets.

Data from Census report for 1991 have also been acquired. The data available is for state, district and rural/urban migration between origins and destinations (same as in the 2000 report). In the Census 1991, there are only 132 districts in Malaysia compare to 136 in year 2000 (Department of Statistics, 1995). Some of the districts have been divided into smaller districts between 1991 and 2000. Unfortunately the digital form of the report is not available for the migration data. Therefore, data must be entered into spreadsheets manually. This takes time, especially migration data at district level with 132 districts origins and destinations. Entering numbers of 132 x 132 district matrices is very time consuming and needs a lot of patience. It

takes weeks to input the data into spreadsheets and to avoid the human error; data has to be checked constantly to ensure its accuracy. This is done by checking the total sum of rows/columns against the actual total of populations, migrations, etc. Fortunately, digital boundary maps with state and district population distributions in 1991 are available in digital format. The maps and migration data can be matched using computer software to produce maps on migration variables.

For the analysis, data for migration streams will be explored, using simple statistical methods such as percentages, averages, distributions, net migrations/flows, rates, etc. Computer files in these tables will be used to do the analysis. Among the tables/data available in the 2000 report (Department of Statistics, 2004a) are the following:

1. Summary of demography statistics by state.
2. Summary of education and social statistics by state.
3. Summary of economic activity statistics by state.
4. Summary of migration statistics by state.
5. Population by birthplace (Malaysia/outside Malaysia, sex, ethnic group and state.
6. Population by place of current usual residence (state) place of usual residence 5 years ago (Malaysia/outside Malaysia) and sex.
7. Population by place of current usual residence (state and stratum Malaysia) place of usual residence 5 years ago (state and stratum).
8. Population (migrants) by place of current usual residence (state), place of usual residence 5 years ago (country), age group and sex.
9. Population by place of current usual residence (state and administrative district) and place of usual residence 5 years ago (state and administrative district).
10. Population of Non-Malaysian citizens by country, 10 years age group, sex and state.

These are quite comprehensive sets of data on population and migration and these will be a major contribution to the analysis.

Other reports were collected whilst in Malaysia which were useful for this research. Since data are difficult to obtain in the United Kingdom (only few reports available at British Library), the reports acquired during the fieldwork in Malaysia included the following:

1. Migration survey report – 2003.
2. Labour force survey report – 2003.
3. Population distribution by local authority areas and mukims, 2000.*
4. Vital statistics Malaysia - 2003.
5. Vital statistics time series 1968 – 1998.
6. Population and housing census – preliminary count report.
7. Economic characteristics of the population, 2000.*
8. Education and social characteristics of the population, 2000.*
9. Preliminary count report for urban and rural areas, 2000.*
10. Population distribution and basic demographic characteristics, 2000.*

(Note: *the asterisk * means that data is available in digital format*)

There is also a need to clarify what rural and urban areas are in Malaysia, or if there are other definitions used by international agencies such as the United Nations, the World Bank, international development agencies, etc. The Population and Housing Census of Malaysia 2000 report provides the definitions of urban areas used in determining the urban and rural areas in its 1991 and 2000 censuses. The Department of Statistics, Malaysia has defined urban areas in Census 2000 as;

> *"Gazetted areas with their adjoining built-up areas which had a combined population of 10,000 or more at the time of the 2000 Population Census. Built-up areas were contiguous to a gazetted area and had at least 60 per cent of their population (aged 10 years and over) engaged in non-agricultural activities as well as having modern toilet facilities in their housing units".*
>
> (Department of Statistics, 2004a, xxi)

Furthermore, reports from the Economic Planning Unit at the Prime Minister's Department were also acquired, which include the development plan and policies for the country. These are:

1. Ninth Malaysia Plan, 2006 – 2010

2. Midterm review – Eighth Malaysia Plan.
3. Eighth Malaysia Plan, 2001 – 2005.
4. Seventh Malaysia Plan, 1996 – 2000.
5. Third Outline Perspective Plan, 1991 – 2000.
6. Draft National Physical Plan.

From the data mentioned above, there will be four major types of analyses done in this research: population change and urbanisation, within and between state migrations, within and between district migrations and within and between urban/rural migrations. These will form part of the analyses chapters in this research and conclusions will be drawn from these analyses.

3.6 Conclusion

Most of the data collection was done while in Malaysia during the three months period of 2005. Data gathering took place mainly at the Malaysian Department of Statistics main office in Putrajaya, Malaysia. These are mainly in the forms of census reports produced by this department over a few years. Some of the reports which were not available at the time were ordered and sent through post. Some of the reports that were needed after the analysis started would also be ordered through mail later during the research by way of contacting the officer in the statistics department or by getting help from friends and colleagues in Malaysia.

Secondary data will be used for the analysis of migration flows in Malaysia. The data used are mainly from the census reports of 1991 and 2000. Data from these censuses are highly comparable because they use mostly the same questions and variables in their surveys. Definitions for urban and rural areas for these censuses are the same, which makes comparisons feasible. In some early censuses, the definition for urban areas is different, such as the area with 1,000 people was considered urban as compared to 10,000 people in recent censuses.

The data collected are in the form of tables of internal migration including the migration at state level, district level and urban/rural level. These are available for

two latest censuses, 1991 and 2000, to enable the comparisons of migration pattern to be made for two different time periods. The raw data available in the tables are in the forms of numbers of migrants from and to a particular area such as the state, district and urban or rural areas. The data will be analysed to make these tables meaningful and to show the information on internal migration in Malaysia.

Primary data such as surveys are not conducted in this research because of time constraints. Going back and forth from the United Kingdom to Malaysia is time consuming as well as costly. Even the time to manually enter data from the census reports, especially for the 1991 census took a lot of time. However, much can be learnt from observing the tables while typing in the data in the spreadsheets. The "feelings of the data" helps to understand how data are organised in the report and make it easier to find the necessary tables when undertaking the analysis. The migration data are contained in matrices of dimensions 15 x 15 for the states and 136 x 136 for the districts.

Data will be analysed using simple statistical methods such as percentages, averages, distributions, net migrations/flows, rates and so forth. These analyses will give much understanding of the internal migration pattern in Malaysia to determine and answer the research questions posed earlier in the thesis. There will be four types of analyses done in subsequent chapters; the population change and urbanisation, within and between state migrations, within and between district migrations and finally within and between urban/rural migrations. The next Chapter will discuss about Malaysia, its background, spatial structure, its development and its population structure and distribution.

CHAPTER 4

MALAYSIA – BACKGROUND

4.1 Introduction

Migration is about places and people. The places of study are within Malaysia. This Chapter will discuss about the background context of this country especially the administrative areas and their levels of development. Furthermore, it will give some context to the population under study: its ethnic composition and its distribution across the country.

Malaysia is located in South East Asia, south of Thailand and north of Singapore. To the west is the Indonesian Island of Sumatra and to the east is the Indonesian island of Borneo which shares the borders with the Malaysian states of Sabah and Sarawak.

4.2 Statistical areas in Malaysia

Malaysia, with an area of 329,733 square kilometres consists of two main lands, West Malaysia (also known as Peninsular Malaysia) and the East Malaysia. East Malaysia is separated from West Malaysia by the South China Sea, with the distance of more than 600 kilometres (see Figure 4.1).

Malaysia is divided into states and federal territories (Figure 4.2). These states and federal territories are used as spatial areas for measuring population in the census. The fourteen stripes on the Malaysian flag indicate the thirteen states plus the federal territories. There are eleven states in Peninsular Malaysia (also known as West Malaysia) and two states in East Malaysia. There are also three federal territories: Kuala Lumpur and Putrajaya in Peninsular Malaysia and Labuan in East Malaysia.

Putrajaya, the new government administrative centre replacing Kuala Lumpur, is the new federal territory, declared on 1st February 2001. However, in the 2000 Census

report, Putrajaya is considered as part of the state of Selangor (Department of Statistics, 2001a).

In Peninsular Malaysia the eleven states were grouped into four regions (Economic Planning Unit, 1981). The Northern region consists of four states – Perlis, Kedah Pulau Pinang and Perak. The Central region also consists of three states – Selangor, Negeri Sembilan, Melaka and the Federal Territory of Kuala Lumpur. The Eastern region also consists of three states – Kelantan, Terengganu and Pahang while the Southern region only consists of one state, Johor.

The two states Sabah and Sarawak in East Malaysia have larger land areas than the states in Peninsular Malaysia but are less densely populated. Many areas in East Malaysia are still undeveloped. The states are still covered with virgin tropical forest and logging is one of major economic activities in the states.

Source: http://mysite.wanadoo-members.co.uk/caingram_4/Malaysia/Pic_htm/malaysia_map.htm

Figure 4.1: Location of Malaysia

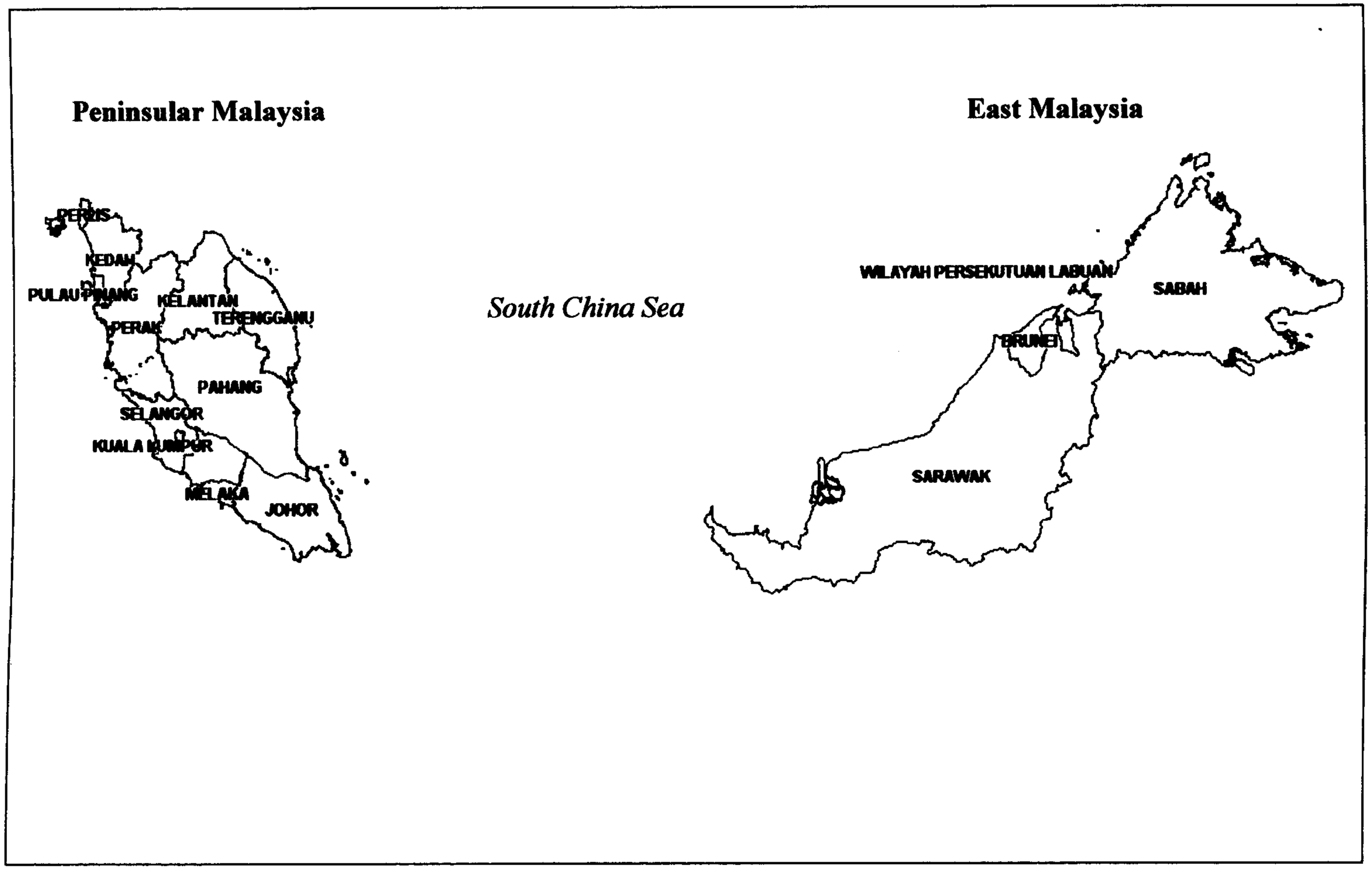


Figure 4.2: Regions and States in Malaysia

Before the 1980s, agriculture played a very important role in Malaysian social and economic development. By the late 1980s, the industrial sector had assumed a major role with a greater percentage of its GDP coming from this sector. Before the 1980s, traditional agriculture was widely practised; rice cultivation was the major crop. Rubber was introduced in 1887 and subsequently became the major export commodity. Palm oil was introduced in 1960s and became another major commodity, both for domestic consumption and for export.

In 1981, Malaysia was divided into six regions – four regions in Peninsular Malaysia and two regions in East Malaysia. The four regions in Peninsular Malaysia are the Northern Region, Central Region, Southern Region and Eastern Region according to the location of the states (Asan Ali, 2004). The two regions in East Malaysia are divided according to the states, Sabah and Sarawak. In Peninsular Malaysia, the states are further divided into three categories based on the level of gross domestic product (GDP) per capita: high-income states, middle-income states and low-income states (Table 4.1).

Table 4.1: Categories of States based on GDP per Capita

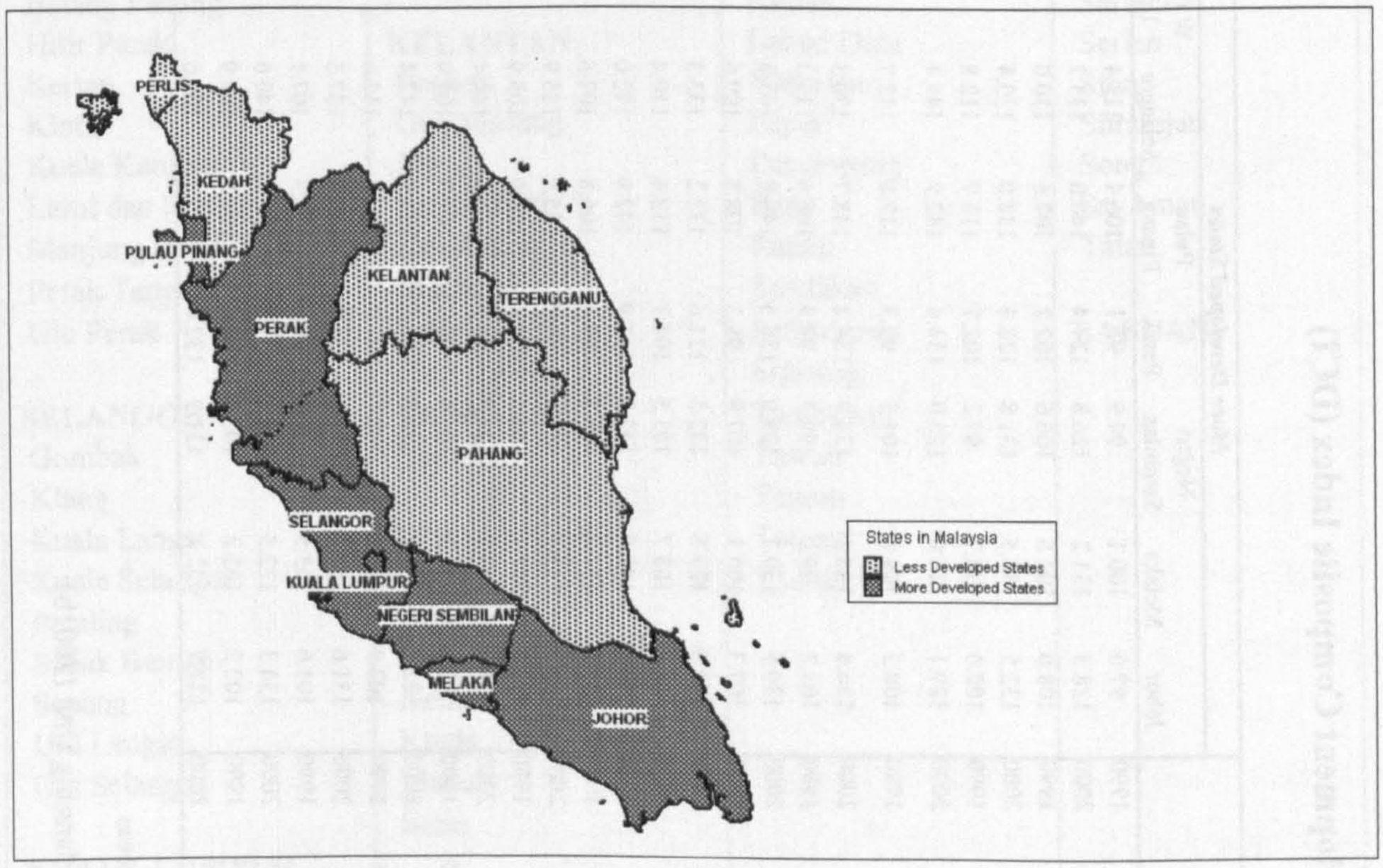
Category	**States**
High-income states	Federal Territory of Kuala Lumpur and Selangor
Middle-income states	Johor, Melaka, Negeri Sembilan, Pahang, Perak and Pulau Pinang
Low-income states	Kedah, Perlis, Kelantan and Terengganu

Source: Asan Ali (2004)

In 2001, the states in Malaysia have been divided into two categories based on the level of development: more developed states and the less developed states. A development composite index (DCI) is used to categorize the states using an average of ten selected socio-economic indicators. The indicators are per capita GDP, unemployment rate, urbanization rate, registered cars and motorcycles per 1000 population, telephone per 1000 population, incidence of poverty, population

provided with piped water, population provided with electricity, number of doctors per 10,000 populations and infant mortality rate per 1000 live birth (Economic Planning Unit, 2001b). Table 4.2 shows the DCI that determine the categories of state in Malaysia.

Based on this DCI, Pulau Pinang, Perak, Selangor, Negeri Sembilan, Melaka, Johor and Kuala Lumpur are categorized as the more developed states while the rest of states are categorized as the less developed states. These more and less developed states are shown in Figure 4.3. The location of these states seems to play a significant role in determining their level of development. Less developed states are located in the east coast and northern part of the Peninsular Malaysia while the more developed states are located in the west coast and the south. The level of development in the west coast is probably higher because of better infrastructure in the western states. Moreover, all the states in East Malaysia are considered as less developed states.



Source: Economic Planning Unit (2001b)

Figure 4.3: Categories of states in Peninsular Malaysia

Table 4.2: Development Composite Index (DCI)

Indicator		*More Developed States*							*Less Developed States*							
		Johor	Melaka	Negeri Sembilan	Perak	Pulau Pinang	Selangor	W.P. Kuala Lumpur	Kedah	Kelantan	Pahang	Perlis	Sabah*	Sarawak	Terengganu	**Malaysia**
Per Capita GDP	1990	97.0	100.1	94.9	95.1	106.4	113.4	120.6	88.3	84.3	94.2	90.1	96.3	99.2	108.2	100.0
	2000	128.5	131.2	126.8	127.4	140.0	133.7	154.1	120.9	116.8	123.1	123.7	121.2	126.7	142.3	129.5
Unemployment Rate	1990	108.0	104.6	106.6	102.2	107.6	110.0	104.2	102.2	95.4	108.0	101.7	79.9	80.9	88.6	100.0
	2000	132.5	132.5	131.8	128.4	138.0	130.4	138.7	131.1	112.5	124.2	128.4	108.3	111.8	115.2	125.6
Urbanizatio Rate	1990	100.0	95.7	97.2	102.7	112.7	112.8	124.5	92.8	93.2	91.8	90.0	93.1	95.2	98.4	100.0
	2000	129.1	126.0	125.0	134.4	142.9	144.4	149.3	122.5	121.2	118.6	119.4	120.7	126.4	124.1	130.2
Registered Car & Motorcycle per 1000 Population	1990	108.3	104.8	105.3	99.3	117.8	113.7	108.2	94.5	89.5	96.3	98.1	84.4	91.0	88.9	100.0
	2000	136.8	138.2	134.9	134.2	148.7	130.3	156.1	127.9	123.8	127.8	128.5	119.6	125.6	124.2	132.6
Telephone per 1000 Population	1990	101.2	99.0	99.7	97.9	108.6	113.3	126.4	92.0	89.6	93.2	94.7	95.6	96.9	91.6	100.0
	2000	130.9	130.7	129.9	130.5	140.8	147.8	128.8	115.9	115.4	122.4	115.9	115.9	120.1	119.0	126.0
Incidence of Poverty	1990	107.3	105.1	107.9	98.3	108.5	109.6	113.5	87.8	87.9	107.1	100.3	83.5	96.6	86.5	100.0
	2000	132.5	127.5	132.5	121.6	132.2	133.3	132.8	115.3	107.2	127.8	115.7	105.1	125.9	113.2	124.7
Population Provided With Piped Water	1990	101.2	108.7	105.5	104.1	112.6	110.4	114.2	94.5	79.8	98.7	92.3	93.0	87.9	97.2	100.0
	2000	141.1	142.0	142.0	142.9	142.9	142.0	142.9	141.1	115.6	136.5	138.3	111.9	137.4	137.4	135.6
Population Provided With Electricity	1990	99.1	107.6	106.8	99.1	106.8	107.6	107.6	100.9	95.0	103.8	106.8	77.2	79.5	102.1	100.0
	2000	135.9	135.9	135.9	135.9	135.9	135.9	135.9	135.9	135.9	135.9	135.9	107.7	109.1	135.9	132.0
Infant Mortality Rate per 1000 Live Birth	1990	102.5	107.1	104.3	103.4	108.9	105.9	109.7	100.8	103.1	98.7	97.1	71.2	87.6	99.9	100.0
	2000	139.2	125.2	134.0	138.2	136.6	144.4	116.4	128.8	122.6	121.0	131.3	113.3	140.8	117.9	130.9
No. of Doctor per 10000 Population	1990	97.4	99.2	100.0	98.3	104.7	101.9	132.9	94.7	95.3	96.1	97.2	93.3	93.6	95.0	100.0
	2000	122.6	132.1	126.0	126.3	133.9	147.4	145.5	121.1	122.6	119.9	121.1	114.1	118.0	119.0	126.9
Economic Development Index	1990	102.9	100.8	100.7	99.4	110.6	112.6	116.8	93.9	90.4	96.7	94.9	89.9	92.6	95.2	100.0
	2000	131.6	131.7	129.7	131.0	142.1	137.3	145.4	123.7	117.9	123.2	123.2	117.1	122.1	125.0	128.6
Social Development Index	1990	101.6	105.5	104.9	100.6	108.3	107.1	115.6	95.7	92.2	100.9	98.7	83.6	89.0	96.1	100.0
	2000	134.3	132.5	134.1	133.0	136.3	140.6	134.7	128.5	120.8	128.2	128.5	110.4	126.2	124.7	129.5
Development Composite Index	1990	102.2	103.2	102.8	100.0	109.5	109.9	116.2	94.8	91.3	98.8	96.8	86.8	90.8	95.7	100.0
	2000	132.9	132.1	131.9	132.0	139.2	139.0	140.1	126.1	119.4	125.7	125.8	113.8	124.2	124.8	129.1

Note:

* Includes W.P. Labuan

Source: Economic Planning Unit (2001b)

Table 4.3: States and Districts in Malaysia

PERLIS	NEGERI SEMBILAN	PAHANG	SARAWAK
	Jelebu	Bentong	Asajaya
KEDAH	Jempol	Bera	Bau
Baling	Kuala Pilah	Cameron Highlands	Belaga
Bandar Baharu	Port Dickson	Jerantut	Betong
Kota Setar	Rembau	Kuantan	Bintulu
Kuala Muda	Seremban	Lipis	Dalat
Kubang Pasu	Tampin	Maran	Daro
Kulim		Pekan	Julau
Langkawi	**MELAKA**	Raub	Kanowit
Padang Terap	Alor Gajah	Rompin	Kapit
Pendang	Jasin	Temerloh	Kuching
Sik	Melaka Tengah		Lawas
Yan		**SABAH**	Limbang
	JOHOR	Beaufort	Lubok Antu
PULAU PINANG	Batu Pahat	Beluran	Lundu
Barat Daya	Johor Bahru	Keningau	Marudi
Seberang Perai Selatan	Kluang	Kinabatangan	Matu
Seberang Perai Tengah	Kota Tinggi	Kota Belud	Meradong
Seberang Perai Utara	Mersing	Kota Kinabalu	Miri
Timur Laut	Muar	Kota Marudu	Mukah
	Pontian	Kuala Penyu	Samarahan
PERAK	Segamat	Kudat	Saratok
Batang Padang		Kunak	Sarikei
Hilir Perak	**KELANTAN**	Lahad Datu	Serian
Kerian	Bachok	Nabawan	Sibu
Kinta	Gua Musang	Papar	Simunjan
Kuala Kangsar	Jeli	Penampang	Song
Larut dan Matang	Kota Bharu	Pitas	Sri Aman
Manjung (Dinding)	Kuala Krai	Ranau	Tatau
Perak Tengah	Machang	Sandakan	
Ulu Perak	Pasir Mas	Semporna	**LABUAN**
	Pasir Puteh	Sipitang	
SELANGOR	Tanah Merah	Tambunan	
Gombak	Tumpat	Tawau	
Klang		Tenom	
Kuala Langat	**TERENGGANU**	Tongod	
Kuala Selangor	Besut	Tuaran	
Petaling	Dungun		
Sabak Bernam	Hulu Terengganu		
Sepang	Kemaman		
Ulu Langat	Kuala Terengganu		
Ulu Selangor	Marang		
	Setiu		
KUALA LUMPUR			

Each state in Malaysia is divided into administrative districts, with a total of 136 for the whole of Malaysia (Table 4.3). Each administrative district is further divided

into *mukims*. However, there are some minor differences between the types of administrative structure in some states. For example, the state of Kelantan has three levels of administration known as the *jajahan* (district), the *daerah* (sub-district) and the mukim (Department of Statistics, 2004a). In this research the levels that will be used for analysis will be the state, district and urban/rural areas because migration data is only available at these levels. Population distribution, on the other hand, is also available at mukim level, which is the sub-level for district.

Data on population counts are usually based on the states rather than the region. The lower category used in population censuses is the district level. Districts are areas within the states that have their own administrations. They have their own local governments that are under the authority of the state government. The district councils are responsible for the development of their respective districts. They get their income from state government and revenue from taxes, etc. levied within their boundary. These districts, by law, have to produce their own comprehensive plans or development plans. The district is the basic unit of area analysis, the lowest level for which statistical data are gathered (Osborn, 1974). Most of the districts tend to be similar size except for the mountainous and unpopulated interiors of both East and West Malaysia.

The next level of spatial category for data on population is the mukim. The mukim is a smaller unit than district and situated within the district. It does not have its own administrative or local authority but is governed by the district authority. It is used for area identification and boundaries such as in land titles. However, the mukim is also used to identify the population distribution in the census of population and housing.

Urban areas are also used as another spatial category. An urban area is a town or city area with a population of more than 5000 people (Osborn, 1974), although the definition for urban areas changes over time. In the National Physical Plan for Malaysia, there are seven levels of urban settlements identified in Peninsular Malaysia. This means that urban centres are also used for identifying population

distribution or concentration. An example of the Town and Country Planning categorization is shown in Table 4.4. Based on the definition of urban areas in the Census 2000 report, Level I to V are considered urban areas whereas Levels VI and VII, with less than 10,000 populations are considered rural areas. See Appendix E and F for maps of major growth centres in Peninsular Malaysia.

Table 4.4: National functional urban hierarchy

Level No.	Functional Hierarchy	Functional Level	Examples	Characteristic	Population (,000)	Application
I	National Capital	National Centre	Kuala Lumpur	Metropolis	> 1,000	Growth Pole
II	National Regional Centre	National Centre	Johor Bahru Kuantan Penang	Metropolis	> 300	Growth Pole / Growth Region
III	State Regional Centre	Intermediate	Ipoh Alor Setar Seremban (State capitals except Kangar)	Metropolis	100 - 300	Secondary City Concept
IV	State Sub-Regional Centre	Intermediate	Taiping Batu Pahat Teluk Intan	Urban (Major Towns)	30 - 100	Expanded Town Concept
V	Major Local Centres	Local	Sitiawan Pasir Mas Banting	Urban (Major Towns)	10 - 30	Small Town Development
VI	Minor Local Centre	Local	Paloh	Semi Urban (Small Towns)	< 10	Small Town Development
VII	Rural / Rural Growth Centres	Local	Kg. Binjal	Rural (Rural centres)	2.5 - 5	Rural Growth Centres

Source: Department of Town and Country Planning (2003)

Urban centres can be considered in the same category as districts. While districts are governed by district councils, urban areas are governed by urban municipalities, about the same level as local government but with more planning power and higher expenditures.

The smallest category of settlement in Malaysia is the rural area or village (*kampong* in Malay). Villages are scattered throughout the districts and are administered by district governments. Within the village, there is head of the village (called *ketua kampong*) that may or may not be elected by the village people. Village heads are the intermediaries between the local government and the villagers. If a survey needs

to be done, the head of the village is usually asked for permission. Furthermore, he usually knows everybody in the village and can tell the economic background and origin of the village people.

Another category used for area identification is the "agricultural land scheme". These areas, developed especially since the 1970s under the "green revolution", are the commercial agricultural land schemes popularly known as FELDA schemes under the authority of Federal Land Development Agency, the federal government agency created to plan and implement commercial agriculture where land within the areas given to landless farmers to plant rubber and palm oil. The green revolution is the term used to promote agricultural projects during early 1970s by the late second Prime Minister, Tun Abdul Razak. Based on the 1976 FELDA settler's census, there were 35,531 settlers in the scheme (Baydar et. al., 1990) and, by 1998, there were 109,398 settlers (Sutton, 2001). Thus, the FELDA scheme is another category although it is situated under the district (but has its own administrative power).

4.3 Population composition and distribution

4.3.1 Population composition

Malaysia's population of 23.27 million in 2000 consists of three major ethnic groups: Malays, Chinese and Indians. The Malays and the natives (known as Bumiputera) which comprise about 65.1 percent of the population, are predominantly Muslim. The Chinese, with 26 percent of the population, are mainly Buddhist, and the Indians with 7.7 percent of the population are mainly Hindu. Other ethnic groups make up the rest of the population (Department of Statistics, 2004a). Between 1991 and 2000, Malaysia had an annual growth rate of 2.6 percent. The ethnic composition in 1991 was 60.6 percent Bumiputera, 28.1 percent Chinese, 7.9 percent Indian and 3.4 percent other ethnic groups (Department of Statistics, 1995).

These three major ethnic groups differ by size, culture, economic opportunity and achievement and geographic distribution. In 1970, Malaysia was still highly rural, with 71.3 percent of the population living in rural areas and most of this population

being ethnic Malay. They practiced traditional agricultural activities. Most Chinese are found in urban areas, having lived in tin-mining communities since the colonial period which later became urban centres. Many Indians also lived in these urban centres (Bach, 1981).

The Malays have been disadvantaged in several ways. There were some rural-urban differences in opportunities especially in education. Good schools are mainly located within urban areas. Many secondary schools are located in urban areas and secondary school students from rural areas have to travel long distances. This tends to reduce their achievement in education and limit their social status. On the average, the Chinese have the highest levels of socioeconomic status, followed by the Indians and then the Malays. This hierarchy has been caused by ethnic differences by occupation, income and education present within urban and rural areas.

There was growing awareness among the Malays of the importance of urban areas for economic and political power. High birth rates among the urban Malays and declining fertility among the urban Chinese should adjust the imbalance of ethnic population in urban areas. The growth rate among the Malays is considerably higher than the growth rate of other ethnic groups. However, this is not correcting the imbalance. The relative dependence of the Malays on their rural origins – the need to provide financial assistance to their family or relatives in rural areas has restricted their personal savings, capital formation and investment capacity. Economic disparity is further aggravated by apparent job bias in favour of the Chinese in urban employment (Hamzah, 1966). Chinese enterprises would rather employ the Chinese instead of the Malays especially in top management positions.

Between 1957 and 1966, Malaysia experienced a 19 percent decrease in its fertility rate, the number of children a woman bears during her reproductive age. The reduction of the birth rate was partly due to a shift in the age of marriage. Chinese and Indians experienced the largest declines in fertility levels. Overall, the fertility rate in urban areas has dropped considerably (Bach, 1981).

Urban areas have lower fertility rates compared to rural areas. Women in rural areas have married earlier compared to women in urban areas. Malay women have married younger than Indian and Chinese women. This explains the high fertility rate among the Malays and high fertility level in rural areas. The fertility rate and its trends have a significant relationship with rural-urban migration. With different trends in fertility of ethnic groups in Malaysia, growth rates of the ethnic population also varied substantially. In 2000, the Bumiputera population increased at an average annual rate of 3.2 percent. They had the highest fertility rate of 3.62, followed by Chinese with the fertility rate of 2.57 growing at an average annual rate of 1.4 percent and the Indians with the fertility rate of 2.55 and growing at an annual average rate of 1.8 percent (Economic Planning Unit, 2001a).

4.3.2 Population distribution

The uneven geographical distribution of the population according to ethnic and economic status means that migration between rural and urban areas involves experiencing different places, cultures and structures. These differences may have had some impacts on changing fertility behaviour. Although fertility among the Malays remain high, migration to urban areas could change their fertility behaviour.

The major ethnic groups that shaped the population distribution in Peninsular Malaysia are the predominantly commercially-oriented urban Chinese and the heavily rural agriculturally-based Malays. This represents a division of labour imbalance which the Government has tried to modify through its development policies. Since independence in 1957, state planning played a major role in the organisation of social and economic life (Baydar et al., 1990). The justification for state planning is found in the Malaysian social structure. The ethnic communities are highly segregated and Malays, Chinese and the Indians are unevenly represented in the economic sectors.

The implementation of the New Economic Policy during the Second Malaysia Plan (1971–1975) emphasized the development of secondary growth centres by which

people are encouraged to move into small towns rather than into large primate cities (Nagata, 1974; Economic Planning Unit, 1971). Peninsular Malaysia is different from any other Southeast Asian nation in that its urbanisation pattern is characterised by high population increase in its smaller towns rather than its largest cities. In other nations such as Burma, Thailand and the Philippines, the primate city is dominant.

The significant increase in the rural to urban migration rate is evidenced in the late 1980s and early 1990s (Economic Planning Unit, 1996). This has resulted in the growth of the urban population. Migration, together with natural increase has caused the urban population to grow at a rate of 4.5 percent from 1991 to 1995. Two states that have rapid urban population growth, Sabah and Selangor have growth rates of 7.9 percent and 6.1 percent respectively, which is significantly higher than the country's average (Economic Planning Unit, 1996).

During the period of 2002-2003, migration streams from urban to urban areas became the major flow of intra-state migration in the west coast (Selangor and Pulau Pinang - the developed states). However, in the less developed states of the east coast (Kelantan, Terengganu and Pahang) rural to rural migrations have been observed (Department of Statistics, 2004b).

According to the 2000 Census, as in the 1991 Census, urban areas are defined as the gazetted areas with adjoining built-up-areas which has a combined population of 10,000 or more. Built up areas are the areas contiguous to a gazetted area and have at least 60 percent of their population aged ten and over, engaged in non-agricultural activities and at least 30 percent of their housing units have modern toilet facilities (Department of Statistics, 1995; Department of Statistics, 2004a). This definition enables the comparison of the two censuses. Adjustment on the urban area population will have to be done in order to compare older census populations.

Urban growth in Malaysia, like many other developing countries in Asia and Africa, increased at a rapid rate. It is said that the growth rate is higher than those rates

experienced by the now developed countries in their early stages of development (Todaro and Smith, 2009). Some cities are unable to sustain the rapid increase of population. This has resulted in shortages of housing, congestion, environmental degradation, slum and inadequate services. Urban poverty is more prevalent in large cities such as Kuala Lumpur, Penang, Johor Bahru and Ipoh. Many live in slum areas and work in the informal sector. Between the years 2001 and 2005, the Government planned to build more than 51,000 low cost houses in the federal territory and other cities throughout Malaysia to accommodate some of the low income people who live in slums and who are unable to afford better housing (Economic Planning Unit, 2001a).

In Kuala Lumpur Federal Territory, there were 243,154 people living in slum areas in the year 1978. The number had decreased to 225,689 in 1992 and subsequently to 134,345 in 1998, but these statistics show that slums had become a problem in the city and one of the reasons for this situation is migration of people to Kuala Lumpur in search of better jobs (Baydar et al., 1990).

The urban population distribution by ethnicity is characterized by a relatively low representation of Malays although they are the majority in the country. In 1970, the Malays were 14.9 percent urban and 85.1 percent rural while the Chinese were 47.6 percent urban and 52.4 percent rural. In 1980, the Malays were 25.2 percent urban while the Chinese were 56.1 percent urban, whereas in terms of ethnic composition, the Malays represented 56 percent of the population while the Chinese represented only 33 percent of the population. Even the proportion of the Indians in urban areas was 41 percent in 1980 although they represented only 10 percent of the population (Baydar et al., 1990). One of the goals of New Economic Policy has been to restructure society along ethnic lines, so that the particular ethnic groups are not associated with their traditional residential and occupational concentrations. In other words, the policy encourages the Malays to urbanise and become more involved in technical and commercial activities.

Overall the total population living in urban areas is increasing at a more rapid rate than the population living in rural areas. According to the United Nations (2004), the percentage of population living in urban areas in 1950 was 20.4 percent; in 2000, it had increased to 61.8 percent and, in 2030, it is projected that the urban population will increase to 77.6 percent (Table 4.5).

Table 4.5: Urban, rural and total population Malaysia, 1950-2030

Year	1950	1955	1960	1965	1970	1975
Total population (thousands)	6110	7000	8140	9502	10853	12258
Urban population (thousands)	1244	1639	2165	2842	3631	4615
Percentage urban (%)	20.4	23.4	26.6	29.9	33.5	37.7
Rural population (thousands)	4866	5361	5975	6660	7222	7642
Percentage rural (%)	79.6	76.6	73.4	70.1	66.5	62.3

Year	1980	1985	1990	1995	2000	2003
Total population (thousands)	13763	15677	17845	20363	23001	24425
Urban population (thousands)	5787	7197	8891	11326	14212	15617
Percentage urban (%)	42.0	45.9	49.8	55.6	61.8	63.9
Rural population (thousands)	7977	8480	8955	9038	8790	8808
Percentage rural (%)	58.0	54.1	50.2	44.4	38.2	36.1

Year	2005	2010	2015	2020	2025	2030
Total population (thousands)	25325	27513	29563	31580	33479	35191
Urban population (thousands)	16479	18768	20998	23218	25351	27324
Percentage urban (%)	65.1	68.2	71.0	73.5	75.7	77.6
Rural population (thousands)	8846	8745	8565	8362	8128	7867
Percentage rural (%)	34.9	31.8	29.0	26.5	24.3	22.4

Source: United Nations (2004)

On the other hand, the percentage of total population that is rural decreases every year (assumption based on the five year interval data) with 79.6 percent in 1950, 58.0 percent in 1980, 38.2 percent in 2000 and projected to be only 22.4 percent in the year 2030 (United Nations, 2004). This shows that urban population in Malaysia is increasing, while rural population, although increasing in total numbers is decreasing in terms of its percentage share of total population. The data in Table 4.5 also show that after the year 1995 the number of rural population had started to decrease and projected to further decrease in coming years after 2003. Table 4.6 shows the annual growth rate and annual rate of change of percentage for urban and rural areas in Malaysia.

Table 4.6: Annual growth and change of urban and rural population in Malaysia, 1950-2030

Year	1950-1955	1955-1960	1960-1965	1965-1970
Urban AGR (%)	5.52	5.57	5.44	4.9
Rural AGR (%)	1.94	2.17	2.17	1.62
ARC percentage urban (%)	2.8	2.55	2.35	2.24
ARC percentage rural (%)	-0.78	-0.85	-0.92	-1.04

Year	1970-1975	1975-1980	1980-1985	1985-1990
Urban AGR (%)	4.8	4.52	4.36	4.23
Rural AGR (%)	1.13	0.86	1.22	1.09
ARC percentage urban (%)	2.36	2.21	1.76	1.64
ARC percentage rural (%)	-1.30	-1.46	-1.38	-1.50

Year	1990-1995	1995-2000	2000-2005	2005-2010
Urban AGR (%)	4.84	4.54	2.96	2.6
Rural AGR (%)	0.18	-0.56	0.13	-0.23
ARC percentage urban (%)	2.2	2.1	1.04	0.94
ARC percentage rural (%)	-2.46	-2.99	-1.80	-1.89

Year	2010-2015	2015-2020	2020-2025	2025-2030
Urban AGR (%)	2.25	2.01	1.76	1.5
Rural AGR (%)	-0.42	-0.48	-0.57	-0.65
ARC percentage urban (%)	0.81	0.69	0.59	0.5
ARC percentage rural (%)	-1.85	-1.80	-1.73	-1.65

Note:
AGR - annual growth rate
ARC - annual rate of change of
Source: United Nations (2004)

Malaysia's population was highly rural in 1950 with over 76 percent of people still living in rural areas. In 1990, however, almost half of the population lived in urban areas and the urban population was continuing to grow very rapidly. In 2000, from the most recent census, almost 62 percent of the population was urban. What are the reasons for these changes? They could be the result of natural increase, internal migration or international migration taking place at different rates across the country.

4.4 Historical perspective

Over the last few decades, urban growth in Malaysia, as in many other developing countries, has been very rapid. In 1960, about 4 million people resided in 450 towns with population of more than 1,000 people. In census reports before 1970, areas

with a population of more than 1,000 people were considered urban. This comprised approximately 42 percent of Malaysia's total population (Sendut, 1966). In the 1970 census, urban areas were defined as towns with population of at least 10,000 people. According to Hirschman (1976), about 29 percent of people in Malaysia in 1970 lived in urban areas with more than 10,000 people, while 42 percent of the population were classified as urban using the 1,000 population criteria.

Increasing urbanization in Malaysia has been the result of economic growth and emerging employment opportunities, especially the development and expansion of industries. The statistics in Table 4.7 show that the building and construction industry was the sector providing the largest increase (402.5 percent) in urban jobs in Malaya (Malaysia was know as Malaya before 1963) between 1947 and 1957. The police and armed forces also provided many job opportunities at the time because of the 'confrontation' between Malaya and Indonesia. Government administration, community and business services also contributed significantly to employment in urban areas. Manufacturing experienced a slight increase in employment as it was still at early stage of development in Malaya.

Table 4.7: Working urban population in Malaya, 1947-1957 (000's)

Industrial sector	1947	1957	% increase
Agriculture	1,240.5	1,244.8	0.3
Manufacturing	126.2	135.7	7.5
Mining and quarrying	47.7	58.5	22.6
Building and construction	13.5	67.8	402.5
Electricity, water, etc.	4.6	11.6	152.2
Commerce	173.1	195.2	12.8
Transport and communication	65.9	74.8	11.4
Govt admin, community & business	76.7	116.1	51.4
Recreational and personal services	97.5	104.9	7.6
Police and armed forces	23.4	98.7	321.8
Total working population	1,875.2	2,126.2	13.3
Urban population	1,301.4	2,618.0	105
Total population	4,908.1	6,278.8	27.9

Source: Sendut (1966, p. 487)

Urbanisation before Malaya's independence was driven by rural to urban migration, partly because of the availability of employment opportunities and partly because of Government intervention. There has been a significant change in urban development, especially the creation and growth of new towns and rural towns near the existing urban areas. A slow but significant economic transformation from agricultural production to industrial development has encouraged the movement of people from rural to urban areas. Hirschman (1980) describes early post-World War 2 developments as follows:

> *"The 1947-1957 inter-census period was not one of significant economic growth nor of structural change, but rapid urbanization was fostered by the colonial government's resettlement program.... The 1957-70 inter-census period was one of much greater economic progress, expansion of educational opportunities, and improved transportation facilities. Most cities grew, but there was only modest population redistribution ..... urban areas did not become centres of economic growth and opportunities and simply preserved their role as service and commercial centers for rural areas..... At the same time, it is possible that rural areas continued to provide viable opportunities for many"*
>
> (p. 121-122).

Malaysia had experienced rapid development since the independence of Malaya in 1957 and the formation of Malaysia in 1963. During the period from 1960 to 1970, Malaysia's GDP expanded by about two-thirds, with an average annual growth rate of over 5 percent. Manufacturing was the most dynamic sector, expanding by almost 200 percent (Hirschman, 1976).

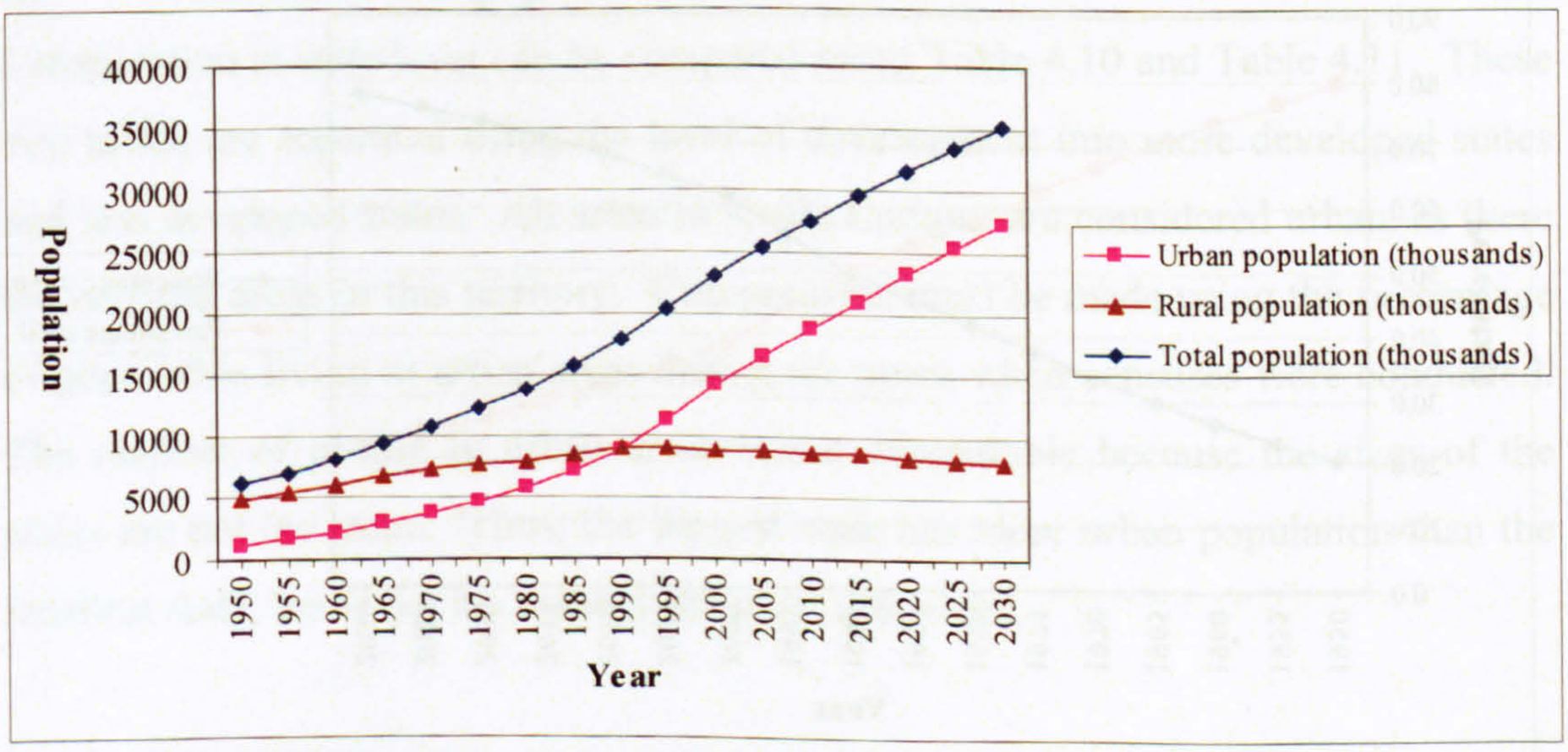
The national population has been growing steadily in the past half century. In 1950, the population was about 6 millions and increased to 7 millions in 1955. Since then, over a million people have been added every five years (Table 4.8). The urban share has also been growing rapidly since 1950, when the urban population was 20 percent, increasing to 27 percent in 1960, 34 percent in 1970 and 42 percent in 1980. Nearly half of the population were living in urban areas in 1990 and this share increased to over 55 percent five years later. It is estimated that almost three quarters of the population will live in urban areas by the year 2020 (Table 4.8).

Table 4.8: Total, urban and rural population of Malaysia, 1950-2030

Year	Total population ('000s)	Urban population ('000s)	% urban	Rural population ('000s)	% rural	
1950	6,110	1,244	20.4	4,866	79.6	Estimates
1955	7,000	1,639	23.4	5,361	76.6	
1960	8,140	2,165	26.6	5,975	73.4	
1965	9,502	2,842	29.9	6,660	70.1	
1970	10,853	3,631	33.5	7,222	66.5	
1975	12,258	4,615	37.7	7,642	62.3	
1980	13,763	5,787	42.0	7,977	58.0	
1985	15,677	7,197	45.9	8,480	54.1	
1990	17,845	8,891	49.8	8,955	50.2	
1995	20,363	11,326	55.6	9,038	44.4	
2000	23,001	14,212	61.8	8,790	38.2	
2005	25,325	16,479	65.1	8,846	34.9	Projections
2010	27,513	18,768	68.2	8,745	31.8	
2015	29,563	20,998	71.0	8,565	29.0	
2020	31,580	23,218	73.5	8,362	26.5	
2025	33,479	25,351	75.7	8,128	24.3	
2030	35,191	27,324	77.6	7,867	22.4	

Source: United Nations (2004)

The increase of total population and urban population since 1950 can be clearly seen in Figure 4.4. Rural population, on the other hand, grew slowly until the mid-1990s and at a declining rate. The rural population as a whole was at its highest in 1995 with 9.04 million people, but had declined to 8.79 million in 2000. The rural population is expected to maintain its level until 2010 and then to decline thereafter.

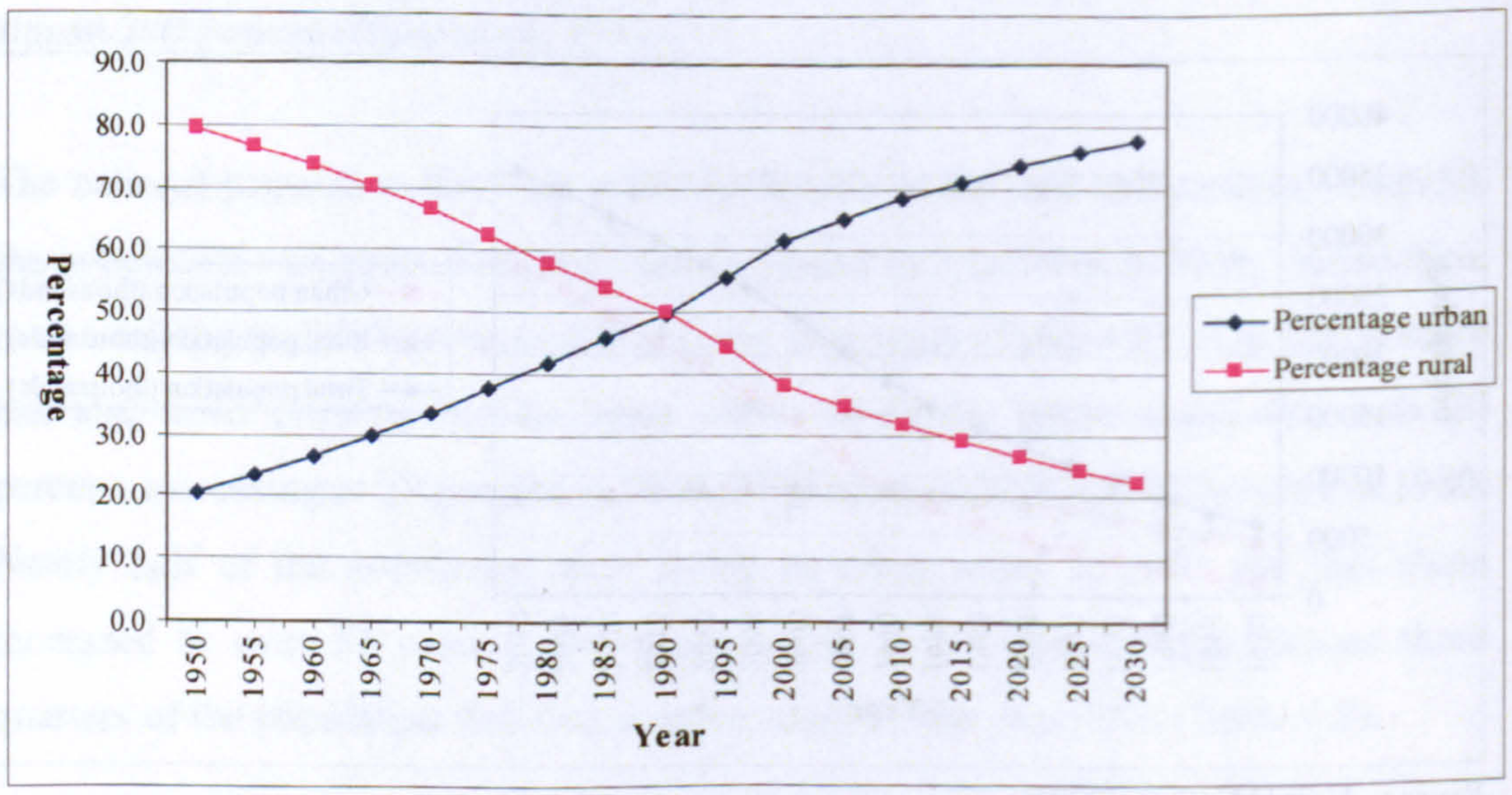


Source: United Nations (2004)

Figure 4.4: Urban, rural and total population of Malaysia, 1950-2030

It has to be noted, however, that these data are estimates made by the United Nations based on statistics supplied by the Malaysian Department of Statistics. The censuses in Malaysia were conducted in 1947, 1957, 1970, 1980, 1991 and 2000. Data used in the UN report came from censuses in 1947, 1957, 1991 and 2000, whilst estimates were made for 1970 and 1980 (United Nations, 2004). Data in the UN reports came from a large data set for all the UN members and are harmonized. Thus, they are not as precise or up to date as the national statistics, but they do provide a consistent time series. The statistics from 1950 to 2000 are estimates based on the interpretations between censuses, whereas the statistics from 2005 to 2030 are projections based on a model and certain assumptions made by the United Nations.

Another way of understanding the urban and rural population dynamics is by looking at percentage increases or decreases. Figure 4.5 shows the pattern of urban and rural population in Malaysia from 1950 to 2030. The proportion of the population that was urban was estimated to have increased from 20 percent in 1950 to 62 percent in 2000. The United Nations projects this increase in urban share to grow to 78 percent in 2030. However, the rate of increase in urban share grows more slowly in the 2005-2030 period than between 1990 and 2005.



Source: United Nations (2004)

Figure 4.5: Percentage of rural and urban population in Malaysia, 1950-2030

According to the Department of Statistics Census reports (Department of Statistics, 2001b), the urban population exceeded the rural population in 1991 (Table 4.9). The number in the urban population in 1991 was 8.898 million and the number of rural population was 8.664 million. Thus, during 1991, when the census of population was conducted, there were 0.234 million more people in urban areas compared to those in rural areas. The urban share total population was more than 50 percent. The figures of the Malaysian census report and the United Nations report (United Nations, 2004) are slightly different. In the UN report, the numbers were rounded up for easy reading. Some adjustment had also been made for under-enumeration. The UN report was based on the data from Malaysia's statistics department but had been revised using different methods of population projection, to show the population at five year intervals.

Table 4.9: Urban and rural population of Malaysia, 1970-2000

	Population				Percentage			
	1970	1980	1991	2000	1970	1980	1991	2000
Urban	2,962,795	4,492,408	8,898,581	13,725,609	28.4	34.2	50.7	61.8
Rural	7,476,635	8,643,701	8,664,839	8,477,005	71.6	65.8	49.3	38.2

Source: Department of Statistics (2001b)

4.5 Urban and rural population at state level

Urbanization at state level can be compared using Table 4.10 and Table 4.11. These two tables are separated using the level of development into more developed states and less developed states. All areas in Kuala Lumpur are considered urban, as there are no rural areas in this territory. Comparisons must be made using the percentage of population living in urban areas during the years when censuses were conducted. The number of people in urban areas is not comparable because the sizes of the states are not the same. Thus, the biggest state has more urban population than the smallest state, but is not necessarily the most urbanized.

Table 4.10: Populations by urban and rural in more developed states, 1970-2000

State	Number				Percentage			
	1970	1980	1991	2000	1970	1980	1991	2000
Urban	336,051	556,836	989,910	1,638,772	26.3	35.2	47.8	63.9
Rural	941,129	1,023,587	1,079,830	926,929	73.7	64.8	52.2	36.1
Johor	1,277,180	1,580,423	2,069,740	2,565,701	100.0	100.0	100.0	100.0
Urban	103,914	179,514	290,836	456,535	21.6	32.6	42.0	55.0
Rural	377,649	371,928	402,061	373,545	78.4	67.4	58.0	45.0
Negeri Sembilan	481,563	551,442	692,897	830,080	100.0	100.0	100.0	100.0
Urban	101,442	104,381	195,998	405,917	25.1	23.4	38.7	67.3
Rural	302,683	342,388	310,323	196,950	74.9	76.6	61.3	32.7
Melaka	404,125	446,769	506,321	602,867	100.0	100.0	100.0	100.0
Urban	257,540	487,233	1,726,560	3,483,765	26.2	34.2	75.2	88.3
Rural	724,550	939,017	570,599	463,762	73.8	65.8	24.8	11.7
Selangor	982,090	1,426,250	2,297,159	3,947,527	100.0	100.0	100.0	100.0
Urban	432,294	562,202	1,006,813	1,207,948	27.5	32.2	53.6	59.5
Rural	1,136,845	1,181,453	870,658	822,434	72.5	67.8	46.4	40.5
Perak	1,569,139	1,743,655	1,877,471	2,030,382	100.0	100.0	100.0	100.0
Urban	395,615	427,805	798,276	974,779	51.0	47.5	75.0	79.5
Rural	380,509	472,967	265,890	250,722	49.0	52.5	25.0	20.5
Pulau Pinang	776,124	900,772	1,064,166	1,225,501	100.0	100.0	100.0	100.0
Urban	648,276	919,610	1,145,342	1,297,526	100.0	100.0	100.0	100.0
Rural	-	-	-	-	-	-	-	-
W.P. Kuala Lumpur	648,276	919,610	1,145,342	1,297,526	100.0	100.0	100.0	100.0

Source: Department of Statistics (2001b)

Table 4.11: Populations by urban and rural in less developed states, 1970-2000

State	Number				Percentage			
	1970	1980	1991	2000	1970	1980	1991	2000
Urban	-	12,949	48,838	67,080	-	8.9	26.6	33.8
Rural	121,062	131,833	134,986	131,255	100.0	91.1	73.4	66.2
Perlis	121,062	144,782	183,824	198,335	100.0	100.0	100.0	100.0
Urban	120,337	155,503	423,250	608,696	12.6	14.4	32.5	38.7
Rural	834,610	922,312	878,991	963,411	87.4	85.6	67.5	61.3
Kedah	954,947	1,077,815	1,302,241	1,572,107	100.0	100.0	100.0	100.0
Urban	103,250	241,028	395,485	431,861	15.1	28.1	33.5	33.5
Rural	581,488	618,242	785,830	857,338	84.9	71.9	66.5	66.5
Kelantan	684,738	859,270	1,181,315	1,289,199	100.0	100.0	100.0	100.0
Urban	109,438	225,181	340,652	434,270	27.0	42.9	44.5	49.4
Rural	295,930	300,074	425,592	445,421	73.0	57.1	55.5	50.6
Terengganu	405,368	525,255	766,244	879,691	100.0	100.0	100.0	100.0
Urban	95,880	200,863	317,187	518,176	19.0	26.1	30.4	42.1
Rural	409,065	567,938	727,816	713,000	81.0	73.9	69.6	57.9
Pahang	504,945	768,801	1,045,003	1,231,176	100.0	100.0	100.0	100.0
Urban	107,621	184,555	576,326	1,182,890	16.9	19.9	33.2	48.3
Rural	528,810	744,744	1,158,359	1,266,499	83.1	80.1	66.8	51.7
Sabah	636,431	929,299	1,734,685	2,449,389	100.0	100.0	100.0	100.0
Urban	151,137	222,529	616,837	963,232	15.5	18.0	37.5	47.9
Rural	825,132	1,013,024	1,025,934	1,049,384	84.5	82.0	62.5	52.1
Sarawak	976,269	1,235,553	1,642,771	2,012,616	100.0	100.0	100.0	100.0
Urban	-	12,219	26,271	54,162	-	46.3	48.4	76.8
Rural	17,173	14,194	27,970	16,355	100.0	53.7	51.6	23.2
W.P.Labuan	17,173	26,413	54,241	70,517	100.0	100.0	100.0	100.0

Source: Department of Statistics (2001b)

In 1970, within the more developed states, the lowest proportion of people living in urban areas was Negeri Sembilan (21.6 percent) while the highest proportion, besides Kuala Lumpur, was Pulau Pinang (51 percent). In the year 2000, the lowest proportion of people living in urban areas was Negeri Sembilan (55 percent) while the highest proportion was Selangor (88.3 percent). In 1970, within the less developed states, the lowest proportion of people living in urban areas, beside Perlis and Labuan which had no urban areas, was Kedah (12.6 percent), while the highest proportion was in Terengganu (27 percent). In the year 2000, the lowest proportion of people living in urban areas was Kelantan (33.5 percent) while the highest proportion was in Labuan (76.8 percent). Perlis also had a low proportion of people living in urban areas with 33.8 percent. Most of the states in the less developed states had low proportions of people living in urban areas compared with the more developed states. The highest proportion, other than Labuan, with its federal

territory status, was Terengganu with 49.4 percent of its people living in urban areas. This percentage was lower than the least urbanized of the more developed states, Negeri Sembilan.

Some of the areas in the states became urbanized very rapidly while other areas in other states were slow in becoming urbanized. Looking at the average annual population growth rate for urban and rural areas, we see that Selangor had high growth rates during the three periods of 1970-1980, 1980-1991 and 1991-2000 (Table 4.12). Among the less developed states, Sabah had high annual growth rates for urban areas in the two periods of 1980-1991 and 1991-2000. Selangor and Sabah had annual growth rates higher than the national average over the all three periods. The table also indicates that all the more developed states had negative annual growth rate in rural populations during the 1991-2000 period.

Table 4.12: Average annual population growth rate of urban and rural areas by state, 1970-2000

State	Urban			Rural		
	1970-1980	1980-1991	1991-2000	1970-1980	1980-1991	1991-2000
Johor	5.05	5.23	5.60	0.84	0.49	-1.70
Negeri Sembilan	5.47	4.39	5.01	-0.15	0.71	-0.82
Melaka	0.29	5.73	8.09	1.23	-0.89	-5.05
Selangor	6.38	11.50	7.80	2.59	-4.53	-2.30
Perak	2.63	5.30	2.02	0.38	-2.78	-0.63
Pulau Pinang	0.78	5.67	2.22	2.18	-5.24	-0.65
W.P. Kuala Lumpur	3.50	2.00	1.39	-	-	-
Perlis	-	12.07	3.53	0.85	0.21	-0.31
Kedah	2.56	9.10	4.04	1.00	-0.44	1.02
Kelantan	8.48	4.50	0.98	0.61	2.18	0.97
Terengganu	7.22	3.76	2.70	0.14	3.18	0.51
Pahang	7.40	4.15	5.45	3.28	2.25	-0.23
Sabah	5.39	10.35	7.99	3.42	4.02	0.99
Sarawak	3.87	9.27	4.95	2.05	0.12	0.25
W.P. Labuan	-	6.96	8.04	-1.91	6.17	-5.96
MALAYSIA	4.16	6.21	4.82	1.45	0.02	-0.24

Source: Department of Statistics (2001b)

Although Malaysia has been experiencing rapid urbanization, urban areas only cover a small proportion of the land areas of the country. Some states have large towns and built up areas, but most states have large rural areas, especially the states that

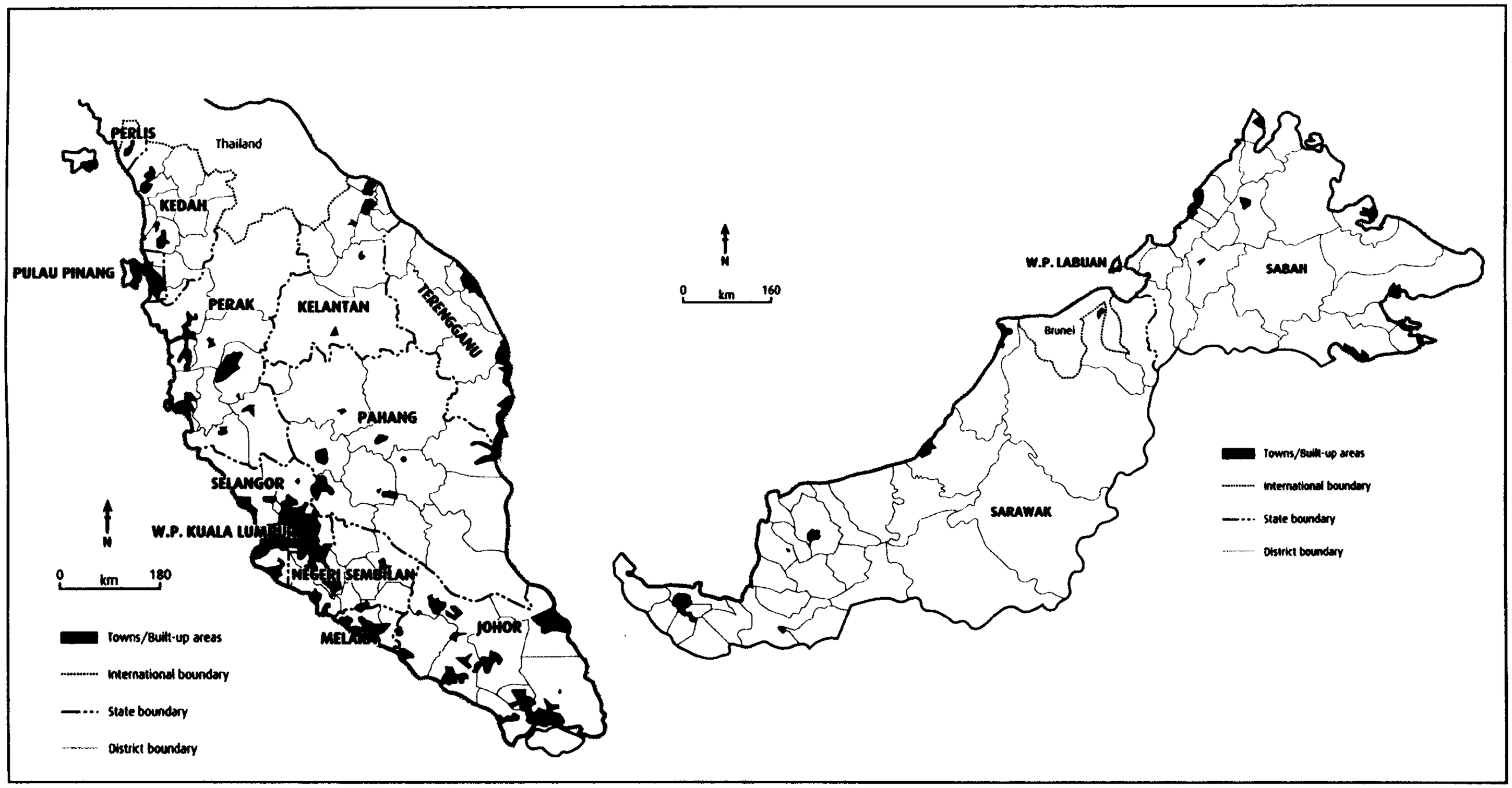
are still involved in agriculture and the less developed states. Figure 5.3 shows the urban and built up areas for Malaysia in 2000.

Urban areas in Malaysia are predominantly located near coastal areas, because many towns originated from ports. Sea transport is the cheapest way of shipping goods and transporting people. Figure 4.6 shows that many urban areas are located in the east coast of Peninsular Malaysia, along the Straits of Malacca. This is one of the busiest shipping routes and many towns rise near the sea coast. All the more developed states are located on this side of the peninsular. Kuala Lumpur is by far the largest urban area in Malaysia. It is worth mentioning that urban areas changes or expand every year, thus, the urban area in one census (1991) will no be the same as the area in the next census (2000).

In Section 4.5, I have discussed the changing population stocks living in urban and rural areas during the last few decades. However, to assess what will happen in the future, we need to know what the demographic drivers of population stock changes are. These demographic drivers are natural increase (the surplus of births over deaths) and net-migration (net balance of in-migration over out-migration). Migration needs to be disaggregated into six migration streams in order to reveal the population transfers underpinning the urbanization process. These six streams are:

1. rural to urban internal migration flows
2. urban to rural internal migration flows
3. immigration to rural areas
4. immigration to urban areas
5. emigration from rural areas
6. emigration from urban areas

I use the terms "immigration" and "emigration" to refer to migration between Malaysia and other countries, either inward or outward. To examine the demographic drivers of population change, I adopt a population accounting framework, which will be explained in the next chapter.



Source: Department of Statistics (2001b)

Figure 4.6: Urban and built-up areas, 2000

4.6 Conclusion

This chapter discusses two main topics, the special characteristics of Malaysia and its development over the years; and the population composition and distributions, both before and within the periods under study. The background study of the country is important in order to understand the spatial structures, location of the states and districts and the countries' development because the population and migration data will be based on these variables.

Malaysia is divided into states. There are fifteen states discussed in this thesis (they are formally known as thirteen states and two federal territories). The status of the states (more developed and less developed) has some significant contributions to internal migration in Malaysia, as we will see later in Chapter 6. Other than states, Malaysia is further divided into administrative districts. There are 136 districts in Malaysia in 2000 census and 132 districts in 1991 census. For ease of comparison, the 136 districts will be reduced back to 132 districts by adding the divided districts and their populations into their former respective districts. Thus, the analysis in Chapter 7 will use 132 districts when discussing its population and migration flows. Most of the combined districts are small and do not have any major impacts on the analysis.

The chapter also discusses the ethnic composition in Malaysia's multi-racial society although this is not being analysed in the analyses chapters because of lack of data in this category. The majority Malays had been traditionally associated with rural areas (work in agricultural sectors) whilst the majority of the Chinese had been living in urban areas and associated with trading sector. The Malay aristocrats had been in the political power since independence and able to form policies to help the rural Malays to improve their economic condition as well as other development policies for the greater public.

Historically, building and construction together with police and armed forces were the sectors which provided the largest increase of employment in Malaysia. Urbanisation before Malaya's independence was driven by rural to urban migration.

Many of the employment opportunities was the result of government intervention by promoting the growth of new towns, rural growth centres and the expansion of existing urban areas.

Urban population growth in Malaysia has increased rapidly since after independence, while rural population growth increased at a very slow pace. In terms of proportions of the population in both areas, the percentage of urban population has increased while the percentage of rural population decreased since the year 1950 until the last census taken in 2000. The proportion of urban population was higher than the rural population in 1991. It is estimated that the urban population will continue to increase steadily at least until 2025.

It has also been shown that percentages of urban population in the more developed states are relatively higher than those in the less developed states. Urban areas in the more developed states grew and developed more rapidly, attracting people from rural areas within the states and people from other states. Most of these states are located in the west coast of Peninsular Malaysia where infrastructures such as roads and highways are better than in the east coast of the Peninsular or in the East Malaysia. Selangor is the state that became urbanised very rapidly during the last three decades. All the more developed states also have negative annual growth rate for rural population during the study period.

The population in Malaysia has been increasing constantly in the last few decades. With about 20 percent of the population live in urban areas in 1950, it has steadily increase to about 50 percent in 1990 and further increase to about 62 percent in 2000, the periods which are under study. It is projected that three quarters of the population will live in urban areas by 2020, the year by which the Malaysian government has targeted Malaysia to become a developed country. This background information on Malaysia is important in understanding the country and its population before analysing the population and internal migration pattern in Malaysia in the next few chapters. Chapter 5 to 8 will analyse the population change and urbanisation in Malaysia and the analyses of migration at the state,

district and urban/rural level to fully understand the contribution of natural population growth and migration to pattern of migration occurring within Malaysia. We will now turn to the next Chapter, population change and urbanisation to begin our analysis.

CHAPTER 5

POPULATION CHANGE AND URBANISATION

5.1 Introduction

It is important to know, for planning purposes, whether population growth is the result of more new towns being created, more internal migrants moving house to the cities or more external migrants entering the urban areas. If natural increase is strong, then child care places, kindergarten places and primary school places will be needed. If internal or international migration is high into an area, then new housing will be needed. Special provision may need to be made for the administration of international migrants coming to work.

The aim of this chapter is to identify the components of rural and urban population changes. This is done by examining the urban and rural population dynamics using all the sources of change such as the natural increase, internal migration and external migration. The chapter starts with the explanation of the population accounts framework and why the accounts are constructed and used in the analysis. Then, it explain how to construct population change accounts for Malaysia, analyzing the urban and rural population changes that occurred during the most recent census period. The population accounts framework is explained and discussed in Section 5.3 on how population accounts were constructed using data from the census reports and other sources. It was necessary to make assumptions based on known, published data in order to arrive at the estimate of the variables needed in the population accounts table. The population arithmetic, which is used to estimate the different cells in the population accounts, is described in some detail. Since these are probably the first consistent urban and rural population change tables produced for Malaysia, the data sources and estimation methods need to be described in a very transparent fashion. This transparent description is also useful for discovering errors and making revisions. The full chain of evidence from data source through estimation method to result is provided. Only then can we be confident in using the population accounts to describe the sources of past change and to project, under simple assumptions, the future change. We present in Section 5.4 a table of

population change from the population accounts and discuss how urban and rural population changes occurred. In Section 5.5 we discuss the projections for future changes using a simple model of population change. Finally, in Section 5.6 we discuss the summary and conclusion of the findings of the analysis.

5.2 The population accounts framework

Population accounts are the tools used to investigate spatial population change. When constructing the accounts, the researcher needs to estimate all the flows that alter a population in a particular region, such as internal migration, external migration (immigration and emigration), births and deaths (Rees and Convey, 1984). Accounting ensures that population change is explained in a comprehensive framework.

Population accounts can be used to generate population models, which can then be used to make projections. It is essential to gather good information on the migration flows between the regions, estimate them when necessary and incorporate them in the population model (Rees, 1985). The more information we have on the population flows between the regions, the more accurate the population accounts are and the better the projection models will be.

5.2.1 Why construct population accounts?

Population accounts are constructed to examine how population change is affecting urban and rural population dynamics. To discover which components of population change are contributing to urban and rural population growth, the following questions must be answered:

1. Is it natural increase? To what extent?
2. Is it net internal migration? To what extent?
3. Is it net international migration? To what extent?

Population accounts can be simple but become increasingly complex, as more data is available. After the accounts have been constructed, we can carry out the following analysis of Malaysia's urban-rural population dynamics.

- I can estimate the contributions to urbanization of rural to urban migration (internal migration), international migration (immigration and emigration) and natural increase (births and deaths).
- I can construct some models of population change for urban and rural areas in Malaysia using the accounts table to generate the proper rates or intensities for these models.
- I can use the variables of population change to project urban and rural population into the future.
- I can look at different scenarios for Malaysia such as fertility declines and replacement or increased international migration (policy).

Ideally we would like to construct urban-rural and state-to-state population accounts for Malaysia using a full set of five year age groups and two sexes. For the present, this is not attempted as I need to explore whether an aggregate accounts table could be estimated first.

5.2.2 The structure of the urban and rural population accounts

Figure 5.1 shows the structure of a population accounts table for urban and rural areas for a five year migration period, 1995-2000. Ideally, we would like to construct a population accounts table of urban and rural change for every year. But we would need a much more information on migration to do that. So instead, we design the population accounts table around the migration data that are available, those for the period of 1995-2000 that derive from the migration "question" in the 2000 Census of Malaysia, "where were you living 5 years ago?" Figure 5.1 is the first step to show what data or information are needed in each cell. Data for the table are either taken from the census or from vital statistics records or are estimated, using assumptions from partial data if they are not available. Letters are also used in the cells for easy reference in later sections when we discuss the definition for each cell in the table.

			Ending states				
			Survival in 2000			Non-survival in 2000	
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 1995-2000	Totals
Starting states	Existence in 1995	Rural Malaysia	S^{RR}_{5+} A	M^{RU}_{5+} H	M^{RO}_{5+} O	D^{R}_{5+} V	$P^{R}_{0+}(1995)$ AC
		Urban Malaysia	M^{UR}_{5+} B	S^{UU}_{5+} I	M^{UO}_{5+} P	D^{U}_{5+} W	$P^{U}_{0+}(1995)$ AD
		Outside Malaysia	M^{OR}_{5+} C	M^{OU}_{5+} J	Ø Q	D^{O}_{5+} X	M^{O}_{5+} AE
	Birth 1995-2000	Rural Malaysia	S^{RR}_{0-4} D	M^{RU}_{0-4} K	M^{RO}_{0-4} R	D^{R}_{0-4} Y	B^{R}_{0-4} AF
		Urban Malaysia	M^{UR}_{0-4} E	S^{UU}_{0-4} L	M^{UO}_{0-4} S	D^{U}_{0-4} Z	B^{U}_{0-4} AG
		Outside Malaysia	M^{OR}_{0-4} F	M^{OU}_{0-4} M	Ø T	D^{O}_{0-4} AA	B^{O}_{0-4} AH
		Total	$P^{R}_{0+}(2000)$ G	$P^{U}_{0+}(2000)$ N	M^{O}_{0+} U	D_{0+} AB	AI

Figure 5.1: Population accounts table for urban and rural areas

We use the following notation for the variables shown in Figure 5.1. Capital letters are used for population stocks or flows. Superscripts are used to indicate locations (urban, rural and outside world). Subscripts are used to indicate ages. Postscripts (brackets after a variable) indicate points in time. The stock variable is:

P = population

The flow variables are:

M = migrants

B = births

D = deaths

Ø = null entry, cell not used in the population account

While the following variable is a "derived" variable:

S = stayers

The superscripts are:

^{R} = rural

^{U} = urban

^{O} = outside world

The subscripts are:

$_{0+}$ = all ages, 0 to 75+

$_{5+}$ = ages 5 to 75+

$_{0-4}$ = ages 0, 1, 2, 3 and 4

In most of the table, the internal cells, the column totals and the row totals, except for the first two, age refers to age at end of the time interval, at the 2000 Census. The populations at the start of the table are for all ages, 0+.

The table divides into a top panel and a bottom panel. The top panel contains the population who are in existence at the start of the interval (1995) and who either survive to be aged 5+ at the end of the interval (2000) or who would have been aged 5+, had they not died.

The bottom panel contains the population who were born during the time interval 1995-2000 and who either survive aged 0-4 years in 2000 or who would have been aged 0-4 years, had they not died.

We now use this notation to build definitions of each of the variables. The definitions are assembled for ease of reference in Figure 5.2.

Cell	Variable	Definition	Cell	Variable	Definition
A	S_{5+}^{RR}	Stayers in rural areas aged five and above	R	M_{0-4}^{RO}	Emigrants from rural areas aged 0-4
B	M_{5+}^{UR}	Urban-to-rural migrants aged five and above	S	M_{0-4}^{UO}	Emigrants from urban areas aged 0-4
C	M_{5+}^{OR}	Immigrants to rural areas aged five and above	T	$\emptyset$	ø
D	S_{0-4}^{RR}	Stayers in rural areas aged 0-4	U	M_{0+}^{O}	Total emigrants from Malaysia
E	M_{0-4}^{UR}	Urban-to-rural migrants aged 0-4	V	D_{5+}^{R}	Population died in rural areas aged five and above
F	M_{0-4}^{OR}	Immigrants to rural areas aged 0-4	W	D_{5+}^{U}	Population died in urban areas aged five and above
G	$P_{0+}^{R}(2000)$	Total population in rural areas in 2000 (mid-year)	X	D_{5+}^{O}	Population died outside Malaysia aged five and above
H	M_{5+}^{RU}	Rural-to-urban migrants aged five and above	Y	D_{0-4}^{R}	Population died in rural areas aged 0-4
I	S_{5+}^{UU}	Stayers in urban areas aged five and above	Z	D_{0-4}^{U}	Population died in urban areas aged 0-4
J	M_{5+}^{OU}	Immigrants to urban areas aged five and above	AA	D_{0-4}^{O}	Population died outside Malaysia aged 0-4
K	M_{0-4}^{RU}	Rural-to-urban migrants aged 0-4	AB	D_{0+}	Total deaths in Malaysia, 1995-2000
L	S_{0-4}^{UU}	Stayers in urban areas aged 0-4	AC	$P_{0+}^{R}(1995)$	Population in rural areas in 1995
M	M_{0-4}^{OU}	Immigrants to urban areas aged 0-4	AD	$P_{0+}^{U}(1995)$	Population in urban areas in 1995
N	$P_{0+}^{U}(2000)$	Total population in urban areas in 2000 (mid-year)	AE	M_{5+}^{O}	Total immigrants into Malaysia
O	M_{5+}^{RO}	Emigrants from rural areas aged five and above	AF	B_{0-4}^{R}	Births in rural areas aged 0-4
P	M_{5+}^{UO}	Emigrants from urban areas aged five and above	AG	B_{0-4}^{U}	Births in urban areas aged 0-4
Q	$\emptyset$	ø	AH	B_{0-4}^{O}	Births of immigrants aged 0-4

Figure 5.2: Definitions for the variables in the population accounts

5.2.3 Problems with data for constructing the population accounts table

The general problem with the population accounts table is lack of detailed information on the urban and rural flows in the migration and population report of the 2000 census. Specific problems include:

- Age-specific data on the internal migration flows, especially between urban and rural areas, are not available. The age group migration data are only available for state-to-state migration flows.
- Births and deaths for urban and rural areas in Malaysia. In the vital statistics report, only births and deaths for urban and rural areas in the Peninsular Malaysia are available, while the states in East Malaysia do not have such information.
- Data on emigration are not available.
- Data in some cells of the table need to be calculated (added up) from different tables of the statistics reports. For example, to estimate births and deaths for the 1995-2000 five year period, annual data must be summed. However, some data are not available for some years and cannot be added up to get an accurate number.

As mentioned earlier, where data are not available, estimates have to be made. This will reduce the accuracy of the population accounts. However, this needs to be done because data for some variables are simply unavailable.

5.2.4 Constructing the population accounts

There are many ways to construct population accounts, simple and complex tables. The choice of table to use would depend on data availability. For Malaysian rural-urban population accounts, the state-to-state migration matrix (that has rural and urban migration flows) will be used to input data for urban and rural flows. This matrix contained in the migration and population distribution report (Department of Statistics, 2004a). It contains the necessary flow data between urban and rural areas within Malaysia for the census periods used in this analysis. Other data needed for the table are births and deaths in the Vital Statistics for Malaysia 2003 (Department of Statistics, 2003) and vital statistics time series 1963-1998 (Department of

Statistics, 2004c). The count report for urban and rural areas (Department of Statistics, 2001b) will also be used to obtain data for population residing in urban and rural areas (for stayers). These reports are produced by the Department of Statistics Malaysia. Where data are not available, information has to be found from other sources or estimates have to be made using a model with simple assumptions.

Let me first construct a table of population accounts with variables that need to be filled in. Figure 5.3 is the initial table for constructing the population accounts for urban and rural Malaysia for 1995-2000. This is the same table in Figure 5.1 with the numbers but without the variables for ease of reference to the cells. The cells A-AI need to be filled in with estimates of the population flows between urban and rural areas within Malaysia and from outside Malaysia during the time period. We start with the descriptions of the cells and variables of the population accounts.

			Ending states				
			Survival in 2000			Non-survival in 2000	
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 1995-2000	Totals
Starting states	Existence in 1995	Rural Malaysia	A	H	O	V	AC
		Urban Malaysia	B	I	P	W	AD
		Outside Malaysia	C	J	Q	X	AE
	Birth 1995-2000	Rural Malaysia	D	K	R	Y	AF
		Urban Malaysia	E	L	S	Z	AG
		Outside Malaysia	F	M	T	AA	AH
		Total	G	N	U	AB	AI

Figure 5.3: The structure of a population accounts table for urban and rural population, 1995-2000

Before we start, let us divide the main table into four quadrants for easy reference. These are shown in Figure 5.4, with quadrants 1 to 4. We name these quadrants as Quadrant 1: (Exist-Survive), Quadrant 2: (Born-Survive), Quadrant 3: (Exist-Die) and Quadrant 4: (Born-Die). The cells for these quadrants are briefly described in the subsequent figures.

	Ending states						
Starting states			**Survival in 2000**			**Non-survival in 2000**	
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 1995-2000	Totals
	Existence in 1995	Rural Malaysia Urban Malaysia Outside Malaysia	**Quadrant 1 (Exist-Survive)**			**Quadrant 3 (Exist-Die)**	AC AD AE
	Birth 1995-2000	Rural Malaysia Urban Malaysia Outside Malaysia	**Quadrant 2 (Born-Survive)**			**Quadrant 4 (Born-Die)**	AF AG AH
		Total	G	N	U	AB	AI

Figure 5.4: Sections in the population accounts table

The age notations, 0+, 5+, 0-4 etc. refer to those born before and during the interval 1995-2000. The population, who were born before 1995, would have been aged 5+ in 1995. Those who were born between 1995 and 2000 would be aged 0-4 years. Thus, those who were born before and still survive in 2000 would be aged 0+. These can be explained using an age-time diagram or "Lexis" diagram, shown in Figure 5.5.

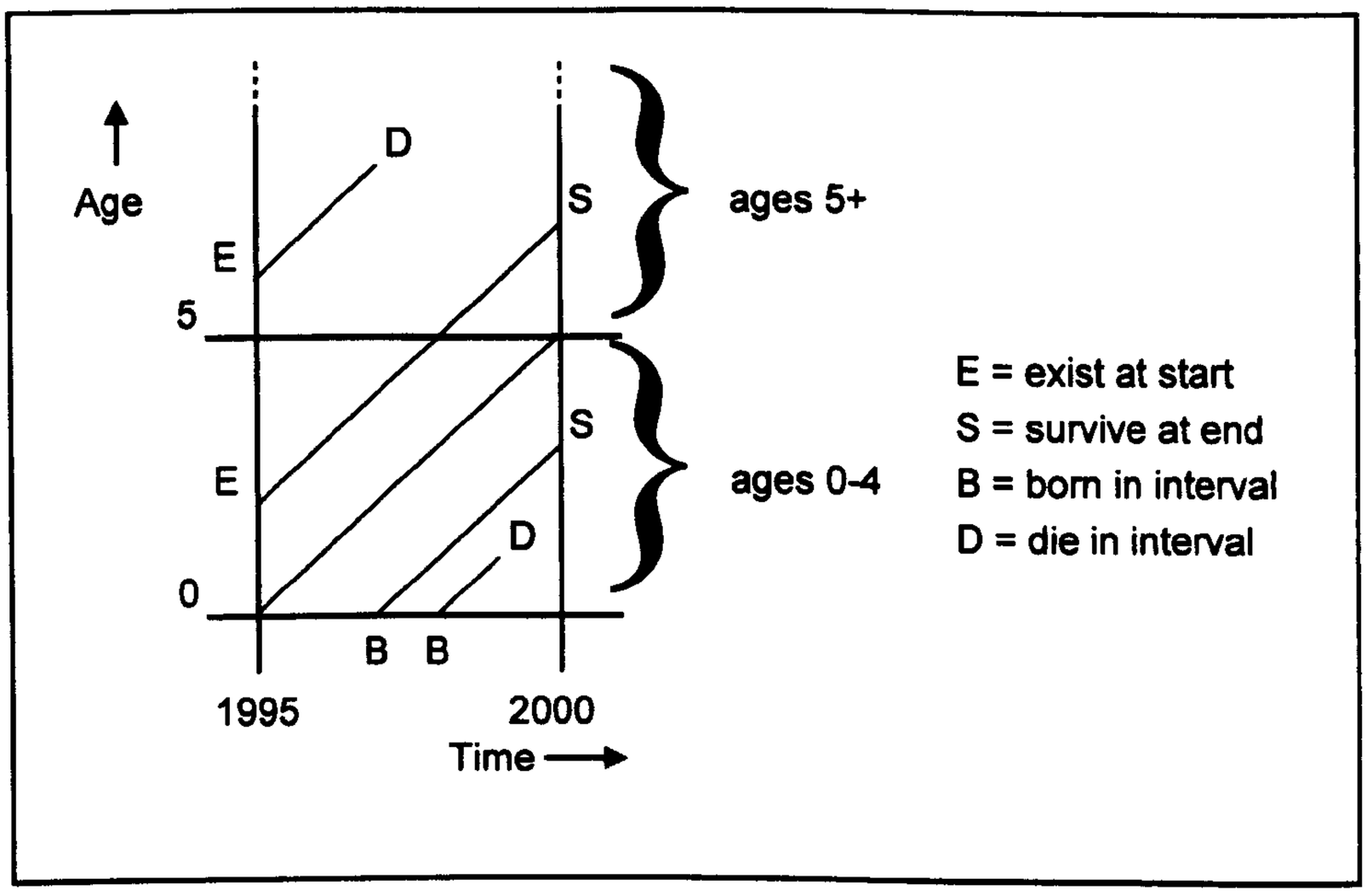


Figure 5.5: The population accounts represented schematically in an age-time diagram

In this diagram, for the first two five year age groups, the age notations are represented by the lines ES, BS, ED and BD. Line ES represents the populations

who were born before 1995 and still survived in 2000. They would be aged above five years in 2000 and would be in quadrant 1 – exist-survive.

Line BS represents the populations who were born during the interval 1995-2000 and still survived in 2000. They would be aged 0-4 years in 2000 and included in quadrant 2 – born-survive. An example would be those who were born 1997 (after mid-year) who would be aged 2 in 2000.

Line ED represents the population who were born before 1995 and died during the interval 1995-2000. They were in quadrant 3 – exist-die, and would have been aged 5+ in 2000 had they survived.

Finally, line BD represents the population who were born and died during the interval 1995-2000. They would be in quadrant 4 – born-die and would have been aged 0-4 years had they survived.

Quadrant 1: Exist-Survive

Figure 5.6 shows quadrant 1 of the population accounts table with a brief description and a variable for each cell. This quadrant involves the population in urban and rural areas, plus those moving outside Malaysia, from 1995 to 2000.

Cell	Descriptions	Variable
A	Survivors, aged 5+ in 2000, living in rural areas in 1995 and in 2000	S_{5+}^{RR}
B	Migrants, aged 5+, living in urban areas in 1995 and rural areas in 2000	M_{5+}^{UR}
C	Immigrants, aged 5+, living outside Malaysia in 1995 and in rural areas in 2000	S_{0-4}^{RR}
H	Migrants, aged 5+ in 2000, living in rural areas in 1995 and in urban areas in 2000	M_{5+}^{RU}
I	Survivors, aged 5+, living in urban areas in 1995 and in 2000	S_{5+}^{UU}
J	Immigrants, aged 5+, living outside Malaysia in 1995 and in urban areas in 2000	M_{5+}^{OU}
O	Emigrants, aged 5+ living in rural areas in 1995 and outside Malaysia in 2000	M_{5+}^{RO}
P	Emigrants, aged 5+ living in urban areas in 1995 and outside Malaysia in 2000	M_{5+}^{UO}
Q	Ø	Ø

Figure 5.6: Description of cells in quadrant 1 of the population accounts table

Cell A represents the survivors aged 5 and above who were living in rural areas in 1995 and 2000. These are the non-migrants (stayers) and the rural-to-rural migrants. Thus, the figure is the sum of all rural-to-rural migrants in the state-to-state 2000 Census table and the rural-to-rural non-movers in the 1995-2000 periods. Since we do not have non-migrants in the census table, we have to calculate the figure by taking total rural population and subtract total migrants to rural areas (both from rural and urban areas). We also have to subtract the rural population aged 0-4 years.

Cell B contains the migrants aged 5 and above who lived in urban areas in 1995 and moved to rural areas in 2000. In other words, the cell contains the urban-to-rural migrants. This figure is available in the Department of Statistics migration report (Department of Statistics, 2004a), but we need to subtract the urban-to-rural migrants aged 0-4 years.

Cell C contains the immigrants aged 5 and above who lived outside Malaysia in 1995 and immigrated to rural areas in 2000. This figure is also available in the Census report (Department of Statistics, 2004a), but we need to subtract the immigrants to rural areas aged 0-4 years.

Cell H contains the migrants aged 5 and above who lived in rural areas in 1995 and moved to urban areas in 2000. This figure is also available in the Census report (Department of Statistics, 2004a), but we need to subtract the rural-to-urban migrants aged 0-4 years.

Cell I contains the survivors aged 5 and above who were living urban areas in 1995 and in 2000. These are the non-migrants (stayers) and the urban-to-urban migrants. Thus, the figure is the sum of all urban-to-urban migrants in the state-to-state 2000 Census table and the urban-to-urban non-movers in the 1995-2000 periods. Since we do not have non-migrants in the census table, we have to calculate the figure by taking total urban population and subtract total migrants to urban areas. We also have to subtract the urban population aged 0-4 years.

Cell J contains the immigrants aged 5 and above who lived outside Malaysia in 1995 and immigrated to urban areas in 2000. This figure is also available in the Census report (Department of Statistics, 2004a), but we need to subtract the immigrants to urban areas aged 0-4 years.

Cell O contains the population aged 5 and above who lived in rural areas in 1995 but had moved out of the country in 2000, whilst cell P contains the population aged 5 and above who lived in urban areas in 1995 but had moved out of the country in 2000. There are no data available for these two cells, thus, they need to be estimated. This will be discussed later in section 5.3 when we filled in the cells in the population accounts.

Cell Q contains no value because it does not involve the population in Malaysia.

Quadrant 2: Born-Survive

Figure 5.7 shows quadrant 2 of the population accounts table which represents the populations born between 1995 and 2000, and their movements between the urban and rural areas.

Cell	Descriptions	Variable
D	Survivors, aged 0-4 in 2000, born in rural areas in 1995-2000 and living in rural areas in 2000	S_{0-4}^{RR}
E	Migrants, aged 0-4, born in urban areas in 1995-2000 and living in rural areas in 2000	M_{0-4}^{UR}
F	Immigrants, aged 0-4, born outside Malaysia in 1995-2000 and living in rural areas in 2000	M_{0-4}^{OR}
K	Migrants, aged 0-4, born in rural areas in 1995-2000 and living in urban areas in 2000	M_{0-4}^{RU}
L	Survivors, aged 0-4 in 2000, born in urban areas in 1995-2000 and living in urban areas in 2000	S_{0-4}^{UU}
M	Immigrants, aged 0-4, born outside Malaysia in 1995-2000 and living in urban areas in 2000	M_{0-4}^{OU}
R	Emigrants, aged 0-4 born in rural areas in 1995-2000 and living outside Malaysia in 2000	M_{0-4}^{RO}
S	Emigrants, aged 0-4 born in urban areas in 1995-2000 and living outside Malaysia in 2000	M_{0-4}^{UO}
T	Ø	Ø

Figure 5.7: Description of cells in quadrant 2 of the population accounts table

Cell D contains the population aged 0-4 years that were born in rural areas in 1995-2000 and still living in rural areas in 2000 plus the rural-to-rural migrants aged 0-4 years. The Census report did not have full information on infant migrants to urban and rural areas, thus, this figure need to be estimated. The Department of Statistics reports (Department of Statistics, 2003; Department of Statistics, 2004c), however, provided information on populations born in Malaysia between 1995 and 2000. The former report (Department of Statistics, 2003) also provided information on the births in urban and rural areas, but only for Peninsular Malaysia in 1999 and 2000. Therefore the proportions of stayers and migrants in rural areas need to be estimated.

Total births between 1995 and 2000 can be calculated from the Vital Statistics report (Department of Statistics, 2003; Department of Statistics, 2004c). There were six years of births from 1995 to 2000, but we only need five years. Numbers of births were about the same each months of the year and since Census was taken in July 2000 (about middle of the year), we take half of the population, which were the second half of 1995 and first half of 2000. For 1995, total for the year is divided by 2 because monthly births are assumed to be about the same each month (based on monthly births in 1999 and 2000). For 2000, monthly births are available from vital statistics report (Department of Statistics, 2003), thus, total for the first six months

can be added up. From the births in urban and rural areas for the Peninsular Malaysia in 1999 and 2000, we can estimate the births for urban and rural areas in Malaysia.

Cell E contains the migrants aged 0-4 years who were born in urban areas in 1995-2000 and living in rural areas in 2000. They were the infant urban-to-rural migrants. As with cell D, this figure also needs to be estimated from the total urban-to-rural migrants.

Cell F contains the immigrants aged 0-4 years who were born outside Malaysia in 1995 and living in rural areas in 2000. The figure is calculated form total immigrants to rural areas minus the estimated immigrants over 5 years old who moved to rural areas.

Cell K contains the migrants aged 0-4 years who were born in rural areas in 1995-2000 and living in urban areas in 2000 or the infant rural-to-urban migrants. The figure needs to be estimated from the total rural-to-urban migrants.

Cell L contains the survivors aged 0-4 years who were born in urban areas in 1995-2000 and still living in urban areas and the urban-to-urban migrants aged 0-4 years. This figure needs to be estimated from the total rural population and the total urban-to-urban migrants.

Cell M contains the immigrants aged 0-4 who were born outside Malaysia in 1995-2000 and living in urban areas in 2000. This figure also needs to be estimated from the total immigrants to urban areas and the proportions of immigrants aged 0-4 years in urban areas.

Cell R contains the emigrants aged 0-4 years who were born in rural areas in 1995-2000 and living outside Malaysia in 2000. There is no data available for emigrants in the census reports so this figure needs to be estimated.

Cell S contains the emigrants aged 0-4 years who were born in urban areas in 1995-2000 and living outside Malaysia in 2000. This figure also needs to be estimated since no data are available for the emigrants.

Cell T contains the population aged 0-4 years that were born outside Malaysia in 1995-2000 and living outside Malaysia in 2000. There is no figure for this cell because it does not involve population change in Malaysia.

Quadrant 3: Exist-Die

Figure 5.8 shows quadrant 3 of the population accounts table which represents the non-survivors aged 5 years and above in urban and rural areas in Malaysia and non-survivors aged 5 years and above outside Malaysia between 1995 and 2000.

Cell	Descriptions	Variable
V	Non-survivors (who would have been aged 5+ in 2000), living in rural areas in 1995 who died during the interval 1995-2000	D_{5+}^{R}
W	Non-survivors (who would have been aged 5+ in 2000), living in urban areas in 1995 who died during the interval 1995-2000	D_{5+}^{U}
X	Non-survivors (who would have been aged 5+ in 2000), living outside Malaysia in 1995 who immigrated then died during the interval 1995-2000	D_{5+}^{O}

Figure 5.8: Description of cells in quadrant 3 of the population accounts table

Cell V contains the non-survivors who would have been aged 5 years and above in 2000 who are living in rural areas in 1995 but died during the interval 1995-2000.

Cell W contains the non-survivors who would have been aged 5 years and above in 2000 who are living in urban areas in 1995 but died during the interval 1995-2000. Data on death for rural and urban areas in Malaysia are not available, so we need to estimate the proportion of urban and rural deaths. In the Vital Statistics report (Department of Statistics, 2003), only deaths for urban and rural areas in Peninsular Malaysia for 1999 and 2000 are available and deaths for Malaysia are reported every month. For the previous years, deaths are reported every year from 1995 to 1998 (Department of Statistics, 2004c).

There were six years of deaths from 1995 to 2000, but we only need five years. Numbers of deaths were about the same each months of the year and since Census was taken in July 2000 (about middle of the year), we take half of the population, which were the second half of 1995 and first half of 2000. For 1995, total for the year is divided by 2 because monthly deaths are assumed to be about the same each month (based on monthly deaths in 1999 and 2000). For 2000, monthly deaths are available from vital statistics report (Department of Statistics, 2003), thus, total for the first six months can be added up. From the deaths in urban and rural areas for the Peninsular Malaysia in 1999 and 2000, we can estimate the deaths for urban and rural areas in Malaysia.

Cell X contains the non-survivors who would have been aged five years and above in 2000 who were living outside Malaysia in 1995 that immigrated and then died in the interval 1995-2000. The data for immigrants' deaths are not available in the report, so the figure needs to be estimated.

Quadrant 4: Born-Die

Figure 5.9 shows quadrant 4 of the population accounts table which represents the non-survivors aged 0-4 years in urban and rural areas in Malaysia and non-survivors aged 0-4 years outside Malaysia between 1995 and 2000.

Cell	Descriptions	Variable
Y	Non-survivors (who would have been aged 0-4 in 2000), born in rural areas in 1995-2000 and who died during the interval 1995-2000	D^{R}_{0-4}
Z	Non-survivors (who would have been aged 0-4 in 2000), born in urban areas in 1995-2000 and who died during the interval 1995-2000	D^{U}_{0-4}
AA	Non-survivors (who would have been aged 0-4 in 2000), born outside Malaysia in 1995-2000 who immigrated then died during the interval 1995-2000	D^{O}_{0-4}

Figure 5.9: Description of cells in quadrant 4 of the population accounts table

Cell Y contains the non-survivors who would have been aged 0-4 years in 2000 who were born in rural areas in 1995-2000 and who died during the interval 1995-2000.

Cell Z contains the non-survivors who would have been aged 0-4 years in 2000 who were born in urban areas in 1995-2000 and who died during the interval 1995-2000. As with cells V and W, there are not data on deaths in urban and rural areas in Malaysia, so the figures need to be estimated using the same method.

Cell AA contains the non-survivors who would have been aged 0-4 in 2000, were born outside Malaysia in 1995-2000 and immigrated and then died during the interval 1995-2000. The data for immigrants' deaths are not available in the report, so the figure needs to be estimated.

Column and Row Totals

Figure 5.10 shows the totals for each column in the population accounts table. **Cell G** contains the total population in rural areas in mid year 2000, whilst cell N contains the total population in urban areas in mid year 2000. The figures in cells G and N contain the sum of each column, rural Malaysia and urban Malaysia respectively.

Cell	Descriptions	Variable
G	Total population, aged 0+, living in rural areas in 2000 (mid-year)	$P^{R}_{0+}(2000)$
N	Total population, aged 0+, living in urban areas in 2000 (mid-year)	$P^{U}_{0+}(2000)$
U	Total Emigrants from Malaysia, 1995-2000	M^{O}_{0+}
AB	Total deaths in Malaysia, 1995-2000	D_{0+}

Figure 5.10: Column totals for the population accounts table

Cell U contains the total emigrants from Malaysia in 1995-2000. Since numbers of emigrants from urban and rural areas (cells in the same column) are difficult to measure, the figure in this cell has to be estimated. Cell AB contains the total deaths in Malaysia in 1995-2000. This figure can be calculated from the yearly deaths available in the Vital Statistics report (Department of Statistics, 2003; Department of Statistics, 2004c).

Figure 5.11 shows the row totals for the population accounts table. **Cell AC** contains the total rural population in 1995, whilst **cell AD** contains the total urban population in the same year.

Cell	Descriptions	Variable
AC	Population, aged 0+, living in rural areas in 1995	$P_{0+}^{R}(1995)$
AD	Population, aged 0+, living in urban areas in 1995	$P_{0+}^{U}(1995)$
AE	Total immigrants, aged 5+, into Malaysia, 1995-2000	M_{5+}^{O}
AF	Births in rural areas in 1995-2000	B_{0-4}^{R}
AG	Births in urban areas in 1995-2000	B_{0-4}^{U}
AH	Births of infant migrants in 1995-2000 outside Malaysia	B_{0-4}^{O}
AI	Total	

Figure 5.11: Row totals for the population accounts table

Cell AE contains the total immigrants aged 5 years and above, coming into Malaysia in 1995-2000. This figure is the sum of immigrants moving to rural and urban areas (cell C + cell J).

Cell AF and **cell AG** contain the births in rural and urban areas respectively in 1995-2000 or the population aged 0-4 years in rural and urban areas. These figures can be estimated using total births in Malaysia in 1995-2000, as discussed previously, and multiply it with births rates for rural and urban areas.

Cell AH contains the infant migrants in 1995-2000 outside Malaysia or the immigrants aged 0-4 years. This is the sum of cells F and M, the infant immigrants in rural and urban areas respectively.

Finally, **cell AI** contains the total population for Malaysia in 2000, which is the total rural population and urban population (sum of cells G and N).

We will now use the information explained for each cell to estimate the population accounts for Malaysia in 1995-2000. We begin by filling in the cells with the

number of population and migrants which is either available in the statistics reports or is estimated using the available data. This is explained in the next section.

5.3 Estimation of the population accounts

In this section the cells in the population accounts table will be filled with figures which come from some reports or estimated from partial figures available. Figure 5.12 shows the estimation of the population accounts based on the estimation and assumptions which will be explained in the subsequent paragraphs.

			Ending states				
			Survival in 2000			Non-survival in 2000	
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 1995-2000	Totals
Starting states	Existence in 1995	Rural Malaysia	6816820 A	451572 H	61010 O	216752 V	7546154 AC
		Urban Malaysia	451202 B	11065430 I	65921 P	243205 W	11825757 AD
		Outside Malaysia	177636 C	274732 J	0 Q	7546 X	459914 AE
	Birth 1995-2000	Rural Malaysia	947891 D	56943 K	6807 R	12143 Y	1023784 AF
		Urban Malaysia	56012 E	1813139 L	12663 S	11158 Z	1892971 AG
		Outside Malaysia	33818 F	53082 M	0 T	1034 AA	87934 AH
		Total	8483379 G	13714897 N	146401 U	491838 AB	22836515 AI

Figure 5.12: Population accounts for Malaysia, 1995-2000

Quadrant 1: Exist-Survive

We start with **cell A** of the population accounts table, which contains the stayers in rural areas aged five and above. Since this figure is not available in the statistics report, we need to estimate it. It consists of the rural non-migrant stayers and the rural-to-rural migrants. We derived this figure by taking the total rural population from all ages in 2000 from which were subtracted the urban-to-rural migrants, the immigrants-to-rural migrants, the unknown-to-rural migrants and the rural population aged 0-4. How we derived the rural population aged 0-4 will be explained later in this section (in quadrant 2). We then subtract the total rural population aged 0-4, add rural to rural migrants and unknown to rural migrants aged five and above. We calculate the figure for cell A:

Total rural population all ages (aged 0+)	8,483,379
(-) Urban to rural migrants	326,180

(-) Outside M to rural migrants	133,438
(-) Unknown to rural migrants	444,931
(-) Rural to rural migrants	334,893
(=) Rural surviving stayers (aged 0+)	7,243,937
(-) Total rural population (aged 0-4)	890,351
(=) Rural surviving stayers (aged 5+)	6,353,586
(+) Rural to rural migrants (aged 5+)	298,229
(+) Unknown to rural migrants (aged 5+)	165,006
(=) Total rural surviving stayers (aged 5+)	**6,816,820**

Cell B contains the urban-to-rural migrants aged five and above (in 2000). We derive this figure by subtracting the urban-to-rural migrants aged 0-4 from the total urban-to-rural migrants of all ages and then add the unknown to rural migrants aged five and above. The total urban-to-rural migrants is available from the statistics report (Department of Statistics, 2004a), whilst the urban-to-rural migrants aged 0-4 and the unknown to rural migrants aged five and above are estimates. We will show how we derive these figures later in this section. The figure for cell B is:

Urban to rural migrants (total)	326,180
(-) Urban to rural migrants (aged 0-4)	35,691
(=) Urban to rural migrants (aged 5+)	290,489
(+) Unknown to rural migrants (aged 5+)	160,713
(=) Total urban to rural migrants (aged 5+)	**451,202**

Cell C contains the immigrants to rural areas aged five and above (in 2000). To derive this figure we subtract the immigrants to rural areas aged 0-4 from the total immigrants to rural areas of all ages and add the unknown immigrants to rural areas aged five and above. The figure for total immigrants to rural areas of all ages is available from the statistics report (Department of Statistics, 2004a), whilst the figure for immigrants to rural areas aged 0-4 is estimated. We will show how we derive the estimated figure later in this section.

Immigrants to rural (aged 0+)	133,438
(-) Immigrants to rural (age 0-4)	21,549
(+) Unknown immigrants to rural (age 5+)	65,747
(=) Total immigrants to rural (age 5+)	**177,636**

Cell H which contains the rural-to-urban migrants aged five and above (in 2000) is derived the same way with the figure for cell B. The rural-to-urban migrants aged 0-4 is subtracted from total rural-to-urban migrants of all ages and adds the unknown to urban migrants aged five and above. The total figure is available from the same statistics report; whilst the migrants aged 0-4 is an estimated figure.

Rural to urban migrants (total)	314,479
(-) Rural to urban migrants (aged 0-4)	34,393
(+) Unknown to urban migrants (aged 5+)	171,486
(=) Rural to urban migrants (aged 5+)	**451,572**

Cell I contains the stayers in urban areas aged five and above (in 2000). It consists of the non-migrants stayers and the urban-to-urban migrants. We derived this figure by taking the total urban population from all ages in 2000; subtract the rural-to-urban migrants, the immigrants-to-urban migrants, the unknown-to-urban migrants and the urban to urban migrants. Then we subtract to total urban population aged 0-4 and add the urban to urban and unknown to urban migrants aged five and above. All the figures are available from the statistics department (Department of Statistics, 2004a) except for the estimated urban population aged 0-4 which will be shown later in this section.

Total urban population all ages (aged 0+)	13,714,897
(-) Rural to urban migrants	314,479
(-) Outside M to urban migrants	198,533
(-) Unknown to urban migrants	1,550,493
(-) Urban to urban migrants	1,988,683
(=) Urban surviving stayers (aged 0+)	9,662,709
(-) Total urban population (aged 0-4)	1,452,678
(=) Urban surviving stayers (aged 5+)	8,210,031
(+) Urban to urban migrants (aged 5+)	1,770,969
(+) Unknown to urban migrants (aged 5+)	1,084,430
(=) Total urban surviving stayers (aged 5+)	**11,065,430**

Cell J contains the immigrants to urban areas aged five and above (in 2000). To derive this figure we subtract the immigrants to urban areas aged 0-4 from the total immigrants to urban areas of all ages and add the unknown immigrants to urban areas aged five and above. The figure for total immigrants to urban areas of all ages is available from the statistics report (Department of Statistics, 2004a), whilst the

figure for immigrants to urban areas aged 0-4 is estimated. The estimated figure will be shown later in this section.

Total immigrants to urban (aged 0+)	198,533
(-) Immigrants to urban (aged 0-4)	32,061
(+) Unknown immigrants to urban (age 5+)	108,260
(=) Immigrants to urban (aged 5+)	**274,732**

Cell O contains the emigrants from rural areas aged five and above (in 2000). Since no data are available for emigrants this figure needs to be estimated. However, at this time there are no other figures to base the estimation on; thus, we need to fill in other cells before we can estimate the figure contained in this cell. We will have to estimate the total emigrants aged five and above from rural areas in 2000 and divide this from the population in rural areas (cells A and H) to get the proportion of emigrants of the total Malaysian population of the same age then, multiply it with the total emigrants from rural areas, i.e. emigrants from rural × [(A + H)/emigrants from rural]. The same is true for **cell P**, the emigrants from rural areas aged five and above.

Cell Q contains no figure because it is not related to the Malaysian population during the period.

Quadrant 2: Born-Survive

The born-survive quadrant is the population who were born in 1995-2000 and either stayed or migrated to other areas in 2000. In order to estimate the figures for the cells in this quadrant we need to know the population aged 0-4. The Vital Statistics reports (Department of Statistics, 2003; Department of Statistics, 2004c) produced the tables for births between 1995 and 2000. Therefore, to calculate the populations aged 0-4 years, we need to know those who were born between 1995 and 2000. However, since there are six years of birth between 1995 and 2000, we need to calculate the births only for five years. Census of population was taken in July 2000, which is about the middle of the year; hence, we take half of the population for the beginning and the end year. That means we take the second half of 1995 and the first half of 2000. For 1995, we know the total for the year from the vital

statistics report (Department of Statistics, 2004c), so the total for the year is divided by two. The report does not provide monthly births for this year. It is assumed that monthly births are about the same each month, based on the observations in 1999 and 2000 where births are reported for each month (Department of Statistics, 2003). For 2000, total for the first six months are added up. Thus, we get the total births for five years; hence, total population aged 0-4 in 2000.

Births 1995 (second half)	269,648
Births 1996	544,302
Births 1997	540,486
Births 1998	524,696
Births 1999	521,870
Births 2000 (Jan - June)	266,490
Total births (5 year period)	**2,667,492**

The first cell in this quadrant is **cell D**, the rural stayers and rural-to-rural migrants aged 0-4 years in 2000. Since we do not have the information on rural population aged 0-4 for the whole country, we need to estimate this figure. We use some information that we have to make the assumptions. From the vital statistics report (Department of Statistics, 2003), we know the births in rural and urban areas for Peninsular Malaysia in 1999 and 2000. Since no other information available for the rural births, we assume the birth rate in rural areas for the country is the same. Thus, we take the rural births for Peninsular Malaysia 1999-2000 and the rural population in Peninsular Malaysia in 2000 to calculate the crude birth rate. Rowland (2003) defined the crude birth rate as:

Crude birth rate = (number of live births in a year/mid-year population) × 1000

We use the information that we have for Peninsular Malaysia;

1. births in rural areas in 1999-2000
2. births in urban areas in 1999-2000
3. population in rural areas in 2000
4. population in urban areas in 2000

We also know the rural and urban population for Malaysia in 2000 and total births in 1995-2000. We can also estimate the rural and urban population for Malaysia in 1995. Thus we can calculate, for example;

Crude birth rate for rural areas (1999-2000)

= {[(births in 1999 + births in 2000)/2]/population in 2000} x 1000

We use the crude birth rate for rural areas in Peninsular Malaysia as a basis to estimate total births for rural areas in 1995-2000.

$$B^{r}_{1995-2000} = CBR^{r}_{1995-2000} \times 5 \times (P^{r}_{1995} + P^{r}_{2000}) / 2 \qquad (5.1)$$

We then calculate the total births for urban areas during the same period and sum up the two to get the total births for Peninsular Malaysia. We also know the total births for Malaysia in 1995-2000, so we can calculate total births for rural areas in Malaysia by taking the proportion of rural population to total population aged 0-4 of Peninsular Malaysia and multiply the figure with total births for 1995-2000. From this calculation we get the total rural population for Malaysia aged 0-4 years. We then use this figure to calculate the figure for cell D.

Before we can fill in cell D we need to find some other figures. Let us first calculate the births for rural and urban areas in 1995-2000. We begin with the births for rural and urban areas in 1999 and 2000 because these are available in the vital statistics report (Department of Statistics, 2003). We do not have the births for rural and urban areas for the whole country, so we use the data for Peninsular Malaysia as a basis for estimation.

Births in rural areas 1999-2000 (Peninsular Malaysia)	335,433
Births in urban areas 1999-2000 (Peninsular Malaysia)	517,429
Population in rural areas, 2000 (Peninsular Malaysia)	6,144,767
Population in urban areas, 2000 (Peninsular Malaysia)	11,525,325

We also have the rural and urban population in 2000 (Department of Statistics, 2004a) and the estimated rural and urban population in 1995.

Population in rural areas, 2000	8,483,379
Population in rural areas, 1995	7,546,154
Population in urban areas, 2000	13,714,897
Population in urban areas, 1995	11,825,757

We then calculate crude birth rate for urban and rural areas, and then estimate the birth for rural and urban areas.

Crude birth rate for rural areas in 1999-2000 (per 1000)	27.3
Crude birth rate for urban areas in 1999-2000 (per 1000)	22.4

Births in rural, 1995-2000, $B^r_{1995\text{-}2000}$	1,093,783
Births in urban, 1995-2000, $B^u_{1995\text{-}2000}$	1,433,308
Total births 1995-2000	2,527,091

But we know the total births for 1995-2000 from our previous calculations based on figures in the vital statistics reports, thus, we calculate total births for rural and urban areas using the proportions of the above urban and rural births.

Total births (from vital statistics)	2,667,492
$B^r_{1995\text{-}2000}$	**1,154,552**
$B^u_{1995\text{-}2000}$	**1,512,940**

We now have the total births for rural and urban areas for 1995-2000. However, we need to find out how many are the migrants and how many are non-migrants. For the migrants, we need to know what their origins-destinations are. From the population and migration figures in quadrant 1, we know the proportions of rural and urban population and migrants in Malaysia. We use these to estimate the proportion of rural and urban populations and migrants aged 0-4 years.

Migrants age 0-4	324,462
Non-migrants age 0-4	2,343,030

We can also estimate the proportion of non-migrant rural and urban population and migration aged 0-4 between rural and urban areas.

Urban-urban migration	67.1%	217,714
Urban-rural migration	11.0%	35,691
Rural-urban migration	10.6%	34,393
Rural-rural migration	11.3%	36,664
Rural population/ stayers	38.0%	890,351
Urban population/ stayers	62.0%	1,452,678

Based on the above information we can calculate the figures for cells D, E, K and L. These are summarized below:

Cell D - rural stayers plus rural-to-rural migrants	**927,015**
Cell E - urban-to-rural migrants	**35,691**
Cell K - rural-to-urban migrants	**34,393**
Cell L - urban stayers plus urban-to-urban migrants	**1,670,392**

Next we calculate **cell F** and **cell M**, the immigrants to rural areas and the immigrants to urban areas aged 0-4 years respectively. Let us use the information that we already have, which is the immigrants to rural areas, the immigrants to urban areas, the total immigrants of all ages and total immigrants aged 0-4 years. These are all available from the census report (Department of Statistics, 2004a). To calculate the figure for cell F, the immigrants to rural areas aged 0-4 years, we divide the immigrants to rural areas with the total immigrants of all ages and then multiply the result with the total number of immigrants aged 0-4 years. To calculate the figure for cell M, the immigrants to urban areas aged 0-4 years; we divide the immigrants to urban areas with the total immigrants of all ages and then multiply the result with the total number of immigrants aged 0-4 years. The figures are shown below:

Immigrants aged 0-4 in 1995-2000	53,610
Immigrants to rural	133,438
Immigrants to urban	198,533
Total immigrants	331,971
Immigrants to rural aged 0-4	**21,549**
Immigrants to urban aged 0-4	**32,061**

Cell R contains the emigrants from rural areas aged 0-4 years (in 2000). Since no data are available for emigrants this figure needs to be estimated. However, at this time there are no other figures to base the estimation on; thus, we need to fill in other cells before we can estimate the figure contained in this cell. We will have to estimate the total emigrants aged 0-4 years from rural areas in 2000 and divide this from the population in rural areas (cells D and K) to get the proportion of emigrants of the total Malaysian population of the same age then, multiply it with the total emigrants from rural areas, i.e. emigrants from rural × [(D + K)/emigrants from rural]. The same is true for **cell S**, the emigrants from rural areas aged five and above.

Cell T contains no figure because it is not related to the Malaysian population during the period.

Quadrant 3: Exist-Die

We start this quadrant with **cell V**, the non-survivors who would have been aged five years and above in 2000, living in rural areas in 1995 who died during the interval 1995-2000. To estimate the figure for this cell we need to know the number of deaths within the five year period between 1995 and 2000. As with the data for births in Malaysia, we can get the information on deaths in the Vital Statistics reports (Department of Statistics, 2003; Department of Statistics, 2004c). The reports produced the yearly tables for deaths between 1995 and 1998 and monthly tables for deaths in 1999 and 2000. However, since there are six years of deaths between 1995 and 2000, we need to calculate the deaths only for five years. Census of population was taken in July 2000, which is about the middle of the year; hence, we take half of the deaths for the beginning and the end year. That means we take the second half of 1995 and the first half of 2000. For 1995, we know the total for the year from the vital statistics report (Department of Statistics, 2004c), so the total for the year is divided by two. The report does not provide monthly deaths for this year. It is assumed that monthly deaths are about the same each month, based on the observations in 1999 and 2000 where deaths are reported for each month (Department of Statistics, 2003). For 2000, total for the first six months are added up and by summing the totals we get the total deaths for five years.

Deaths 1995 (second half)	47,552
Deaths 1996	95,982
Deaths 1997	97,432
Deaths 1998	98,219
Deaths 1999	99,229
Deaths 2000 (Jan - June)	53,424
Total Deaths (5 year period)	**491,838**

As with the calculations for births, before we can fill in cell V for deaths, we need to find some other figures. First we have to calculate the deaths for rural and urban areas in 1995-2000. We begin with the deaths for rural and urban areas in 1999 and 2000 because these are available in the vital statistics report (Department of

Statistics, 2003). We do not have the deaths for rural and urban areas for the whole country, so we use the data for Peninsular Malaysia to estimate the deaths for urban and rural areas in Malaysia.

Deaths in rural areas 1999-2000 (Peninsular Malaysia)	75,428
Deaths in urban areas 1999-2000 (Peninsular Malaysia)	98,670
Population in rural areas, 2000 (Peninsular Malaysia)	6,144,767
Population in urban areas, 2000 (Peninsular Malaysia)	11,525,325

We also have the rural and urban population in 2000 (Department of Statistics, 2004a) and the estimated rural and urban population in 1995.

Population in rural areas, 2000	8,483,379
Population in rural areas, 1995	7,546,154
Population in urban areas, 2000	13,714,897
Population in urban areas, 1995	11,825,757

We then calculate crude deaths rate for urban and rural areas (based on Peninsular Malaysia), and then estimate the deaths for rural and urban areas.

Crude death rate for rural in 1999-2000 (per 1000)	6.1
Crude death rate for urban in 1999-2000 (per 1000)	4.3

Deaths in rural, 1995-2000, $D^{r}_{1995\text{-}2000}$	245,956
Deaths in urban, 1995-2000, $D^{u}_{1995\text{-}2000}$	273,322
Total deaths 1995-2000	519,278

But we know the total deaths for 1995-2000 from our previous calculations based on the figures in the vital statistics reports, thus, we calculate total deaths for rural and urban areas using the proportions of the above urban and rural deaths.

Total deaths (from vital statistics)	491,838
Total deaths minus immigrant deaths	483,258
Deaths in rural, 1995-2000, $D^{r}_{1995\text{-}2000}$	228,895
Deaths in urban, 1995-2000, $D^{u}_{1995\text{-}2000}$	254,363

We now have the total deaths for rural and urban areas in Malaysia between 1995 and 2000. For **cell V and cell W**, however, we need to know the deaths for the population five years and above. Thus, we need to know the deaths for the

population aged 0-4 years. We can calculate the deaths of the later using the same method. We can then subtract the deaths of the population aged 0-4 years to derive the figures for cell V and cell W.

Deaths in rural areas 1999-2000 (Peninsular Malaysia)	3,724
Deaths in urban areas 1999-2000 (Peninsular Malaysia)	4,028
Population in rural areas, 2000 (Peninsular Malaysia)	6,144,767
Population in urban areas, 2000 (Peninsular Malaysia)	11,525,325
Population in rural areas, 2000	8,483,379
Population in rural areas, 1995	7,546,154
Population in urban areas, 2000	13,714,897
Population in urban areas, 1995	11,825,757
Crude death rate for rural in 1999-2000 (per 1000)	0.3
Crude death rate for urban in 1999-2000 (per 1000)	0.2
Deaths in rural (aged 0-4), 1995-2000, $D^{r}_{1995\text{-}2000}$	**12,143**
Deaths in urban (aged 0-4), 1995-2000, $D^{u}_{1995\text{-}2000}$	**11,158**
Deaths in rural (aged 5+), 1995-2000, $D^{r}_{1995\text{-}2000}$	**216,752**
Deaths in urban (aged 5+), 1995-2000, $D^{u}_{1995\text{-}2000}$	**243,205**

Quadrant 4: Born-Die

This quadrant consists of the non-survivors who would have been aged 0-4, were born in either rural, urban areas or outside Malaysia in 1995-2000 and died during the interval 1995-2000. Figures for **cell Y** and **cell Z** have been estimated in quadrant 3 because we need these figures in order to estimate the populations in that quadrant.

Deaths in rural (aged 0-4), 1995-2000, $D^{r}_{1995\text{-}2000}$	**12,143**
Deaths in urban (aged 0-4), 1995-2000, $D^{u}_{1995\text{-}2000}$	**11,158**

5.4 Population change 1995-2000

From the population accounts table for 1995-2000 (see Figure 5.12), we can calculate the rural and urban population change within the period and then assess the contributions of different components of urban and rural population change towards the overall population change in Malaysia.

The rural population has increased from 7,546,000 in 1995 to 8,483,000 in 2000, an increase of 937,000. This means that the percentage growth is 12.4 percent, or an

annual percentage change of 2.4 percent. The percentage of natural increase in rural areas, on the other hand, is 10.5 percent. The urban population has increased from 11,826,000 in 1995 to 13,715,000 in 2000. This is an increase of 1,889,000 which is a 16.0 percent growth or an equivalent annual percentage change of 3.0 percent. The percentage of natural increase, however, is 13.9 percent.

From the above figures, it can be observed that both the urban and rural growth is relatively high. Urban growth, however, is greater than the rural growth. Both rural and urban growths came primarily from natural increase. The rural and urban natural increases are 10.5 percent and 13.9 percent respectively.

We can also calculate the immigrant's natural increase by taking the immigrants born during the five year period and subtract those who died during the same period.

$$87{,}934 - (7{,}546 + 1{,}034) = 79{,}354$$

We then divide it by the total immigrants and multiply those with 100 to get the percentage.

$$(79{,}354 \div 459{,}914) \times 100 = 17.3 \text{ percent}$$

Thus, the percentage of immigrant natural increase is 17.3 percent. The natural increase for Malaysia, on the other hand, is total births minus total deaths which equal 2,512,852 people or 13.0 percent.

The rural and urban population change was also the result of internal and external migration. Net internal migration is calculated by subtracting out-migration from in-migration and net external migration is calculated by subtracting emigration from immigration. Thus, for rural population:

In-migration = 451,202 + 56,012 = 507,214

Out-migration = 451,572 + 56,943 = 508,515

Net internal migration = -1,301, which gives -0.02 percent when calculated as the percentage of 1995 population.

Immigration = 177,636 + 33,818 = 211,454

Emigration = 61,010 + 6,807 = 67,817

Net external migration = 143,637, which gives 1.9 percent when calculated as the percentage of 1995 population.

For urban population:

In-migration = 451,572 + 56,943 = 508,515

Out-migration = 451,202 + 56,012 = 507,214

Net internal migration = 1,301, which gives 0.01 percent when calculated as the percentage of 1995 population.

Immigration = 274,732 + 53,082 = 327,814

Out-migration = 65,921 + 12,663 = 78,584

Net external migration = 249,231, which gives 2.1 percent when calculated as the percentage of 1995 population.

From the above, we can observe that there is a modest contribution of external migration to both rural and urban population growth. On the other hand, there is very little contribution from internal migration to both rural and urban population growth. However, this does not mean that external migration is a major contribution to urban growth. According to the Malaysian Department of Statistics, urban population was growing at an average annual growth rate of 4.8 percent (Economic Planning Unit, 2001a). This was due not only to rural-urban migration but also the creation/growth of new urban areas and the extension of existing administrative boundaries. Thus, it could give the answer to why internal migration has little contribution to urban population growth. The development of the new urban centres and changing of urban boundaries meant that the urban population was increasing even though the urban residents did not move.

Between 1995 and 2000, Malaysia had experienced a reduction in the annual number of births for the most of the period. In 1996, Malaysia's births increased about 5,000 births from the previous year but decreased at around 3,800 in 1997, 16,000 in 1998 and 2,800 in 1999 before increasing by 11,000 in 2000. Unfortunately there were no complete data on urban and rural births, so it is not

possible to make comparisons. However, the births in urban and rural areas had been estimated in the population accounts table because the figure is needed to complete the table. This is based on the urban and rural births in Peninsular Malaysia. Urban and rural births in East Malaysia are not available. The birth rate for the period was 25.1 per 1,000 populations.

The reason for these low annual births was the result of the declining fertility rate as Malaysia is progressing to a more developed nation. The median age of the population was 22.8 years in 1999 and 23.9 years in 2000, showing the country has a young population age structure. The declining fertility rate was also the result of more women pursuing further education and training (Economic Planning Unit, 2001a). In the Peninsular Malaysia states, the average mean age of mother at first live birth in 2000 was 26.9 years (Department of Statistics, 2003). Women were delaying having children to pursue their education and career before settling down to have families.

Malaysia had experienced some increase in the number of deaths during the same period. In 1996, it had increased about 800 deaths from the previous year, 1,450 in 1997, 790 in 1998, 1,010 in 1999 and 7,620 in 2000. The increase was small between 1995 and 1999 but increased in 2000. As in births, there was no data for deaths in rural and urban areas in Malaysia during this period, thus, no comparison could be made. The death rate for the period was 4.8 per 1,000 populations.

The increase in the number of deaths was probably the result of more people entering old age. Data available for 1999 and 2000 showed that the highest number of deaths were for the age groups 70-74 and above. The population above 65 years old was 3.5 percent in 1995 and 4.0 percent in 2000 (Economic Planning Unit, 2001a). In 2000 about 1.6 million people were at the age of 60 and above in Malaysia (Department of Statistics, 2003).

Although there was an increase in annual death and a decrease in annual births in Malaysia during most of the 1995-2000 period, the number of births are a lot higher

than the number of deaths, which explains the high natural increase for Malaysia's population.

Estimates can be made for crude birth rate for urban and rural areas in Malaysia based on the number of births in urban and rural Peninsular Malaysia for 1999 and 2000, which is available in the recent vital statistics report (Department of Statistics, 2003). Crude birth rate for urban areas was 22.4 per 1,000 populations whilst crude birth rate for rural areas was 27.3 per 1,000 populations. On the other hand, crude death rate for the urban areas was 4.3 per 1,000 populations, whilst crude death rate for rural areas was 6.1 per 1,000 populations.

5.5 Population change 2000-2025

Having estimated the population accounts table for Malaysia 1995-2000, we can use the information to make projection for the year 2005 and beyond. In this section we will make the projection in five year intervals until 2025. This is a simple projection using rates based on the population accounts table for 1995-2000, thus, might not be highly accurate. An attempt to make projection beyond 2025 may not produce an accurate result without changing the projection method. However, this projection is necessary to see how this population accounts method can be used as a tool to understand urban and rural population change using very limited data.

The method used to calculate future population is by using the transition rates, which measure the rate of how people make transitions from initial to final states (Rees and Convey, 1984). To show how the calculations are made for the projections using the transition rates, we reproduce the 1995-2000 population accounts as shown in Figure 5.13.

			Status in 2000				
			Survival in 2000			Non-survival in 2000	Totals
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 1995-2000	
Status in 1995	Existence in 1995	Rural Malaysia	6,816,820	451,572	61,010	216,752	7,546,154
		Urban Malaysia	451,202	11,065,430	65,921	243,205	11,825,757
		Outside Malaysia	177,636	274,732	-	7,546	459,914
	Born 1995-2000	Rural Malaysia	947,891	56,943	6,807	12,143	1,023,784
		Urban Malaysia	56,012	1,813,139	12,663	11,158	1,892,971
		Outside Malaysia	33,818	53,082	-	1,034	87,934
	Totals		8,483,379	13,714,897	146,401	491,838	22,836,515

Figure 5.13: Population accounts, 1995-2000

We first divide each element in the rows in all quadrants by its row total. Thus, the first row in the first column, we divide 6,816,820 by 7,546,154 to get the transition rate;

$$\frac{6,816,820}{7,546,154} = 0.9034$$

For the first row, second column we divide 451,572 by 7,546,154;

$$\frac{451,572}{7,546,154} = 0.0598$$

We do the same for other elements in the third and fourth column in the first row to get the respective transition rates. For example the first element in the first row (rural-to-rural) means that 90.3 percent of the rural population in 1995 survive there in 2000. The second element in the first row means that almost 6 percent of the rural population migrated to urban areas in 2000. The third element means that 0.8 percent of the rural population emigrated while the fourth element means that 2.9 percent died during the five year period. We continue to do the same for the second row by dividing each element in the row with its row total. For example, the second row in the first column;

$$\frac{451,202}{11,825,757} = 0.0382$$

Figure 5.14 shows the transition rates for the accounts.

			Status in 2000				
			Survival in 2000			Non-survival in 2000	Totals
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 1995-2000	
Status in 1995	Existence in 1995	Rural Malaysia	0.9034	0.0598	0.0081	0.0287	1.0000
		Urban Malaysia	0.0382	0.9357	0.0056	0.0206	1.0000
		Outside Malaysia	0.3862	0.5974	0.0000	0.0164	0.0237
	Born 1995-2000	Rural Malaysia	0.9259	0.0556	0.0066	0.0119	0.1357
		Urban Malaysia	0.0296	0.9578	0.0067	0.0059	0.1601
		Outside Malaysia	0.3846	0.6037	0.0000	0.0118	0.0045
	Totals		1.1242	1.1597	0.0270	0.0952	1.1788

Figure 5.14: Transition rates for population accounts, 1995-2000

The first and second rows for the total column are the sum of the rows. The third row is the element divided by the initial population (1995 population). An example for the third row in the first column;

$$\frac{177,636}{459,914} = 0.3862$$

The fourth and fifth rows are the element divided by its respective initial population. For example total birth for rural areas is divided by the initial rural population and total birth for urban areas is divided by the initial urban population. An example for the fourth row in the first column;

$$\frac{947,891}{1,023,784} = 0.9259$$

Meanwhile the sixth row total is divided by the total initial population;

$$\frac{87,934}{(7,546,154 + 11,825,757)} = 0.0045$$

For the column total, the first column is divided by its respective initial population. This means that rural population in 2000 is divided by rural population in 1995;

$$\frac{8,483,379}{7,546,154} = 1.1242$$

For the second column, the urban population in 2000 is divided by urban population in 1995. The third and fourth columns are the sum of the column and the totals column is the element divided by the total 1995 population. Thus, we have a completed set of transition rates generated from 1995-2000 population accounts.

After the transition rates are generated, projections for the elements in the population accounts can be calculated to get the future population, in this case, the populations for 2000-2005. This is done by multiplying the elements in the 1995-2000 accounts in Figure 5.13 with the respective rates in Figure 5.14.

First, we multiply the elements in the first row, rural Malaysia with total rural population in 2000 (first column total), to get the rural populations in 2000-2005 who stayed in rural areas, migrated to urban areas, emigrated outside Malaysia and who did not survived through the period. For rural population in 2000-2005 who stayed in rural areas;

$$\frac{8,483,379}{0.9034} = 7,663,463$$

The last column of the first row is sum of the row which gives us the total rural population in 2000. We then multiply the second row elements, urban Malaysia,

with total urban population in 2000 to get the urban populations who migrated to rural areas, stayed in urban areas, emigrated outside Malaysia and who died during the period. The last column of the second row is the row total, the sum of all the elements in this row which is also the total urban population in 2000.

To get the projected populations in the third row we first calculated the total immigrants, the last column of the third row. This is done by multiplying the rate for total immigrants (third row total in Figure 5.14) with the total population in 2000 (or the sum of rural and urban population, the first and second column totals). Then we multiply this figure with each rate in the cells in third row to get the immigrants who moved to rural and urban areas and who died during the period.

For the fourth and fifth rows, we first calculate the total rural and urban populations for those born in 2000-2005 by multiplying the rates in the cells with the rural population and urban population in 2000 respectively. This will give us the rural and urban population aged 0 – 5 years in 2005. Then we multiply the rates in the cells of the fourth and fifth rows with their respective totals to get the projected population for each cell. These will give us the projection for those born in rural and urban areas who stayed or migrated to rural and urban areas, emigrated outside Malaysia and those who died during the period.

To get the projection for the sixth row, the immigrants aged 0 – 4 years old, we use the same method to get the projection for the third row. Finally, we calculate the sum for each column to get the total rural population in 2005 (column 1), total urban population in 2005 (column 2), total emigrants (column 3) and the population who do not survive during the period (column 4). Thus, we complete the projection and the population accounts table for 2000-2005 periods. Figure 5.15 shows the projected population accounts table for this period.

			Status in 2005				
			Survival in 2005			Non-survival in 2005	Totals
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 2000-2005	
Status in 2000	Existence in 2000	Rural Malaysia	7,663,463	507,656	68,587	243,673	8,483,379
		Urban Malaysia	523,281	12,833,109	76,451	282,056	13,714,897
		Outside Malaysia	203,553	314,815	-	8,647	527,015
	Born 2000-2005	Rural Malaysia	1,065,618	64,015	7,653	13,651	1,150,938
		Urban Malaysia	64,960	2,102,784	14,686	12,940	2,195,369
		Outside Malaysia	38,752	60,827	-	1,185	100,764
	Totals		9,559,626	15,883,207	167,377	562,152	26,172,362

Figure 5.15: Projected population accounts, 2000-2005

The above method is the basis used to make the projection for the rural and urban population change in Malaysia for the next 25 years. By repeating the same procedure, we can produce the projection accounts for every five year period until 2025. For simplicity, we assume that the transition rates, immigration rates and birth rates remain constant over the projection period 2000-2005, so calculate the rate using the same method or formula to get the following five year population projections. The above projection is summarized in Figure 5.16, thus, we produce the projection for 2000 until 2025.

Are the results reasonable? Are they the correct projections? The projection for the immediate future, i.e. for 2005 might not be much different than the projection made by the Malaysian Department of Statistics or the United Nations. However, since this is a straight forward projection, using constant rates for up to 2025, the result in the long run might be questionable. We have discussed in chapter 5 that urban population is increasing at a much slower rate than it previously had and rural population is declining. These have to be taken into account for every five year projection that we want to make. Each projection will require different assumptions and tested using different scenarios.

If we compare the figures in the population accounts and the projection with the ones used in the Malaysian government's official report, we can make direct comparisons. For example, let us take the population for 1995, which I have to calculate in the population accounts table, and population in 2005, which I have projected using the model. The official report give the population for 1995 at 20.684 million (Economic Planning Unit, 2001a) and population for 2005 at 26.750 million (Economic Planning Unit, 2006). The figure that I have got through the population accounts table for 1995 population was 19.372 million and the projection

for 2005 was 25.443 million. And if we look further into the United Nations projection, we have 20.363 million for 1995 and 25.325 million for 2005 (United Nations, 2004).

Population accounts for 2000-2005 - projection

			Status in 2005				
			Survival in 2005			Non-survival in 2005	Totals
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 2000-2005	
Status in 2000	Existence in 2000	Rural Malaysia	7,663,463	507,656	68,587	243,673	8,483,379
		Urban Malaysia	523,281	12,833,109	76,451	282,056	13,714,897
		Outside Malaysia	203,553	314,815	-	8,647	527,015
	Born 2000-2005	Rural Malaysia	1,065,618	64,015	7,653	13,651	1,150,938
		Urban Malaysia	64,960	2,102,784	14,686	12,940	2,195,369
		Outside Malaysia	38,752	60,827	-	1,185	100,764
	Totals		9,559,626	15,883,207	167,377	562,152	26,172,362

Population accounts for 2005-2010 - projection

			Status in 2010				
			Survival in 2010			Non-survival in 2010	Totals
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 2005-2010	
Status in 2005	Existence in 2005	Rural Malaysia	8,635,691	572,060	77,288	274,586	9,559,626
		Urban Malaysia	606,011	14,862,009	88,538	326,649	15,883,207
		Outside Malaysia	233,304	360,830	-	9,911	604,045
	Born 2005-2010	Rural Malaysia	1,200,808	72,137	8,624	15,383	1,296,952
		Urban Malaysia	75,230	2,435,231	17,007	14,986	2,542,455
		Outside Malaysia	44,416	69,718	-	1,358	115,492
	Totals		10,795,460	18,371,984	191,458	642,873	30,001,776

Population accounts for 2010-2015 - projection

			Status in 2015				
			Survival in 2015			Non-survival in 2015	Totals
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 2010-2015	
Status in 2010	Existence in 2010	Rural Malaysia	9,752,082	646,014	87,280	310,084	10,795,460
		Urban Malaysia	700,968	17,190,772	102,412	377,832	18,371,984
		Outside Malaysia	267,458	413,652	-	11,362	692,472
	Born 2010-2015	Rural Malaysia	1,356,044	81,462	9,739	17,372	1,464,617
		Urban Malaysia	87,018	2,816,814	19,672	17,334	2,940,838
		Outside Malaysia	50,919	79,924	-	1,557	132,399
	Totals		12,214,489	21,228,638	219,103	735,541	34,397,771

Population accounts for 2015-2020 projection

			Status in 2020				
			Survival in 2020			Non-survival in 2020	Totals
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 2015-2020	
Status in 2015	Existence in 2015	Rural Malaysia	11,033,962	730,931	98,753	350,843	12,214,489
		Urban Malaysia	809,961	19,863,760	118,336	436,581	21,228,638
		Outside Malaysia	306,665	474,290	-	13,027	793,982
	Born 2015-2020	Rural Malaysia	1,534,292	92,170	11,019	19,656	1,657,136
		Urban Malaysia	100,548	3,254,799	22,731	20,030	3,398,108
		Outside Malaysia	58,383	91,640	-	1,785	151,808
	Totals		13,843,811	24,507,590	250,838	841,922	39,444,161

Population accounts for 2020-2025 - projection

			Status in 2025				
			Survival in 2025			Non-survival in 2025	Totals
			Rural Malaysia	Urban Malaysia	Outside Malaysia	Deaths 2020-2025	
Status in 2020	Existence in 2020	Rural Malaysia	12,505,811	828,431	111,926	397,643	13,843,811
		Urban Malaysia	935,067	22,931,894	136,614	504,015	24,507,590
		Outside Malaysia	351,673	543,899	-	14,939	910,511
	Born 2020-2025	Rural Malaysia	1,738,955	104,465	12,488	22,277	1,878,186
		Urban Malaysia	116,079	3,757,532	26,242	23,123	3,922,976
		Outside Malaysia	66,951	105,089	-	2,047	174,088
	Totals		15,714,535	28,271,310	287,270	964,045	45,237,160

Figure 5.16: Projected population accounts, 2005-2025

It seems that the above calculations and projections are much lower than the Malaysian government's official report and the United Nations publication (except for the United Nations 2005 population projection). However, this is the consequence of the data used in the population accounts table. Data used in the

Department of Statistics' migration report was not adjusted for under enumeration. Even population figure for 2000 (figure from census) was different. The figure used in the department of statistics migration report was 22.198 million (Department of Statistics, 2004a), which was what we used in the population accounts table. The figure for 2000 population in a different census report was 23.274 million (Department of Statistics, 2001c), which has been adjusted for under enumeration. Thus, it is understandable that we get a lower figure for 1995 and lower figure for our 2005 projection, since we were using data that had not been adjusted for under enumeration. Therefore, we can assume that our projection, at least for the near future is quite reasonable.

5.6 Conclusion

The main purpose of this Chapter is to identify the components of rural and urban population change. Data from previous chapter only shows the change of rural and urban population during the last few decades but could not explain what the important components are. Thus, a method has to be constructed to identify those components and how important they are in relation to the rural and urban population change.

To understand the dynamics of urban and rural population changes, a population accounting framework is constructed. This is probably the first attempt of using this method to comprehensively estimate all the flows of internal and external migration using data from the Malaysia's latest census. Thus, this would be a contribution to the new knowledge. The population accounts are used to examine the components that contribute to urban and rural growth. It is unfortunate that there was no data on the size of urban areas or their boundaries in 1991. Expansion of urban areas between 1991 and 2000 may have significant contribution to the urban population growth which means that urban population growth was the result of bigger urban areas. This conclusion can also be made based on little contribution from natural increase, internal migration and external migration found in the analysis.

The structure of the population accounts table requires the inclusion of all the variables that may contribute to the population change. It was also designed to use the migration data that is available such as from the population Census in 2000 and vital statistics reports. Assumptions have to be made where data is unavailable so that estimates can be used.

The construction of this population accounts table was challenging because a lot of information needed is not available, such as the age-specific data for urban and rural areas, birth and deaths for all states and data on emigration. Thus, a lot of cells in the table have to be estimated or calculated from various statistics reports. The advantage of this process is that a lot can be learnt and understood while finding the information and making estimates.

The cells in the population tables are the variables needed to understand the population dynamics of the country, especially changes in urban and rural areas that resulted from the movement from different categories of rural and urban migration (urban to urban, urban to rural, rural to urban and rural to rural), immigrations and emigrations, net natural increase (births minus deaths) and those who do not move (stayers) from rural or urban areas, to name a few.

The complexity of the accounts table also means that the analysis and explanations of the variables/cells need to be done one step at a time and is done systematically. This way the process can be understood and the problem with unavailability can be resolved before getting to the next step or cell.

The analysis in this Chapter shows that urban growth is higher than the rural growth and both area contributed by natural increase. It shows why urban areas grow faster than rural areas. The natural increase of the immigrants is also higher compared to the natural increase for Malaysians.

It is observed from the analysis that there is a modest contribution of external migration and very little contribution from internal migration to both rural and urban

population growth. Since average annual growth rate for urban areas is high, it can be concluded that urban population growth is the result of the development of new urban centres and the expansion of urban boundaries. The difference between 1991 and 2000 urban areas is not known because this information is not captured in the Census report, thus, we do not know how many people are affected by this changing urban boundaries.

The above result does not mean that internal migration in Malaysia is not important. As we shall see later in subsequent chapters, urban and rural migration is quite important in distributing population both within and between the states. We will analyse the pattern of migration within Malaysia and which category of migration is important within the study period.

After the population accounts table is constructed the future population change can be projected. Although this is quite a simple projection and might not be accurate, it can be used to make crude projection for the future urban and rural population that can be used by policy makers and planners to understand future population scenarios. The projection made using this model is lower than those made by the Malaysian Statistics Department and the United Nations but is consistent with the data used from the census report (not adjusted for under enumeration). Thus, it can be concluded that the projection using this model is quite reasonable.

In this Chapter we have built an account of the dynamics of Malaysia's national population, taking into account births, deaths and international migration. In the next Chapter we move on to consider migration within Malaysia by discussing the internal migration flows at state level.

CHAPTER 6

INTERNAL MIGRATION AT STATE LEVEL

6.1 Introduction

Internal migration in Malaysia can be analysed by dividing migration flows into various categories including inter- and intra-state migration, inter- and intra-district migration, and migration between and within areas designated as being either 'urban' or 'rural'. These categories are not mutually exclusive since some district-to-district flows may occur between regions and some urban-rural movements may occur across district or region boundaries. Moreover, internal movements between states or between districts generally take place over relatively longer distances whilst movements within states or within districts occur relatively short distances, although flows across boundaries may be short distance as, for example, when cities grow and suburban development takes place beyond their administrative boundaries in adjacent districts or states.

The aim of this chapter is to identify the characteristics of internal migration at state level by examining flows both between and within states. This involves understanding the magnitude, spatial variation and demographic composition of different measures of migration. The measures include the level of migration taking place at different spatial scales, the volume of intra-state movement, gross movements into and away from individual states, and net migration balances for each state. It is also important to consider the detailed directional origin-to-destination movements taking place both between states and within states. Conceptual illustration of these measures is presented in Figure 6.1 which outlines the structure of the state-to-state flow matrix with origins on the vertical axis and destinations on the horizontal axis. The diagonal cells of the matrix represent intra-state migrants whilst the off-diagonal cells represent inter-state migrants. Row and column totals represent aggregate out-migration and in-migration for each state. The aggregate level of migration describes the magnitude of flows occurring both between and within states. Net migration may refer either to the migration balance for a single state (in-migration minus out-migration) or to the balance between any

two states (migration from state j to state i minus migration from state i to state j). Full data for within and between state migration can be seen in Appendix A and B.

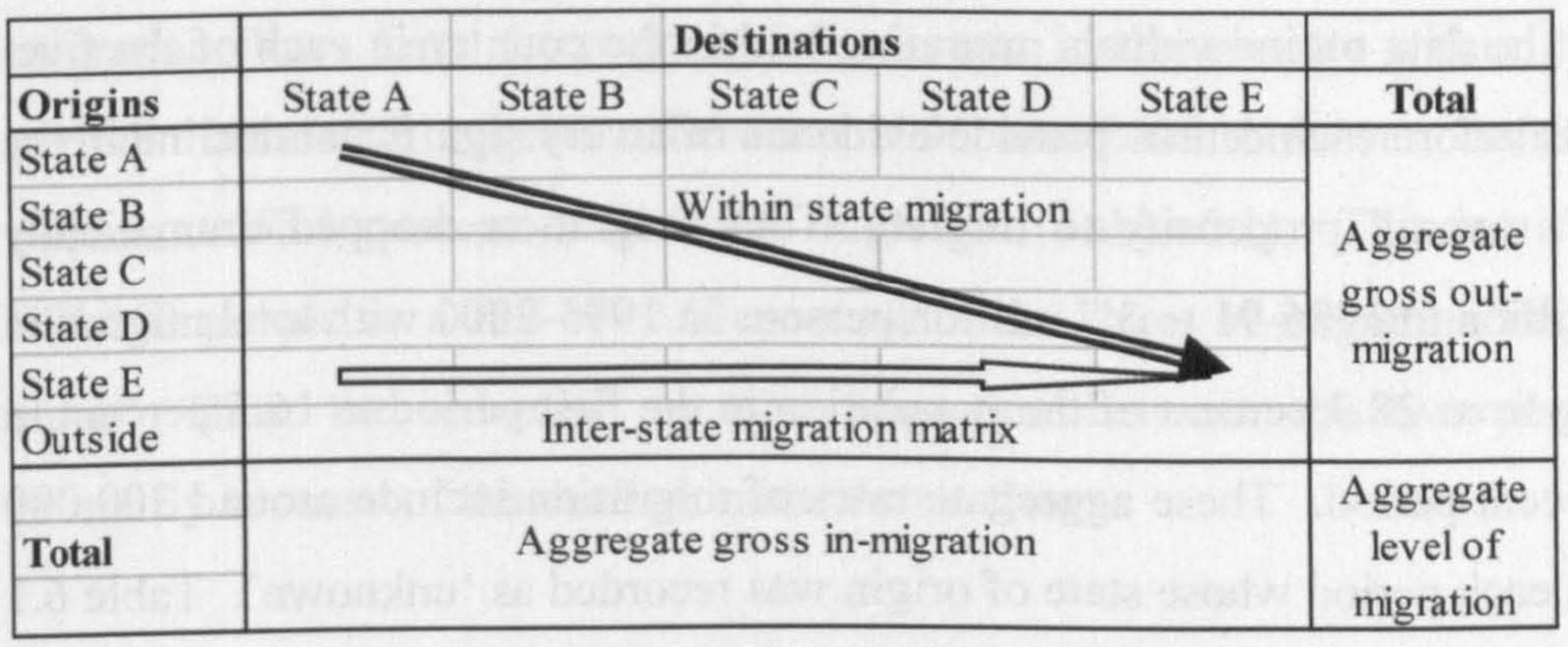


Figure 6.1: Identification of key migration measures

In this chapter, Section 6.2 examines changes in aggregate migration components, whilst Section 6.3 considers the more detailed patterns of migration between states using a number of indicators that have been identified for use in cross-national comparative work. These measures can be examined for two five-year periods, 1986-1991 and 1995-2000, based on the population flows recorded by the last two censuses. In addition, data are available from the most recent 2000 Census for the 1995-2000 period that allow examination of variations in the composition of migration by sex and age. The demographic composition of state migration is examined in Section 6.4. Finally some conclusions are presented in Section 6.5.

6.2 Aggregate migration change, 1986-1991 and 1995-2000

6.2.1 Changing levels of migration

According to the 2000 Census, the total population of Malaysia was 22,198,276 (Department of Statistics, 2004a), out of which 3,660,456 individuals or 16.5 percent of the population migrated in the five years before the census, including those of unknown origin and whose moving in from abroad. In fact, international immigrants represented about 9.1 percent of total migrants in Malaysia (1.5 percent of the total Malaysian population) and immigrants from Indonesia in particular represented about 70 percent of the total immigrants in Malaysia. In overall terms, there were over 230,000 Indonesians out of over 330,000 total immigrants during the period 1995-2000 (Department of Statistics, 2004a).

Whilst Malaysia's population grew from 17.4 million to 22.2 million between the two census dates in 1991 and 2000, a very significant increase of 27.5 percent in nine years, the data on individuals migrating within the country in each of the five-year periods before each census provide evidence of a very significant decline in the population's overall propensity to migrate. Total migration dropped dramatically from 4.9 million in 1986-91 to 3.7 million persons in 1995-2000 with total migration rates falling from 28.3 percent of the population in the first period to 16.5 percent in the most recent period. These aggregate rates of migration include around 300,000 migrants in each period whose state of origin was recorded as 'unknown'. Table 6.1 indicates that around two thirds of total internal migration occurs within states whilst one third involves crossing a state boundary. This shows that short-distance movements are still dominant in Malaysia. However, the evidence shown in Table 6.1 suggests a trend towards a larger share of long-distance inter-state migration and a smaller share of those moving to new locations within the same state. Proportions of movement between states increased from 23.3 percent to 28.9 percent between the two periods.

Table 6.1: Internal migration and immigration flows, Malaysia, 1986-1991 and 1995-2000

Type of flow	1986-1991		1995-2000		Change	
	Number	%	Number	%	Number	Share
Flows within states	3,185,792	64.67	2,271,491	62.05	-914,301	-2.62
Flows between states	1,145,538	23.25	1,056,994	28.88	-88,544	5.62
Total migration (internal)	**4,331,330**	**87.93**	**3,328,485**	**90.93**	**-1,002,845**	**3.00**
Flows from outside	299,490	6.08	331,971	9.07	32,481	2.99
Origin unknown	295,229	5.99	298,176	8.15	2,947	2.15
Total migration	**4,926,049**	**100.00**	**3,660,456**	**100.00**	**-1,265,593**	**na**

Sources: Author's calculations based on Department of Statistics (1995, 2004a)
Note: Percentages are independently rounded, thus, may not add up to the total.

It should be noted that the data above is based on the computer generated counts. The information obtained during Census is subject to coverage and content errors. According to the Department of Statistics, the migration data in the Census 2000 report was not adjusted for the under-enumeration factor (Department of Statistics, 2004a). That is why some migration tables show that some migrants are from unknown origins.

Intra-state migration (considered here as short-distance migration) between 1986 and 1991 involved 3.2 million or 64.7 percent of total flows. These short-distance migration flows form the majority of migrants in the country within the five-year period. Intra-state migration between 1995 and 2000, however, decreased to 2.3 million or 62.1 percent of the total migration (Table 6.1). This is a reduction of 914,000 people or a fall of -2.62 percent in the share of migration that was intra-state. Thus, the reduction in total migration between the two periods occurs primarily because of the decline in intra-state flows.

The decline in internal migration rates may be associated with a particular (late) stage in the transition from a rural to an urban society that Malaysia has experienced in recent years. Whilst the average annual population growth rate for urban areas was very high during the period 1980-1991 at 6.2 percent, it fell to 4.8 percent during the following period 1991-2000 (see Chapter 5, Table 5.6). In 1991, the urban share of total population was greater than 50 percent. In other words, by 2000, Malaysia had passed the phase of peak of rural exodus, the high numbers of rural-to-urban flows which generated the high total migration rates of the 1986-91 period.

Inter-state migration flows also experienced the same trend as intra-state migration. Flows between the states dropped by over 88,000 people although the inter-share percentage of total migration share increased slightly (Table 6.1). Thus, the trend towards lower levels of migration not only happens for short-distance movers but also for those migrating over longer distances. Total internal migration declined by over 1.0 million between the two periods, a 2 percent reduction in its share of total migration that included immigration flows and flows with origin unknown. Immigration increased from 299,000 to 332,000 with immigrants arriving in various states in Malaysia from overseas. This was an increase of over 32,000 immigrants or 10.8 percent. Thus, whilst the movement within and between the states were declining, the movement from outside the country was increasing. Finally, around 300,000 migrants in each census period are recorded as origin 'unknown'. These are the migrants whose state of origin was not recorded during the census interview.

Thus, they could come from any state or country, including the state in which they were resident at the time of the census. The volume of unknown migrants is about the same as the immigrants and only increased slightly (about 3,000 people) between the two periods. The analysis in Chapter 5 suggests that most of these came from outside the country (immigrants).

6.2.2 Variations in intra-state migration change

Almost all states, except Selangor and Pulau Pinang, experienced a reduction in the volume of intra-state migration between the two five year periods. In Kelantan, intra-state migration declined by 56.4 percent, whilst in Perlis and Sarawak, there were reductions of 53.9 percent and 52.3 percent respectively. The states have been ranked in Table 6.2 according to the percentage change in migration during the two periods. In absolute terms, Sarawak experienced the largest reduction of over 265,000 migrants, followed by Perak with a decline of 155,000 migrants and Sabah with a drop of 110,000.

Table 6.2: Intra-state migration, Malaysia, 1986-1991 and 1995-2000

	Period		Change	
	1986-91	1995-2000	Number	%
KELANTAN	182,036	79,410	-102,626	-56.4
PERLIS	23,297	10,744	-12,553	-53.9
SARAWAK	507,889	242,298	-265,591	-52.3
KEDAH	213,873	113,435	-100,438	-47.0
PERAK	337,823	182,319	-155,504	-46.0
PAHANG	181,749	129,334	-52,415	-28.8
SABAH	395,929	285,642	-110,287	-27.9
W.P. KUALA LUMPUR	152,786	114,793	-37,993	-24.9
TERENGGANU	117,604	89,936	-27,668	-23.5
NEGERI SEMBILAN	111,414	85,454	-25,960	-23.3
JOHOR	393,782	311,974	-81,808	-20.8
MELAKA	65,668	63,266	-2,402	-3.7
W.P. LABUAN	6,614	6,486	-128	-1.9
SELANGOR	354,312	396,310	41,998	11.9
PULAU PINANG	141,016	160,090	19,074	13.5

Sources: Author's calculations based on Department of Statistics (1995, 2004a)

W.P. Labuan and Melaka experienced relatively small falls in migration flows within their respective states. However, this is quite understandable because these are states with relatively small populations. On the other hand, Perlis, another small state in terms of relative population size did not experience the same trend as the

previous two states; its intra-state migration flows declined sharply, as indicated previously. There has therefore been a significant shift in the ordering of states according to the size of their intra-state flows. During 1986-1991, Sarawak had the highest intra-state migration followed by Sabah and Johor. By the second period, Sarawak had dropped to fourth in the ranking and Selangor had emerged as the state with the highest number of intra-state, followed by Johor and Sabah. The trend can also be observed in the migration rate per 100 people. In all states, migration rates are higher during the 1986-1991 period than in the 1995-2000 period. Figure 6.2 shows the intra-state migration rate ranked from the highest to the lowest during the first period. Sarawak had the highest rate followed by Sabah and Johor. During the second period, however, the migration rate for Sarawak had declined sharply. Pulau Pinang became the state with the highest migration rate. Sarawak ranked third after Johor although the difference between the two rates is not nearly as significant as it was in 1986-1991.

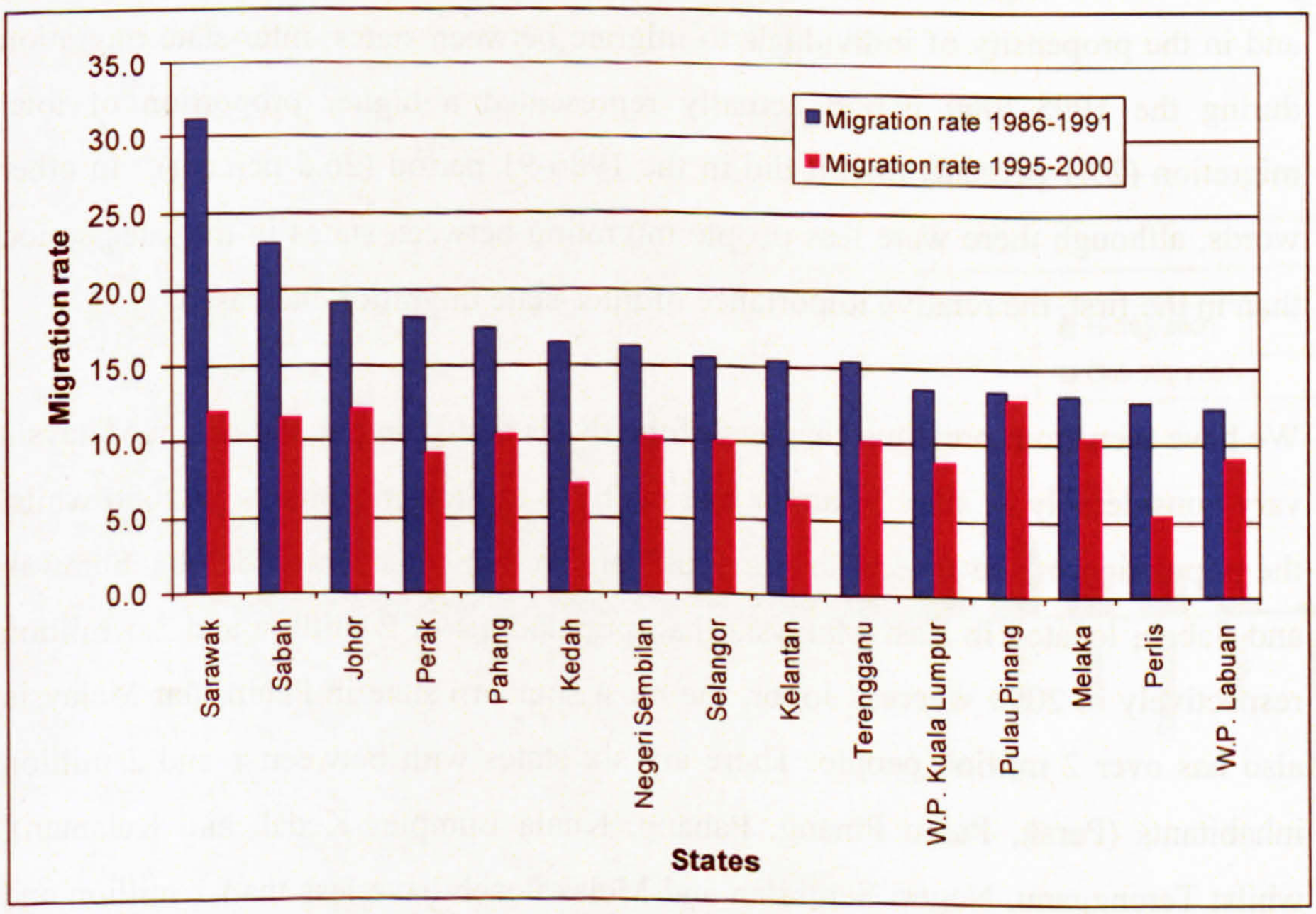


Figure 6.2: Intra-state migration rates, 1986-1991 and 1995-2000

Overall, the migration rates for all states were higher during the first period compared to the second, except for Pulau Pinang, which had a very similar rate

during both periods. Thus, the migration rate had declined significantly for the population flows within each state. The pattern of intra-state migration will be analyzed in more detail in the next chapter when migration flows between the districts and urban/rural areas are further examined.

6.2.3 Inter-state gross and net migration

Although some migrants will move short distances across state boundaries, most inter-state migration is likely to involve longer-distance migrants, many of whom will be economic migrants seeking jobs as well as accommodation in a new location. In this section, the focus is on inter-state migration although some comparisons are drawn with intra-state movements. Inter-state migration during 1986-1991 in Malaysia, as counted by the 1991 Census, involved 1.15 million people or 6.6 percent of the total population, while in the second period, 1995-2000, the 2000 Census indicates that inter-state migration involved only 1.06 million people or 4.8 percent of the total population. Despite this fall in the absolute number of migrants and in the propensity of individuals to migrate between states, inter-state migration during the 1995-2000 period actually represented a higher proportion of total migration (29.1 percent) than it did in the 1986-91 period (26.5 percent). In other words, although there were less people migrating between states in the later period than in the first, the relative importance of inter-state migration increased.

We have seen from previous chapters of the thesis that state populations in Malaysia vary considerably in size. Selangor had nearly 4 million inhabitants in 2000 whilst the population of the federal territory of Labuan numbered only 70,000. Sarawak and Sabah, located in East Malaysia, had populations of 2 million and 2.5 million respectively in 2000 whereas Johor, the most southern state in Peninsular Malaysia also has over 2 million people. There are six states with between 1 and 2 million inhabitants (Perak, Pulau Pinang, Pahang, Kuala Lumpur, Kedah and Kelantan), whilst Terengganu, Negeri Sembilan and Melaka each have less than 1 million and Perlis has only around 200,000. This population size hierarchy is reflected in the volume of migration that occurs within each state, as shown in Table 6.2, ranked by size of in-migration in both periods (Figure 6.3). More surprising is the variation in

gross migration flows into and out of each state, also shown in Figure 6.3. In both periods, Selangor had experienced very substantial in-migration in comparison with out-migration, whilst Kuala Lumpur's out-migration exceeds the volume of in-migration. The differences were bigger during the recent period compared to the previous period. This could mean that Kuala Lumpur is experiencing the decentralisation process.

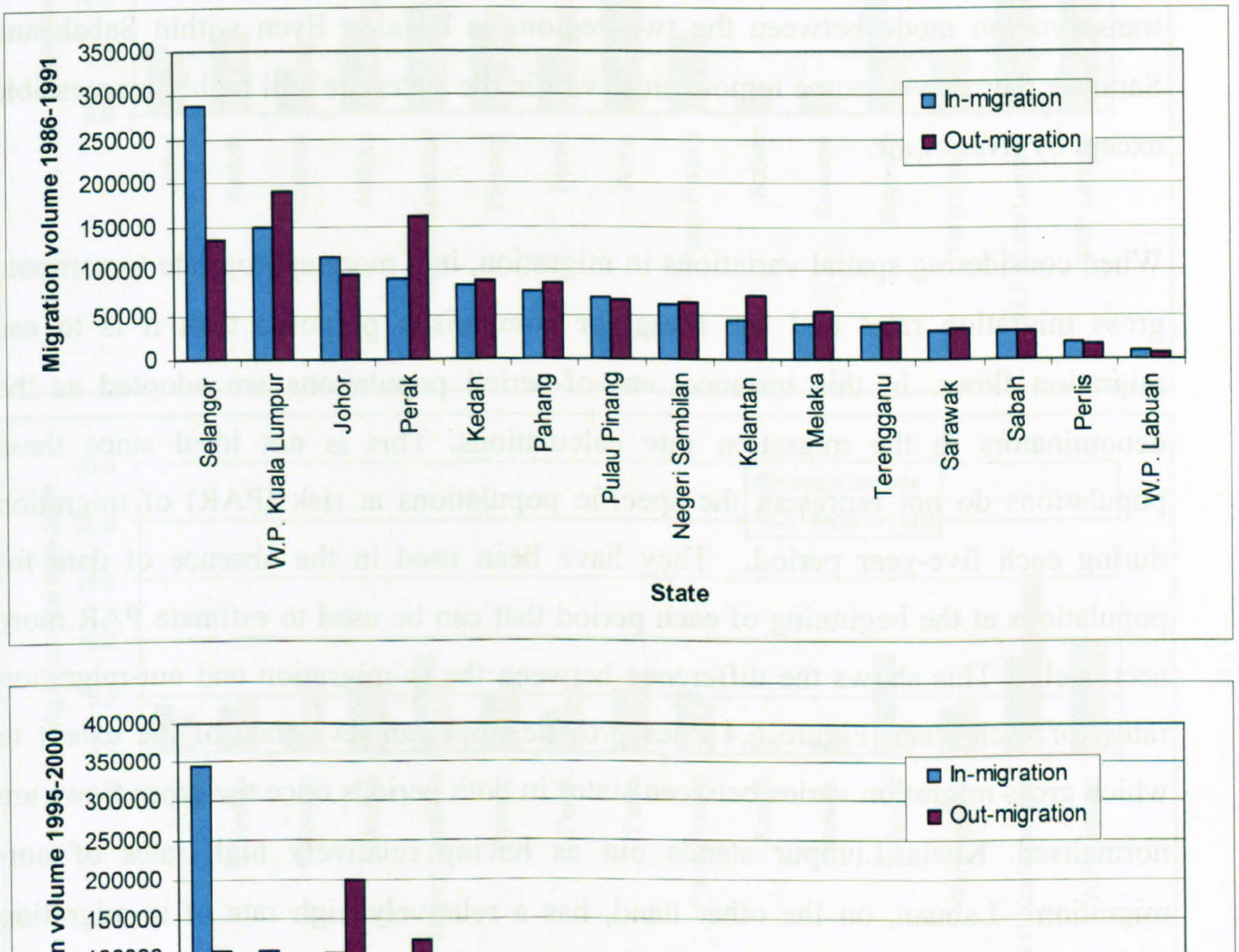


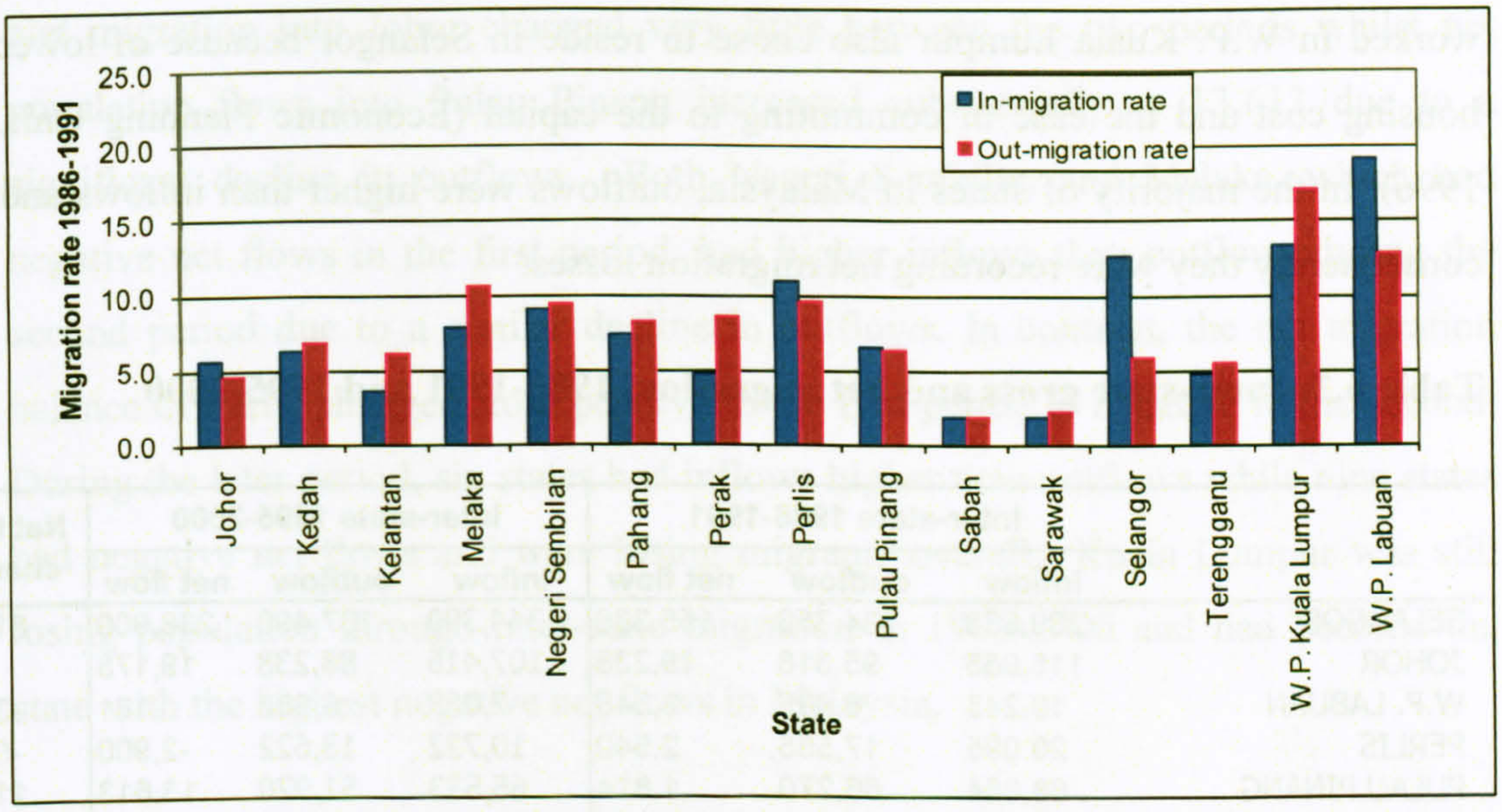
Figure 6.3: Gross migration flows by state, 1986-1991 and 1995-2000

In both periods, Sabah and Sarawak have experienced more within-state migration than the inter-state migration. This is because of the location of these states. Both states are located in the East Malaysia where movement is more restricted to within this region. The majority of the inter-state flows between 1986-1991 and 1995-2000 are also between the two states because movement to and from Peninsular Malaysia is highly limited by distance and transportation access across the South China Sea. The distance between the regions is more than 600 kilometres. The main transportation mode between the two regions is by air. Even within Sabah and Sarawak themselves, some remote areas within the states are still highly inaccessible except by river or air.

When considering spatial variations in migration, it is more appropriate to compute gross migration rates and use these for comparison purposes than it is to use migration flows. In this instance, end-of-period populations are adopted as the denominators in the migration rate calculations. This is not ideal since these populations do not represent the specific populations at risk (PAR) of migration during each five-year period. They have been used in the absence of data for populations at the beginning of each period that can be used to estimate PAR more accurately. This shows the difference between the in-migration and out-migration rates for each state. Figure 6.4 does provide important evidence of the extent to which gross migration varies between states in both periods once the gross flows are normalised. Kuala Lumpur stands out as having relatively high rates of out-migration. Labuan, on the other hand, has a relatively high rate of in-migration during the 1986-1991 period. The rates for in-migration and out-migration seem to be about the same during the 1995-2000 period.

Whilst the spatial population dynamics within each state are likely to be most affected by the internal migration taking place within and between urban and rural areas, it is the balance between the gross flows of migration into and out of each state that determines the overall contribution to state population change and which can be compared with natural change to offer policy makers some indications of

which areas are growing through migration gains and which are experiencing decline though migration losses.



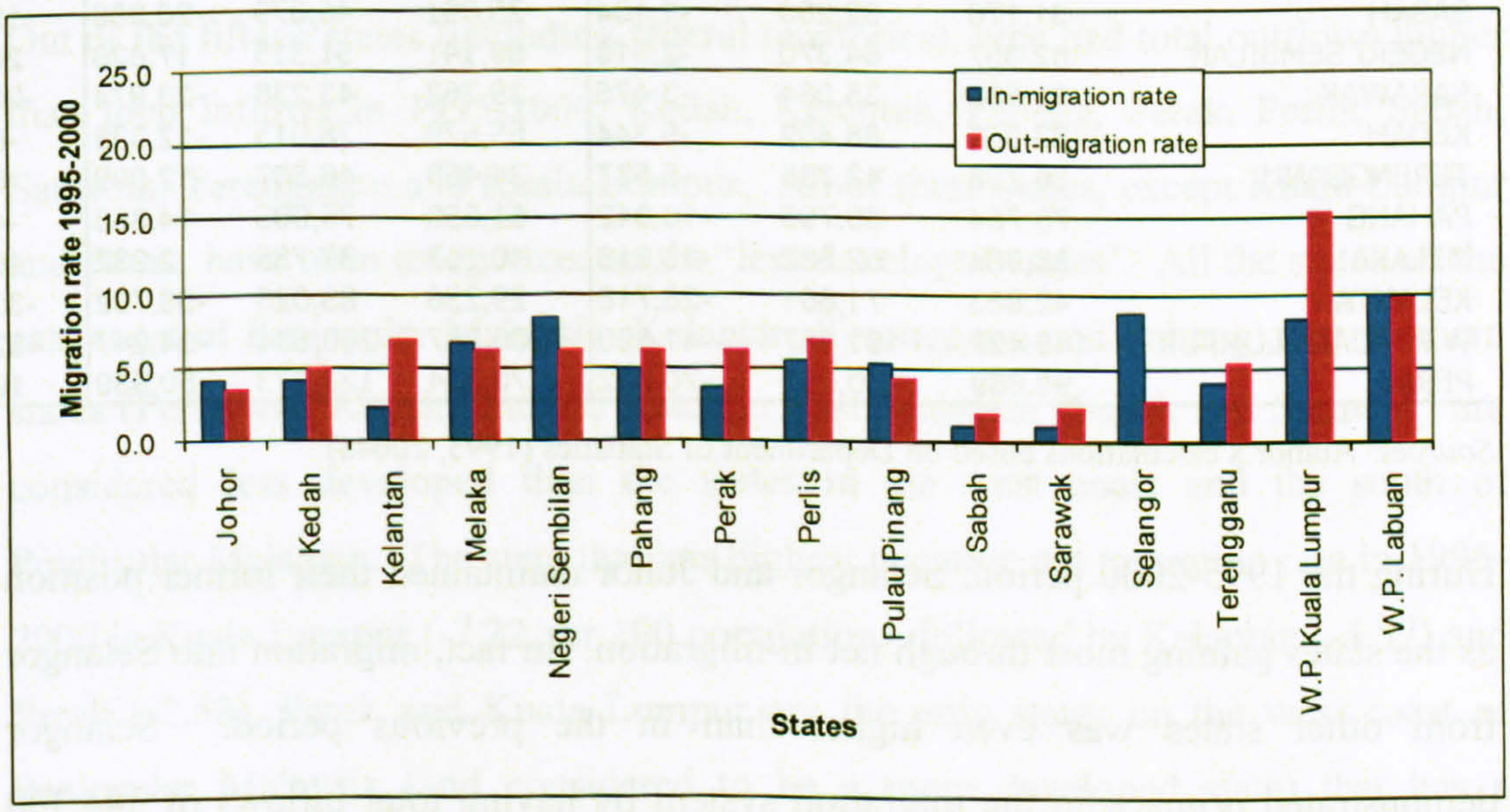


Figure 6.4: Gross migration rates by state, 1986-1991 and 1995-2000

During the 1986-1991 period, five states had the inflows higher than outflows, resulting in overall net migration gains. Selangor had the highest net-flows with 155,000 people, followed by Johor, W.P. Labuan, Perlis and finally Pulau Pinang (Table 6.3) with only another 27,000 net migrants altogether. Perak, on the other hand, had the lowest inflows compared to outflows, resulting in a net loss of just over 70,232 migrants. Moreover, W.P. Kuala Lumpur, the capital of Malaysia, was

also experiencing negative net migration during this period. Whilst Selangor received migrants from other states who were attracted by the increasing employment opportunities generated by its high growth economy, many people who worked in W.P. Kuala Lumpur also chose to reside in Selangor because of lower housing cost and the ease of commuting to the capital (Economic Planning Unit, 1996). In the majority of states in Malaysia, outflows were higher than inflows and consequently they were recording net migration losses.

Table 6.3: Inter-state gross and net migration, 1986-1991 and 1995-2000

	Inter-state 1986-1991			Inter-state 1995-2000			Net flow change
	inflow	outflow	net flow	inflow	outflow	net flow	
SELANGOR	289,688	134,352	155,336	344,390	107,490	236,900	81,564
JOHOR	115,053	95,818	19,235	107,416	88,238	19,178	-57
W.P. LABUAN	10,243	6,895	3,348	7,068	6,887	181	-3,167
PERLIS	20,095	17,555	2,540	10,722	13,622	-2,900	-5,440
PULAU PINANG	68,084	66,270	1,814	65,533	51,920	13,613	11,799
SABAH	31,176	32,280	-1,104	25,091	46,079	-20,988	-19,884
NEGERI SEMBILAN	62,057	64,370	-2,313	69,141	51,315	17,826	20,139
SARAWAK	31,589	35,064	-3,475	19,262	43,236	-23,974	-20,499
KEDAH	83,058	88,402	-5,344	65,679	78,015	-12,336	-6,992
TERENGGANU	36,798	42,335	-5,537	34,468	46,567	-12,099	-6,562
PAHANG	75,754	85,796	-10,042	61,650	76,005	-14,355	-4,313
MELAKA	38,964	52,882	-13,918	40,717	37,785	2,932	16,850
KELANTAN	42,883	71,601	-28,718	29,236	88,028	-58,792	-30,074
W.P. KUALA LUMPUR	149,427	191,017	-41,590	106,287	200,534	-94,247	-52,657
PERAK	90,669	160,901	-70,232	70,334	121,273	-50,939	19,293

Sources: Author's calculations based on Department of Statistics (1995, 2004a)

During the 1995-2000 period, Selangor and Johor maintained their former position as the states gaining most through net in-migration. In fact, migration into Selangor from other states was even higher than in the previous period. Selangor demonstrated primacy in the migration system by having total inflows of 344,390 migrants coming from other states compared to the next highest state of Johor with 107,416 in-migrants in 1995-2000. The third highest gross inflow of migrants is 106,287 into Kuala Lumpur. Most of the migrants into Kuala Lumpur came from Selangor, its neighbouring state. On the other hand, Selangor has the highest number of migrants originating from Kuala Lumpur, more than four times the number of migrants in the opposite direction. The total number of people from Kuala Lumpur migrating to Selangor was 131,423 compared to only 32,145 moving from Selangor

to Kuala Lumpur. Thus, Kuala Lumpur suffered significant net loss to its neighbouring state.

Net migration into Johor changed very little between the two periods whilst net population flows into Pulau Pinang increased substantially to 13,613 due to a significant decline in outflows. Both Negeri Sembilan and Melaka, which had negative net flows in the first period, had higher inflows than outflows during the second period due to a similar decline in outflows. In contrast, the net migration balance of Perlis changed from positive in the first period to negative in the second. During the later period, six states had inflows higher than outflows while nine states had negative net flows and were losing migrants overall. Kuala Lumpur was still losing population through inter-state migration in 1995-2000 and had become the state with the highest negative net flows in Malaysia.

Out of the fifteen states (including federal territories), nine had total outflows higher than total inflows in 1995-2000: Kedah, Kelantan, Pahang, Perak, Perlis, Sabah, Sarawak, Terengganu and Kuala Lumpur. All of these states, except Kuala Lumpur and Perak, have been categorized as the 'less developed states'. All the states on the east coast of Peninsular Malaysia (Kelantan, Terengganu and Pahang), the northern states (Perlis and Kedah) and the states in East Malaysia (Sabah and Sarawak) are considered less developed than the states in the west coast and the south of Peninsular Malaysia. The state that has highest negative net migration rate in 1995-2000 is Kuala Lumpur (-7.22 per 100 population), followed by Kelantan (-4.57) and Perak (-2.58). Perak and Kuala Lumpur are the only states on the west coast of Peninsular Malaysia (and considered to be a more developed state) that has a negative net migration (Table 6.4). In 1986-1991, Perak had the highest negative net flow with -3.77 per 100 populations. On the other hand, Selangor has the highest net migration rates in both periods, with 6.8 per 100 population in the first period and 6.0 per 100 populations in the second period.

Figure 6.5 shows a pattern of inter-state net migration rates in Malaysia for both periods. Selangor in Peninsular Malaysia has the highest positive net migration rate

in both periods. The only other state that has a high positive net migration rate is the Federal Territory of Labuan although it is so small that it cannot be distinguished in Figure 6.5.

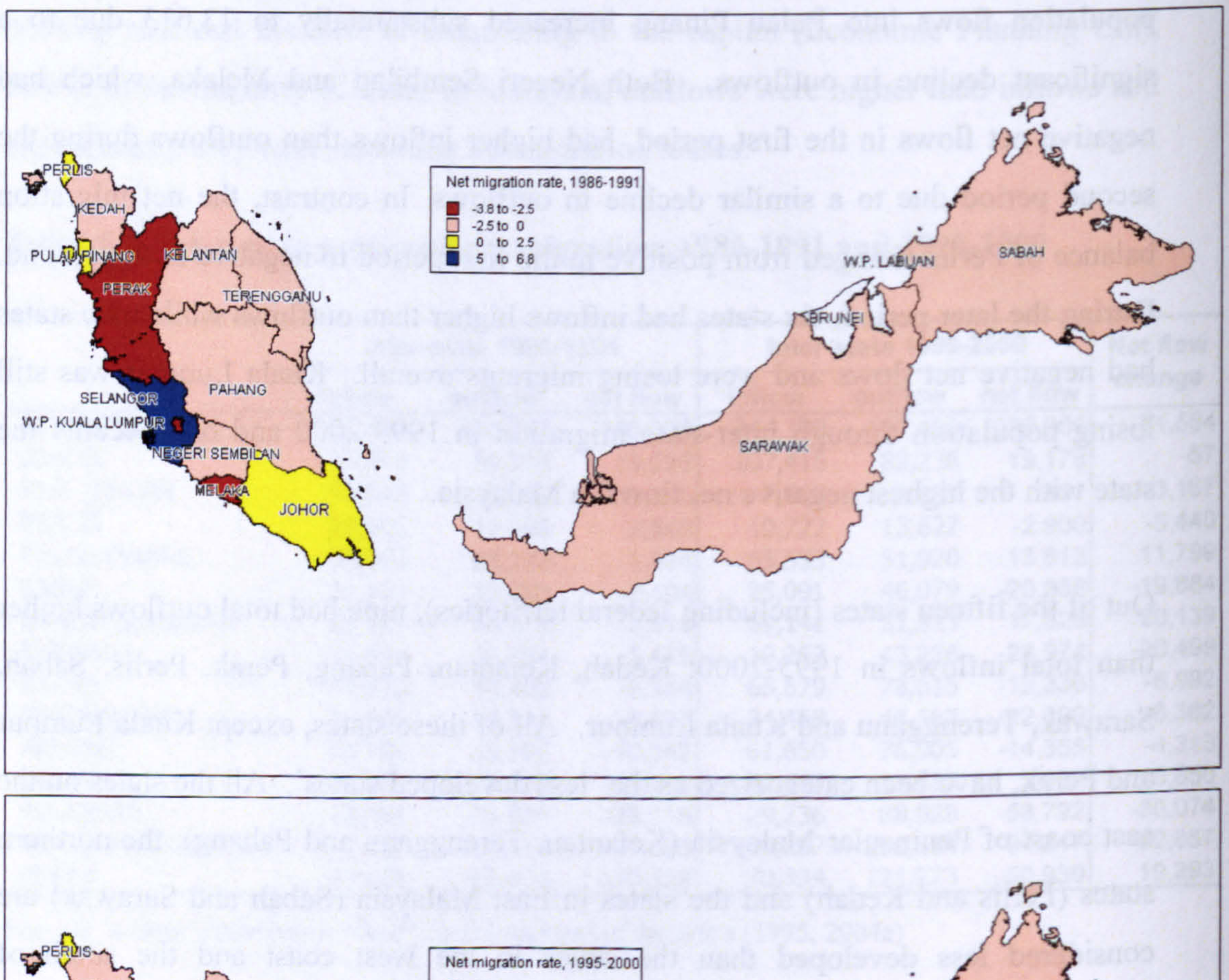


Figure 6.5: Inter-state net migration rates, 1986-1991 and 1995-2000

Johor, Pulau Pinang and Perlis are the other states that have positive migration rates in the 1986-1991 period. During the same period, all the states in the east coast of Peninsular Malaysia as well as the states in East Malaysia, with the exception of Labuan, have negative net migration rates. These states, together with Kedah in the northern peninsular, are the less developed states. The only less developed state that does not have negative net migration rate for this period is Perlis. It is also apparent that those states adjacent to Selangor have negative net migration rates. It can also be seen in the top map in Figure 6.5 that the small states in the northwest (Perlis and Pulau Pinang) have positive but low net migration rates.

Table 6.4: Net migration rates in Malaysia, 1986-1991 and 1995-2000

State	Migration rates (per 100) 1986-1991			Migration rates (per 100) 1995-2000		
	In	Out	Net	In	Out	Net
SELANGOR	12.68	5.88	6.80	8.71	2.72	5.99
W.P. LABUAN	19.18	0.13	6.27	9.97	9.72	0.26
PERLIS	11.00	9.61	1.39	5.41	6.87	-1.46
JOHOR	5.60	4.66	0.94	4.16	3.41	0.74
PULAU PINANG	6.51	6.33	0.17	5.32	4.22	1.11
SABAH	1.82	1.88	-0.06	1.02	1.87	-0.85
SARAWAK	1.93	2.15	-0.21	0.96	2.15	-1.19
NEGERI SEMBILAN	9.05	9.39	-0.34	8.33	6.18	2.15
KEDAH	6.42	6.83	-0.41	4.18	4.97	-0.79
TERENGGANU	4.83	5.56	-0.73	3.92	5.29	-1.37
PAHANG	7.31	8.28	-0.97	5.02	6.18	-1.17
KELANTAN	3.65	6.09	-2.44	2.27	6.84	-4.57
MELAKA	7.86	10.66	-2.81	6.73	6.24	0.48
W.P. KUALA LUMPUR	13.36	17.08	-3.72	8.14	15.36	-7.22
PERAK	4.87	8.64	-3.77	3.56	6.15	-2.58

Sources: Author's calculations based on Department of Statistics (1995, 2004a)

The pattern did not change significantly between 1986-1991 and 1995-2000. During 1995-2000, however, only Selangor retains a high positive net migration rate, whilst all other states, except Pulau Pinang, have low positive or negative rates. The states on the east coast of the Peninsular and in East Malaysia (with the exception of Labuan), all have negative net migration rates. Moreover, the northern states of Kedah and Perlis also have negative rates. This means that all less developed states, except Labuan, have negative net migration rates during the later period. States

located adjacent to Selangor still have either negative net migration rates (Perak and Pahang) or lower positive rates (Negeri Sembilan).

Finally, it should be acknowledged that in addition to the net migration rate, there are other measures that can be used to compute the net effects of migration. Net migration rates can be used for comparative studies and for gauging the likelihood of migration in different time and place (Rowland, 2003). The net migration rate is a measure that does not tell us anything about its constituent gross flows or about its relationship with these flows. Two alternative measures are the inflow/outflow ratio and the migration effectiveness or efficiency of each region.

These measures are shown in Figure 6.6 in which states have been ranked by their net migration rates from most negative to most positive. Rates of net loss are most significant for Perak, Kuala Lumpur, Melaka and Kelantan in 1986-1991, whereas rates of net loss are most apparent for Selangor and Labuan. In 1995-2000, Kuala Lumpur and Kelantan have emerged as the major losing states. The inflow to outflow ratio is positive in each case but the values fluctuate around unity when in-migration equals out-migration. On this measure, it is the excess of in-migration relative to out-migration in Selangor which is outstanding in both periods. Finally, migration effectiveness expresses the net migration balance as a proportion of the sum of its gross flow components, emphasising the importance on net losses in Kuala Lumpur, Perak, Kelantan, Sarawak and Sabah, for example, as a proportion of gross migration turnover in 1995-2000, and the importance of net migration in Selangor, relative to its total inflows and outflows. These are the states in which net migration is having most effect in redistributing the population.

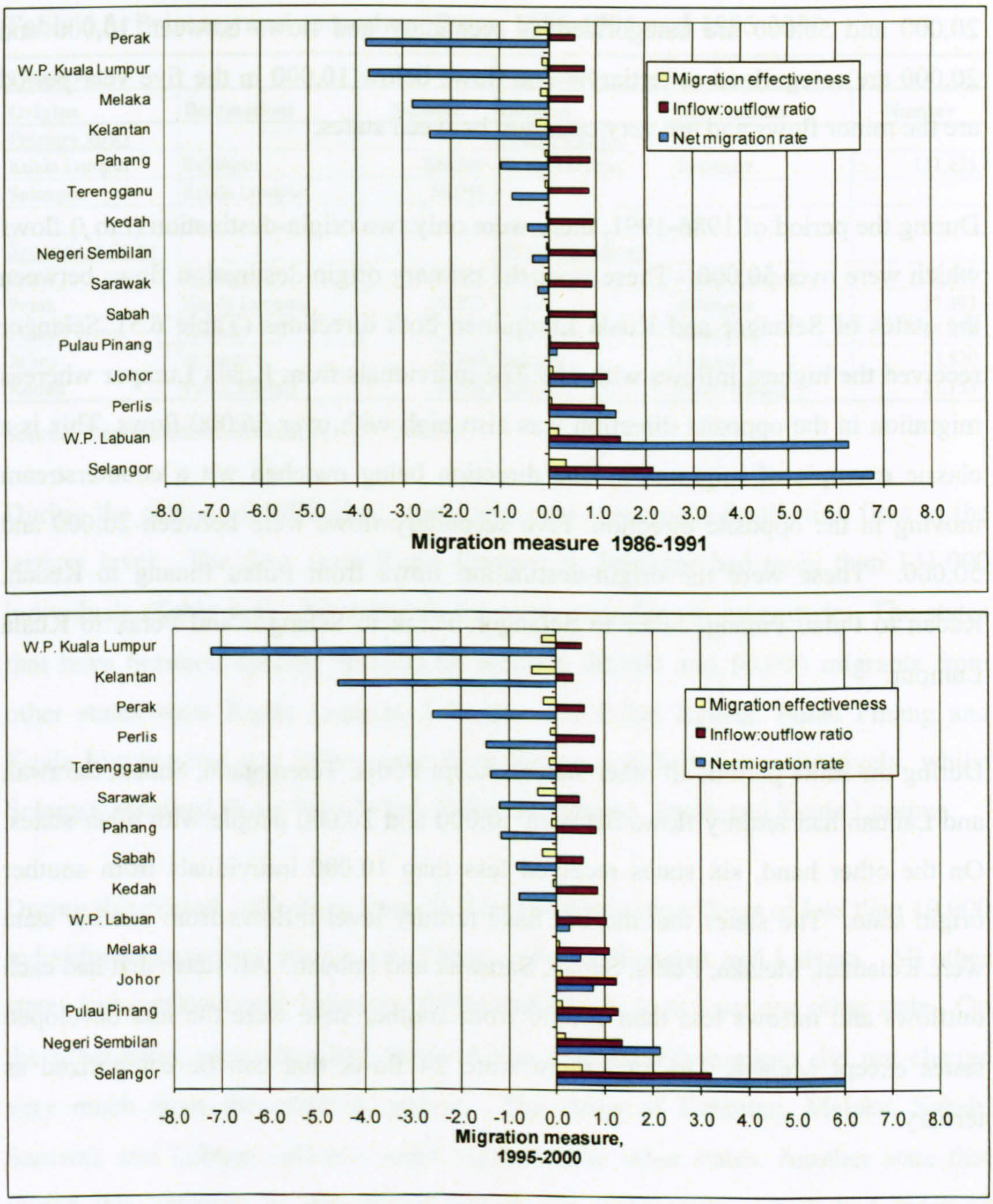


Figure 6.6: Measures on the net exchange by state, 1986-1991 and 1995-2000

6.3 Directional inter-state migration, 1986-1991 and 1995-2000

6.3.1 Primary, secondary and tertiary flows

To understand the directional population movements in Malaysia we can look at the major flows of inter-state migration. For ease of comparison, let us first categorize the inter-state flows as primary flows, secondary flows and tertiary flows. Flows of more than 50,000 individuals are categorized as primary, whilst flows between

20,000 and 50,000 are categorized as secondary and flows between 10,000 and 20,000 are categorized as tertiary. The flows below 10,000 in the five year period are the minor flows and are very common between states.

During the period of 1986-1991, there were only two origin-destination (*i* to *j*) flows which were over 50,000. These were the primary origin-destination flows between the states of Selangor and Kuala Lumpur in both directions (Table 6.5). Selangor received the highest inflows with 109,334 individuals from Kuala Lumpur whereas migration in the opposite direction was also high with over 56,000 flows. This is a classic example of migrants in one direction being matched wit a counterstream moving in the opposite direction. Five secondary flows were between 20,000 and 50,000. These were the origin-destination flows from Pulau Pinang to Kedah, Kedah to Pulau Pinang, Johor to Selangor, Perak to Selangor and Perak to Kuala Lumpur.

During the same period, all other states, except Perlis, Terengganu, Sabah, Sarawak and Labuan had tertiary flows between 10,000 and 20,000 people with other states. On the other hand, six states received less than 10,000 individuals from another origin state. The states that did not have tertiary level inflows from another state were Kelantan, Melaka, Perlis, Sabah, Sarawak and Labuan. All states that had each outflows and inflows less than 10,000 from another state were the less developed states except Melaka. In total there were 24 flows that can be categorized as tertiary.

Table 6.5: Primary and secondary flows, 1986-1991 and 1995-2000

1986-1991			1995-2000		
Origins	**Destinations**	**Number**	**Origins**	**Destinations**	**Number**
Primary flows			*Primary flows*		
Kuala Lumpur	Selangor	109,334	Kuala Lumpur	Selangor	131,423
Selangor	Kuala Lumpur	56,045			
Secondary flows			*Secondary flows*		
Perak	Selangor	48,815	Selangor	Kuala Lumpur	32,145
Perak	Kuala Lumpur	22,873	Johor	Selangor	27,393
Pulau Pinang	Kedah	22,775	Kelantan	Selangor	25,838
Johor	Selangor	22,569	Pahang	Selangor	23,520
Kedah	Pulau Pinang	22,316	Kedah	Pulau Pinang	21,153

Source: Department of Statistics (1995, 2004a)

During the period of 1995-2000, there was only one origin-destination flow at the tertiary level. The flow from Kuala Lumpur to Selangor had more than 131,000 individuals (Table 6.5). Six other flows were secondary in magnitude. The states that have between specific inflows of between 20,000 and 50,000 migrants from other states were Kuala Lumpur, Selangor and Pulau Pinang. Pulau Pinang and Kuala Lumpur had one inflow each from Kedah and Selangor respectively, whilst Selangor received flows from Johor, Kelantan, Pahang, Perak and Kuala Lumpur.

During this period, only three states had origin-destination flows of less than 10,000 individuals originating from each of them – Perlis, Sarawak and Labuan. All other states had outflows over between 10,000 and 20,000 to at least one other state. On the other hand, states that had received less than 10,000 migrants did not change very much from the previous period. The states of Kelantan, Melaka, Sabah, Sarawak and Labuan still had small inflows from other states. Another state that joined this category in the second period was Terengganu which had received inflows less than 10,000 each from other states. Even in the previous period, it had only one inflow of over 10,000 which is from Kelantan. Overall, there were 20 tertiary flows during this period, four flows less than the previous period. Thus, in terms of states, the pattern of primary, secondary and tertiary flows did not change very much especially where destinations are concerned.

So, it seems that the patterns of population flows during the two periods were similar. Primary flows of population movement went to the main states of Selangor

and Johor that were experiencing major development during the two periods. These two states were among the most developed and had the highest Development Composite Index (DCI) after Kuala Lumpur and Pulau Pinang (Economic Planning Unit, 2001b).

The statistics presented in this section emphasise that, although Kuala Lumpur is the capital of Malaysia, the state is losing its population to other states, especially to the contiguous state of Selangor through the process of suburbanization. As mentioned earlier, Selangor surrounds Kuala Lumpur and a lot of residential development has been concentrated in Selangor, adjacent to the administrative boundary with Kuala Lumpur. Net out-migration flows from Kuala Lumpur are also associated with Negeri Sembilan, Perak and Johor. There appears to be extensive population exchange taking place since many of those migrating in the opposite direction into Kuala Lumpur are from the nearby states, especially Selangor and Perak as well as from Johor. The development of the North-South Highway and a new rapid mass transit system (high speed rail network within Kuala Lumpur and its surrounding area) may cause the migration exchange between these states to increase further.

A pattern can be seen from Figures 6.7 to 6.10, where it is noted that major movements occurred mainly in the west coast of Peninsular Malaysia. (Different colours show the less developed and the more developed states). There were also flows from the east coast to the west coast but not on the opposite direction (except from Johor to Pahang in 1986-1991). Moreover, there was no major flow across the South China Sea, from East Malaysian states of Sabah and Sarawak.

Figure 6.7: Primary and secondary inter-state flows in Malaysia, 1986-1991

Figure 6.8: Tertiary inter-state flows in Malaysia, 1986-1991

Figure 6.9: Primary and secondary inter-state flows in Malaysia, 1995-2000

Figure 6.10: Tertiary inter-state flows in Malaysia, 1995-2000

The patterns of migration in the two periods suggest the importance of development. High movement occurred within and between the states that are well developed and have good inter-linking transportation infrastructure. Major population movement occurred in or between the states that are categorized as more developed states, meaning that these states experienced high economic growth, better living conditions, good transportation and more employment opportunities. In less developed states, the population movements are either leaving the states or taking place within the states.

6.3.2 Net migration balances

In previous section we can see that major inter-state movement were moving to the west coast areas of Peninsular Malaysia, where the move developed states were located. But did the migrants move from less developed states to the more developed states, from the east coast states to the west coast states or were there some other patterns of movements between the states?

Table 6.6 shows the net balances from the origin-destination (*i to j*) that had major flows over 10,000 between states during 1986-1991. The highest four major net balances were the flows from four states to Selangor, with more than 10,000 individuals. Net balance from Kuala Lumpur to Selangor was the highest with 53,289 individuals, which means that there were 53,289 more people who migrated from Kuala Lumpur to Selangor than those who migrated from Selangor to Kuala Lumpur. The second largest net balance was from Perak to neighbouring Selangor with 33,340. Kelantan and Pahang also provided over 10,000 migrants to Selangor in net terms. Both these are less developed states located on the east coast of the Peninsular. Among the states with major directional flows, Selangor had more migrants coming to the state than those going out of the state. Selangor had positive net migration from nine states, which means that there were more people from those nine states moving into Selangor than the flows from Selangor in the other direction (Table 6.6). This shows that Selangor is the state that attracts most people from other parts Malaysia, no matter what category of states they are or where they are located.

Johor was another state that attracted more net inflows than outflows. There were positive net migration balances from six other states to Johor. Although the net balance from Negeri Sembilan was only 374 individuals, net migration balances from other states were quite high. The net inflow flow from Perak which is quite a distance away from Johor was almost 10,000 individuals. Johor was one of the states other than Selangor that was experiencing high economic growth (Economic Planning Unit, 2001b).

Table 6.6: Net migration balances between states, 1986-1991

Origin (*i*)	Destination (*j*)	*i - j*	*j - i*	Net balances
Kuala Lumpur	Selangor	109,334	56,045	53,289
Perak	Selangor	48,815	15,475	33,340
Kelantan	Selangor	14,843	3,797	11,046
Pahang	Selangor	19,414	9,172	10,242
Perak	Johor	17,812	7,880	9,932
Perak	Pulau Pinang	19,712	10,181	9,531
Negeri Sembilan	Selangor	19,800	10,290	9,510
Johor	Selangor	22,569	13,437	9,132
Perak	Kuala Lumpur	22,873	13,850	9,023
Kedah	Selangor	14,217	6,488	7,729
Melaka	Selangor	11,989	5,099	6,890
Pulau Pinang	Selangor	10,545	4,696	5,849
Kelantan	Pahang	10,818	7,398	3,420
Perak	Kedah	15,411	12,064	3,347
Perak	Pahang	11,027	8,220	2,807
Pahang	Johor	12,742	10,157	2,585
Melaka	Johor	10,763	8,496	2,267
Kelantan	Terengganu	10,272	8,071	2,201
Kuala Lumpur	Johor	14,685	12,649	2,036
Pulau Pinang	Kedah	22,775	22,316	459
Negeri Sembilan	Johor	10,209	9,835	374

Source: Department of Statistics (1995)

Major inter-state directional flows during 1995-2000 period were almost the same as in the previous period. The net migration balances for the first three major flows were from and to the same state, Kuala Lumpur, Perak and Kelantan to Selangor. The net migration balance from Kuala Lumpur to Selangor was even higher during this period with 99,278 individuals (Table 6.7). Selangor had positive in-migration balances from eleven states compared to nine during the previous period, showing that development and other facilities and services in Selangor attracted people from other states and not as many would moved out. Similar to the previous period, Johor still emerged as an attractive place for the migrants to migrate to, as there were more people coming from other states compared to those going to other states. However, the number of net migration balances dropped to four compared to five in the previous period. Nevertheless, it was still a significant number of migrants arriving in this southern state in net terms.

Table 6.7: Net migration balances between states, 1995-2000

Origin (*i*)	Destination (*j*)	*i-j*	*j-i*	Net balances
Kuala Lumpur	Selangor	131,423	32,145	99,278
Perak	Selangor	41,278	12,485	28,793
Kelantan	Selangor	25,838	3,088	22,750
Johor	Selangor	27,393	11,369	16,024
Pahang	Selangor	23,520	8,005	15,515
Sabah	Selangor	14,060	2,215	11,845
Kedah	Selangor	16,351	6,108	10,243
Kelantan	Johor	12,134	2,730	9,404
Perak	Pulau Pinang	15,895	6,736	9,159
Terengganu	Perak	10,811	1,921	8,890
Perak	Johor	14,960	6,481	8,479
Terengganu	Selangor	12,039	3,807	8,232
Pulau Pinang	Selangor	11,074	4,278	6,796
Melaka	Selangor	10,614	5,290	5,324
Kuala Lumpur	Negeri Sembilan	10,291	5,628	4,663
Kedah	Pulau Pinang	21,153	17,051	4,102
Perak	Kuala Lumpur	14,323	10,811	3,512
Pahang	Johor	10,769	7,871	2,898
Negeri Sembilan	Selangor	17,898	16,021	1,877
Perak	Kedah	10,154	8,700	1,454
Kuala Lumpur	Johor	11,267	10,213	1,054

Source: Department of Statistics (2004a)

6.4 Gender and age variations in migration propensities, 1995-2000

6.4.1 Gender composition

Malaysia has a slightly higher male population with 11.3 million compared to its female population of 10.9 million. Overall, gender differences in migration are not particularly significant in Malaysia. Among total migrants between 1995 and 2000, 51.47 percent were male. In all states except Perlis and Pulau Pinang, male migrants into and within the boundaries are slightly more numerous than female with the male-female ratios more than 1. The highest male-female ratio is in Johor where 52.98 percent are male and the ratio is 1.13 (Table 6.8). Male participation in migration, although slightly higher than female participation in most states, is not much different in volume. The ratio of total male population and female population in Malaysia is 1.03, which is lower than the ratio for male and female migrants (at 1.06). In other countries such as Israel, Botswana, the Netherlands and Egypt, female migrants almost matched male migrants. In India, however, about 70.5

percent of migrants were female in 1981 whilst during a survey in China in 1986, only 26 percent of the migrants were female (Guang, 1995).

Table 6.8: Migration in Malaysia by state and sex, 1995-2000

	TOTAL	MALE	FEMALE	Ratio M:F
NEGERI SEMBILAN	154,595	82,016	72,579	1.13
JOHOR	419,390	222,185	197,205	1.13
W.P. LABUAN	13,554	7,164	6,390	1.12
PAHANG	190,984	99,635	91,349	1.09
TERENGGANU	124,404	64,677	59,727	1.08
SABAH	310,733	161,080	149,653	1.08
SELANGOR	740,700	382,267	358,433	1.07
SARAWAK	261,560	134,894	126,666	1.06
PERAK	252,653	129,434	123,219	1.05
MELAKA	103,983	52,344	51,639	1.01
W.P. KUALA LUMPUR	221,080	110,975	110,105	1.01
KEDAH	179,114	89,594	89,520	1.00
KELANTAN	108,646	54,306	54,340	1.00
PERLIS	21,466	10,663	10,803	0.99
PULAU PINANG	225,623	111,806	113,817	0.98
MALAYSIA	3,328,485	1,713,040	1,615,445	1.06

Source: Department of Statistics (2004a)

6.4.2 Age structure of aggregate flows

When total internal migration is disaggregated into age groups, the highest percentages of internal migrants are found in age groups of 20-24 and 25-29 with shares of 13.6 percent and 12.7 percent respectively (Table 6.9). These age groups, together with those aged 15-19 and 30-34, were responsible for 47.6 percent of migrants in Malaysia in 1995-2000. At the age of sixteen, after sitting for a major examination known as *"Sijil Rendah Pelajaran"* (previously known as the Lower Certificate of Education), some of the teenagers will leave secondary school and enter the labour force.

Table 6.9: Age composition of internal migrants, 1995-2000

Age group	Migrants	% of total
0-4	324,462	9.75
5-9	357,674	10.75
10-14	264,902	7.96
15-19	340,039	10.22
20-24	452,008	13.58
25-29	421,792	12.67
30-34	370,583	11.13
35-39	290,619	8.73
40-44	195,538	5.87
45-49	116,534	3.50
50-54	73,657	2.21
55-59	43,287	1.30
60-64	32,027	0.96
65-69	18,777	0.56
70-74	13,101	0.39
75+	13,485	0.41
Total	3,328,485	100.00

Source: Department of Statistics (2004a)

Migration is highly age selective. The age-specific migration schedules of many countries exhibit remarkably persistent regularities. The migration rates among infants and young children mirror the rates of their parents. Migration rates reach a high peak in the early twenties and then decline with age to retirement (Rogers and Castro, 1981). In Malaysia, the migration schedule shows the same regularity, with migration rates among infants and young children following their parents' migration rates but reaching the peak in the mid to late twenties. The rate declines from age 20-24 to the age of retirement and beyond (Figure 6.8).

6.4.2.1 Migration by age and sex, 1996-2000

Male and female migrants also have the same general regularities in their migration schedules although differences are also evident. The migration propensities of infant and young children follow those of their parents. Figure 6.9, however, shows that migration rates of the female population in Malaysia are higher than those of the male population in their younger age groups, reaching their high peak in the early twenties but then declining earlier so that they are below male rates from ages 30-34 to retirement, after which they exceed males only marginally. This pattern is quite similar to the migration-age schedule by gender in other countries such as Sweden,

the United States and the Netherlands, where young adults in their early twenties show the highest migration rates and young teenagers show the lowest rates in the younger age groups. In terms of gender, the Netherlands and Sweden show similarities with Malaysia where male migrants have higher rates than female, whereas for Poland and the United States, the rates for male and female are about the same (Rogers and Castro, 1981).

Since no data are available on the age structure of migration in Malaysia for the 1986-1991 period, the analysis is confined to using age-specific migration rates per 100 persons in the most recent five-year period (Figure 6.11) to demonstrate that the highest propensities to migrate were amongst those in their twenties and early thirties. In fact those in their twenties constitute over a quarter of total migration and almost 70 percent of all migrants are aged between 16 and 59. The shape of the profile conforms to the familiar model conceptualised by Rogers and Castro (1981), with relatively low rates of migration amongst the dependent population at either end of the age spectrum. However, the rates of migration vary less between ages than in some other countries. Figure 6.11 displays a line graph of the age-specific percentage shares of internal migration, the area under which represents 100 percent, the sum of the age-specific migration shares. Thus, children contribute a higher share of total migration than their migration rates might suggest whilst the shares of total migration that involve those beyond retirement age are very small. In terms of variations by sex, Malaysia's internal migration involves more men (1.71 million) than women (1.62 million). However, this differential is not consistent across the five-year age groups. In the late teenage and young working age groups (15-29), females outnumber males as they also do in the age groups over 65 years old. In the child ages, middle and late working age, there are more male migrants than female (Figure 6.12).

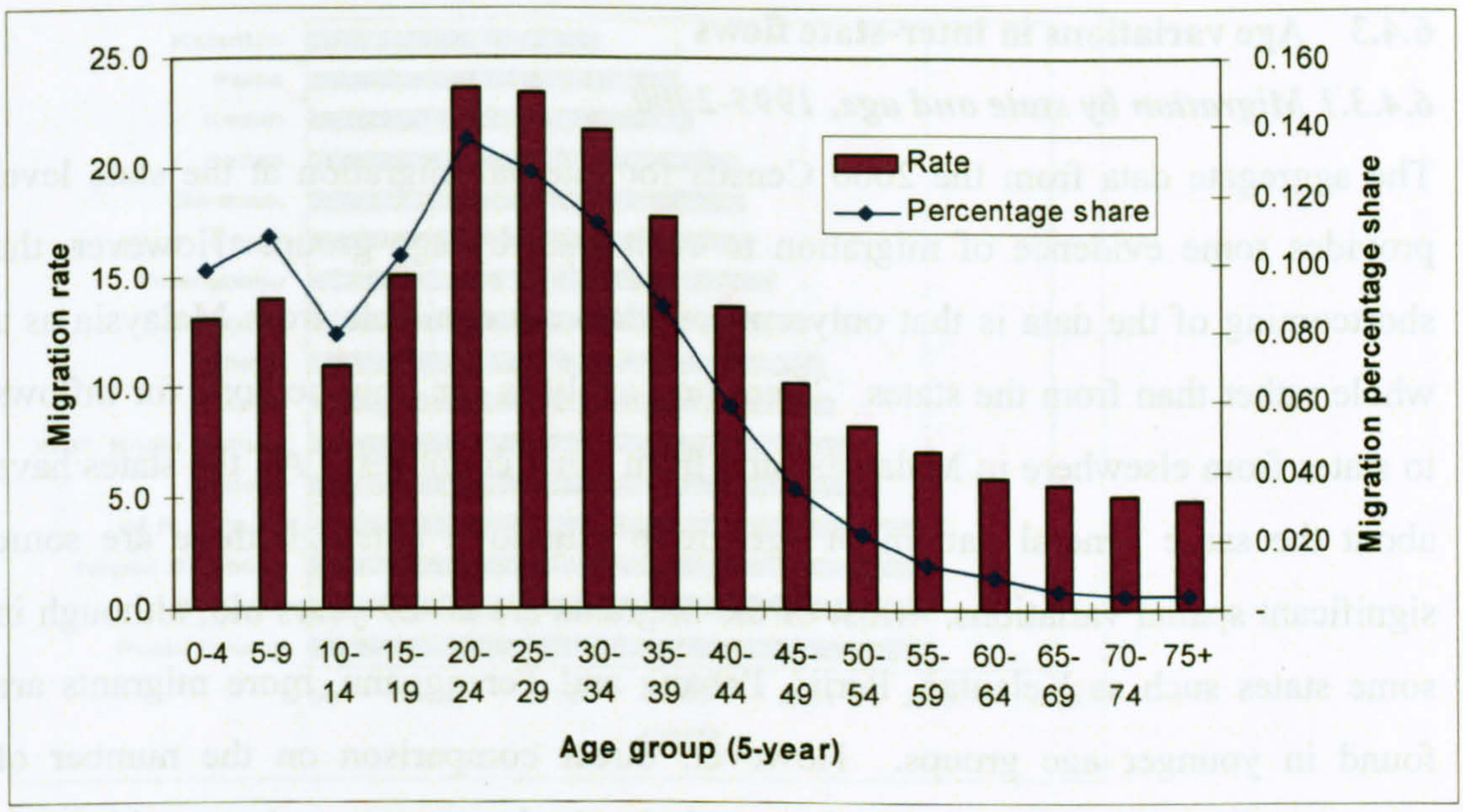


Figure 6.11: Internal migration rates and percentage shares by age, 1995-2000

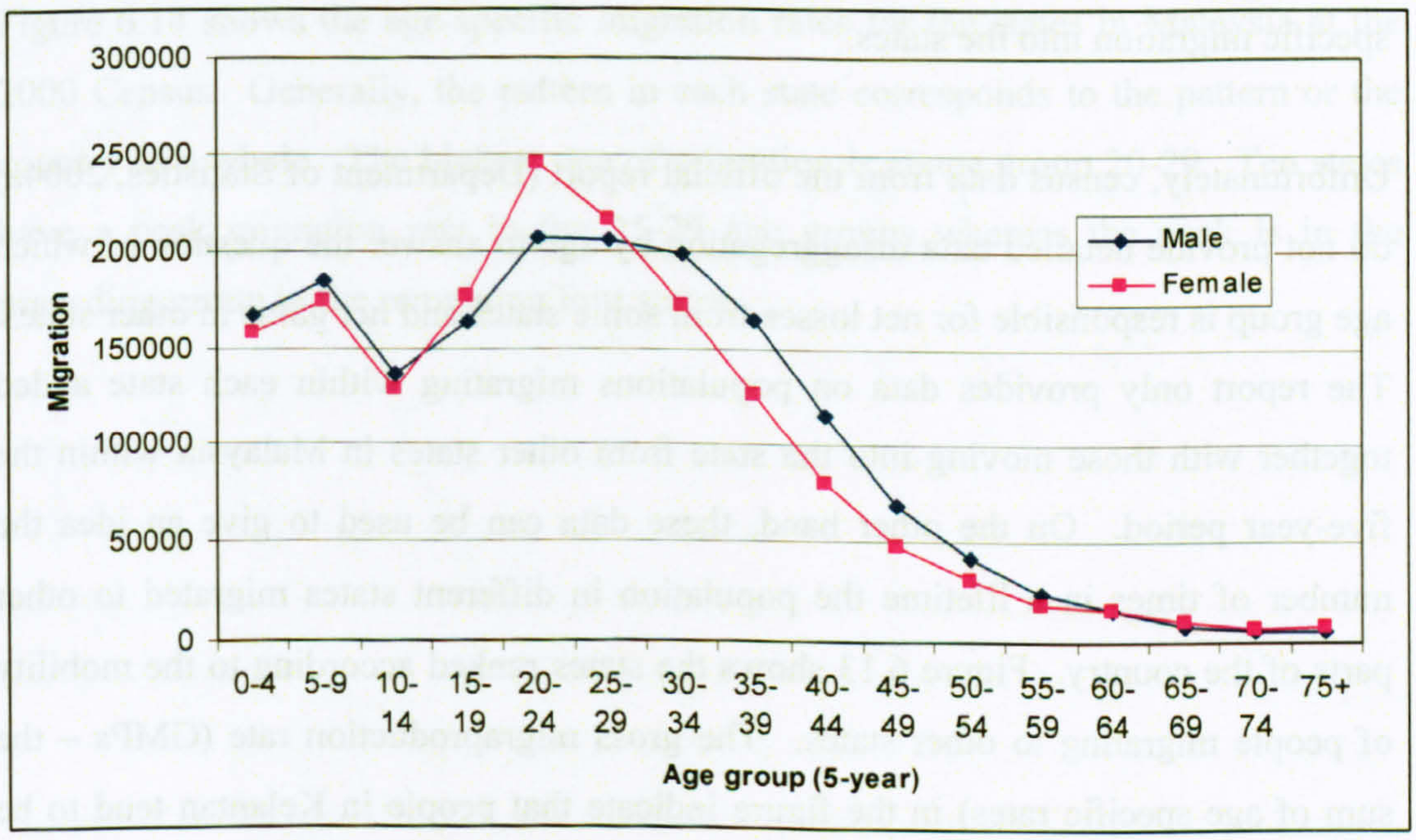


Figure 6.12: Internal migration volumes by sex, 1995-2000

6.4.3 Age variations in inter-state flows

6.4.3.1 Migration by state and age, 1995-2000

The aggregate data from the 2000 Census for internal migration at the state level provides some evidence of migration to each state by age group. However, the shortcoming of the data is that only outflow data are available from Malaysia as a whole rather than from the states. Therefore, analysis can only be done for inflows to states from elsewhere in Malaysia (and from other countries). All the states have about the same general pattern of age-group migration although there are some significant spatial variations. Most of the migrants are 20-29 years old, although in some states such as Kelantan, Perlis, Pahang and Terengganu, more migrants are found in younger age groups. However, direct comparison on the number of migrants cannot be made because the population in these states varies considerably. It would be more appropriate to use migration rates to compare patterns of age-specific migration into the states.

Unfortunately, census data from the official report (Department of Statistics, 2004a) do not provide detailed data disaggregation by age to answer the question of which age group is responsible for net losses from some states and net gains in other states. The report only provides data on populations migrating within each state added together with those moving into the state from other states in Malaysia within the five-year period. On the other hand, these data can be used to give an idea the number of times in a lifetime the population in different states migrated to other parts of the country. Figure 6.13 shows the states ranked according to the mobility of people migrating to other states. The gross migraproduction rate (GMPs – the sum of age specific rates) in the figure indicate that people in Kelantan tend to be least mobile, moving 1.25 times in their lifetime, followed by Perlis (both are the less developed states) who moves 1.5 times in their lifetime, whereas people in Pulau Pinang and Selangor (both are the more developed states) move on average 2.5 times.

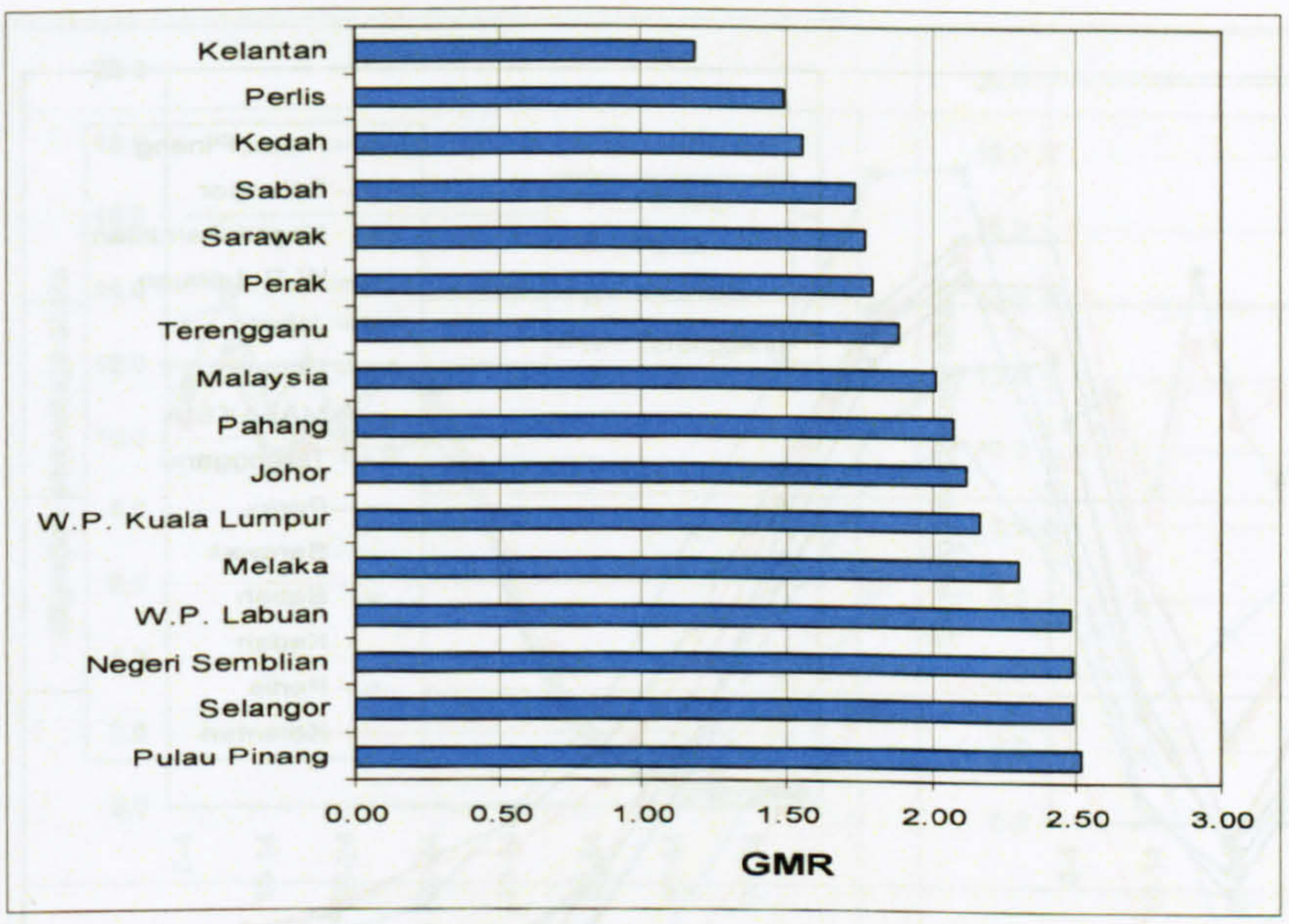


Figure 6.13: Gross migraproduction rate by state, 1995-2000

Figure 6.14 shows the age-specific migration rates for the states in Malaysia at the 2000 Census. Generally, the pattern in each state corresponds to the pattern or the country as a whole. The highest rate of migration is at age group 20-29. Ten states have a peak migration rate in the 25-29 age groups whereas the peak is in the preceding group in the remaining four states.

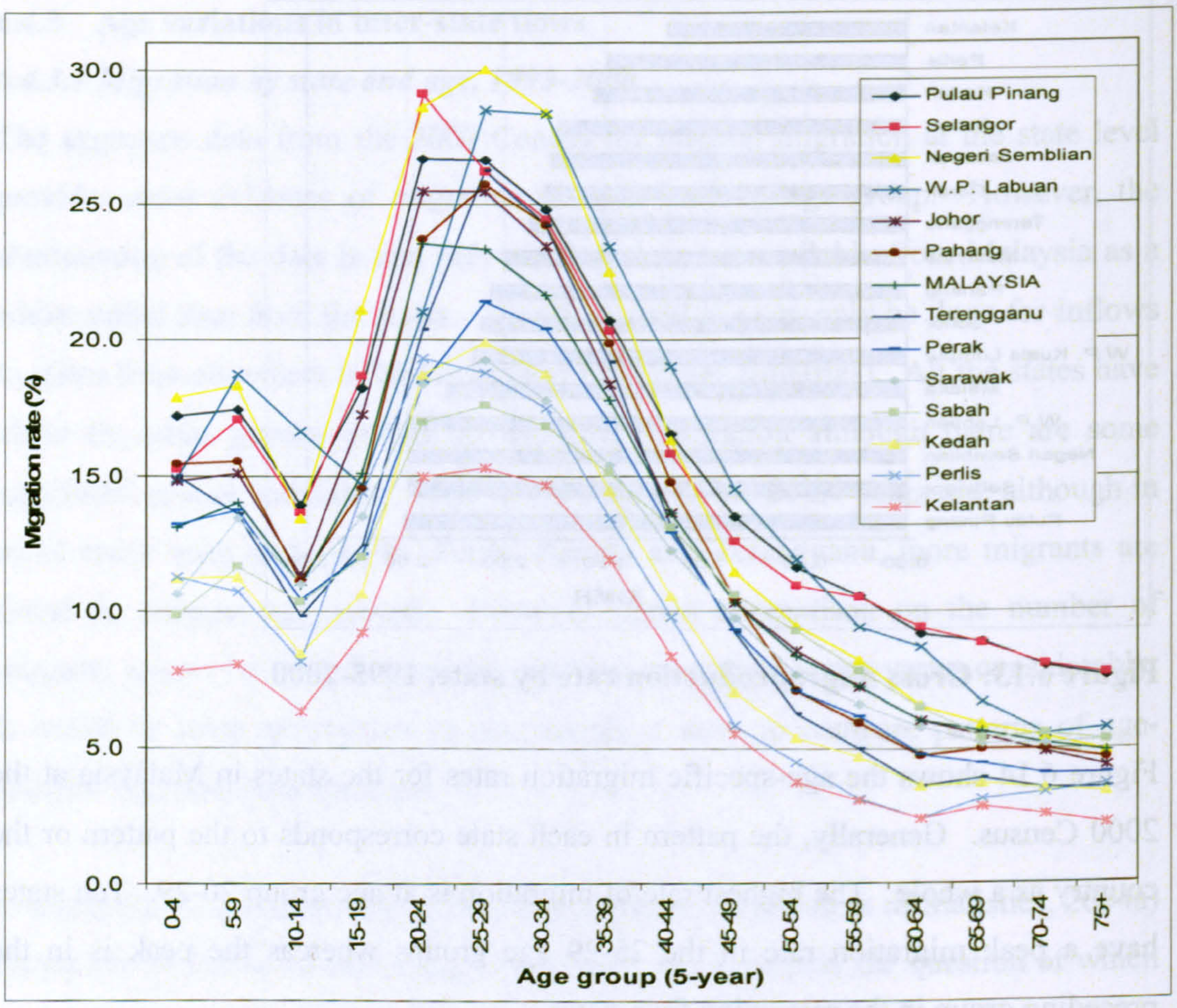
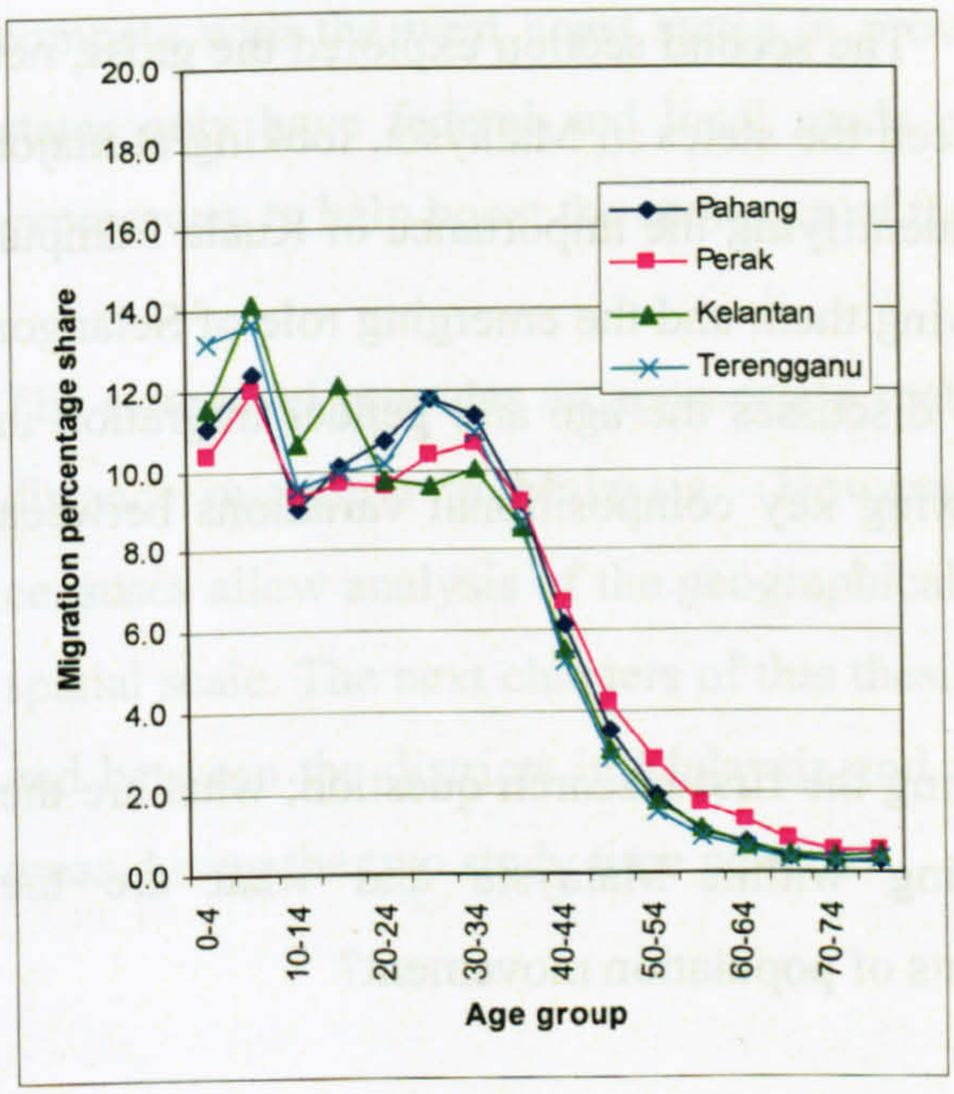
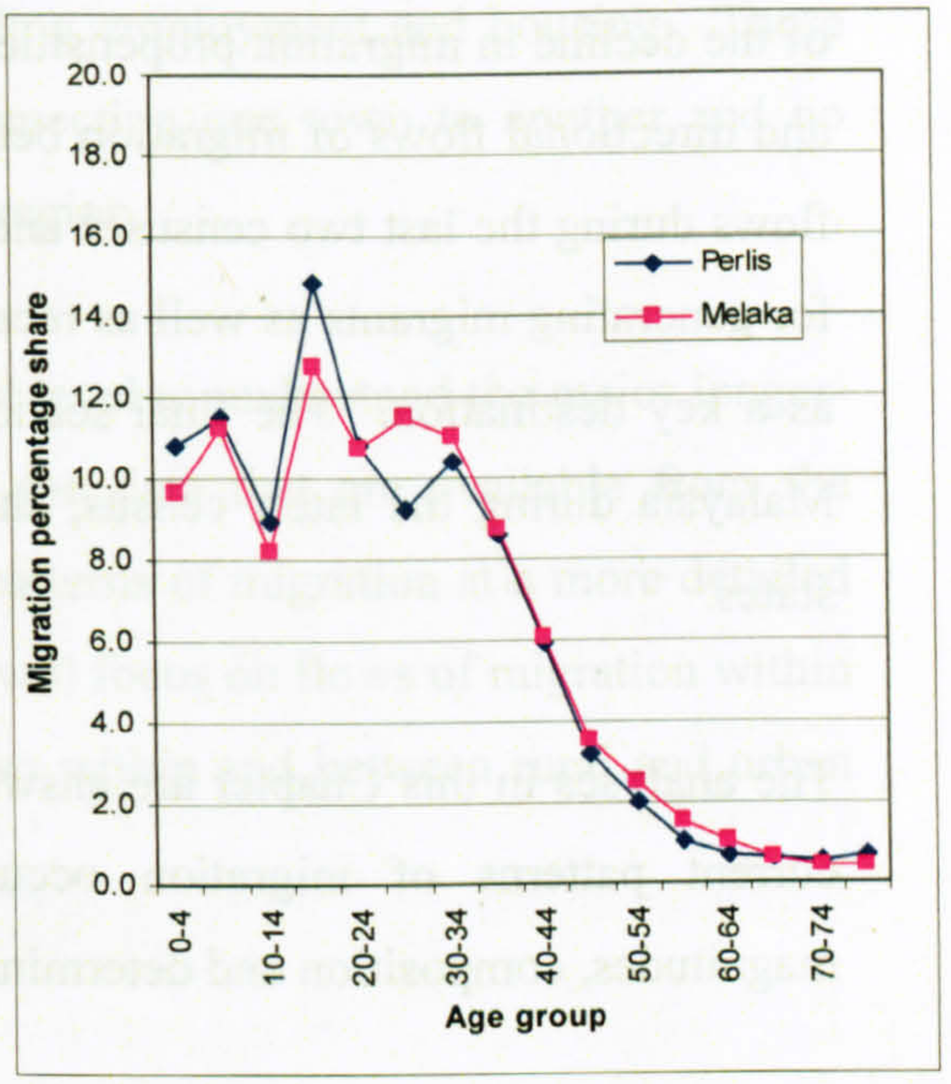


Figure 6.14: Age-specific migration rates by state, 1995-2000

Figure 6.15 shows the percentage share schedules of the states which are plotted to allow consistent comparison. Schedules for the states are grouped according to where the peak migration shares occur. Schedules for the states in east Malaysia are separated from those in Peninsular Malaysia. Kelantan, Perak, Pulau Pinang and Terengganu have the migration peak in the child age group 5-9. This is depicted in Figure 6.15(a). Profiles for Perlis and Melaka, where migrants are mostly in the age group 15-19 or the late teens, are shown in 6.15(b). The states whose migration peaks at age group 20-24 are shown in 6.15(c) are Johor, Kedah, Negeri Sembilan, Pulau Pinang and Selangor. Kuala Lumpur has the highest share of its migration at age 20-24 and the lowest migration probabilities aged 10-14 in the country. The three states in east Malaysia, shown in 6.15(d) have the migration peak at age group 25-29, but at the same time have relatively high share of migration at child ages 5-9.



(a)



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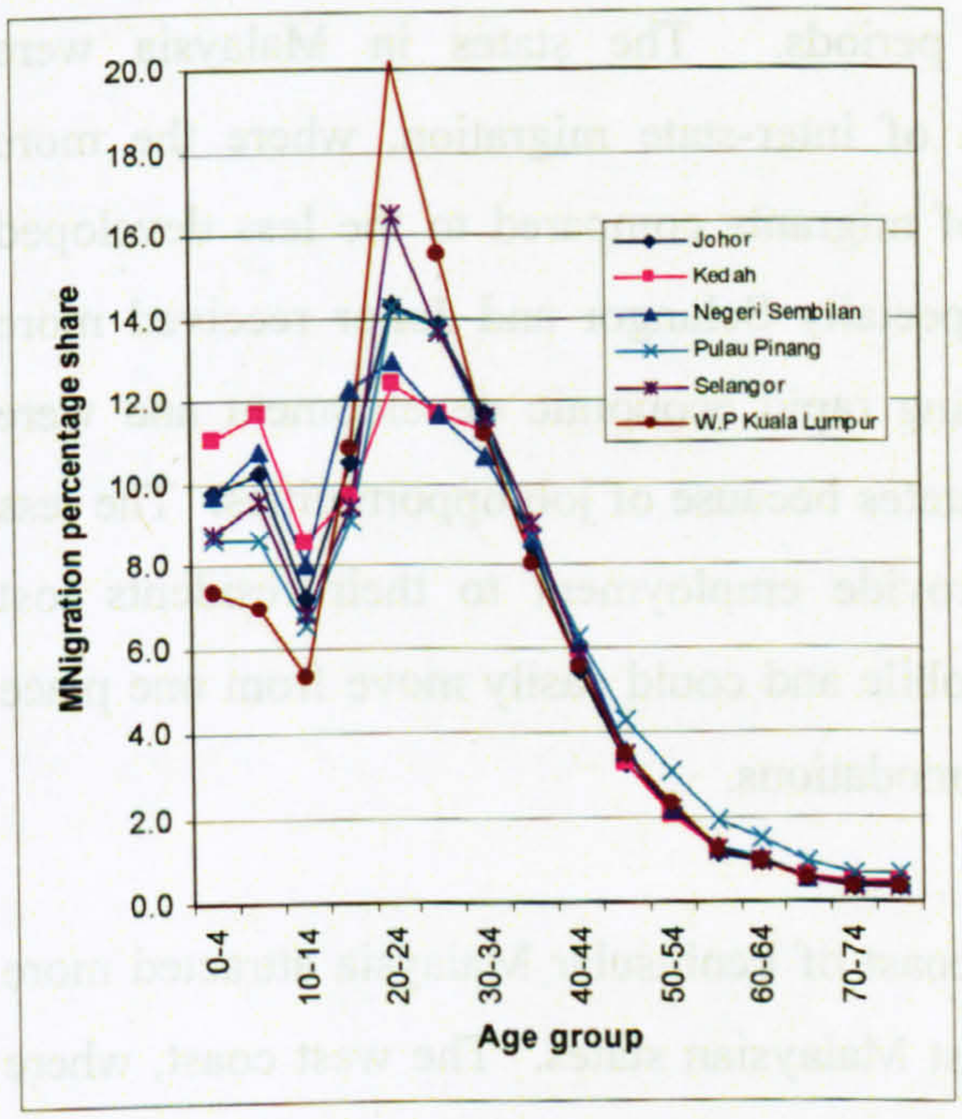

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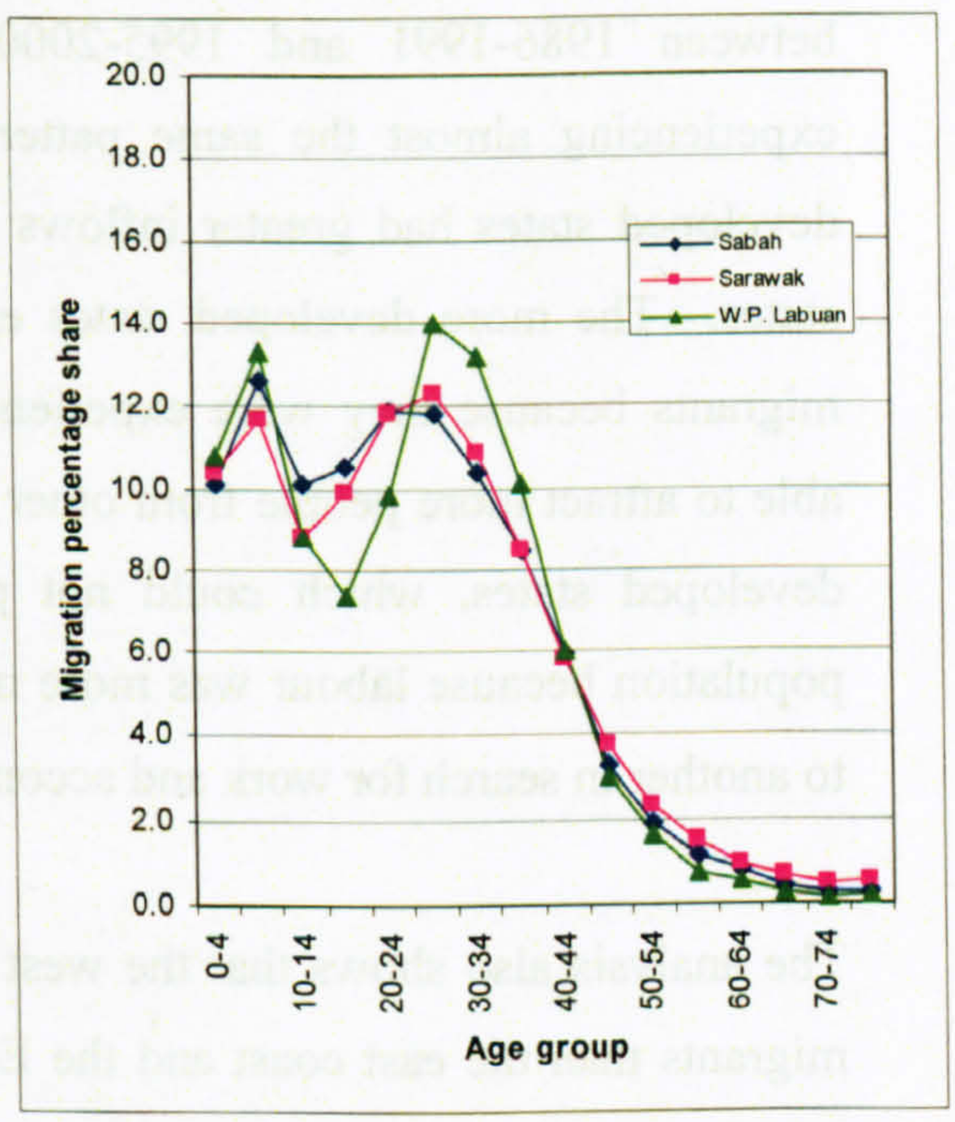


(d)

Figure 6.15: Age-specific migration percentage shares by state, 1995-2000

6.5 Conclusion

To conclude, there are three major sections discussed in this chapter. The first has discussed the changes that Malaysia has experienced in aggregate flows of migration within states, between states and into states from abroad, quantifying the magnitude

of the decline in migration propensities. The second section explored the gross, net and directional flows of migration between the states in Malaysia, looking at major flows during the last two censuses and identifying the importance of Kuala Lumpur for generating migrants as well as receiving them and the emerging role of Selangor as a key destination. The final section discusses the age and gender migration in Malaysia during the latest census, showing key compositional variations between states.

The analyses in this Chapter are answering the first research question; what are the current patterns of migration occurring within Malaysia and what are the magnitudes, composition and determinants of population movement?

The analysis shows that the internal migration pattern did not change significantly between 1986-1991 and 1995-2000 periods. The states in Malaysia were experiencing almost the same pattern of inter-state migration, where the more developed states had greater inflows of migrants compared to the less developed states. The more developed states especially Selangor and Johor received more migrants because they were experiencing rapid economic development and were able to attract more people from other states because of job opportunities. The less developed states, which could not provide employment to their residents lost population because labour was more mobile and could easily move from one place to another in search for work and accommodations.

The analysis also shows that the west coast of Peninsular Malaysia attracted more migrants than the east coast and the East Malaysian states. The west coast, where the more developed states are located has better infrastructure and transportation networks and facilities. Major expressway was developed linking all the states in the west coast which reduced travelling time tremendously (see Appendix G for major highways in Peninsular Malaysia). A complex web of highways in the Klang Valley interconnecting Kuala Lumpur and Selangor and their surrounding regions were also developed and continue to be developed. The east coast and East Malaysia are still far behind in terms of their economic development and cannot

compete with the west coast states in providing employment and housing. These states only have federal and local roads connecting one town to another and no expressway to help boost the economy of the region.

The state level provides an appropriate spatial level to understand the major longer-distance migration in Malaysia. However, the data that are available from the censuses allow analysis of the geographical patterns of migration at a more detailed spatial scale. The next chapters of this thesis will focus on flows of migration within and between the districts in Malaysia and also within and between rural and urban areas during the two study time periods.

CHAPTER 7

INTERNAL MIGRATION AT DISTRICT LEVEL

7.1 Introduction

The discussion of internal migration at state level has shown which states received most of the migrants from elsewhere and which states lose their population to other states. We now turn to migration at the district level to establish where migrants are coming from and where they are going to at a more disaggregated spatial scale. The districts are located within the states and each state contains one or more districts. The districts differ in area and population size and thus affect the flow of migration within and between them.

The aim of this chapter is to identify the characteristics of internal migration by examining flows both within and between districts. Section 7.2 briefly outlines the districts in Malaysia and how they changed between the two censuses of 1991 and 2000. Section 7.3 examines changes in aggregate migration between the two periods, whilst section 7.4 examines the more detailed pattern of migration using some indicators that include percentage change and migration rates. Section 7.5 discusses migration between districts to establish the pattern of population movement at longer distances, and to identify which districts were losing their population and which ones were gaining population through migration. The analysis shows which districts were more attractive and explains why this was so. Section 7.6 examines the directional flow of migration from one district to another and shows the pattern of movement between the districts, illustrating which states and which parts of Malaysia experience the major flows. Finally, section 7.7 concludes the chapter.

7.2 Districts in Malaysia

As mentioned in Chapter 6, Malaysia contained thirteen states and two federal territories at each of the last two censuses. States vary in size, ranging from containing one district in Perlis to twenty nine districts in Sarawak. Consequently, Perlis is the smallest state while Sarawak is the largest state in Malaysia. At the

time when the Census 1991 was conducted, there were 133 districts in Malaysia. Between 1991 and 2000, three new districts were created by subdivision of four districts. Thus, when the Census 2000 was conducted, there were 136 districts in Malaysia. The additional districts are Bera in Pahang, Tongod in Sabah and Asajaya in Sarawak. Bera was previously part of Temerloh district, Tongod was part of Kinabatangan district whilst Asajaya was part of two districts, Samarahan and Simunjan. There are 81 districts in Peninsular Malaysia and 55 districts in East Malaysia. Figures 7.1a and 7.1b show the districts in Malaysia within their states in 2000.

7.3 Aggregate migration change, 1986-1991 and 1995-2000

In both 1986-1991 and 1995-2000 periods, short-distance migrations were more prevalent than long-distance migrations. Both periods saw more migration flows within the districts than between the districts. Table 7.1 indicates that about 56.0 percent of the total internal migrants occurred within the districts whilst over 44.0 percent involved flows between districts in 1986-91. As in the internal migration at state level discussed in previous chapter, this shows that short-distance migration was dominant in Malaysia. The Census in 2000, however, indicates the trend towards longer share of longer-distance inter-district migration and a smaller share of those moving within the same district. The proportion of those moving between districts increased very little (0.06 percent) whilst those moving within the districts decreased slightly (0.06 percent).

Table 7.1: Migration flows (districts), 1986-1991 and 1995-2000

	1986-1991		1995-2000		Change	
Type of flow	**Number**	**%**	**Number**	**%**	**Number**	**share**
Flows within districts	2,405,163	55.53	1,846,264	55.47	-558,899	-0.06
Flows between districts	1,926,167	44.47	1,482,221	44.53	-443,946	0.06
Total migration (internal)	**4,331,330**	**100.00**	**3,328,485**	**100.00**	**-1,002,845**	**na**

Source: Department of Statistics (1995, 2004a)

Intra-district migration between 1986 and 1991 involved around 2.4 million people but decreased to almost 1.8 million between 1995 and 2000. This is a reduction of 559,000 people, a fall in the share of 0.06 percent.

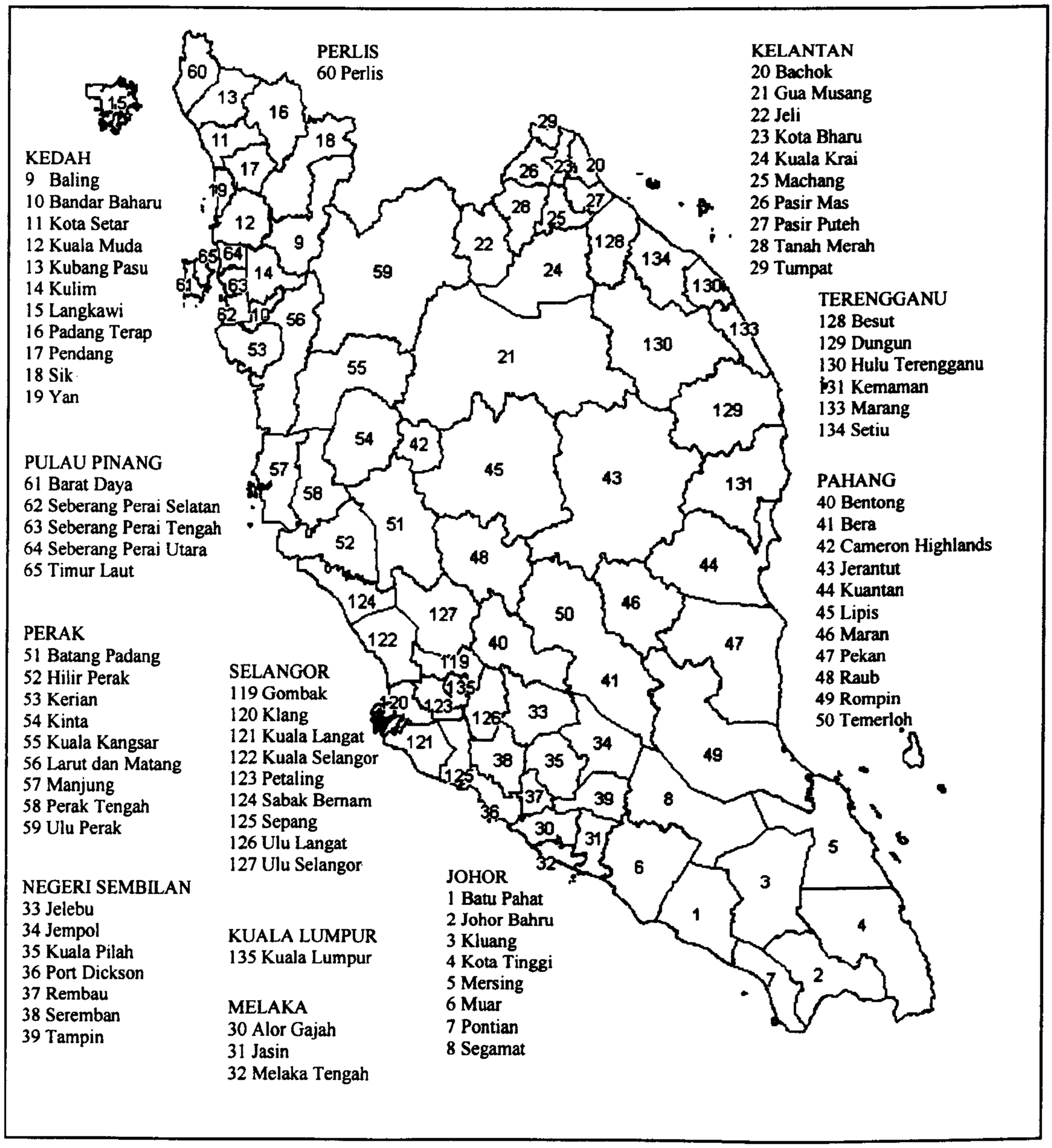


Figure 7.1a: Districts in Peninsular Malaysia, 2000

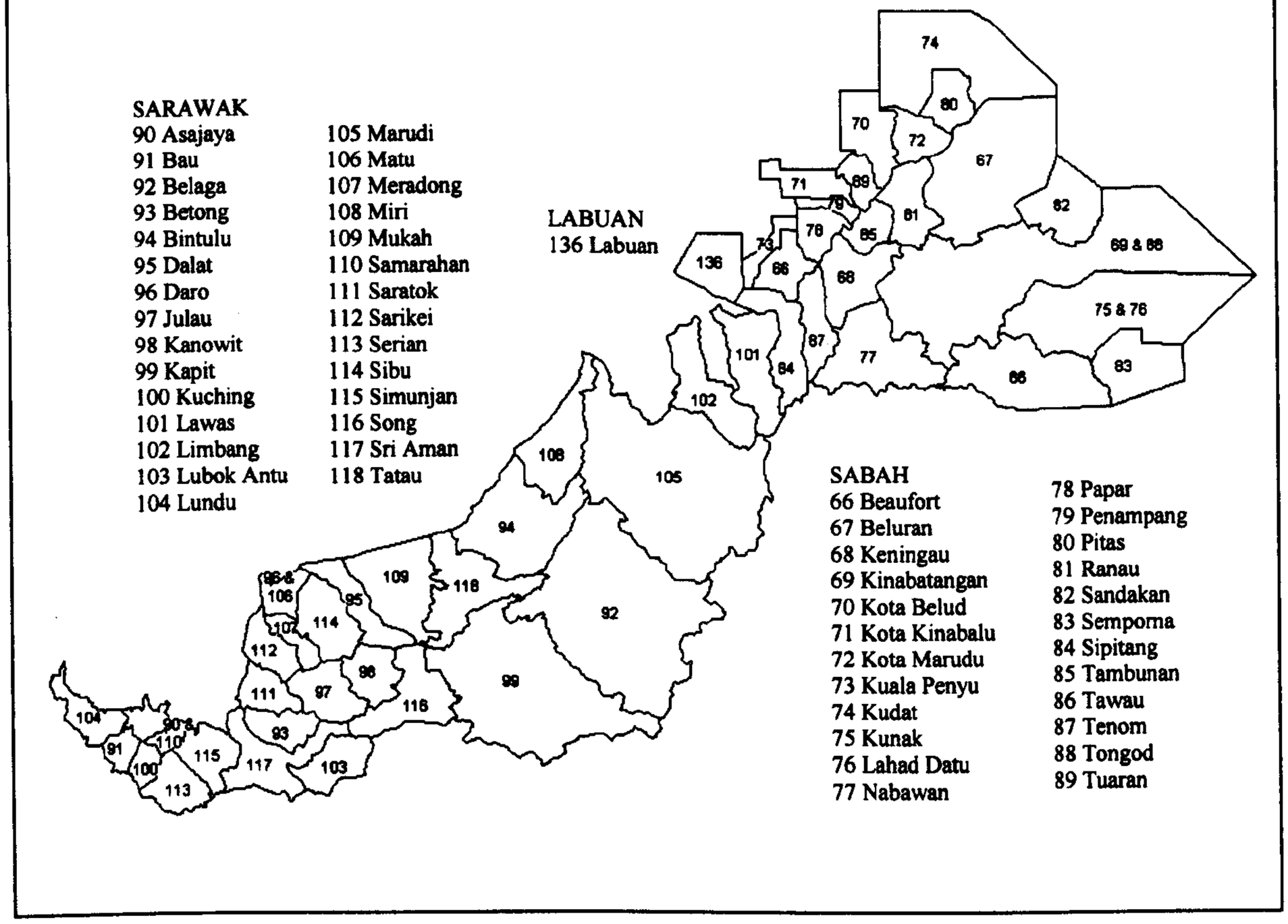


Figure 7.1b: Districts in East Malaysia, 2000

The inter-district flows between the two periods also have the same trend as the intra-district flows. The numbers declined from 1,926,000 during the first period to 1,482,000 during the second period. This is a drop of almost 444,000 people.

The number of total internal migration decreased from 4,331,000 in 1986-1991 to 3,328,000 in 1995-2000, a large reduction of 1,003,000 migrants, which suggest that the population became more settled during the second half of 1990s. However, we also have to keep in mind that, during the period between 1996 and 2000, Malaysia was experiencing an economic decline as a result of the currency crisis in the late 1990s.

7.4 Intra-district migration

The majority of the districts experienced a reduction in the volume of intra-district migration between the two five year periods. Out of 132 districts (there were 133 districts in 1991 Census but one district, Matu, did not have migration data – it is

assumed that migration data was included in Daro district), 117 districts experienced the reduction in migration volume while only 15 districts experienced a higher migration volume. This means that 88.6 percent of the districts in Malaysia have lower intra-district migration during 1995-2000 period compared to 1986-1991 period. The districts that experienced higher migration flows include one in the state of Johor, one in Melaka, four in Pulau Pinang, two in Sabah, one in Sarawak, four in Selangor and two in Terengganu. There is no clear pattern between the migration volume change and the state's development status at the district level.

The district of Hulu Terengganu has the highest migration change with 169.5 percent increase of intra-district migration flows between the two periods (Table 7.2). This is followed by Kemaman with an 83.2 percent increase, Seberang Perai Selatan with 66.3 percent rise, Belaga with 61.2 percent increase and Sepang with 59.7 percent increase. Other districts that have positive intra-district migration flows are Barat Daya, Petaling, Kota Kinabalu, Ulu Selangor, Ulu Langat, Johor Bahru, Melaka Tengah, Timur Laut, Sandakan and Seberang Perai Tengah. Twelve of these districts are located in Peninsular Malaysia, whilst the other three are located in East Malaysia.

On the other hand, Lubuk Antu has the lowest or negative intra-district migration with a fall of 91.6 percent, followed by Kuala Terengganu with a fall of 90.9 percent and Bau with a drop of 89.2 percent. Other districts with negative percentage change are Simunjan, Julau, Serian, Song, Saratok, Betong and Tatau. All other districts, except Kuala Terengganu that have the lowest intra-district migration change, are located in the East Malaysia states. All these districts are in the less developed states. Table 7.2 shows the ten districts with the highest intra flow and the ten districts with the lowest intra flow between the two periods which has been ranked according to the percentage change from highest to lowest.

Table 7.2: Selected intra-district migration change, 1986-1991 and 1995-2000

	DISTRICTS	1986-1991	1995-2000	Change	
				Number	%
Districts with the highest increase in migration	Hulu Terengganu	5,861	15,797	9,936	169.5
	Kemaman	13,729	25,158	11,429	83.2
	Seberang Perai Selatan	5,560	9,248	3,688	66.3
	Belaga	3,884	6,262	2,378	61.2
	Sepang	3,598	5,746	2,148	59.7
	Barat Daya	9,228	12,281	3,053	33.1
	Petaling	79,460	104,287	24,827	31.2
	Kota Kinabalu	26,666	33,130	6,464	24.2
	Ulu Selangor	5,746	6,901	1,155	20.1
	Ulu Langat	45,805	51,180	5,375	11.7
Districts with the highest decrease in migration	Tatau	3,984	828	-3,156	-79.2
	Betong	9,133	1,864	-7,269	-79.6
	Saratok	8,662	1,658	-7,004	-80.9
	Song	3,390	614	-2,776	-81.9
	Serian	12,182	1,904	-10,278	-84.4
	Julau	5,708	887	-4,821	-84.5
	Simunjan	8,811	976	-7,835	-88.9
	Bau	7,033	761	-6,272	-89.2
	Kuala Terengganu	28,497	2,594	-25,903	-90.9
	Lubok Antu	4,046	338	-3,708	-91.6

Source: Department of Statistics (1995, 2004a)

Overall in Malaysia, intra-district migration occurred in the districts where the big towns/ cities are located, especially along the coasts where the areas are more developed and have better transportation. Figure 7.2a and 7.2b show the number of people migrating within the districts during the 1986-1991 period. High migration occurred around Kuala Lumpur and the neighbouring districts in Selangor, where Kuala Lumpur is the capital and the biggest city in Malaysia. Another high migration occurred within Johor Bahru district where Johor Bahru is the state capital of Johor. The next highest migration flow occurred within Kinta district in Perak, where Ipoh, the state capital of Perak is located.

Other relatively high intra-district migration occurred in Timur Laut district of Pulau Pinang, where its capital Georgetown is located, the district of Kuala Muda in Kedah which is located near Pulau Pinang and received the down stream development from Pulau Pinang, Kota Setar district in Kedah where Alor Setar, the state capital is located, Kota Bharu district in the east coast state of Kelantan. The district of Kuantan in Pahang where Kuantan, the state capital, is located, also had considerable intra-district migration. On the other hand, Hulu Terengganu district in

the east coast state of Terengganu had considerable intra-district migration not because of its state capital, but because it has a lot of development projects, especially agricultural projects and its close proximity to the off-shore oil drilling and other oil related industries in Terengganu.

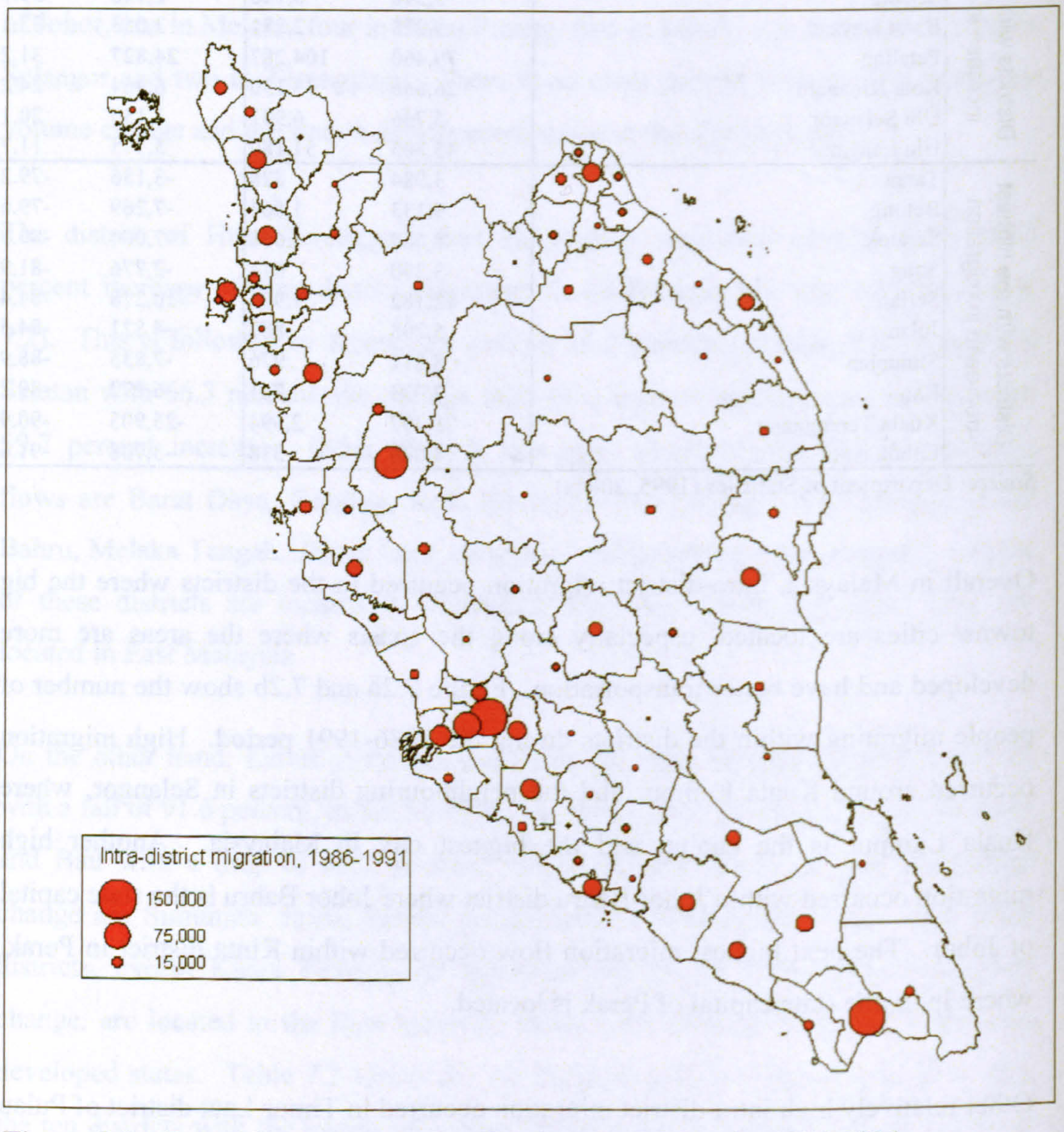


Figure 7.2a: Intra-district migration, Peninsular Malaysia, 1986-1991

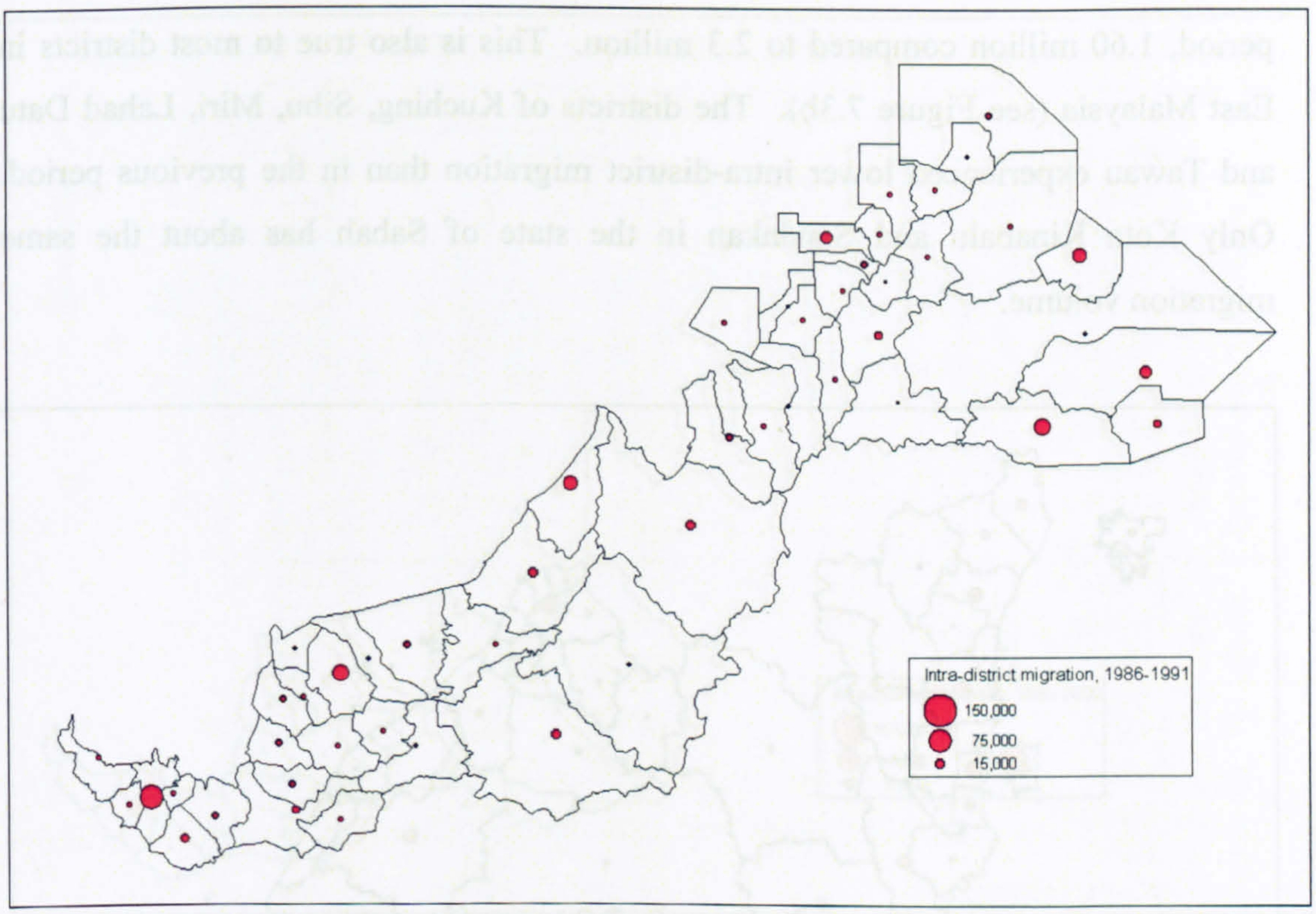


Figure 7.2b: Intra-district migration, East Malaysia, 1986-1991

In the East Malaysia, only one district had more intra-district migration than others. This was Kuching district in Sarawak where the state capital Kuching is located. Other districts in Sarawak that had considerable intra-flow migration were Sibu and Miri districts, which also had big towns. Miri is the oil rich district of Sarawak. In Sabah, relatively large intra-state migration flows occurred in the districts of Kota Kinabalu, Sandakan Lahad Datu and Tawau. Kota Kinabalu district has a state capital in it (also known as Kota Kinabalu) while the other two districts also contain large towns.

During the 1995-2000 period, Malaysia experienced almost the same pattern of intra-district migration. The four major areas, Kuala Lumpur and its surrounding areas of districts in Selangor, Johor Bahru district, Kinta district and Timur Laut district still experienced high migration flows within the districts (see Figure 7.3a). Smaller volumes of migration were also occurring within the same districts as in the previous period, but were even smaller during this period. This is not surprising since total intra-district migration during the later period is smaller than the first

period, 1.60 million compared to 2.3 million. This is also true to most districts in East Malaysia (see Figure 7.3b). The districts of Kuching, Sibu, Miri, Lahad Datu and Tawau experienced lower intra-district migration than in the previous period. Only Kota Kinabalu and Sandakan in the state of Sabah has about the same migration volume.

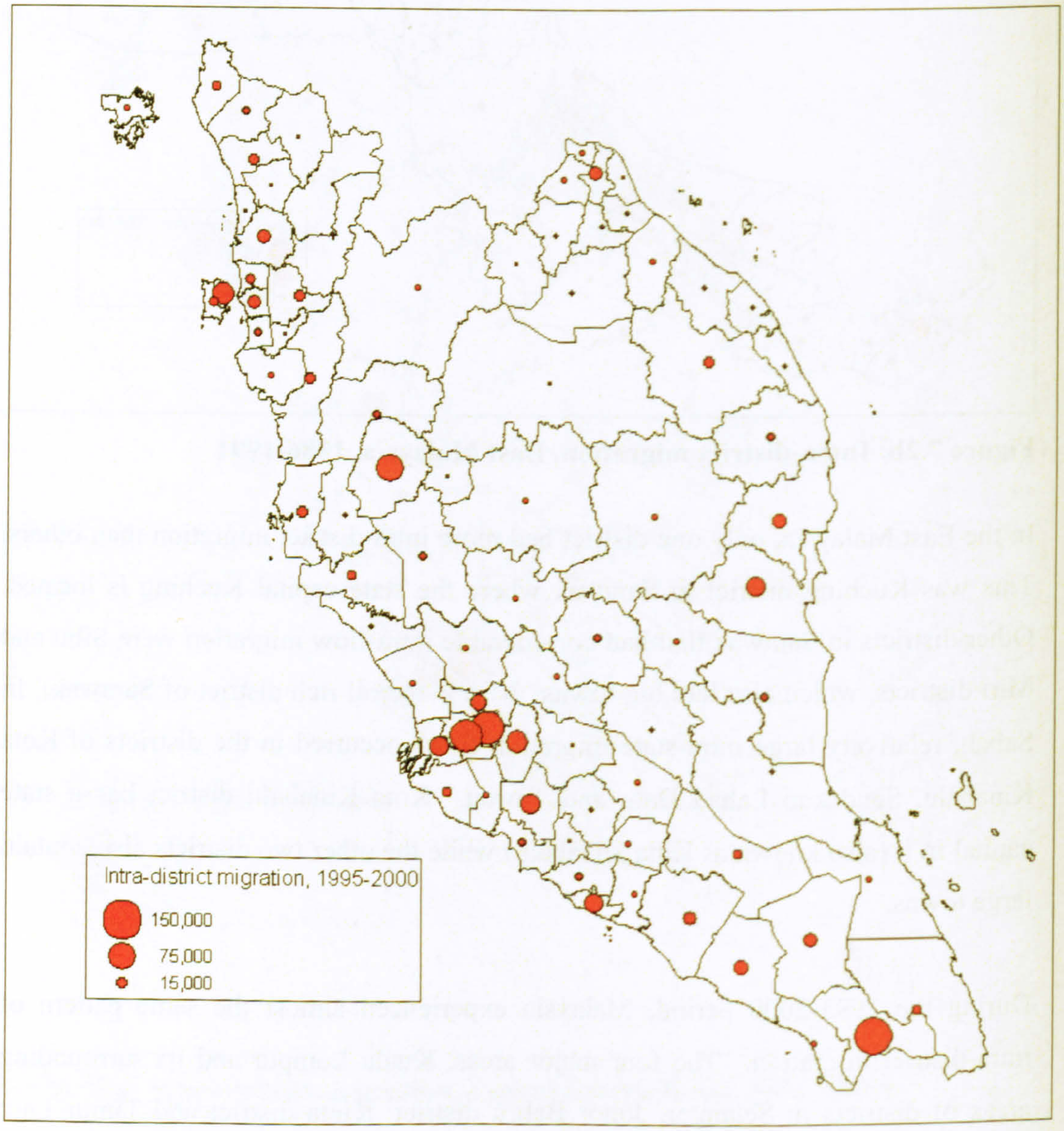


Figure 7.3a: Intra-district migration, Peninsular Malaysia, 1995-2000

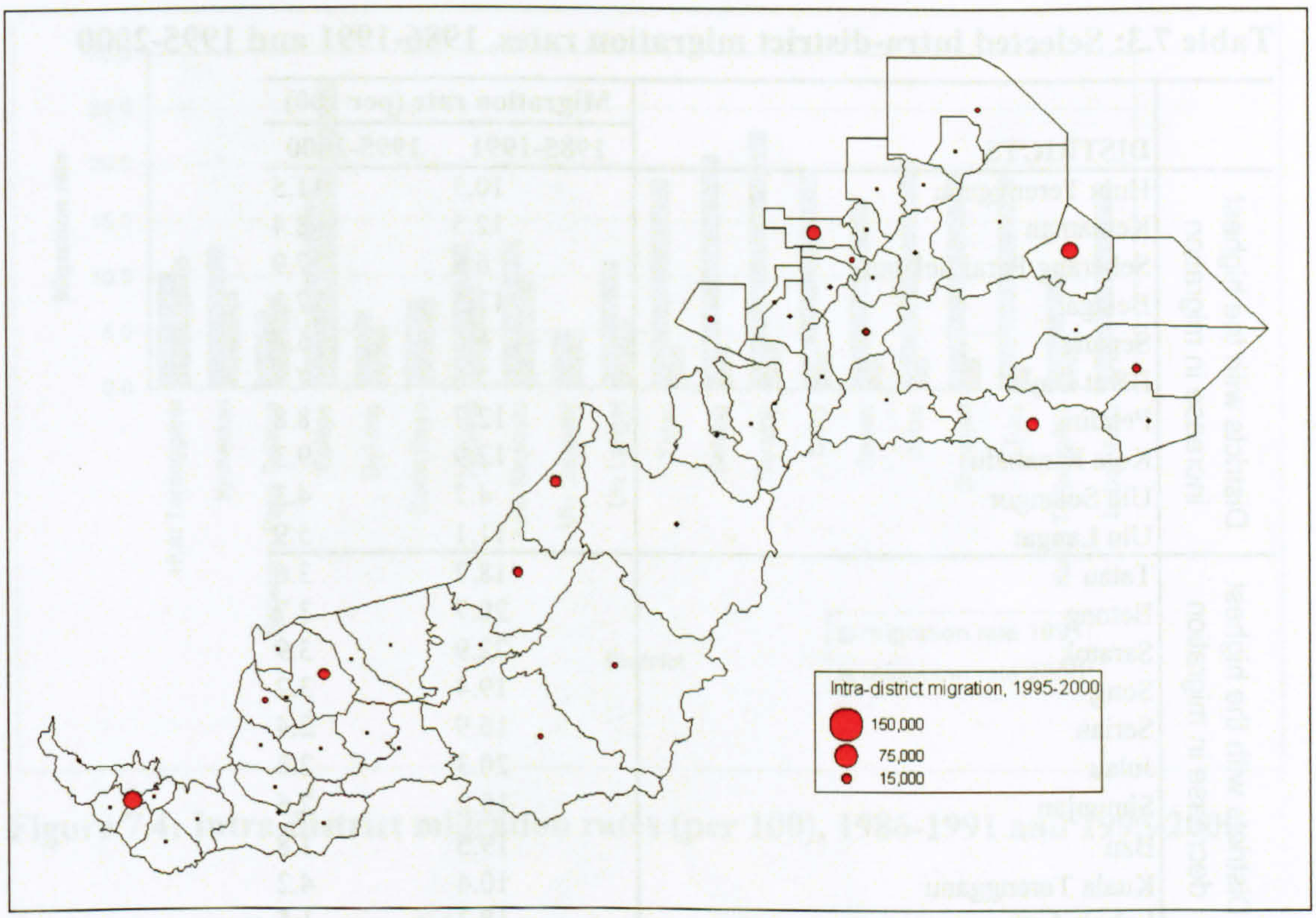


Figure 7.3b: Intra-district migration, East Malaysia, 1995-2000

Intra-district migration rates also declined in most cases in the later period. All districts, except four, experienced a lower migration rate per 100 populations during the 1995-2000 period. The only four districts that have higher migration rates during this period are Hulu Terengganu, Barat Daya, Seberang Perai Selatan and Belaga. Belaga is the only district located in East Malaysia. The migration rates for other districts are all higher in the 1986-1991 period. Table 7.3 shows the migration rates of the 20 districts that have the highest migration change and the lowest migration change in Malaysia (same districts in Table 7.2). Sixteen of the twenty districts have migration rates higher than 10 during 1986-1991 period, whilst only two districts have migration rates higher than 10 in 1995-2000 period. All other districts have higher rates during the 1986-1991 period except for Matu district for which there was no information on migration in 1986-1991.

Table 7.3: Selected intra-district migration rates, 1986-1991 and 1995-2000

	DISTRICTS	Migration rate (per 100) 1985-1991	1995-2000
Districts with the highest increase in migration	Hulu Terengganu	10.3	11.5
	Kemaman	12.5	8.4
	Seberang Perai Selatan	6.6	7.9
	Belaga	17.5	27.3
	Sepang	6.6	5.3
	Barat Daya	7.6	7.7
	Petaling	12.7	8.8
	Kota Kinabalu	12.9	9.3
	Ulu Selangor	4.7	4.3
	Ulu Langat	11.1	5.9
Districts with the highest decrease in migration	Tatau	18.7	3.6
	Betong	20.7	3.7
	Saratok	22.9	3.9
	Song	19.4	3.2
	Serian	16.9	2.4
	Julau	20.3	2.8
	Simunjan	19.2	2.6
	Bau	19.5	1.8
	Kuala Terengganu	10.4	4.2
	Lubok Antu	18.3	1.5

It is not clear why the migration data for this district are not available. It is possible that migration data for Matu were included in the Daro District in the 1991 Census because Matu was part of the Daro district before 1991. However, even if the population and migration in the two districts are combined, this still produces a low migration rate during the second period. Thus, migration in Matu is not very significant. Figure 7.4 shows the rates for the two periods to emphasize the extent to which migration rates declined in many of the districts during the second period.

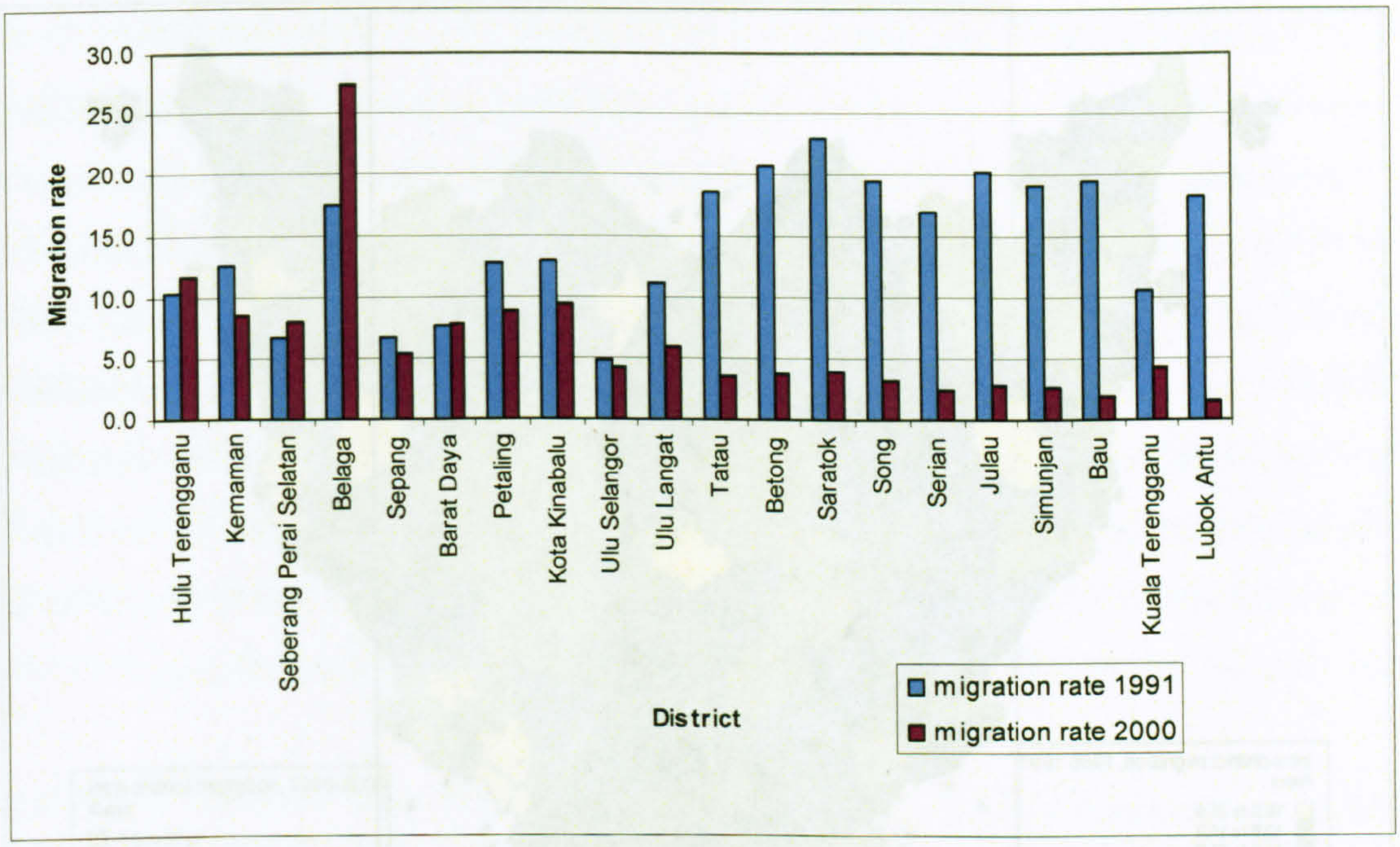


Figure 7.4: Intra-district migration rates (per 100), 1986-1991 and 1995-2000

As for an overall picture of the migration rates, Figure 7.5a and 7.5b show the intra-district migration rates for all the districts in Malaysia during the 1986-1991 period. For Peninsular Malaysia the highest migration rates occurred in Kuantan (Pahang), Kinta (Perak) and Johor Bahru (Johor). In East Malaysia the highest migration rates occurred in Sandakan and Tawau (Sabah) and in most districts in Sarawak.

Intra district migration rates during the second period were generally lower than the first period, as shown in Figure 7.6a and 7.6b. Many of the higher migration rates occurred in the districts within the states of Terengganu, Pahang, Negeri Sembilan and Johor. There were also some higher migration rates in southern part of Selangor, and a few districts in Perak and Pulau Pinang. In East Malaysia, high migration rates occurred in both states, particularly the districts of Sandakan, Tawau and Kota Kinabalu in Sabah and several districts in Sarawak that experienced high economic development. It should be noted that most of the districts that had high intra-district migration rates have towns in them that had experienced or were experiencing economic development because of expanded industrial and agricultural developments.

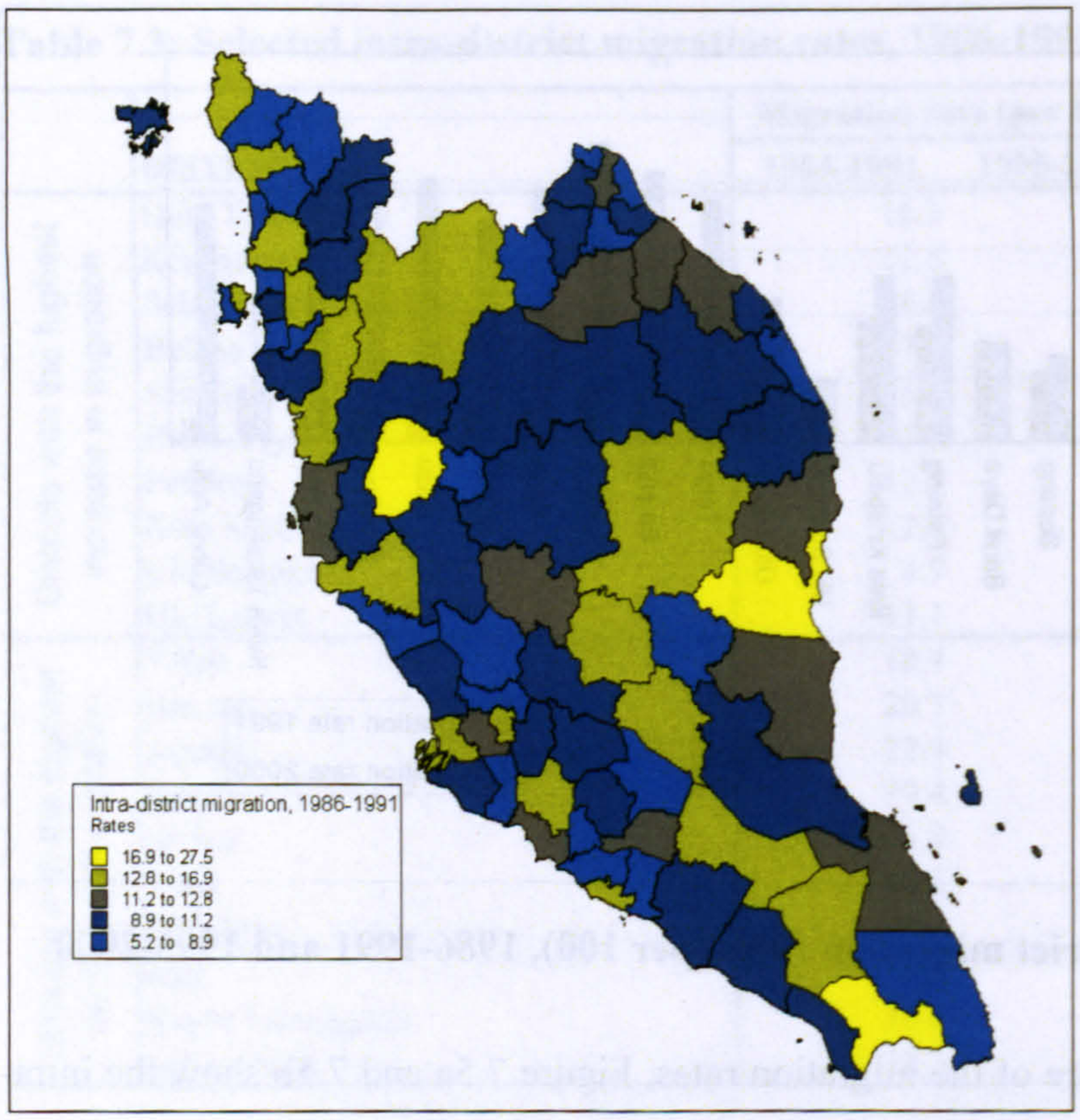


Figure 7.5a: Intra-district migration rates, Peninsular Malaysia, 1986-1991

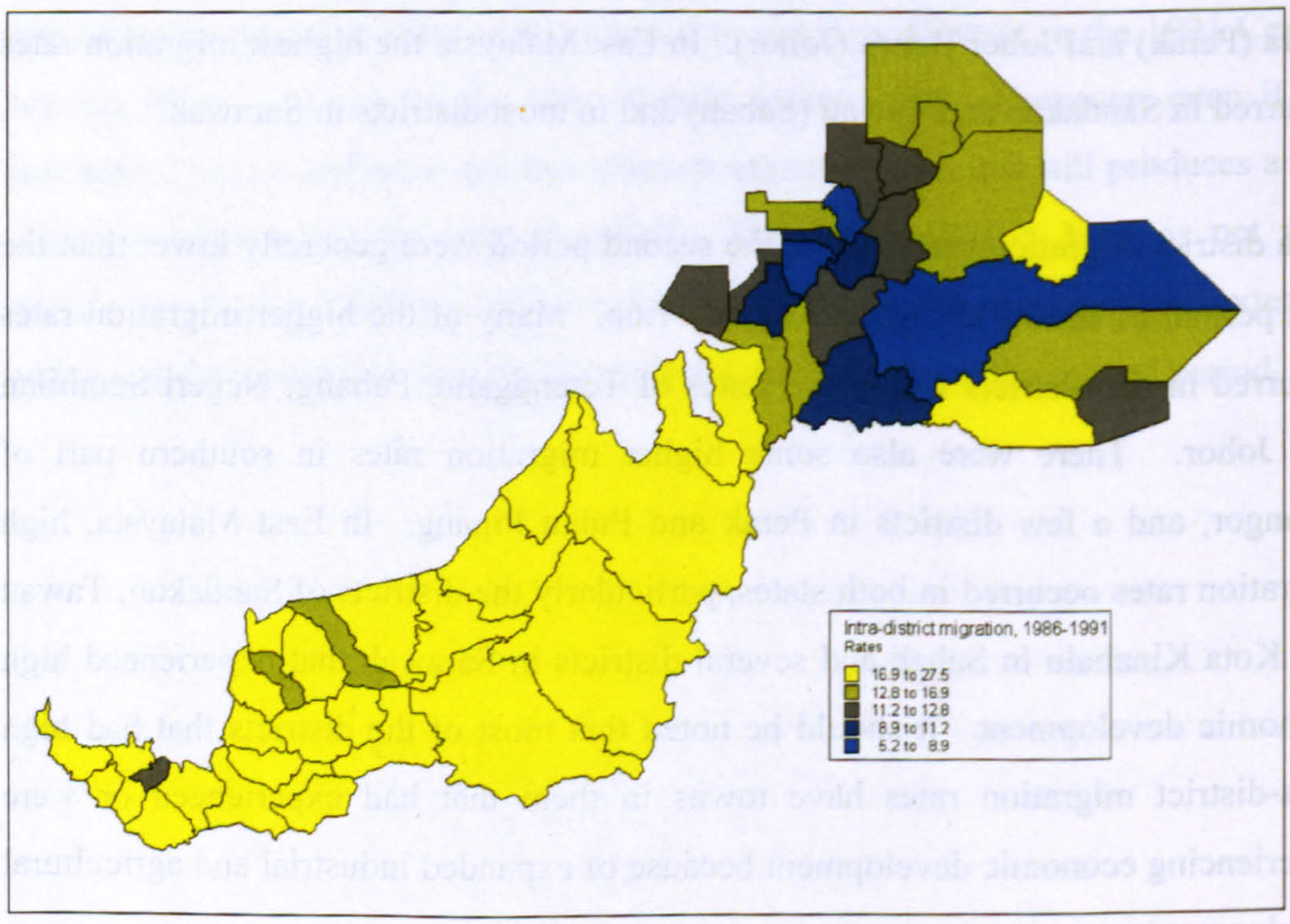


Figure 7.5b: Intra-district migration rates, East Malaysia, 1986-1991

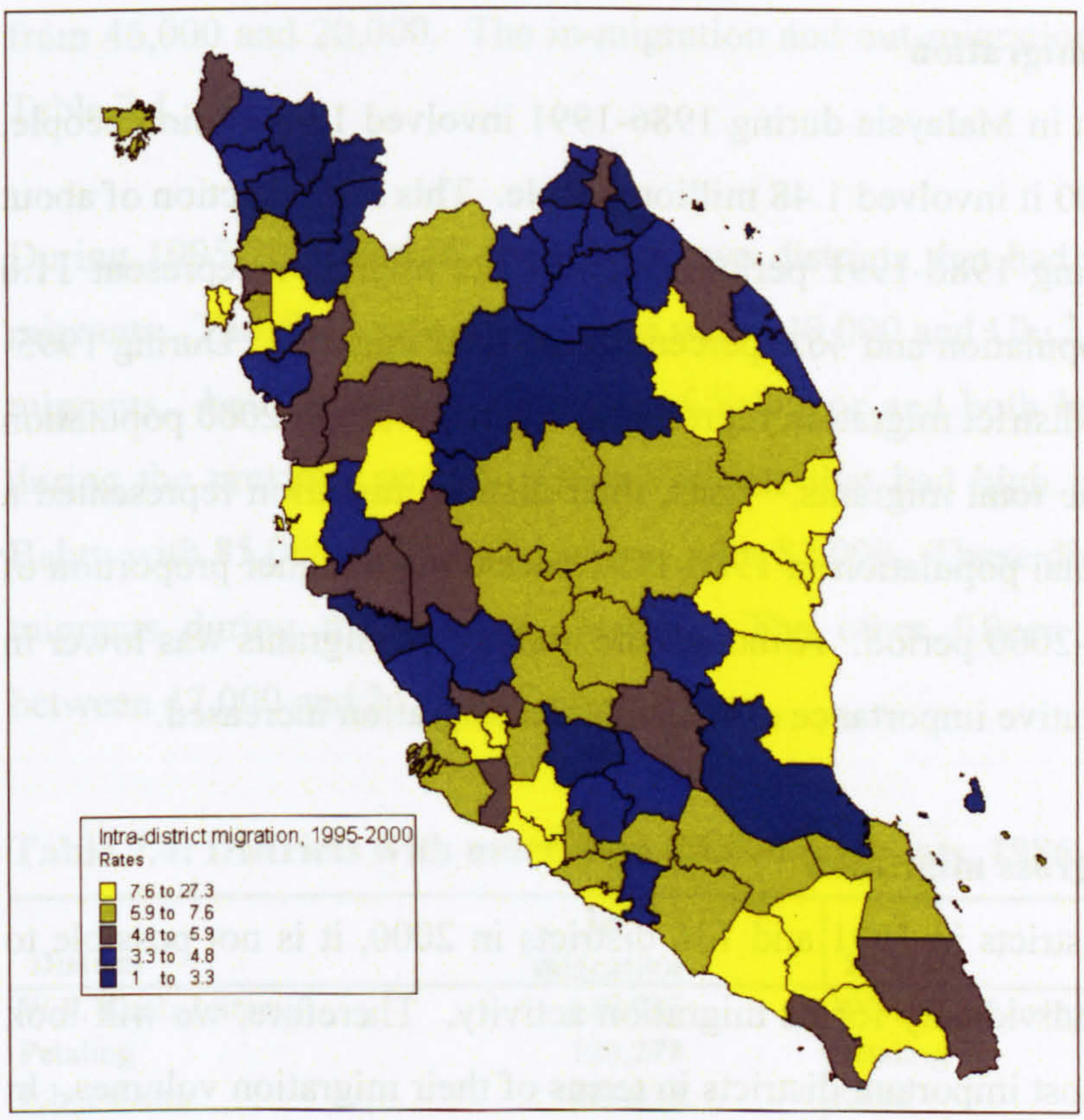


Figure 7.6a: Intra-district migration rates, Peninsular Malaysia, 1995-2000

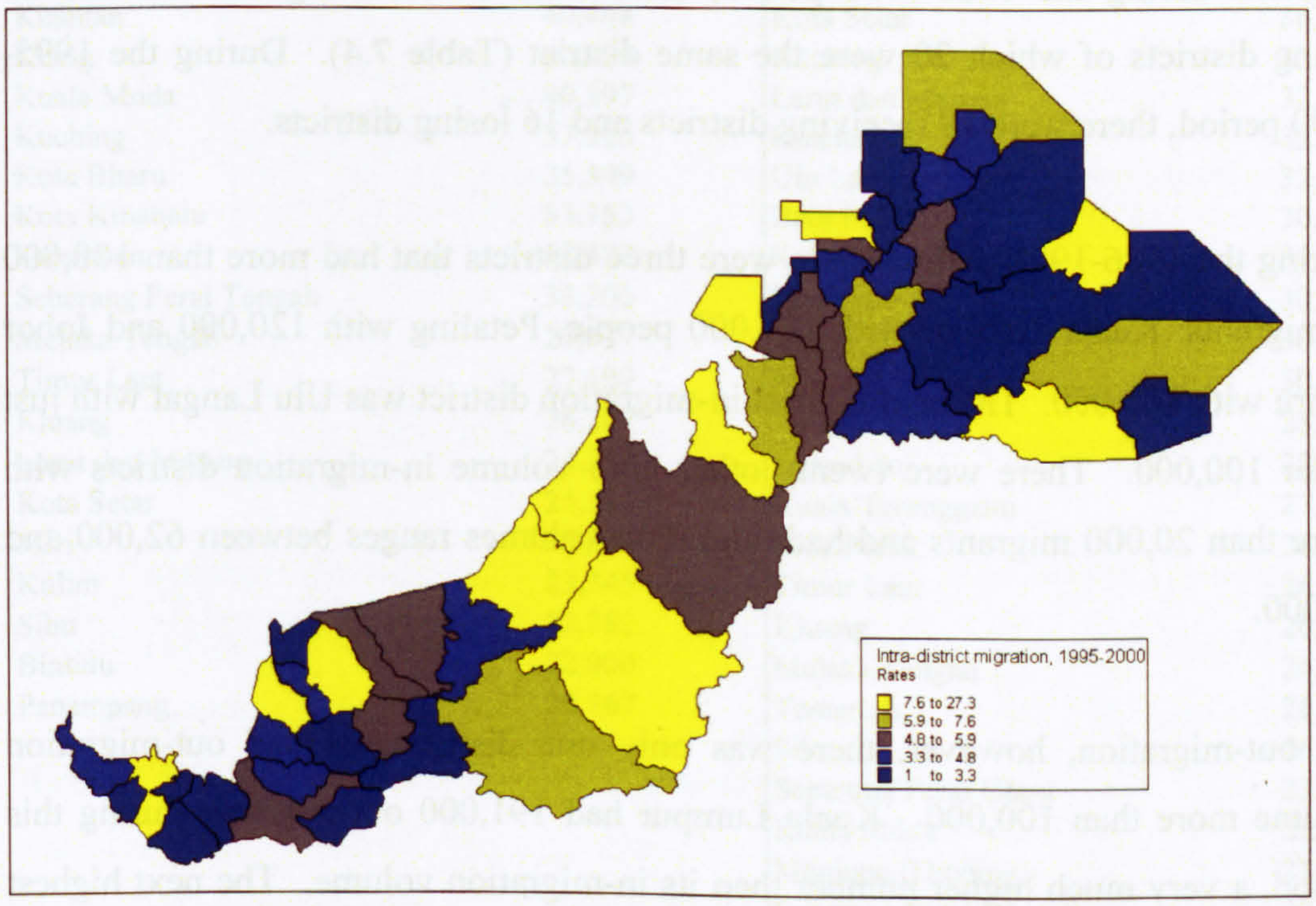


Figure 7.6b: Intra-district migration rates, East Malaysia, 1995-2000

7.5 Inter-district migration

Inter-district migration in Malaysia during 1986-1991 involved 1.93 million people, while during 1995-2000 it involved 1.48 million people. This is a reduction of about 444,000 people. During 1986-1991 period, inter-district migration represent 11.0 percent of the 1991 population and 46.0 percent of the total migrants. During 1995-2000 period, the inter-district migration represent 6.7 percent of the 2000 population and 48.1 percent of the total migrants. Thus, inter-district migration represented a higher proportion of total population in 1986-1991 period but a higher proportion of total migrants in 1995-2000 period. Although the number of migrants was lower in the later period, the relative importance of inter-district migration increased.

7.5.1 Inter-district gross migration

Since there are 133 districts in 1991 and 136 districts in 2000, it is not possible to analyse each district individually for its migration activity. Therefore, we will look in more detail at the most important districts in terms of their migration volumes. In overall terms, if we select those districts that received or lost more than 20,000 migrants during the 1986-1991 period, there were 24 receiving districts and 29 losing districts of which 20 were the same district (Table 7.4). During the 1995-2000 period, there were 19 receiving districts and 16 losing districts.

During the 1986-1991 period, there were three districts that had more than 100,000 in-migrants: Kuala Lumpur with 129,000 people, Petaling with 120,000 and Johor Bahru with 101,000. The next highest in-migration district was Ulu Langat with just under 100,000. There were twenty other high volume in-migration districts with more than 20,000 migrants and had migration volumes ranges between 62,000 and 21,000.

For out-migration, however, there was only one district that had out-migration volume more than 100,000 - Kuala Lumpur had 191,000 out-migrants during this period, a very much higher number than its in-migration volume. The next highest out-migration was Petaling and Kinta with 66,000 and 55,000 respectively. Twenty six other high volume out-migration districts had out-migration volumes ranging

from 46,000 and 20,000. The in-migration and out-migration districts are shown in Table 7.4.

During 1995-2000 period, there were two districts that had more than 100,000 in-migrants. The districts were Petaling with 140,000 and Ulu Langat with 111,000 in-migrants, both located in the state of Selangor and both having high in-migrants during the previous period. Other districts that had high in-migrants were Johor Bahru with 85,000 and Kuala Lumpur with 81,000. These districts also had high in-migrants during the previous period. The other fifteen districts had volumes between 47,000 and 21,000 (Table 7.5).

Table 7.4: Districts with more than 20,000 migrants, 1986-1991

District	In-migration	District	Out-migration
W.P. Kuala Lumpur	127,903	W.P. Kuala Lumpur	190,902
Petaling	120,278	Petaling	65,646
Johor Bahru	101,335	Kinta	54,894
Ulu Langat	99,819	Gombak	46,315
Gombak	61,687	Johor Bahru	46,245
Kinta	48,786	Kota Bharu	42,513
Kuantan	40,448	Kota Setar	36,358
Klang	40,226	Kuching	33,039
Kuala Muda	40,197	Larut dan Matang	32,812
Kuching	37,986	Kuantan	32,662
Kota Bharu	35,349	Ulu Langat	32,232
Kota Kinabalu	33,753	Batu Pahat	30,851
Seremban	32,372	Kota Kinabalu	30,730
Seberang Perai Tengah	30,206	Sandakan	30,331
Melaka Tengah	27,637	Klang	30,154
Timur Laut	27,109	Muar	30,023
Kluang	26,207	Tawau	28,284
Larut dan Matang	24,373	Seremban	28,154
Kota Setar	24,332	Kuala Terengganu	27,960
Miri	24,303	Hilir Perak	26,761
Kulim	23,345	Timur Laut	26,732
Sibu	22,782	Kluang	26,712
Bintulu	22,000	Melaka Tengah	26,502
Penampang	20,767	Temerloh	26,373
		Sibu	26,344
		Seberang Perai Utara	23,643
		Kuala Muda	22,545
		Manjung (Dinding)	21,402
		Seberang Perai Tengah	20,036

Source: Author's calculations based on Department of Statistics (1995, 2004a)

Kuala Lumpur retained high out-migration in this period as in the previous period. Its out-migrant total increased to 201,000 and it was the only district with more than 100,000 out-migrants in 1995-2000. The next highest out-migration district was Petaling which had 77,000 out-migrants and there were 14 other districts that had out-migration volumes that ranged between 42,000 and 20,000. Altogether, there were 19 districts with in-migration higher than 20,000 and 16 districts with out-migration higher than 20,000. Table 7.5 shows the districts with high migration volume during 1995-2000 period.

Table 7.5: Districts with more than 20,000 migrants, 1995-2000

District	In-migration	District	Out-migration
Petaling	139,797	W.P. Kuala Lumpur	200,534
Ulu Langat	111,175	Petaling	77,074
Johor Bahru	84,683	Johor Bahru	41,566
W.P. Kuala Lumpur	80,594	Gombak	41,153
Gombak	46,937	Kinta	37,500
Klang	44,969	Kota Bharu	34,029
Seremban	42,801	Ulu Langat	31,163
Kota Kinabalu	38,417	Klang	28,892
Kinta	35,420	Kota Kinabalu	27,089
Kuantan	30,812	Kota Setar	26,266
Melaka Tengah	28,536	Kuantan	26,096
Timur Laut	25,992	Kuching	23,694
Kuching	25,401	Kuala Terengganu	23,638
Seberang Perai Tengah	24,755	Seremban	22,290
Kuala Muda	22,640	Larut dan Matang	21,814
Kota Bharu	21,248	Seberang Perai Utara	20,353
Ulu Selangor	21,171		
Kulim	20,707		
Sepang	20,622		

Source: Author's calculations based on Department of Statistics (1995, 2004a)

The pattern of inter-district migration in Malaysia can be observed using the map for all districts. Figures 7.7a and 7.7b show the destination districts of inter-district migration for 1986-1991. Figure 7.7a shows that in-migration are concentrated in two areas, Kuala Lumpur and its surrounding Selangor districts and Johor Bahru district in the south. These are the districts that received the major inflow migrants from other districts in Malaysia, as shown previously in Table 7.5. It can also be observed that major inter-district inflow pattern is almost the same as the inflow for intra-district migration. Comparing Figure 7.7a and 7.5a, it shows that most big and

medium size migration volumes occurred in predominantly the same districts. It can be observed that major flows, either within or between districts occurred for the districts that are located along major transportation lines, mainly highways. The major highways are located along the west coast of Peninsular Malaysia from the northern state of Kedah to the southern state of Johor, and along the east coast of Peninsular Malaysia from Kelantan to Pahang. It connects the west and east in the middle of Peninsular Malaysia from Kuala Lumpur to Pahang. The highway and major roads run across most of the districts that received the medium if not major migration volumes. The same is true for East Malaysia where most in-migration also occurred near the coast where the major roads are and in the same districts where the major intra-district migration occurred.

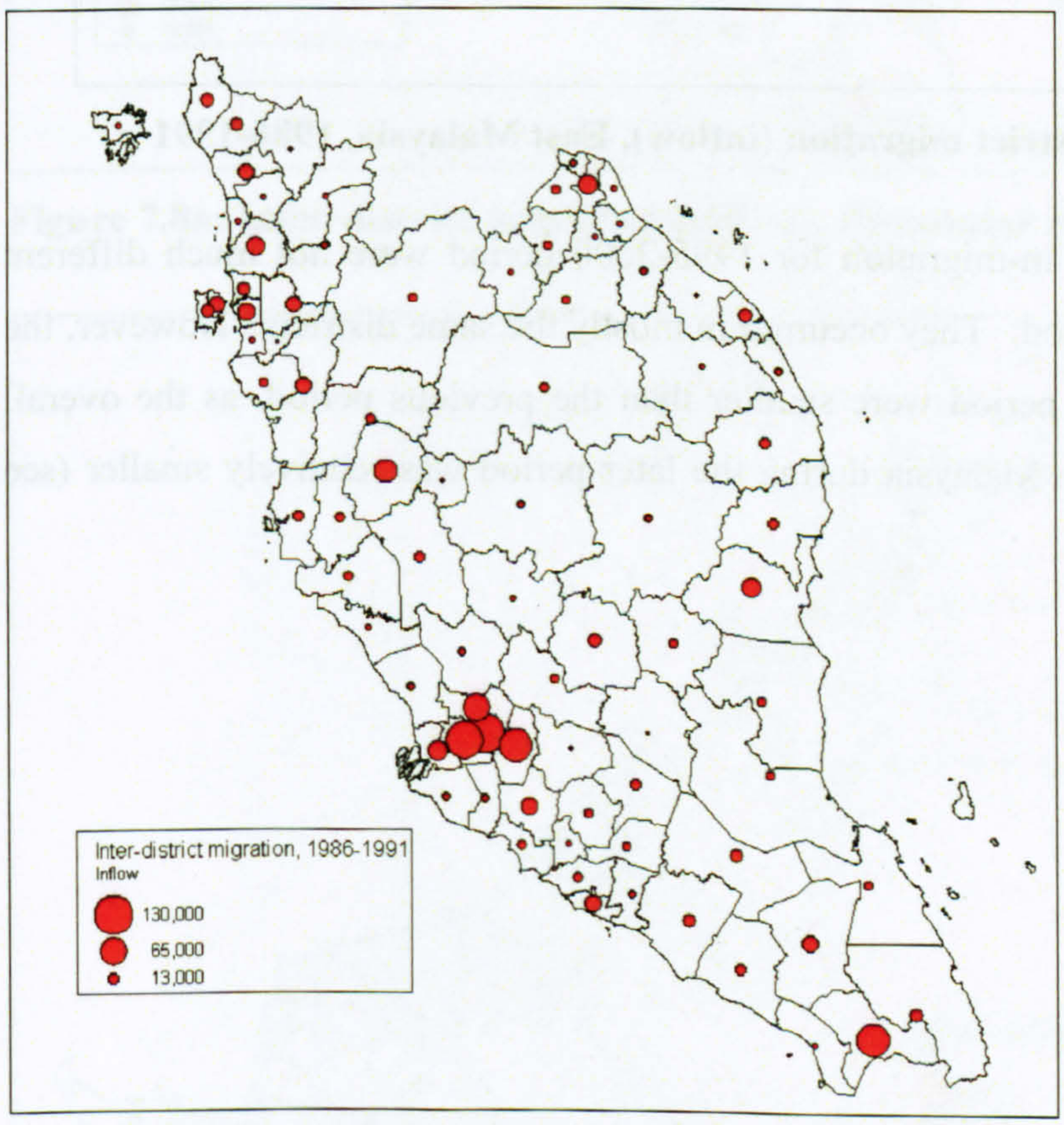


Figure 7.7a: Inter-district migration (inflow), Peninsular Malaysia, 1986-1991

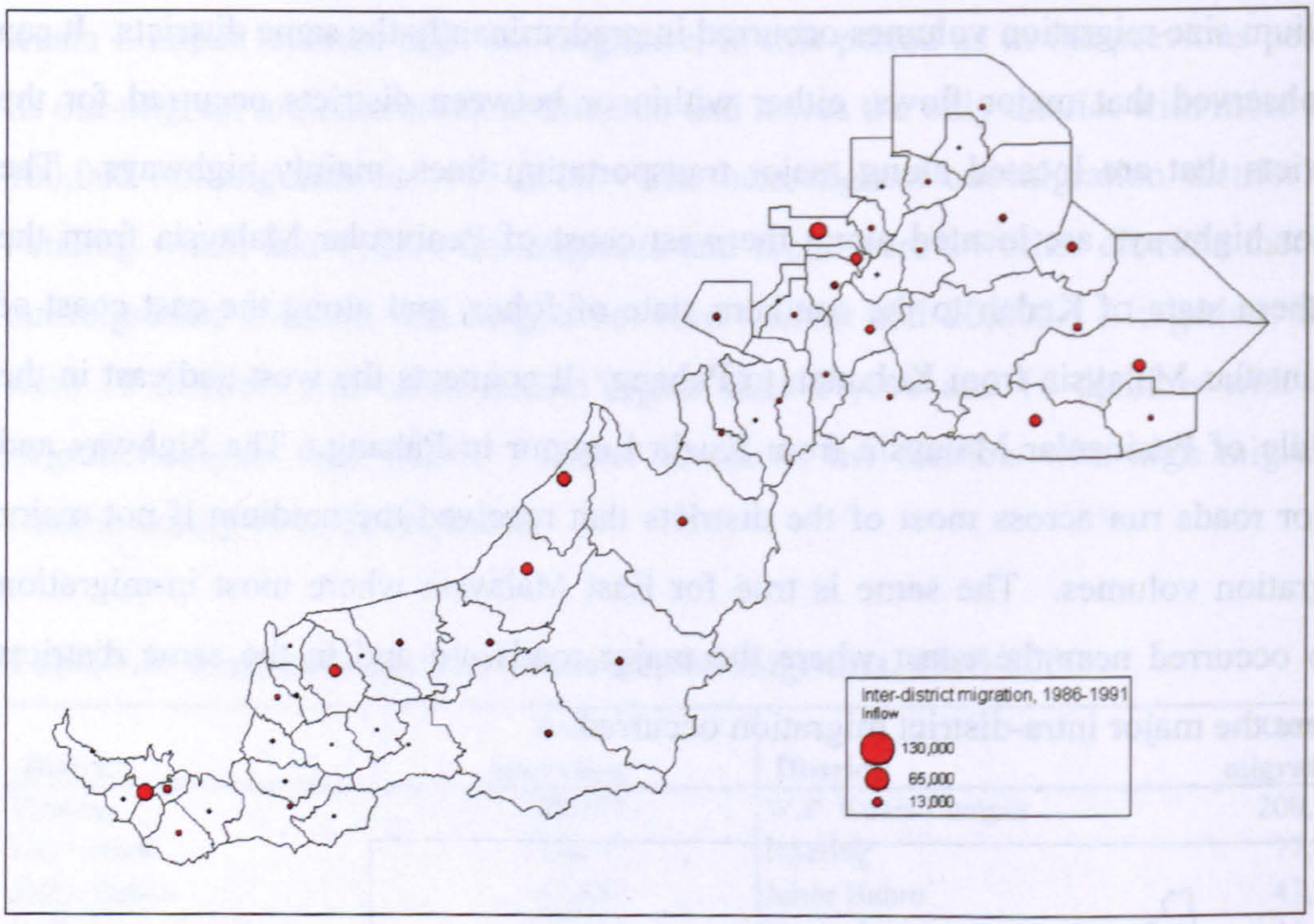


Figure 7.7b: Inter-district migration (inflow), East Malaysia, 1986-1991

The pattern of major in-migration for 1995-2000 period were not much different from the previous period. They occurred in mostly the same districts. However, the volumes for the later period were smaller than the previous period, as the overall volume of migrants in Malaysia during the later period was relatively smaller (see Figure 7.8a and 7.8b).

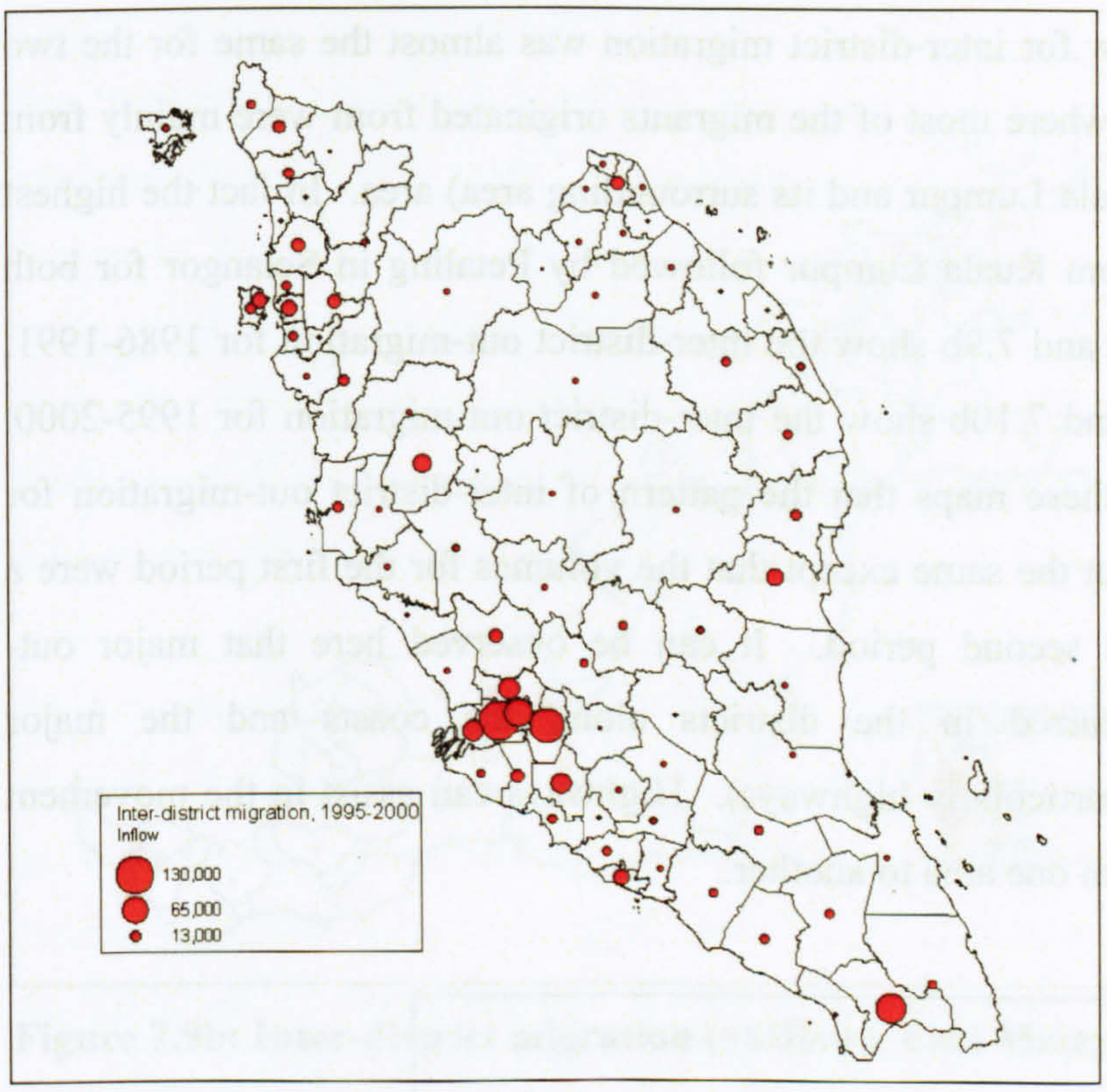


Figure 7.8a: Inter-district migration (inflow), Peninsular Malaysia, 1995-2000

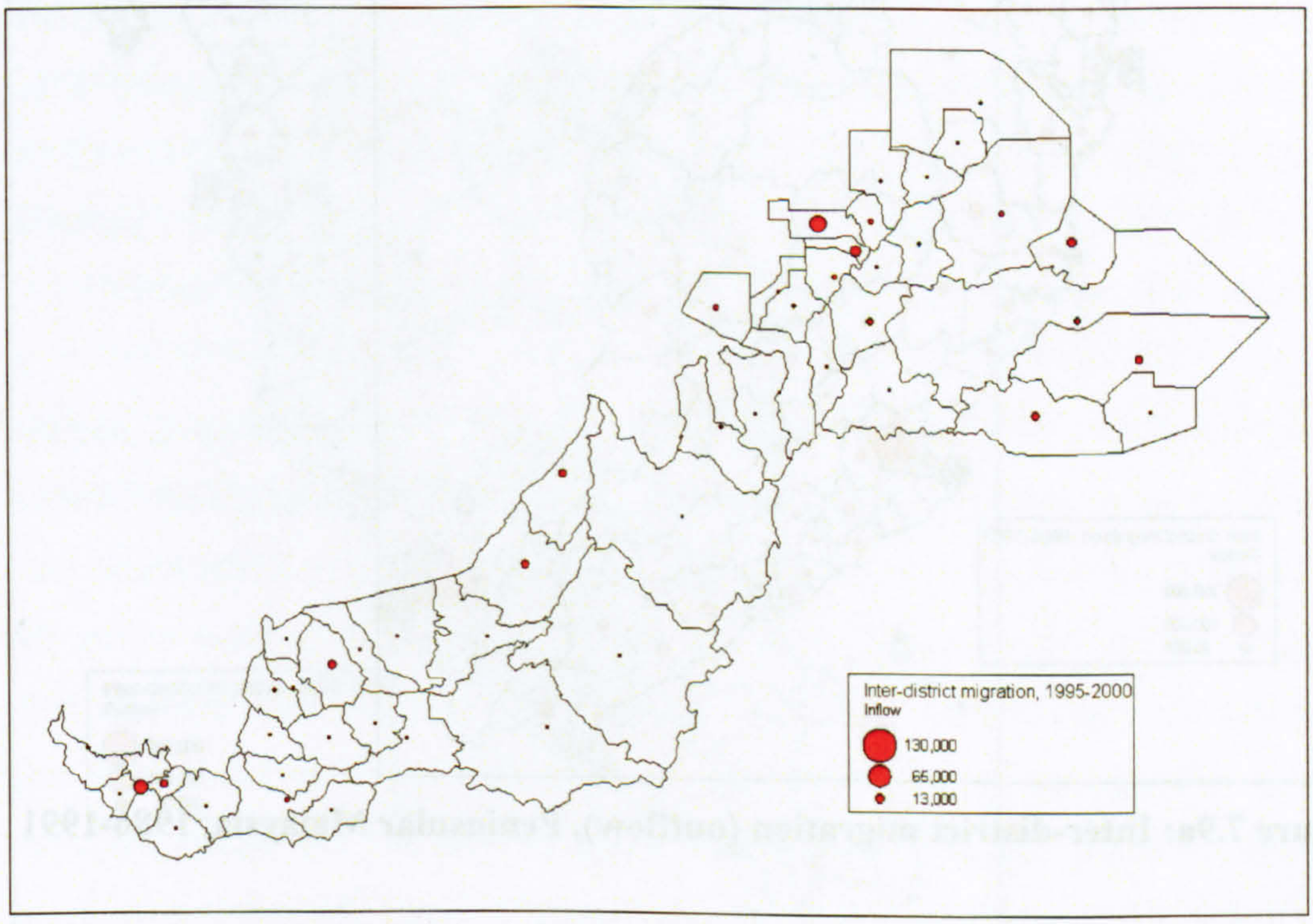


Figure 7.8b: Inter-district migration (inflow), East Malaysia, 1995-2000

The pattern of outflow for inter-district migration was almost the same for the two periods. The district where most of the migrants originated from were mainly from the Klang Valley (Kuala Lumpur and its surrounding area) area. In fact the highest out migration was from Kuala Lumpur followed by Petaling in Selangor for both periods. Figures 7.9a and 7.9b show the inter-district out-migration for 1986-1991, while Figures 7.10a and 7.10b show the inter-district out-migration for 1995-2000. It can be seen from these maps that the pattern of inter-district out-migration for both periods was about the same except that the volumes for the first period were a little higher than the second period. It can be observed here that major out-migration flows occurred in the districts along the coasts and the major transportation lines (particularly highways). Highways can assist in the movement of flows of people from one area to another.

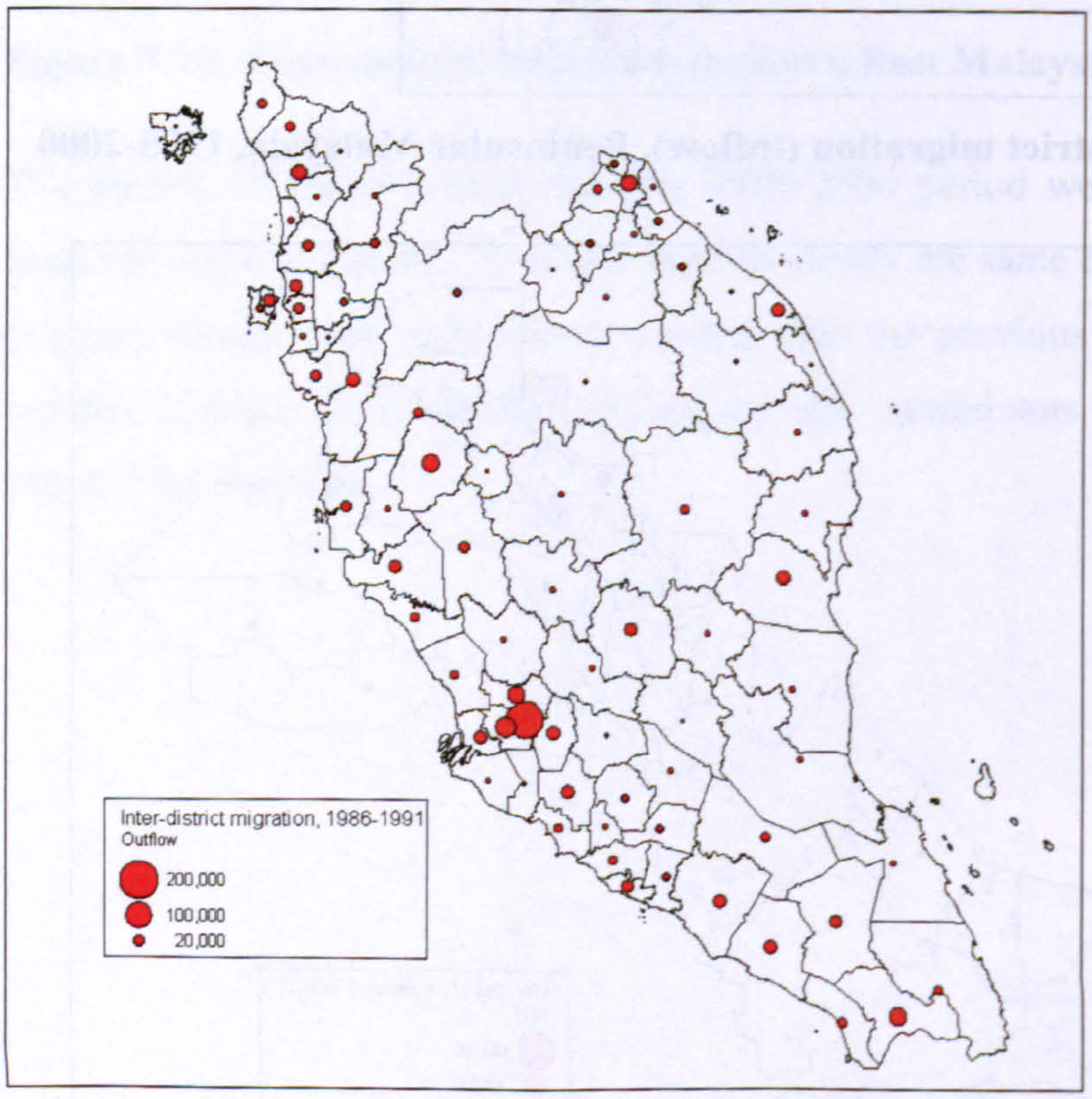


Figure 7.9a: Inter-district migration (outflow), Peninsular Malaysia, 1986-1991

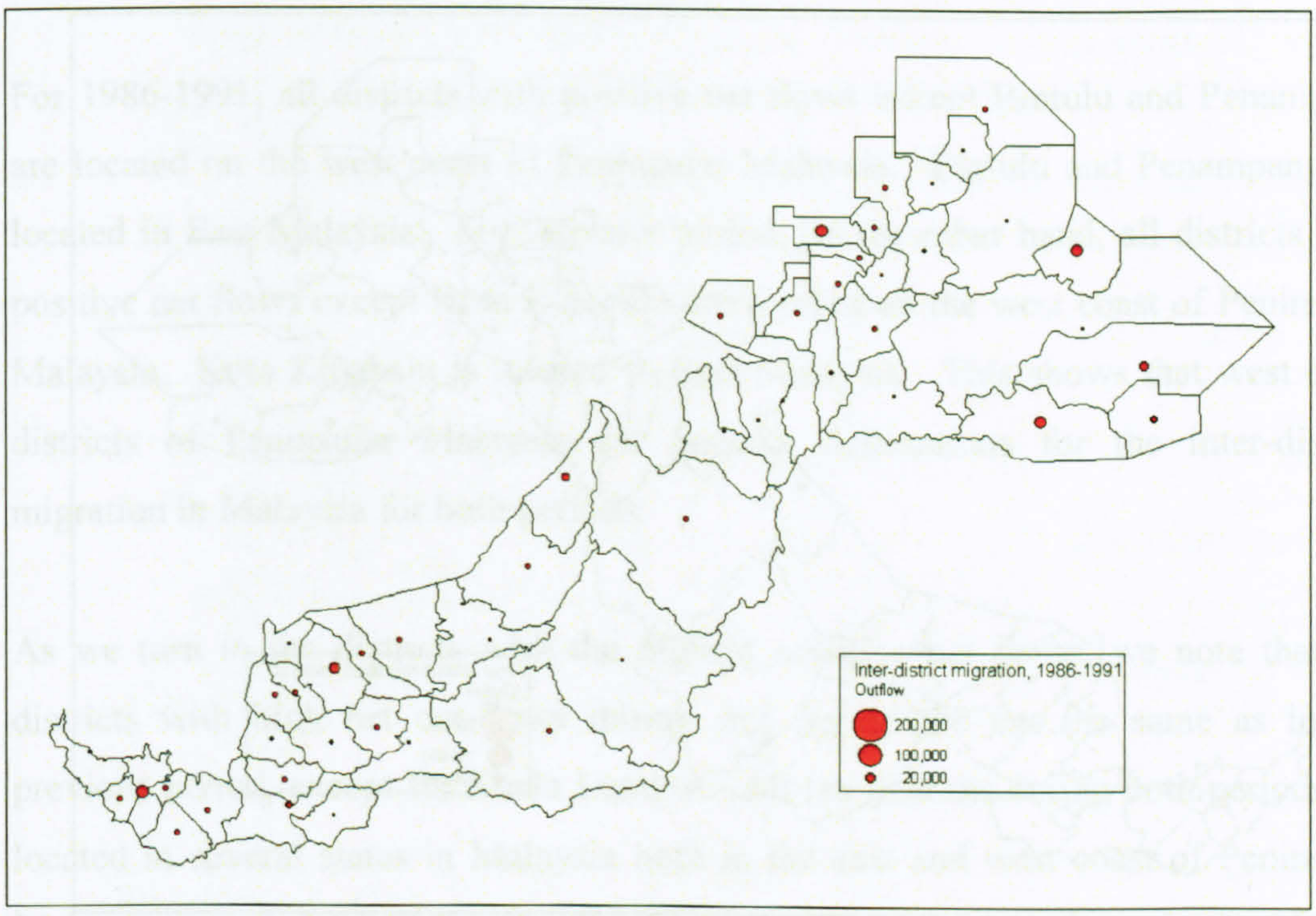


Figure 7.9b: Inter-district migration (outflow), East Malaysia, 1986-1991

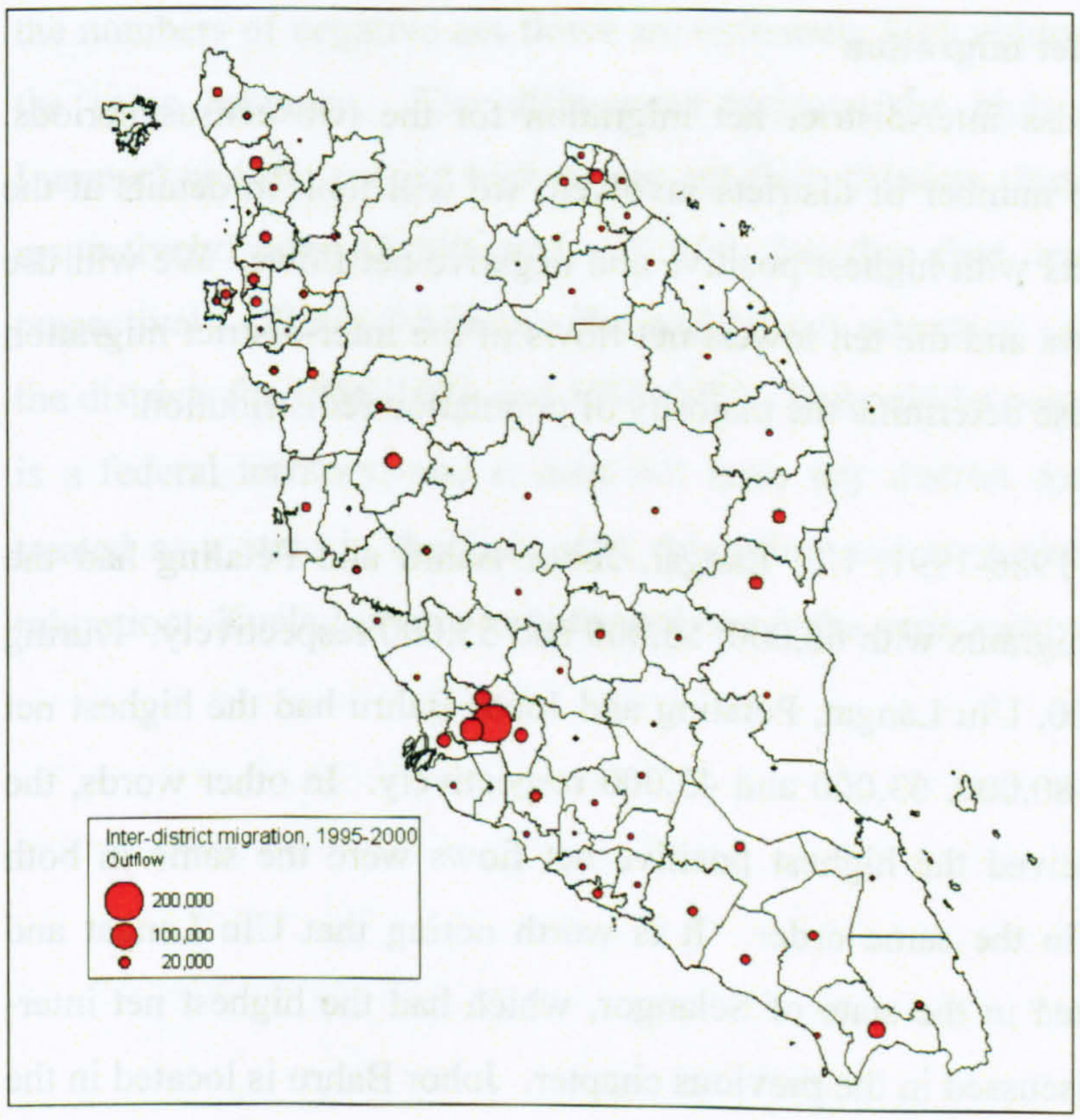


Figure 7.10a: Inter-district migration (outflow), Peninsular Malaysia, 1995-2000

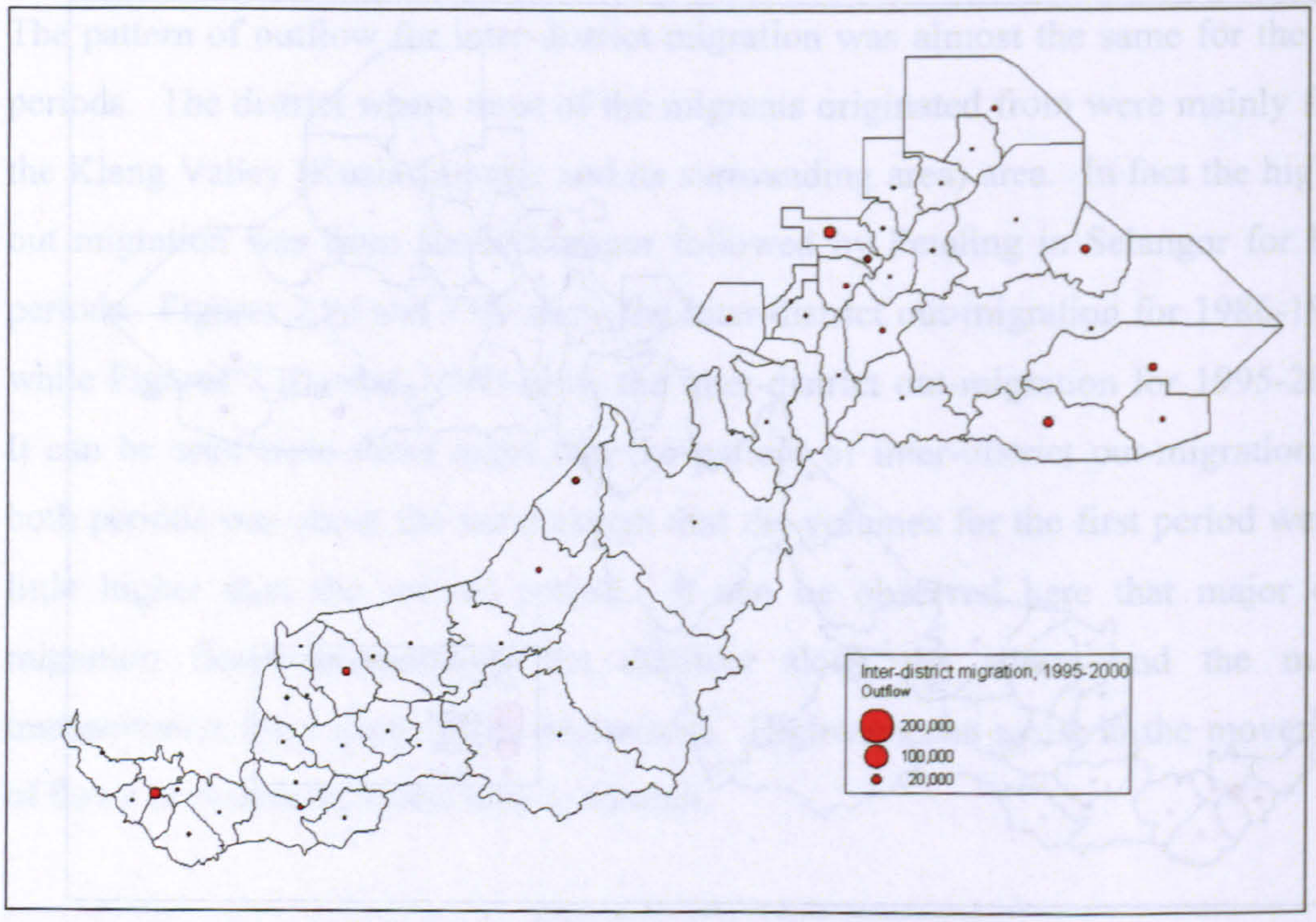


Figure 7.10b: Inter-district migration (outflow), East Malaysia, 1995-2000

7.5.2 Inter-district net migration

This section will discuss inter-district net migration for the two census periods. Since there are a large number of districts involved, we will look in details at the most significant districts with highest positive and negative net flows. We will use the ten highest net flows and the ten lowest net flows of the inter-district migration for discussion since these determine the majority of population redistribution.

During the period of 1986-1991, Ulu Langat, Johor Bahru and Petaling had the highest net inflow of migrants with 68,000, 55,000 and 55,000 respectively. During the period of 1995-2000, Ulu Langat, Petaling and Johor Bahru had the highest net migration inflow with 80,000, 63,000 and 43,000 respectively. In other words, the three districts that received the highest positive net flows were the same in both periods, although not in the same order. It is worth noting that Ulu Langat and Petaling are both located in the state of Selangor, which had the highest net inter-state in-migration as discussed in the previous chapter. Johor Bahru is located in the state of Johor that also had a very high net inflow of inter-state migrants. The rest of the net inflow league table is not consistent between the two periods (Table 7.6).

For 1986-1991, all districts with positive net flows except Bintulu and Penampang are located on the west coast of Peninsular Malaysia. Bintulu and Penampang are located in East Malaysia. For the later period, on the other hand, all districts with positive net flows except Kota Kinabalu are located on the west coast of Peninsular Malaysia. Kota Kinabalu is located in East Malaysia. This shows that west coast districts of Peninsular Malaysia are popular destinations for the inter-district migration in Malaysia for both periods.

As we turn to the districts with the highest negative net flows, we note that the districts with high net out-flows during this period are not the same as in the previous period, except for Kuala Lumpur. All ten districts during both periods are located in several states in Malaysia both in the east and west coast of Peninsular Malaysia and in East Malaysia. Kuala Lumpur, however, is the only one that is consistent in both periods. It has the highest negative net flows in both periods and the numbers of negative net flows are extremely high compared to other districts in the same category. The differences between the highest net out-flow (Kuala Lumpur) and the second highest net out-flow districts (Batu Pahat and Kota Setar respectively) are 45,000 and 107,000 for the first and the second periods respectively. Table 7.5 shows the highest net migration gains and losses between the districts for 1986-1991 and 1995-2000. It should be noted that as Kuala Lumpur is a federal territory, and it does not have any district contained within it. It is treated as a state in the inter-state migration and as a district in the inter-district migration. Kuala Lumpur in both analyses is the same entity.

Table 7.6: Inter-district net flow migration, 1986-1991 and 1995-2000

1986-1991		1995-2000	
District	**Netflow**	**District**	**Netflow**
Ulu Langat	67,587	Ulu Langat	80,012
Johor Bahru	55,090	Petaling	62,723
Petaling	54,632	Johor Bahru	43,117
Kuala Muda	17,652	Seremban	20,511
Gombak	15,372	Sepang	16,956
Bintulu	13,903	Ulu Selangor	16,644
Kulim	11,695	Klang	16,077
Penampang	11,632	Melaka Tengah	11,479
Seberang Perai Tengah	10,170	Kota Kinabalu	11,328
Klang	10,072	Kulim	9,930
Pontian	-9,875	Hilir Perak	-7,475
Kuala Terengganu	-9,896	Seberang Perai Utara	-7,794
Kerian	-10,247	Larut dan Matang	-7,902
Tawau	-10,313	Muar	-8,389
Kota Setar	-12,026	Pasir Mas	-8,689
Muar	-12,977	Tawau	-8,726
Hilir Perak	-15,597	Kemaman	-10,527
Sandakan	-16,002	Kota Bharu	-12,781
Batu Pahat	-17,939	Kota Setar	-13,154
W.P. Kuala Lumpur	-62,999	W.P. Kuala Lumpur	-119,940

An overall picture of inter-district net migration flows can be seen from Figures 7.11a and 7.11b for migration in 1986-1991 and Figures 7.12a and 7.12b for migration in 1995-2000. We can see that negative net flow and positive net flows occurred in the Klang Valley where the negative net flow was from Kuala Lumpur while positive net flows were from the districts in Selangor adjacent to Kuala Lumpur for both periods. Many migrants from Kuala Lumpur migrated to its surrounding areas which made up this pattern. The Johor Bahru district also had high positive net migration while most of its surrounding districts had negative net migration. If we looked at the origin of the migrants to Johor Bahru we would see that these migrants originated from the surrounding districts. There are no major net flows occurring in east Malaysia during either period and the net flow patterns were the same. The flow, however, was bigger during the first period compared to the second period. The highest net positive flows in this part of Malaysia were for the districts where the big towns were located.

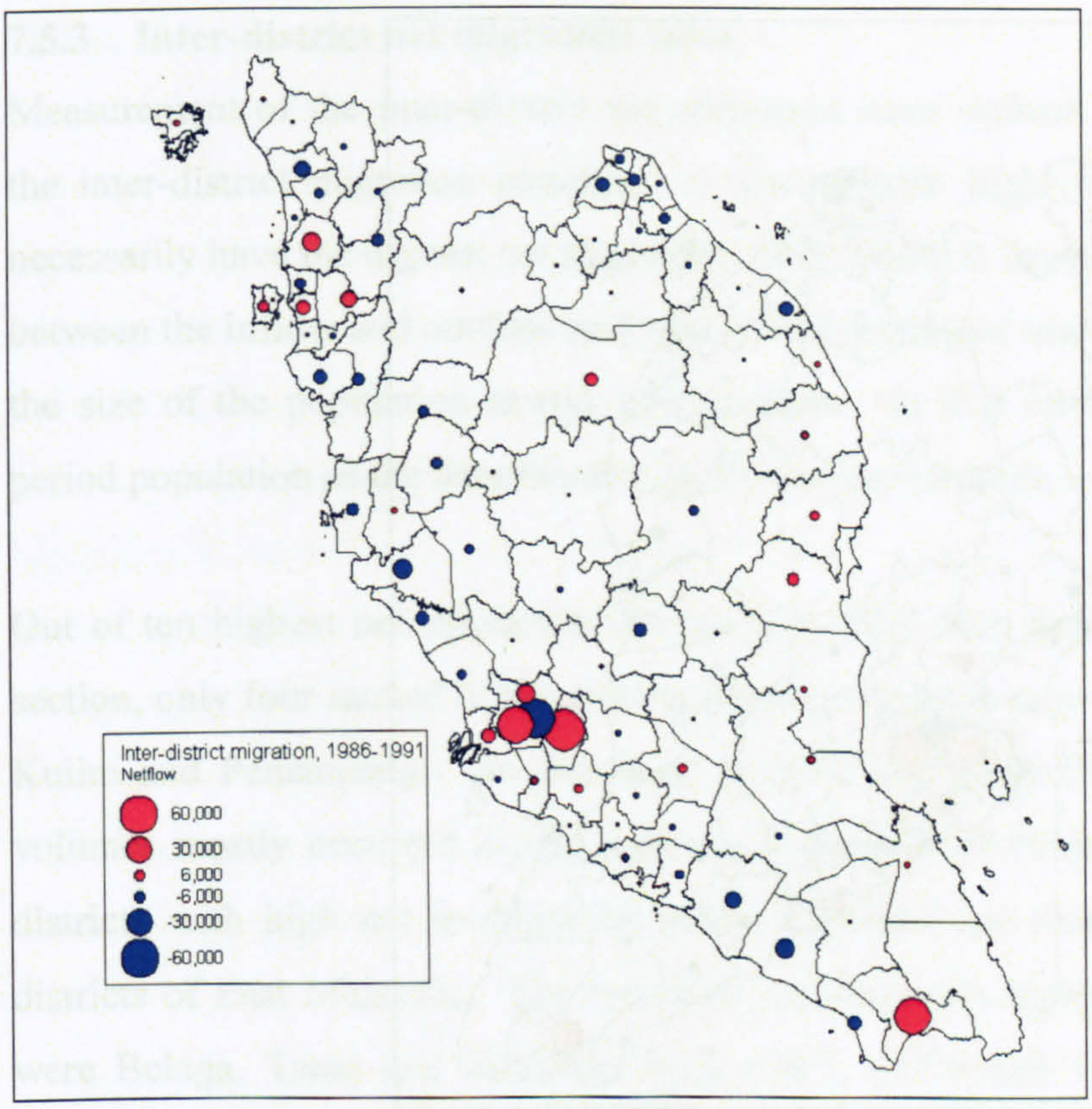


Figure 7.11a: Inter-district migration (netflow), Peninsular Malaysia, 1986-1991

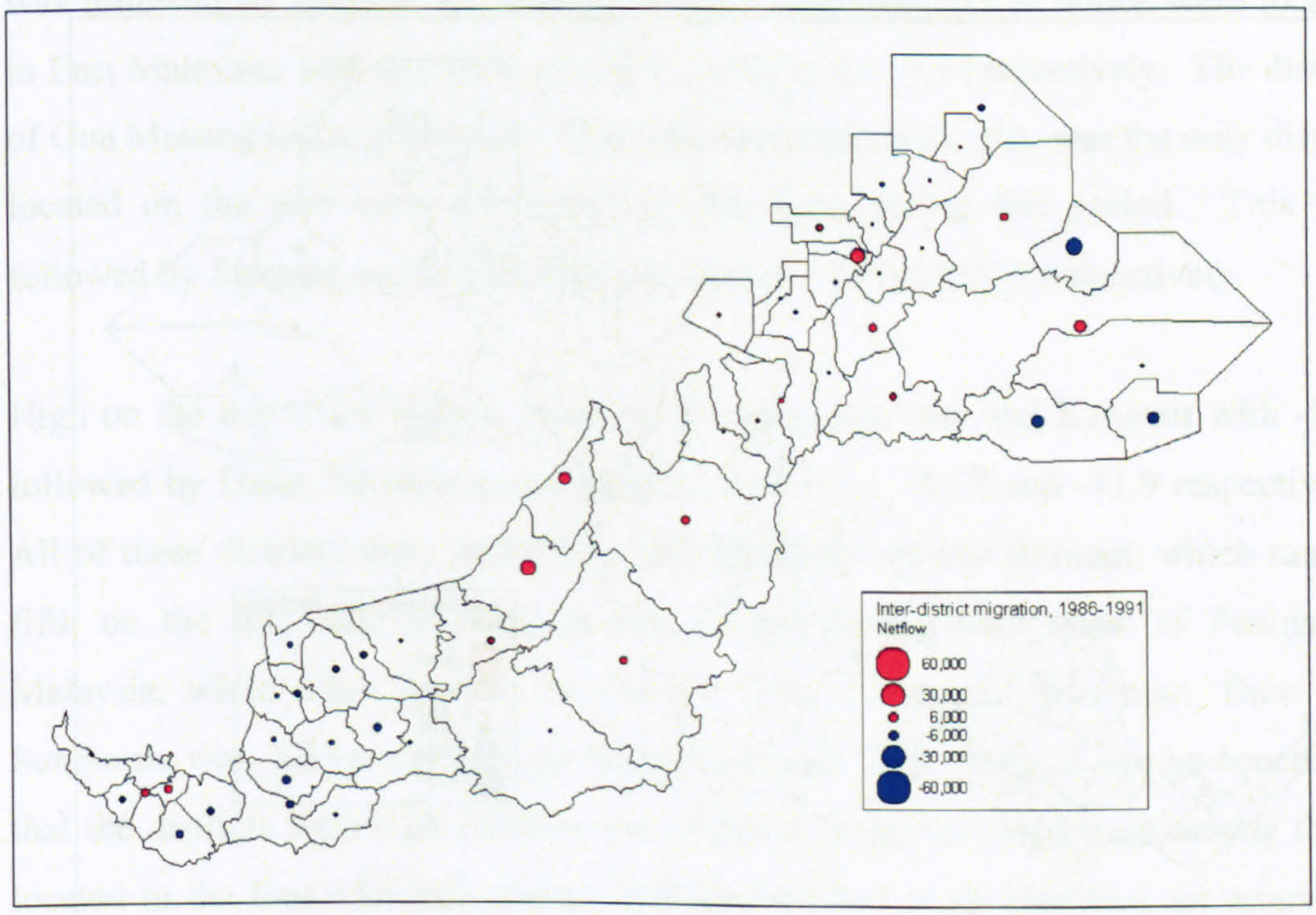


Figure 7.11b: Inter-district migration (netflow), East Malaysia, 1986-1991

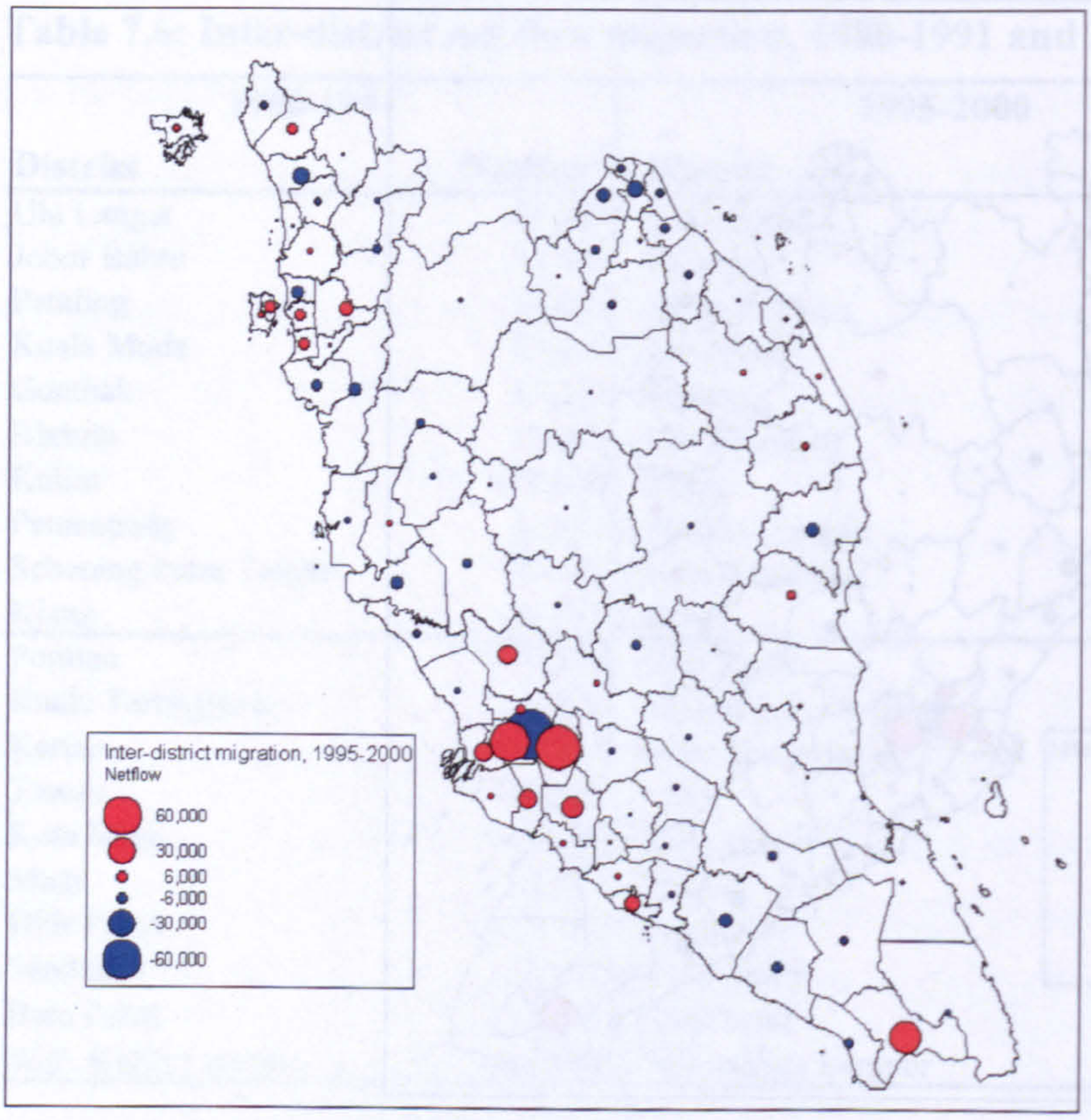


Figure 7.12a: Inter-district migration (netflow), Peninsular Malaysia, 1995-2000

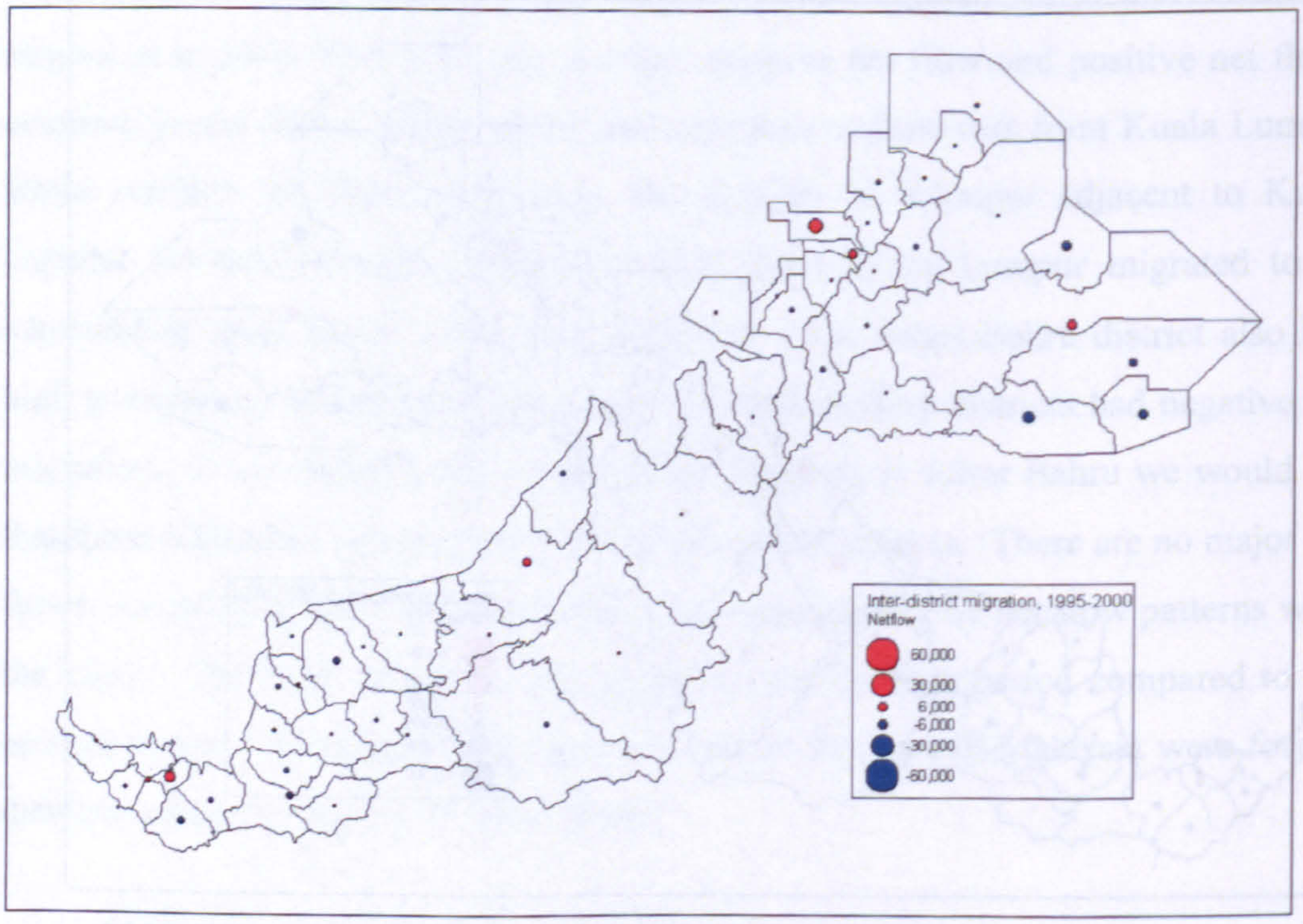


Figure 7.12b: Inter-district migration (netflow), East Malaysia, 1995-2000

7.5.3 Inter-district net migration rates

Measurement of the inter-district net migration rates created a different picture of the inter-district migration patterns. A district with high net migration does not necessarily have the highest net migration rate. Whilst it depends on the relationship between the inflow and outflow into and from a particular district, it also depends on the size of the population at risk of migration. In this sense, we use the end of period population as the denominator in the rate calculations.

Out of ten highest net migration inflows for 1986-1991 discussed in the previous section, only four ranked in the top ten for net migration rates: Ulu Langat, Bintulu, Kulim and Penampang. As discussed in previous section, high net in-migration volumes mostly occurred in the west coast districts of Peninsular Malaysia. The districts with high net in-migration rates, however, are found mostly among the districts of East Malaysia. The top three districts with high net in-migration rates were Belaga, Tatau and Nabawan with +20.9, +17.6 and +17.4 in-migration per thousand population respectively. These are all located in East Malaysia. The next on the list is Ulu Langat with net rate of +16.4, located in Peninsular Malaysia. This was followed by Bintulu, Kinabatangan and Penampang, all of which were located in East Malaysia, with net rates of +16.3, +15.2 and +13.5 respectively. The district of Gua Musang had a net rate of +13.0 ranked eighth on the list, was the only district located on the east coast of Peninsular Malaysia during this period. This was followed by Sipitang and Kulim with net rates of +9.3 and +9.1 respectively.

High on the list of the highest negative net migration rate was Kanowit with -19.3 followed by Dalat, Meradong and Betong with -13.1, -12.7 and -11.9 respectively. All of these districts were located in East Malaysia. Sabak Bernam, which ranked fifth on the list, was the only district located in the west coast of Peninsular Malaysia, while other districts on the list, Bau, Simunjan, Sri Aman, Daro and Semporna were all located in East Malaysia (Table 7.7). Thus, it can be concluded that the districts with high positive and negative migration rates were among those located in the East Malaysia states. All except Ulu Langat (positive net migration

rate) were districts in the less developed states, mainly Sabah and Sarawak in East Malaysia and Kelantan on the east coast of Peninsular Malaysia.

The net migration rates for the 1995-2000 period show a different picture compared to the previous period. Sepang, which was located in the west coast of Peninsular Malaysia had the highest net in-migration rate at +15.6 per 100 people. This was followed by Samarahan and Ulu Selangor with +13.9 and +11.2 respectively. Other districts in the top ten highest positive net migration rates were Ulu Langat, Kinabatangan, Seberang Perai Selatan, Seremban, Petaling, Kulim and Penampang. To categorize these districts, we can divide them in two, seven of them (Sepang, Ulu Selangor, Ulu Langat, Seberang Perai Selatan, Seremban, Petaling and Kulim) were located in the Peninsular Malaysia, while three (Samarahan, Kinabatangan and Penampang) were located in East Malaysia. All districts in Peninsular Malaysia, except Kulim, were located in the more developed states.

Table 7.7: Selected district net migration rates, 1986-1991 and 1995-2000

District	1986-1991	District	1995-2000
Belaga	20.9	Sepang	15.6
Tatau	17.6	Samarahan	13.9
Nabawan	17.4	Ulu Selangor	11.2
Ulu Langat	16.4	Ulu Langat	9.3
Bintulu	16.3	Kinabatangan	6.4
Kinabatangan	15.2	Seberang Perai Selatan	5.4
Penampang	13.5	Seremban	5.3
Gua Musang	13.0	Petaling	5.3
Sipitang	9.3	Kulim	5.2
Kulim	9.1	Penampang	5.1
Semporna	-8.1	Tanah Merah	-4.6
Daro	-8.1	Jelebu	-4.7
Sri Aman	-8.1	Meradong	-4.9
Simunjan	-8.2	Simunjan	-5.1
Bau	-9.1	Pasir Puteh	-5.3
Sabak Bernam	-9.6	Pasir Mas	-5.4
Betong	-11.9	Semporna	-5.6
Meradong	-12.7	Kanowit	-5.8
Dalat	-13.1	Sri Aman	-5.9
Kanowit	-19.3	Kuala Lumpur	-9.2

The districts with the highest negative net migration rates, on the other hand, show a different pattern. Five out of ten districts in the list were located in Peninsular

Malaysia while the other five were located in East Malaysia. All districts, except Kuala Lumpur and Jelebu were located in the less developed states. Kuala Lumpur had the highest negative net migration rate of -9.2 (per 100 people) which was higher than the same ranking districts during the previous period. Most of the districts on this list had lower negative net migration rates compared to those in the 1986-1991 period (Table 7.7). The other characteristic worth noting from the list was that three districts in Peninsular Malaysia, Tanah Merah, Pasir Puteh and Pasir Mas were located in Kelantan, an east coast state of Peninsular Malaysia. Kelantan had the second lowest net migration rate, after Kuala Lumpur, among the states in Malaysia (see Chapter 6 for the analysis). For the overall picture of the net migration rates for all the districts in Malaysia, the scatter graph is plotted in Figure 7.13. The net migration rates for the first period have the highest and lowest values compared to the second period.

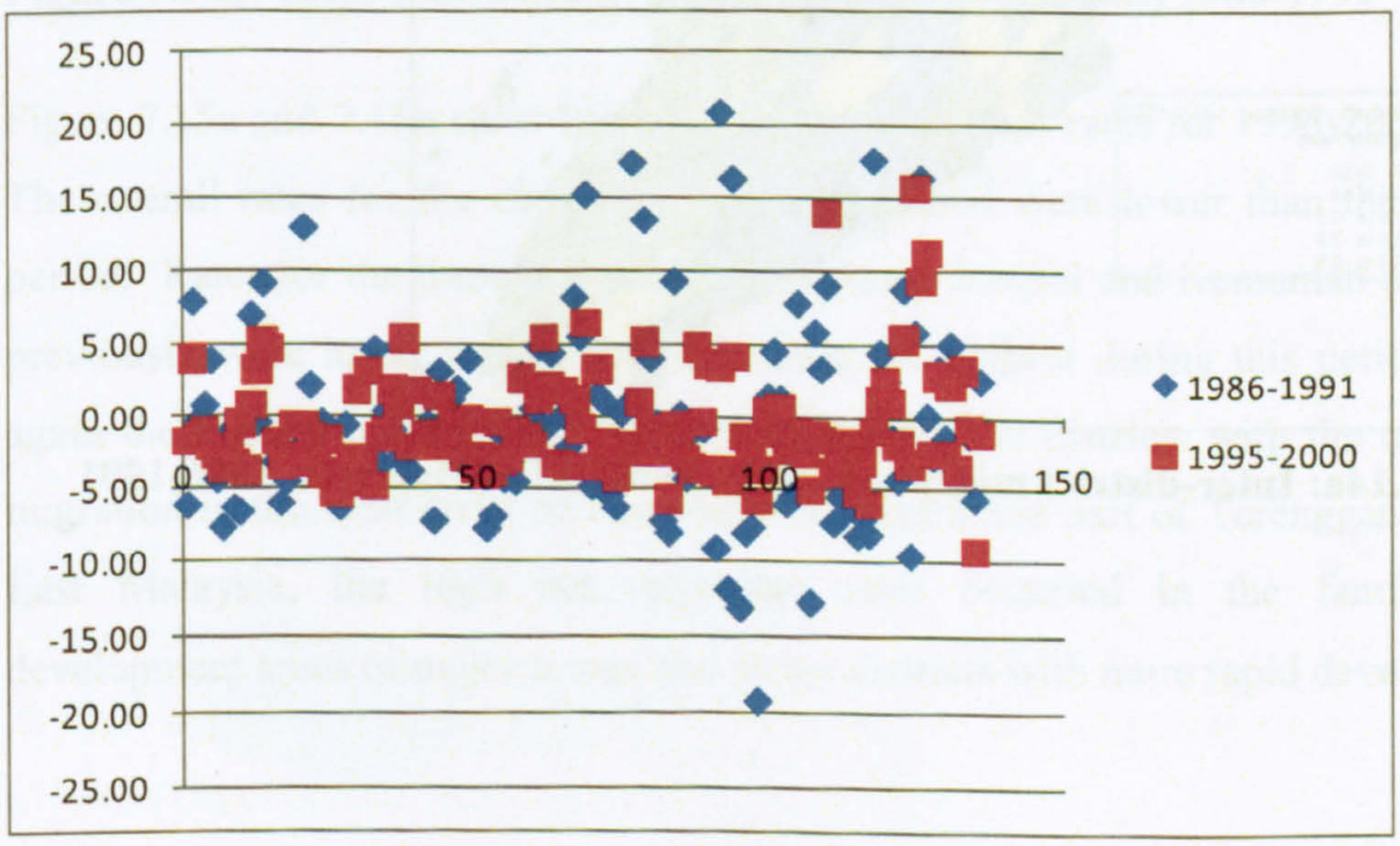


Figure 7.13: Net migration rates for all districts, 1986-1991 and 1995-2000

The inter-district net migration rates during 1986-1991 period for the whole country can be seen in Figures 7.14a and 7.14b. Among the districts with the highest net migration rates were Gua Musang in Kelantan, Jempol in Negeri Sembilan and Kemaman in Terengganu beside the 'usual' districts that had the highest volumes and rates. These districts had low development and were located away from big towns. Gua Musang, in particular, was located quite far away from development

areas and were mostly agriculture. It was, however, located along the 'alternative' or secondary highway leading to the state capital and other major towns.

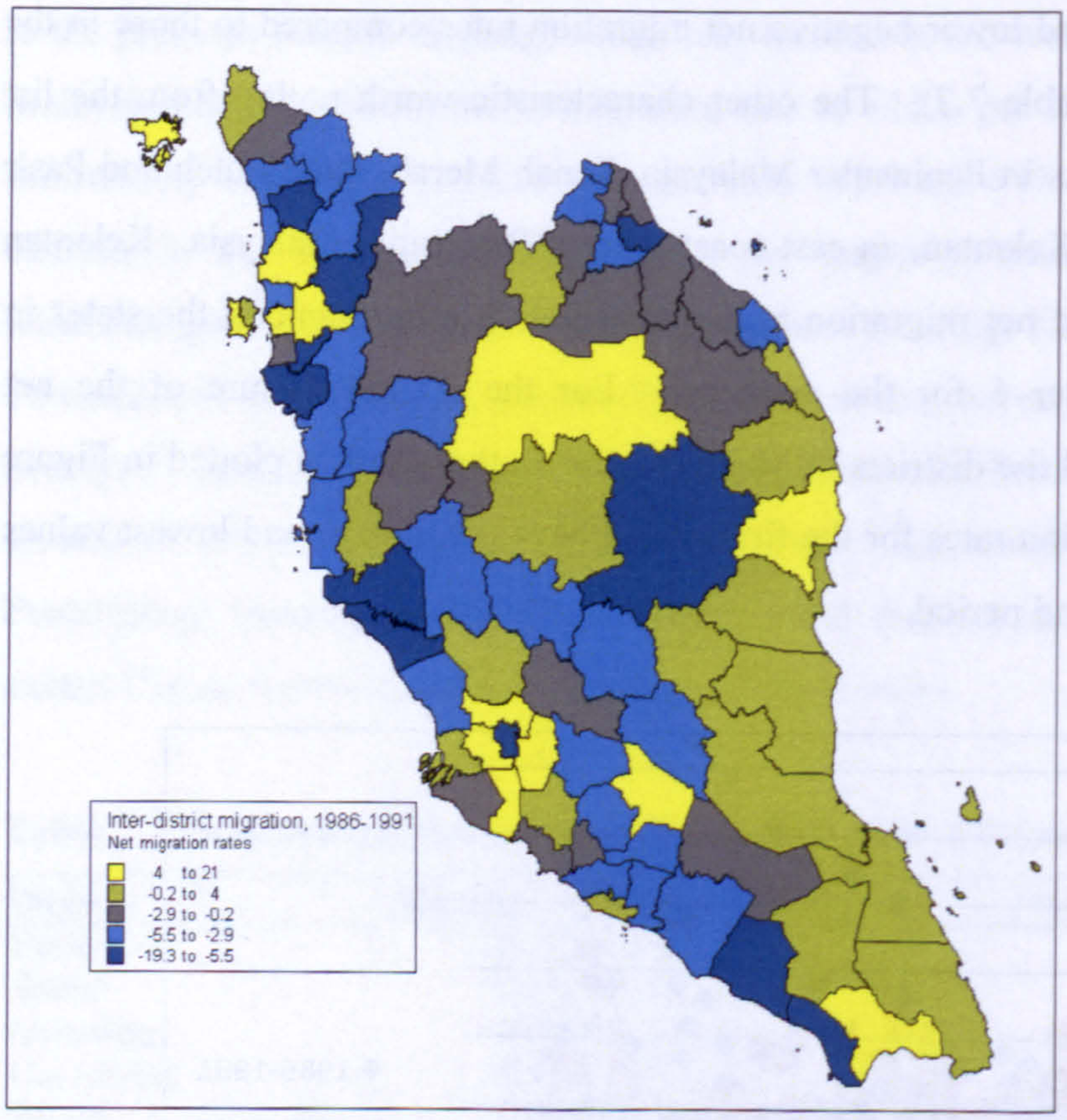


Figure 7.14a: Inter-district migration rates, Peninsular Malaysia, 1986-1991

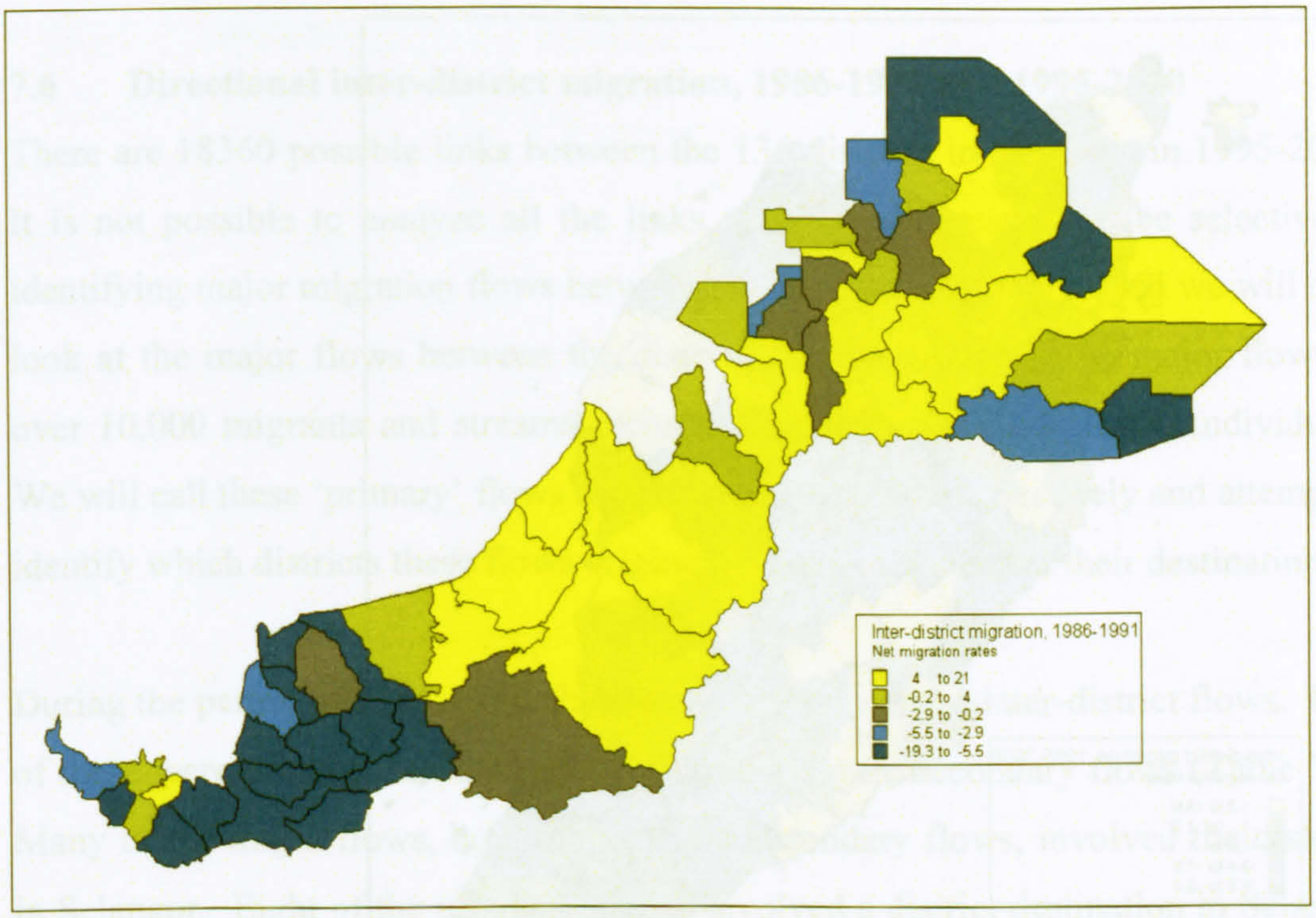


Figure 7.14b: Inter-district migration rates, East Malaysia, 1986-1991

Figure 7.15a and 7.15b show the inter-district migration rates for 1995-2000 period. The overall rates for the country during this period were lower than the previous period. Rates for the three districts Gua Musang, Jempol and Kemaman mentioned previously were lower and no longer among the highest during this period. Once again the highest net migration rates were among the districts with the usual high migration in the west coast of Peninsular Malaysia and part of Terengganu. In the East Malaysia, the high net migration rates occurred in the familiar high development areas of major towns and in the districts with more rapid development.

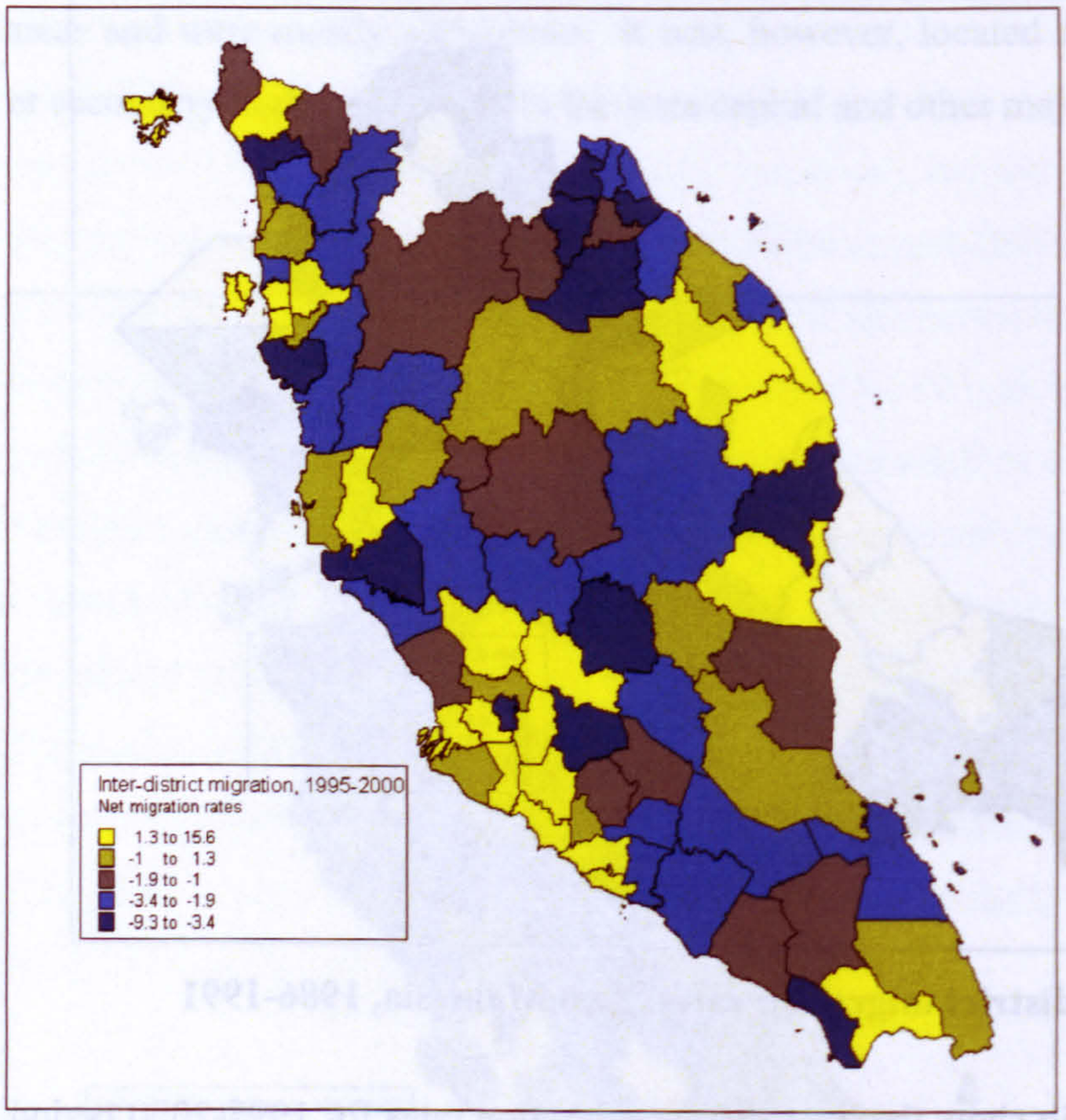


Figure 7.15a: Inter-district migration rates, Peninsular Malaysia, 1995-2000

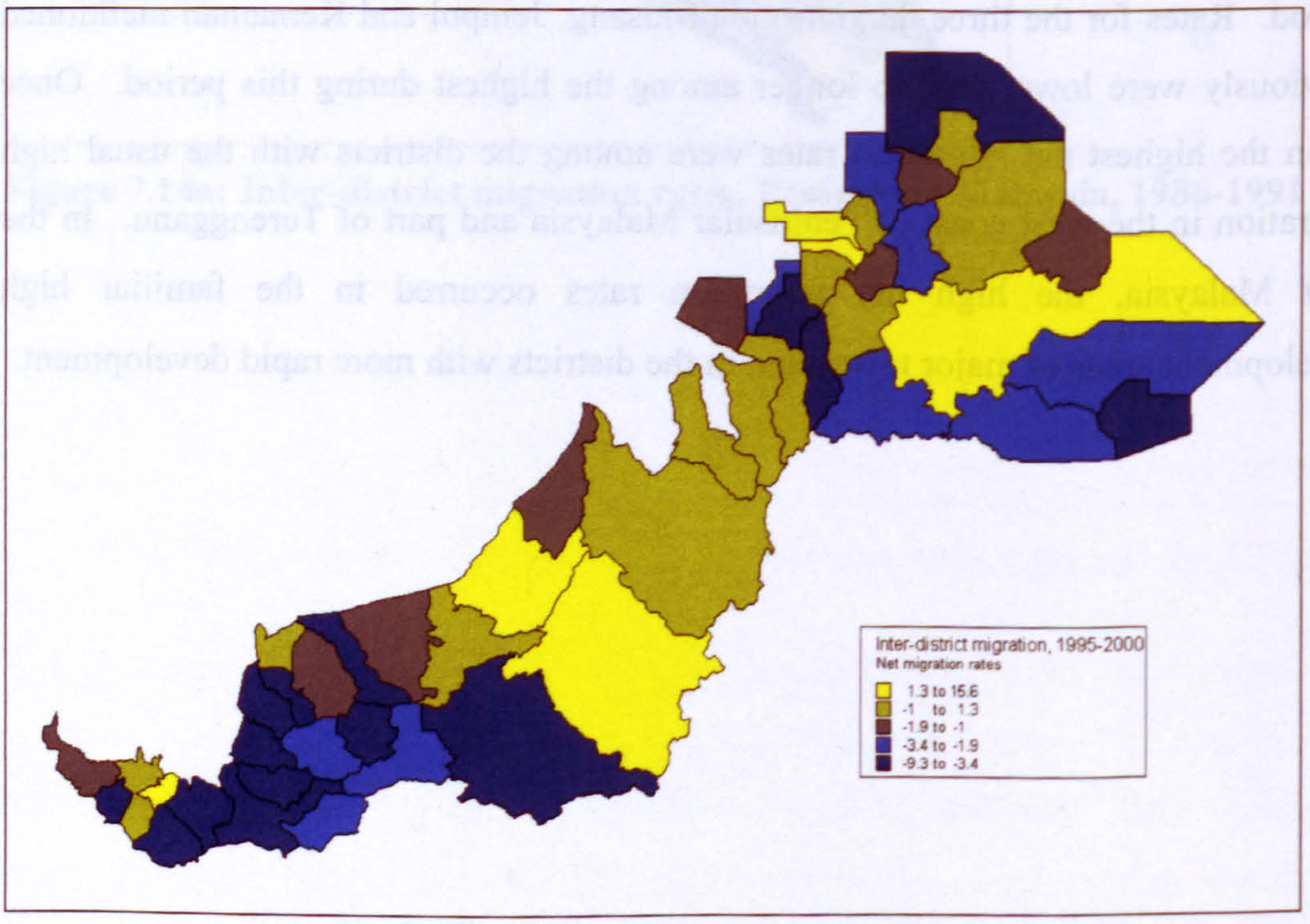


Figure 7.15b: Inter-district migration rates, East Malaysia, 1995-2000

7.6 Directional inter-district migration, 1986-1991 and 1995-2000

There are 18360 possible links between the 136 districts in Malaysia in 1995-2000. It is not possible to analyze all the links, thus, it is necessary to be selective in identifying major migration flows between the districts. For this reason we will only look at the major flows between the districts in two groups at the major flows of over 10,000 migrants and streams including between 5,000 to 10,000 individuals. We will call these 'primary' flows and 'secondary' flows respectively and attempt to identify which districts these flows originate from and which are their destinations.

During the period of 1986-1991, there were nineteen major inter-district flows. Five of these were primary flows while the remaining were secondary flows (Table 7.8). Many of the major flows, both primary and secondary flows, involved the districts in Selangor. Eight of the migration flows involved a district destination in Selangor while another eight flows involved a origin district in Selangor. Four of the flows involved the destination to Kuala Lumpur which is located within the state of Selangor, while another four flows involved destinations in the state of Johor. The remaining three flows were to districts in Pulau Pinang. All these flows occurred within the more developed states. All the flows, except from Kuala Lumpur to Johor Bahru and from Kinta to Kuala Lumpur were short-distance flows from the districts within the same state (Kuala Lumpur is located within the state of Selangor, although it is not part of the state). Table 7.8 summarizes the primary and secondary inter-district flows for 1986-1991. Figure 7.16 shows the primary and secondary flows where they occurred in three main regions. They show that the major inter-district flows occurred between nearby districts.

The primary flows are focused on Kuala Lumpur as the main contributor of in-migration to the districts of Selangor. These were relatively short-distance moves between districts located within the same state.

Table 7.8: Primary and secondary flows between districts, 1986-1991

Origin	Destination	Migrants
Primary flows		
Kuala Lumpur	Ulu Langat	43,123
Kuala Lumpur	Petaling	31,925
Kuala Lumpur	Gombak	25,351
Petaling	Kuala Lumpur	19,963
Gombak	Kuala Lumpur	16,449
Secondary flows		
Kuala Lumpur	Johor Bahru	9,297
Klang	Petaling	8,937
Ulu Langat	Kuala Lumpur	8,390
Pontian	Johor Bahru	8,172
Petaling	Klang	8,170
Batu Pahat	Johor Bahru	8,059
Muar	Johor Bahru	7,463
Timur Laut	Barat Daya	7,236
Kinta	Kuala Lumpur	6,815
Gombak	Ulu Langat	6,793
Gombak	Petaling	6,765
Seberang Perai Utara	Seberang Perai Tengah	6,008
Barat Daya	Timur Laut	5,106
Petaling	Gombak	5,002

Source: Department of Statistics (1995)

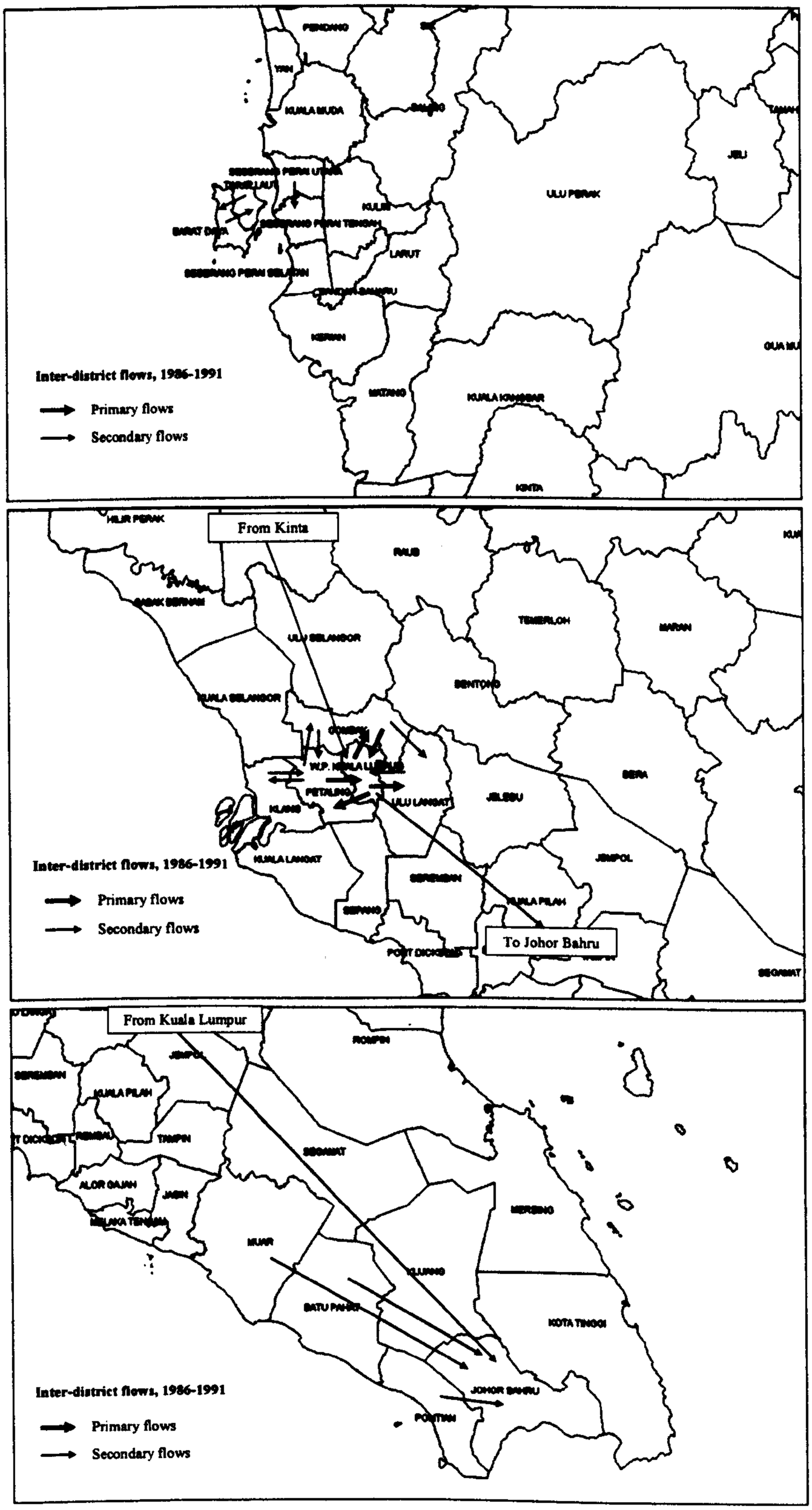


Figure 7.16: Inter-district primary and secondary flows, 1986-1991

During the period of 1995-2000, there were twenty one major inter-district flows. Six of the flows were the primary flows, while the other fifteen were the secondary flows (Table 7.9). The major inter-district flows still involved the short distances within the same state with the exception of the flows from Kuala Lumpur to Johor Bahru. All the primary flows involved flows between the districts within the state of Selangor.

For the secondary flows, eight flows involved destination districts in Selangor, three in Pulau Pinang, two in Johor, one in Kuala Lumpur and one in Kota Kinabalu. The latter was the only district located in the state of Sabah in East Malaysia. The origin district, however, was located in the same state, thus, it was still a short distance flow. The secondary inter-district flows that did not involve flows within the same state (assuming Kuala Lumpur is in the state of Selangor), were Kuala Lumpur to Johor Bahru and Kinta to Petaling. Similar to the previous period, all the major flows, except Penampang to Kota Kinabalu, involved districts located in more developed states. The states were Selangor, Johor, Pulau Pinang, Kuala Lumpur and Perak. Table 7.9 summarizes the primary and secondary inter-district flows for 1995-2000 whilst Figures 7.17 shows where the major inter-district flows occurred.

During this period, Kuala Lumpur was still the main contributor of the migration to other districts. The three highest flows of migrants to three other districts were from Kuala Lumpur, all three in Selangor. These receiving districts were the same districts that received the highest inflow of migration from Kuala Lumpur during the previous period.

Figures 7.16 and 7.17 showed that major migration between the districts in Malaysia occurred mainly at short distances and at particular regions. The figures show that large flows occurred mainly between the districts adjacent to one another and were prominent in three regions, Selangor/Kuala Lumpur in the central, Pulau Pinang in the north and Johor in the South. These are the three most developed regions in Malaysia and probably have more employment opportunities and better living conditions compare to other regions. Moreover, large cities are located in these

regions, Kuala Lumpur in the central, Georgetown in the north and Johor Bahru in the south. Previous studies from the 1970 Census had also indicated that these three regions attracted major inter-district migration from other regions in Peninsular Malaysia (Pryor, 1979).

Table 7.9: Primary and secondary flows between districts, 1995-2000

Origin	Destination	Migrants
Primary flows		
Kuala Lumpur	Ulu Langat	49,017
Kuala Lumpur	Petaling	44,078
Kuala Lumpur	Gombak	22,261
Petaling	Klang	17,473
Petaling	Kuala Lumpur	10,703
Petaling	Ulu Langat	10,544
Secondary flows		
Gombak	Kuala Lumpur	8,680
Gombak	Petaling	7,988
Klang	Petaling	7,839
Kuala Lumpur	Johor Bahru	7,260
Timur Laut	Barat Daya	6,811
Gombak	Ulu Langat	6,161
Ulu Langat	Petaling	6,096
Kota Tinggi	Johor Bahru	6,009
Penampang	Kota Kinabalu	5,939
Barat Daya	Timur Laut	5,823
Kuala Lumpur	Klang	5,441
Kinta	Petaling	5,437
Petaling	Gombak	5,388
Seberang Perai Utara	Seberang Perai Tengah	5,281
Kuala Lumpur	Ulu Selangor	5,236

Source: Department of Statistics (2004a)

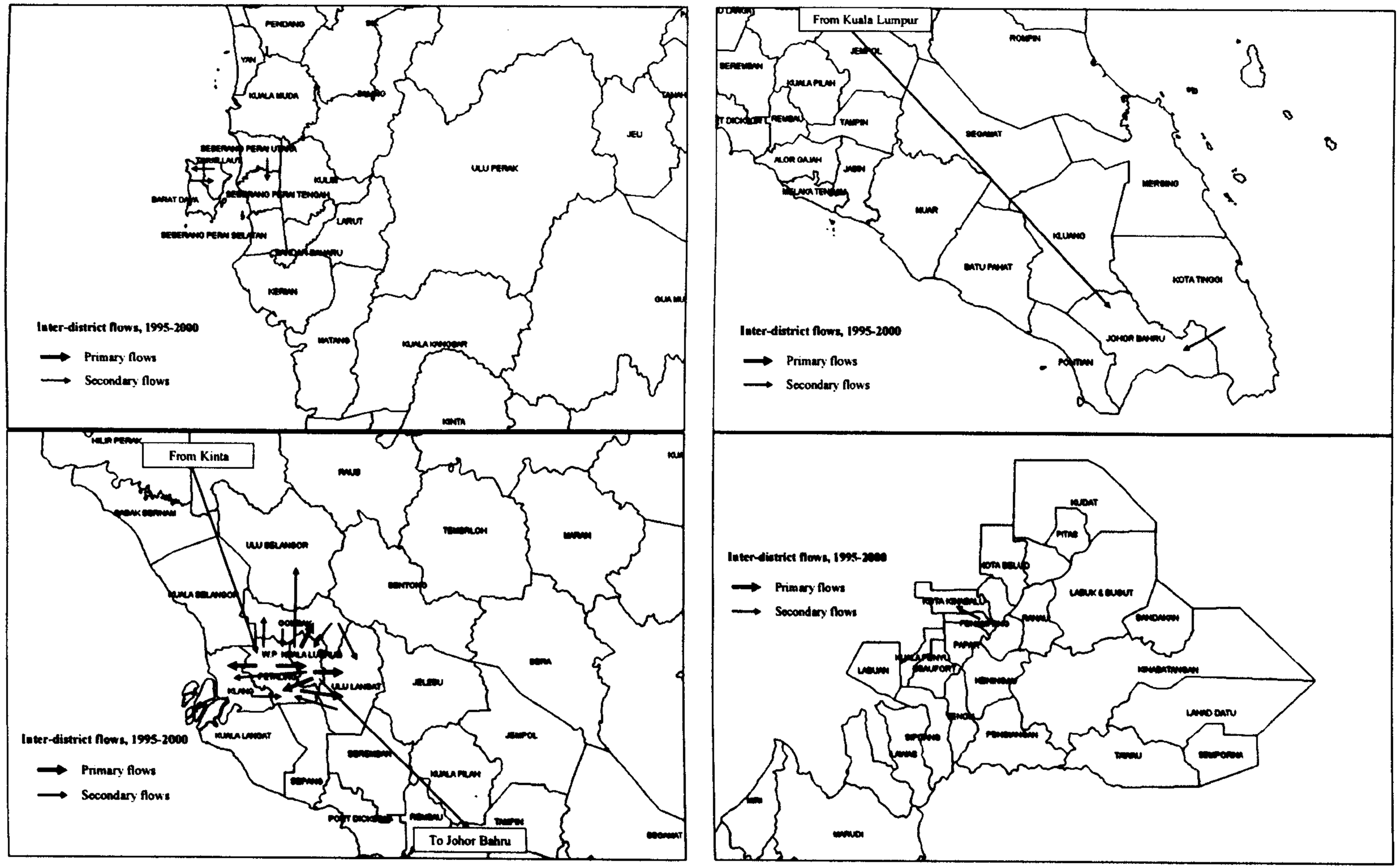


Figure 7.17: Inter-district primary and secondary flows, 1995-2000

7.7 Conclusion

In conclusion, there are two major sections discussed in this chapter. The first has discussed the migration flows within districts and between districts. The second section analyzed the directional flows of migration between the districts, looking particularly at major flows that occurred during the period of 1986-1991 and 1995-2000. The analysis uses aggregate volume, percentage change, migration rates and directional flows to see where changes were taking place and the importance of some districts in receiving or losing population.

The Chapter has answered part of the research question no. 1; what are the current pattern of migration occuring within Malaysia and what are the magnitudes, composition and determinants of population movement? The current pattern of migration at district level and the magnitudes of population shifts within and between districts has been answered in this chapter. The district level migration is to further analyse the migration pattern at the state level discussed in Chapter 6.

The analysis shows that many districts were experiencing less intra-district migration. Only fifteen out of 133 districts have higher migration volumes in recent period compare to the previous one. This means that there were less movement for the very short distance migration. This evidence is further reinforced using migration rates for both periods. The migrations rates for 1995-2000 were much lower than those in 1986-1991.

The analysis also shows that inter-district migration was experiencing less migration volumes in the later period, although this is not surprising since we have discussed in previous chapter that the intra and inter-state migration were also having the same pattern. The analysis has shown again that Kuala Lumpur was losing its population especially to the adjacent districts. From the net migration and directional flow analyses we can see that there were lots of migration flows of high volumes especially in Selangor and Kuala Lumpur region, Pulau Pinang and Johor. Large migration volumes were experienced around large cities such as Kuala Lumpur in

the central region, Georgetown in the north and Johor Bahru in the south. These are all cities in the most developed states in the west coast of Peninsular Malaysia and have been among the most populated cities in Malaysia for several decades. There are many economic and employment opportunities in these region compared to other regions in Malaysia.

The analysis also shows that short distance migration to the districts adjacent to one another is prominent in both periods. Except for a few long distance migration, most of the major flows (primary and secondary) occurred only between certain districts. Most of these were around the Kuala Lumpur area which is also known as the Klang Valley region, which includes Kuala Lumpur and its surrounding area. As Kuala Lumpur is the capital of Malaysia, it has been experiencing major population movement throughout its history. Selangor had been experiencing its downstream effect because of its proximity to Kuala Lumpur.

The district level migration has further reiterates the importance of migration within Kuala Lumpur and Selangor as discussed in the previous chapter. We know that migration in Selangor occurred near Kuala Lumpur, which probably Kuala Lumpur's population is moving outside the capital and commuting to work in Kuala Lumpur. The traffic flows during the rush hour coming to Kuala Lumpur in the morning and going out of Kuala Lumpur in the evening are the visual proof of this situation. Those who have lived in this region have been experiencing this condition everyday for many years. A lot of major improvement projects to develop mass transportation system have been done by the government to alleviate the traffic problem for many years.

Pulau Pinang and Johor in the north and south are also experiencing major migration flows. Georgetown in Pulau Pinang is experiencing the same kind of migration as Kuala Lumpur whilst Johor Bahru in Johor is experiencing migration as the early stage of migration to Kuala Lumpur. Johor Bahru is experiencing inflow migration in the last few years as a result of high development in its region. The Johor Bahru district experienced high development because of its proximity to Singapore and the

Government's policy to develop Johor Bahru as the southern corridor to tap the economic opportunities from the southern growth triangle of Johor, Singapore and Sumatera in Indonesia.

In this Chapter we have analysed and discussed the migration flows within and between districts in Malaysia during the last two censuses. In the next Chapter we will analyse the migration flows at urban and rural level, the final analysis of internal migration in Malaysia. The Chapter will complement the analyses done in the previous three Chapters.

CHAPTER 8

INTERNAL MIGRATION AT URBAN AND RURAL LEVEL

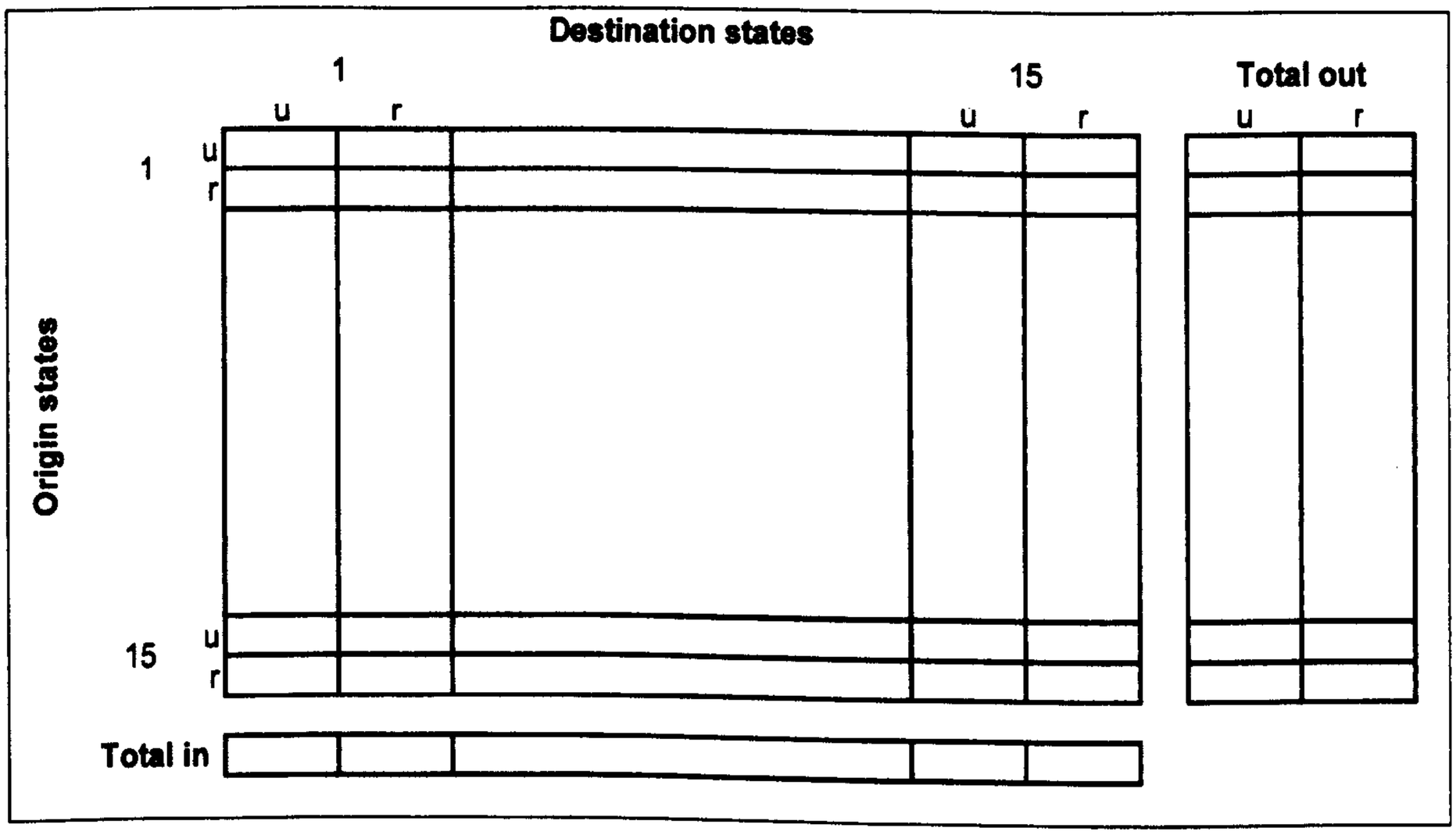
8.1 Introduction

The analyses of internal migration at state and district level have shown the areas where most of the migrants are coming from and going to, as well as the different volumes and rates of migration over different periods of time. We now turn to migration at a different spatial scale, that occurring within and between urban and rural areas in each of the fifteen states in Malaysia. At the urban and rural level, there is no geographical demarcation of the territory that is urban from that which is rural. States are regions in which all parts of the territory are contiguous and enclosed by a common boundary. Urban and rural areas within states are classes of territory that are designated as urban or rural according to their economic function (industry versus agriculture), their concentration of built-up area (more than a threshold of the land is built up), or their population density (urban areas have more than a threshold density). Urban areas within a state are archipelagos of islands of urbanity in a sea of rurality and so are scattered over the state and are not necessarily contiguous. Spatial boundaries are used to delimit these urban islands and rural sea but the boundaries are not readily available in digital form and change steadily over time as the urban islands grow and the rural sea recedes, thus making consistent temporal comparison difficult. Despite this problem, this chapter produces further insights into Malaysia's internal migration by investigating the connections between urban and rural areas across the country by attempting to answer the following research questions:

1. What are the relative magnitudes of the migration flows taking place within and between urban and rural areas?
2. What are the patterns of intra-state and inter-state migration between and within urban and rural areas?
3. Where are urbanizing flows occurring and where are counter-urban flows occurring?

4. To what extent is migration becoming more intra-urban in nature rather than rural urban in nature?
5. What are the migration balances for each state's urban and rural areas? Are these derived from exchanges within states or between states?
6. How do the answers to these questions change between the later 1980s and the later 1990s? What are the directions of change?

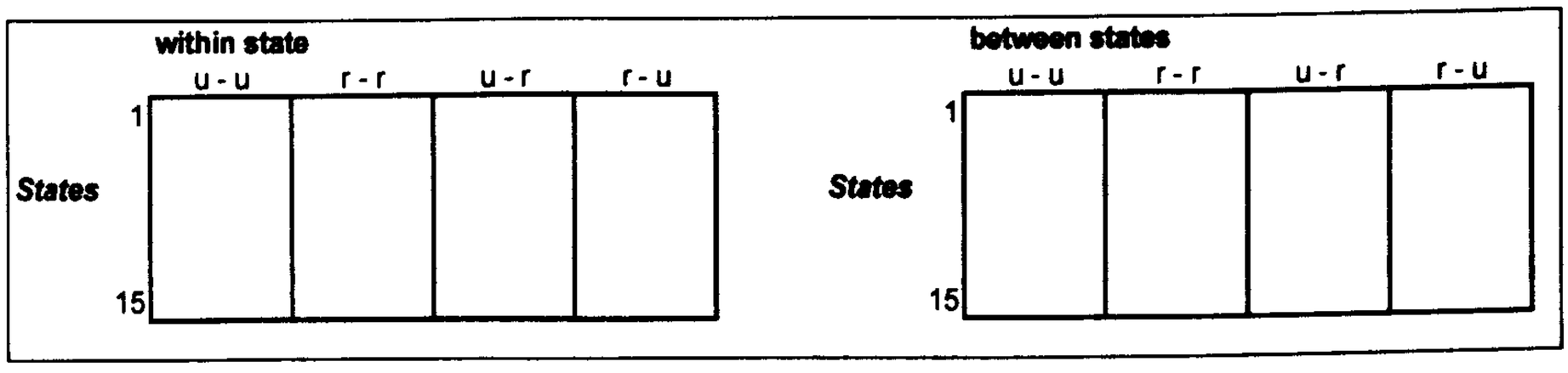
The aim of this chapter is to examine four categories of internal migration: urban to urban, urban to rural, rural to urban and rural to rural migrations, considering both within-state and between-state flows. This analysis will complement the analyses undertaken in the previous two chapters, involving migration at state and district scale respectively. The conceptual matrix for urban and rural migration at state level is shown in Figure 8.1. Actual data for the flows is included in Appendix C and D. Each row contains an outflow from an urban or a rural area in one origin state to an urban or rural destination in the same state (initial two columns in first two rows) or in other states (remaining columns). The marginal totals show the total out-migration (rows) and in-migration (columns) for urban and rural areas respectively.



u = urban; r = rural

Figure 8.1: Conceptual matrix of urban and rural migration in Malaysia

Section 8.2 examines the flows of migration between urban and rural areas as a whole during the five-year periods of the latest two censuses for which migration was measured, 1986-91 and 1995-2000. Section 8.3 examines the urban and rural flows of migration in the two periods by looking at each of the flows within and between the states. This is done by analyzing the flows for each state, both for inflows and outflows from and to urban and rural areas, as shown in Figure 8.2. This section will show where the majority of migration takes place, for urban or rural as well as the state. Section 8.4 concludes the chapter.



u = urban; r = rural

Figure 8.2: Migration flow categories within and between the states

8.2 Migration between and within urban and rural areas

In Malaysia, urban population change over time occurs as a result of natural increase and migration. However the demographic dynamics of particular places are complicated because of the reclassification of urban areas resulting in boundary changes of urban and rural areas. These changes include the upgrading of rural localities to urban categories, the annexation of adjoining areas to urban centres, and the change of urban boundaries as a result of the urban expansion and changing definitions (Jaafar, 2004; Department of Statistics, 2004a).

Historically, there has been a rapid increase in rural to urban migration since the New Economic Policy (NEP) was launched in 1970. This policy, among others, encouraged people to move from villages to urban centres to find jobs and other opportunities provided by the Government development plans (Economic Planning Unit, 1991). Urban growth continued to increase from one census to the next in 1980, 1991 and 2000, as has been discussed in Chapter 5. However, by 1986-1991,

Table 8.1 shows that urban to urban migration (from urban areas in a state to other urban areas in other states) is the dominant pattern of migration in Malaysia (also discussed in Chapter 5), migration which includes movement between urban areas in the same state as well as urban areas in different states. In all states, urban to urban migration is higher than urban to rural migration. In terms of rural origin, all states except two (Pulau Pinang and Kuala Lumpur) have higher rural to rural migration. Pulau Pinang has higher rural to urban migration, whilst W. P. Kuala Lumpur does not have any migrants from rural origins since the whole territory is defined as urban. However, flows from rural to urban and rural to rural areas in Pulau Pinang are not very different. The difference between the two flows is only about 700 people, a difference of less than 3 percent.

Selangor has the highest urban to urban migration with almost 346,000 migrants followed by W.P. Kuala Lumpur at 303,000 and Perak at 267,000 migrants. These are all the more developed states. Other states such as Sarawak and Sabah which are large states also have higher urban to urban migration. Looking at the percentages, however, shows that there is no clear pattern of urban to urban migration between the more developed and the less developed states.

Table 8.2 shows that urban to urban migration ((from urban areas in a state to other urban areas in other states) is also a dominant pattern of migration in Malaysia during the 1995-2000 periods. In all states, urban to urban migration is higher than the urban to rural migration. On the other hand, with the exception of W.P. Kuala Lumpur which has no rural origin, half of the states (seven states) have higher rural to urban migration, whilst the other half has higher rural to rural migration. The data also reveal that most of the more developed states have higher urban to urban migration flows. Selangor, W. P. Kuala Lumpur and Johor have 390,000, 295,000 and 226,000 urban to urban migration respectively. Perak and Pulau Pinang, which are also more developed states, also have higher migration flows. Although several less developed states also have high urban to urban migration, such as Sabah and Sarawak, they are the large states with larger populations compared to the more developed states with lower migration flows. On the other hand, all of the more

developed states experienced more than 80 percent urban to urban migration, whilst all less developed states, except Pahang and Sarawak (big states) and W. P. Labuan (federal territory) have less than 80 percent urban to urban migration.

Table 8.2 also shows that migration to rural destinations, such as urban to rural and rural to rural migration flows are relatively low. Out of 29 flows to rural destinations, 22 have flows of less than 50 percent. The highest flow among the 7 highest ones is only at 58 percent, which is from rural Terengganu to other rural areas in Malaysia. Terengganu is a less developed state with considerable rural areas.

Table 8.1: Urban and rural migration, 1986-1991

ORIGIN		Destinations (all states)			
		Urban	**%**	**Rural**	**%**
Johor	Urban	229,470	75.86	73,027	24.14
	Rural	59,639	35.91	106,426	64.09
Kedah	Urban	103,849	76.52	31,869	23.48
	Rural	57,920	37.96	94,673	62.04
Kelantan	Urban	79,829	68.79	36,213	31.21
	Rural	36,563	29.08	89,190	70.92
Melaka	Urban	39,024	81.44	8,891	18.56
	Rural	25,832	42.61	34,793	57.39
Negeri Sembilan	Urban	77,845	79.45	20,130	20.55
	Rural	26,930	39.47	41,294	60.53
Pahang	Urban	94,518	72.76	35,386	27.24
	Rural	31,967	26.29	89,644	73.71
Perak	Urban	267,113	80.82	63,372	19.18
	Rural	57,443	39.46	88,137	60.54
Perlis	Urban	9,473	63.67	5,405	36.33
	Rural	8,588	36.77	14,771	63.23
Pulau Pinang	Urban	144,070	86.99	21,554	13.01
	Rural	13,151	51.41	12,430	48.59
Sabah	Urban	110,262	55.63	87,961	44.37
	Rural	51,382	23.52	167,076	76.48
Sarawak	Urban	149,114	76.32	46,259	23.68
	Rural	74,515	21.92	265,368	78.08
Selangor	Urban	345,519	86.33	54,699	13.67
	Rural	33,089	44.89	40,624	55.11
Terengganu	Urban	59,161	72.93	21,958	27.07
	Rural	18,842	26.39	52,566	73.61
W.P. Kuala Lumpur	Urban	302,525	88.03	41,155	11.97
	Rural	-	n/a	-	n/a
W.P. Labuan	Urban	4,780	52.51	4,323	47.49
	Rural	1,149	29.01	2,812	70.99
Total		2,513,562		1,652,006	

Source: Department of Statistics (1995)

Table 8.2: Urban and rural migration, 1995-2000

Origin		Destinations (all states)			
		Urban	%	Rural	%
Johor	Urban	226,399	86.83	34,330	13.17
	Rural	47,909	59.62	32,451	40.38
Kedah	Urban	83,254	77.31	24,433	22.69
	Rural	28,449	45.83	33,632	54.17
Kelantan	Urban	61,122	72.25	23,479	27.75
	Rural	28,488	48.55	30,194	51.45
Melaka	Urban	61,012	82.72	12,742	17.28
	Rural	6,299	58.34	4,498	41.66
Negeri Sembilan	Urban	75,345	86.63	11,626	13.37
	Rural	18,991	55.07	15,492	44.93
Pahang	Urban	101,762	81.50	23,106	18.50
	Rural	24,398	45.04	29,768	54.96
Perak	Urban	180,958	85.32	31,147	14.68
	Rural	27,705	48.87	28,988	51.13
Perlis	Urban	8,566	76.68	2,605	23.32
	Rural	5,037	52.10	4,631	47.90
Pulau Pinang	Urban	140,647	90.69	14,447	9.31
	Rural	13,455	61.32	8,489	38.68
Sabah	Urban	163,218	78.26	45,336	21.74
	Rural	42,515	42.53	57,453	57.47
Sarawak	Urban	127,075	84.83	22,726	15.17
	Rural	42,584	41.75	59,425	58.25
Selangor	Urban	389,681	90.56	40,640	9.44
	Rural	12,446	60.86	8,004	39.14
Terengganu	Urban	65,665	79.34	17,102	20.66
	Rural	15,271	41.56	21,474	58.44
W.P. Kuala Lumpur	Urban	294,775	93.48	20,552	6.52
	Rural	-	n/a	-	n/a
W.P. Labuan	Urban	9,204	82.82	1,909	17.18
	Rural	932	70.29	394	29.71
Total		2,303,162		661,073	

Source: Department of Statistics (2004a)

8.3 Urban and rural migration, 1986-1991 and 1995-2000

It was noted in Chapter 5 that 1991 was the year in which the urban and rural areas contained approximately the same number of people (50.4 percent urban; 49.6 percent rural on census date). Census data indicates that by 2000, 62 percent of the population were classified as living in urban areas (see Chapter 5 for the definition of urban areas) with the remaining 38 percent living in rural areas. The increase of the population living in urban areas could have been caused by three factors; natural increase being greater in urban areas, rural-to-urban migration exceeding urban to rural migration, and/or urban boundary change. Whilst the natural increase and

rural-to-urban migration can be calculated, it is not possible to identify or determine the extent to which the proportion of national territory defined as urban in 2000 is different from that in 1991. The area has not been measured or included in the statistics reports. The boundaries have been changed between the two censuses because of the development that occurred in rural areas due to increasing population and density, and hence changing the area classification from rural to urban and extending the urban boundaries as a result of the urban sprawl.

Data from the census are important in understanding the relative importance of the urban and rural migration flows and trends. The Malaysian census shows flows between urban and rural areas, both within states and between states. Thus, we can see the changes in urban and rural migration patterns between the two censuses. Unfortunately, census data also records flows of migrants with unknown origins and unknown destinations both within and between states. Although the numbers are relatively small, some unknown categories have higher proportions than the known categories.

A breakdown of the internal migrants from different categories of origin and destination both within and between the states is provided in Table 8.3 which shows the relative importance of each type of flow in each of the two census periods. The majority of rural and urban migration occurred within the state and can be regarded as relatively short-distance flows. These comprise almost three quarters of total internal migration flows in Malaysia. Migration between urban areas within the state was responsible for about 33.6 percent of migration in the 1986-1991 period and 42.5 percent in the 1995-2000 period. The number of population had increased but the number of migrants, however, had decreased. Migration between rural areas within the states was also high during the first period (22.9 percent) but decreased to 8.8 percent during the second period, a reduction of more than 14 percent. The flows from urban to rural areas and from rural to urban areas within the states did not differ very much in both periods, with the difference of less than 1.0 percent. This shows that during these periods, the bulk of migrant flows occurred over relatively short distances and from urban to other urban areas, especially during the

latter period. Migration from rural to urban areas did not contribute very much to urbanization in Malaysia, especially during the earlier period as many of the flows were confined to rural areas. Agricultural schemes developed by the Government may have contributed to population flows between rural areas (Baydar et al., 1990) in the first period. The major change seems to be the decline in rural to rural flows.

High migration flows between urban areas are also evident in the inter-state migration. The 13 percent and 17.2 percent urban to urban flows during the first period and second period respectively suggest this movement is a dominant trend in Malaysia. In fact the number of migrants also increased during the second period for this flow. Migrant flows between the rural areas in different states, however, are lower than other types of urban-rural migration flows. This suggests that rural to rural migration between states, which is a long-distance migration is not very popular in Malaysia. This is consistent with Ravenstein's law that there is an inverse relationship between migration and distance (Ravenstein, 1885). The population in rural areas, which often consists of poorer people who are involved in agriculture, is not very mobile and not likely to move to other areas. Limited employment opportunities in rural areas and lack of information to rural population may also be the cause of the low mobility.

Table 8.3: Urban and rural flows, 1986-1991 and 1995-2000

Type of flow	1986-1991 Number	%	1995-2000 Number	%
Within States				
Between urban areas within states	1,452,983	33.55	1,414,976	42.51
Between rural areas within states	993,226	22.93	293,292	8.81
From urban to rural areas within states	363,014	8.38	214,481	6.44
From rural to urban areas within states	332,462	7.68	207,772	6.24
From unknown origins to urban areas within states	24,480	0.57	113,621	3.41
From unknown origins to rural areas within states	18,978	0.44	194,880	5.85
From urban origins to unknown areas within states	239	0.01	-	-
From rural origins to unknown areas within states	171	0.00	-	-
From unknown origins to unknown areas within states	236	0.01	-	-
Between States				
Between urban areas between states	563,569	13.01	573,707	17.24
Between rural areas between states	106,578	2.46	41,601	1.25
From urban to rural areas between states	189,188	4.37	111,699	3.36
From rural to urban areas between states	164,548	3.80	106,707	3.21
From unknown origins to urban areas between states	87,759	2.03	27,086	0.81
From unknown origins to rural areas between states	32,651	0.75	28,663	0.86
From urban origins to unknown areas between states	673	0.02	-	-
From rural origins to unknown areas between states	473	0.01	-	-
From unknown origins to unknown areas between states	129	0.00	-	-
Total internal migration	4,331,357	100.00	3,328,485	100.00

Source: Department of Statistics (1995); Department of Statistics (2004a)

One shortcoming of the flow data is the occurrence of the number of flows with unknown origins to urban/rural areas and from urban/rural areas to unknown areas both within and between states. The percentages of these, however, are relatively small. During the 1986-1991 period, each of these unknown categories accounted for less than 1 percent except for the "unknown origin to urban areas between states" which was 2 percent. During the 1995-2000 period, however, only the "unknown origins" categories were recorded and there were no "unknown destinations". Whilst the unknown origins to urban/rural areas were relatively low (less than 1 percent), the unknown origin to urban areas and rural areas were 3.4 percent and 5.9 percent respectively.

Overall, the majority of flows in 1995-2000 (almost 60 percent) were taking place between urban areas within and between states. Only 10 percent occurred between rural areas. In 1986-1991, over 23 percent of migration occurred between these

areas, indicating fewer movements between rural areas as the country progressed toward industrialization. The flows from urban to rural areas were almost 10 percent in 1995-2000 and almost 13 percent in 1986-1991. There were fewer flows from rural to urban areas with only 9.5 percent in 1995-2000 and almost 12 percent in 1986-1991. This means that there were more migrants leaving urban areas to the countryside than moving in the opposite direction in both periods. Most of these, however, occurred within the state which could mean that people moved to rural areas or urban peripheries as more houses were built outside the urban cores.

8.3.1 Urban and rural migration within states, 1986-1991 and 1995-2000

Upon further investigation, it is revealed that migration within urban areas is dominant both within the states and between the states which occurred in both periods. During the first period, 46 percent of the intra-state migration occurred within urban areas. It is also observed that high migration also occurred within rural areas at 32 percent (see Table 8.4). Migrations from urban to rural areas and vice versa only occurred at 12 percent and 11 percent respectively. The urban to urban flow mainly occurred in Pulau Pinang and Selangor, beside W.P. Kuala Lumpur which is 100 percent urban. These are the two most developed states which already experienced a high degree of urbanization. In terms of volume, on the other hand, Selangor and Perak have the highest number of migrants moving between urban areas.

Sarawak and Perlis have the highest percentages of migrants moving between rural areas with 52 percent and 49 percent respectively (Table 8.4). In terms of volume, Sarawak also has the highest number of migrants followed by Sabah. These are the two large states in East Malaysia which are still predominantly rural. Thus, it is not surprising that the high volume of flows is occurring between rural areas within each state.

Although the patterns are the same, a slightly different trend occurred during the second period for intra-state migration. About two thirds of the intra-state migration or 66 percent occurred between urban areas. This is a major surge of urban to urban

migration within many states. Only 14 percent flows occurred between rural areas and 10 percent each in rural to urban and urban to rural areas. This might have been caused by the high population already residing in urban areas throughout Malaysia. As mentioned in Chapter 5, the urban population in Malaysia had passed its 50 percent mark in 1991.

Table 8.4: Intra-state migration, 1986-1991

State	urban-urban	%	urban-rural	%	rural-urban	%	rural-rural	%
Johor	184,767	48.02	52,744	13.71	49,913	12.97	97,352	25.30
Kedah	73,619	34.93	20,229	9.60	36,133	17.14	80,779	38.33
Kelantan	53,147	29.51	25,101	13.94	22,630	12.56	79,229	43.99
Melaka	27,418	42.49	5,465	8.47	7,273	11.27	24,370	37.77
Negeri Sembilan	52,337	47.74	10,346	9.44	13,337	12.16	33,618	30.66
Pahang	62,790	35.57	22,438	12.71	16,384	9.28	74,924	42.44
Perak	188,586	56.36	40,493	12.10	29,602	8.85	75,902	22.69
Perlis	4,968	21.69	3,464	15.12	3,196	13.95	11,275	49.23
Pulau Pinang	111,190	80.94	11,315	8.24	6,041	4.40	8,833	6.43
Sabah	100,964	25.83	82,793	21.18	45,147	11.55	161,981	41.44
Sarawak	134,659	26.57	40,842	8.06	68,346	13.48	263,006	51.89
Selangor	262,234	75.34	30,698	8.82	22,119	6.35	33,014	9.49
Terengganu	42,216	36.52	15,323	13.26	11,474	9.93	46,572	40.29
W.P. Kuala Lumpur	152,786	100.00	-	-	-	-	-	-
W.P. Labuan	1,302	20.66	1,763	27.97	867	13.76	2,371	37.62
Total	1,452,983	46.25	363,014	11.55	332,462	10.58	993,226	31.61

Source: Department of Statistics (1995)

Selangor and Pulau Pinang are still the two states with the highest percentages of migration flows between urban areas within their respective states. In terms of volume, Selangor still has the highest migration, which has increased to 325,000 people (see Table 8.5). Johor, on the other hand, became the second highest state that experienced high migration volumes between urban areas within the state. Although the numbers are high, Johor has about the same urban to urban flow in both periods (slight increase in the later period).

Table 8.5: Intra-state migration, 1995-2000

State	urban-urban	%	urban-rural	%	rural-urban	%	rural-rural	%
Johor	184,021	65.96	23,853	8.55	41,640	14.93	29,479	10.57
Kedah	50,376	45.69	17,351	15.74	14,138	12.82	28,389	25.75
Kelantan	28,006	35.94	15,462	19.84	10,604	13.61	23,856	30.61
Melaka	44,763	73.96	8,989	14.85	3,227	5.33	3,542	5.85
Negeri Sembilan	50,668	61.83	6,731	8.21	11,803	14.40	12,750	15.56
Pahang	71,027	57.87	14,891	12.13	12,840	10.46	23,968	19.53
Perak	119,256	67.16	19,961	11.24	13,727	7.73	24,621	13.87
Perlis	4,161	39.73	1,089	10.40	2,131	20.35	3,093	29.53
Pulau Pinang	117,590	83.30	8,485	6.01	8,799	6.23	6,296	4.46
Sabah	143,535	51.73	41,438	14.93	36,911	13.30	55,612	20.04
Sarawak	109,723	49.17	19,898	8.92	35,853	16.07	57,676	25.85
Selangor	324,883	90.19	23,059	6.40	6,835	1.90	5,436	1.51
Terengganu	47,338	54.27	12,542	14.38	8,767	10.05	18,574	21.30
W.P. Kuala Lumpur	114,793	100.00	-	0.00	-	0.00	-	0.00
W.P. Labuan	4,836	76.42	732	11.57	497	7.85	263	4.16
Total	1,414,976	66.41	214,481	10.07	207,772	9.75	293,555	13.78

Source: Department of Statistics (2004a)

For rural to rural migration, Kelantan, one of the less developed states has the highest percentage at 31 percent followed by Perlis with 30 percent. In terms of volume, on the other hand, Sarawak and Sabah are still dominant with 58,000 and 56,000 migrants respectively. As mentioned, Sarawak and Sabah are still highly rural and movements within rural areas are very much expected. The table also shows that Selangor, with the highest percentage of urban to urban migration, has the lowest percentage of rural to rural migration. In fact, it also experienced the lowest percentage of rural to urban migration and the second lowest percentage of urban to rural migration, with Pulau Pinang being the lowest.

The four types of intra-state migration flows can be shown using bar charts, so that we can see the migration patterns for the states. Figure 8.3 shows the 15 states ranked from left to right according to their percentage share of intra-state migration during the 1986-1991 period. Intra-urban and intra-rural migrations are dominant during this period. The flow from urban to rural and from rural to urban are relatively low, with most of the states experiencing less than 20 percent flows. It is also interesting to note that in all states, percentages of urban to urban flows are much higher in 1995-2000 than in 1986-1991. Percentage of rural to rural flows, however, is higher during the first period compare to the second period. This means

that the proportions of intra-urban migration within the states have increased, whereas the proportions of intra-rural migration have diminished.

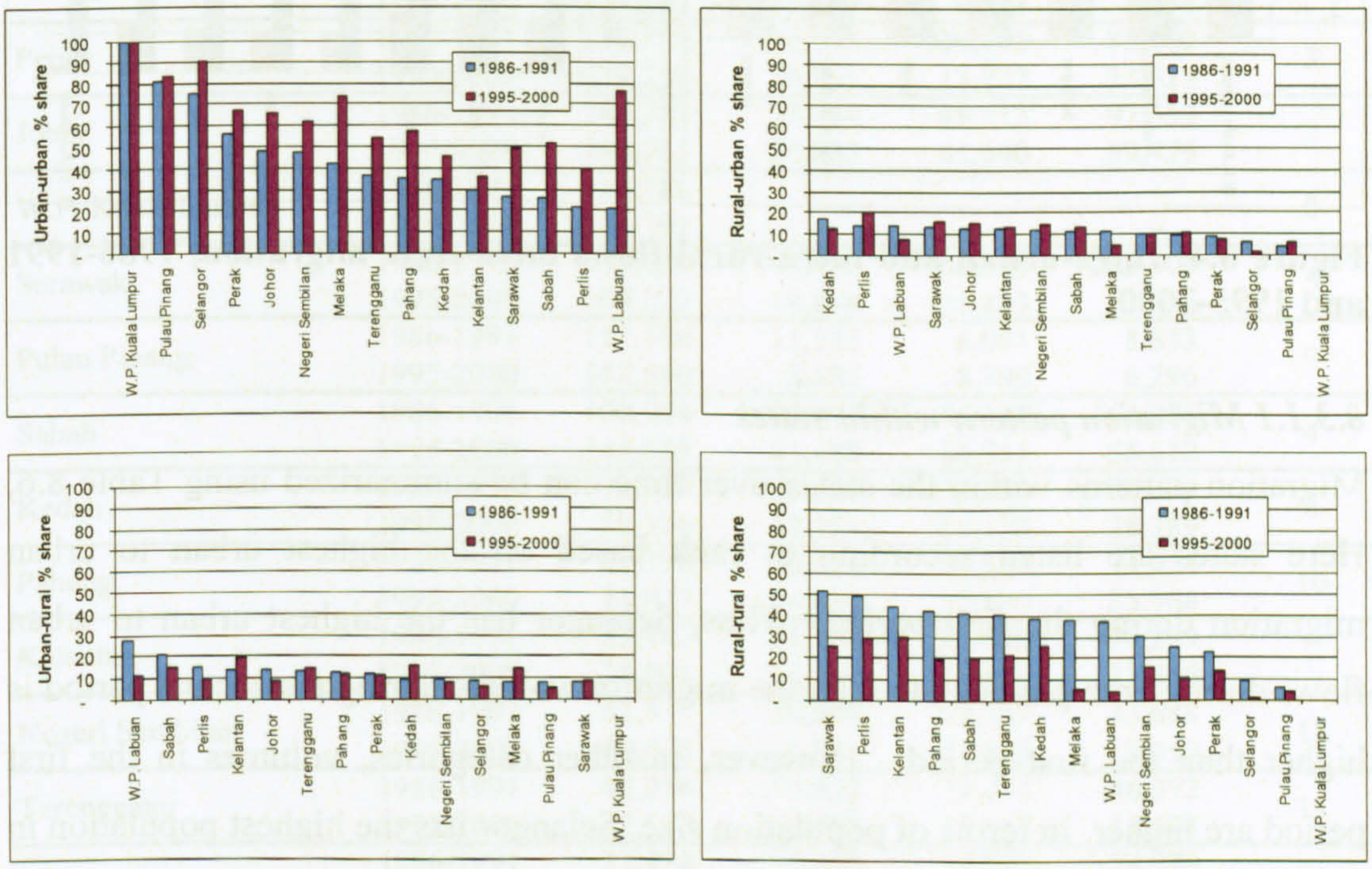


Figure 8.3: Shares of intra-state migration by category, 1986-1991 and 1995-2000

Another trend from the figure is that for intra-urban migration, all the states towards the left (higher percentage share in 1986-1991) consist of the more developed states, whilst those towards the right side are the less developed states. On the other hand, for intra-rural migration, all the states towards the left side consist of the less developed states, whilst those towards the right are the more developed states. Thus, during the 1986-1991 and 1995-2000 periods, the more developed states have experienced higher intra-urban flows and the less developed states have experienced higher intra-rural flows. This is shown in Figure 8.4.

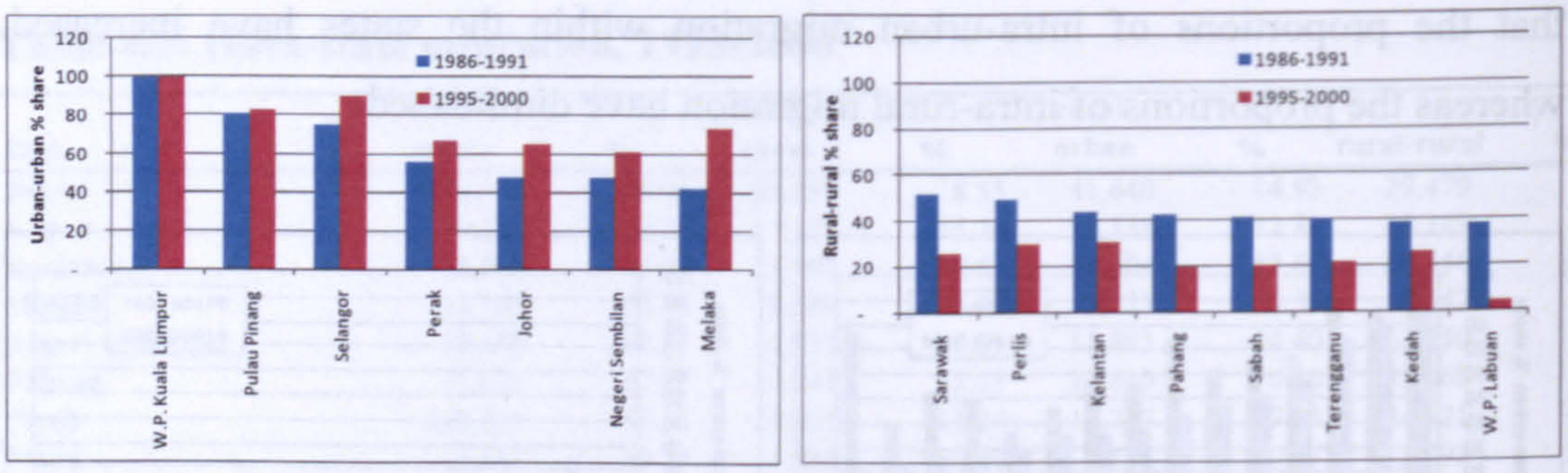


Figure 8.4: Intra-urban and intra-rural flows intra-state migration, 1986-1991 and 1995-2000

8.3.1.1 Migration pattern within states

Migration patterns within the states over time can be summarized using Table 8.6. Here states are listed according to rank based on the highest urban to urban migration during the first period. Thus, Selangor has the highest urban to urban flows during both periods. In fact, the migration volume during the second period is higher than the first period. However, in other categories, volumes in the first period are higher. In terms of population size, Selangor has the highest population in 1991. It is possible, therefore, that population size contributes to higher population movement within the state.

Table 8.6: Urban and rural migration within state, 1986-1991 and 1985-2000

State	Period	urban-urban	urban-rural	rural-urban	rural-rural	Population size rank
Selangor	1986-1991	262,234	30,698	22,119	33,014	1
	1995-2000	324,883	23,059	6,835	5,436	
Perak	1986-1991	188,586	40,493	29,602	75,902	3
	1995-2000	119,256	19,961	13,727	24,621	
Johor	1986-1991	184,767	52,744	49,913	97,352	2
	1995-2000	184,021	23,853	41,640	29,479	
W.P. Kuala Lumpur	1986-1991	152,786	-	-	-	8
	1995-2000	114,793	-	-	-	
Sarawak	1986-1991	134,659	40,842	68,346	263,006	5
	1995-2000	109,723	19,898	35,853	57,676	
Pulau Pinang	1986-1991	111,190	11,315	6,041	8,833	9
	1995-2000	117,590	8,485	8,799	6,296	
Sabah	1986-1991	100,964	82,793	45,147	161,981	4
	1995-2000	143,535	41,438	36,911	55,612	
Kedah	1986-1991	73,619	20,229	36,133	80,779	6
	1995-2000	50,376	17,351	14,138	28,389	
Pahang	1986-1991	62,790	22,438	16,384	74,924	10
	1995-2000	71,027	14,891	12,840	23,968	
Kelantan	1986-1991	53,147	25,101	22,630	79,229	7
	1995-2000	28,006	15,462	10,604	23,856	
Negeri Sembilan	1986-1991	52,337	10,346	13,337	33,618	12
	1995-2000	50,668	6,731	11,803	12,750	
Terengganu	1986-1991	42,216	15,323	11,474	46,572	11
	1995-2000	47,338	12,542	8,767	18,574	
Melaka	1986-1991	27,418	5,465	7,273	24,370	13
	1995-2000	44,763	8,989	3,227	3,542	
Perlis	1986-1991	4,968	3,464	3,196	11,275	14
	1995-2000	4,161	1,089	2,131	3,093	
W.P. Labuan	1986-1991	1,302	1,763	867	2,371	15
	1995-2000	4,836	732	497	263	

Source: Department of Statistics (1995); Department of Statistics (2004a)

Perak registered higher numbers of movements in all categories during the first period, although urban to urban flows are by far the most dominant. Perak also has the third highest population in 1991 and this may have contributed to high migration volumes within the state.

Another state with high migration volume, especially for its urban to urban flows is a rapidly developing state of Johor. Located to the north of Singapore, Johor benefited from close proximity to this highly developed city state. Development in Singapore overflowed into Johor because Singapore does not have any more land available for development. Many of its population also resided in Johor. Urban to urban migration in Johor is higher in the first period but the volume in the second period is not far behind (a difference of about 700 migrants). This shows that this

state experienced a high migration volume within and between its urban areas. It also has a large population ranked second in Malaysia in 1991. For other categories, the flows are higher in the first period compared to the second. It also has a high rural to rural flow during the first period but dropped substantially during the second period. This is probably the result of higher migration from rural to urban areas as compared to rural to rural areas. Johor also shows higher migration to urban destinations during the second period as compared to rural destinations.

Figure 8.5 and Figure 8.6 show better pictures of the different types of intra-state migration during the two periods. Figure 8.4 is the intra-state migration by type for 1986-1991 period. All the more developed states in the west side of Peninsular Malaysia have higher urban to urban migration. All of them have at least 40 percent of the migration flows in this category. All other states which are the less developed states have lower urban to urban migration, which are less than 40 percent by percentages. It can also be seen from the map that rural to rural migrations contribute a bigger proportion of intra-state migration in less developed states.

Figure 8.6 maps the intra-state migration by category in 1995-2000. Once again the more developed states show bigger proportions of urban to urban migration. Although the numbers are smaller, the proportions of this migration category are bigger. The proportion of urban to urban migration is also bigger for the less developed states, a consistent trend across Malaysia for this type of migration compared to the other types. Moreover, the proportions of rural to rural migration have shrunk in all states compared to the previous period.

Looking across the states it can be said that high levels of migration, especially between urban areas within the state, are related to the population size of the state. All the states with high migration volumes ranked highest in urban to urban migration volumes. The exceptions are for Kuala Lumpur and Pulau Pinang but not without reasons. Kuala Lumpur is the federal territory where all its area is considered urban. All movements within this territory are considered urban to urban

flows. Pulau Pinang, on the other hand, is an island state, a small but densely populated area.

The states in east Malaysia, Sarawak and Sabah, also ranked high in migration volumes and population sizes. However, they show different pattern from other states because they have high volumes of rural to rural migrations during the first period. On the other hand, like other states, they experienced more urban to urban migration during the second period. This could be due to more development experienced in both states in the more recent period.

To summarize, urban to urban migration is dominant for the majority of the states in both periods. Migrations in many categories and in most states are more prominent during the 1986-1991 period compared to the 1995-2000 period. Many of the high migration flows especially inter-urban migration occurred in the more developed states, but the number of populations in the states also contribute to these flows. Many of the less developed states experienced higher rural to rural migration compared to the urban to urban migration, especially during the first period although the trend is reversed in some states during the second period.

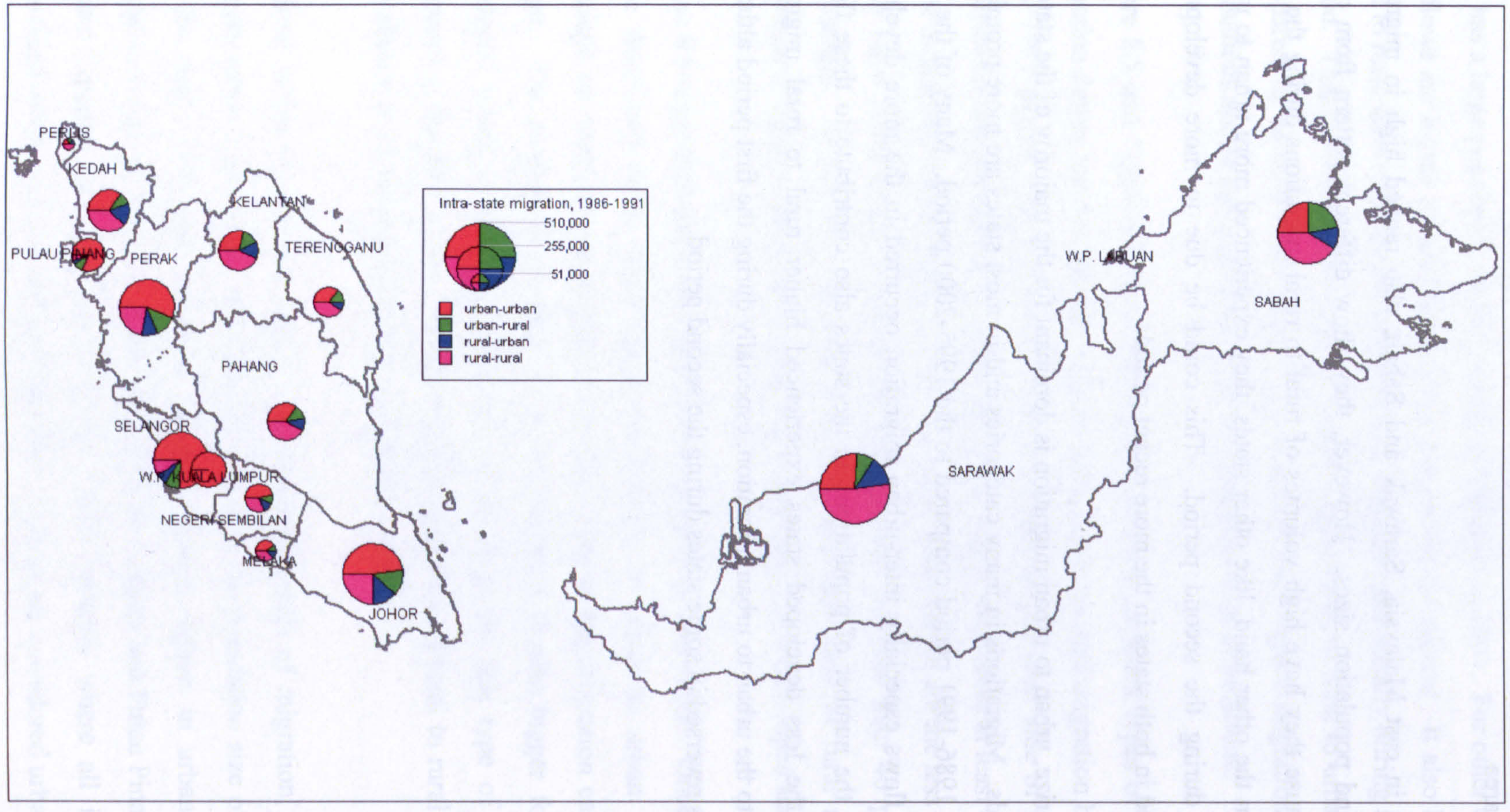


Figure 8.5: Intra-state migration by category, 1986-1991

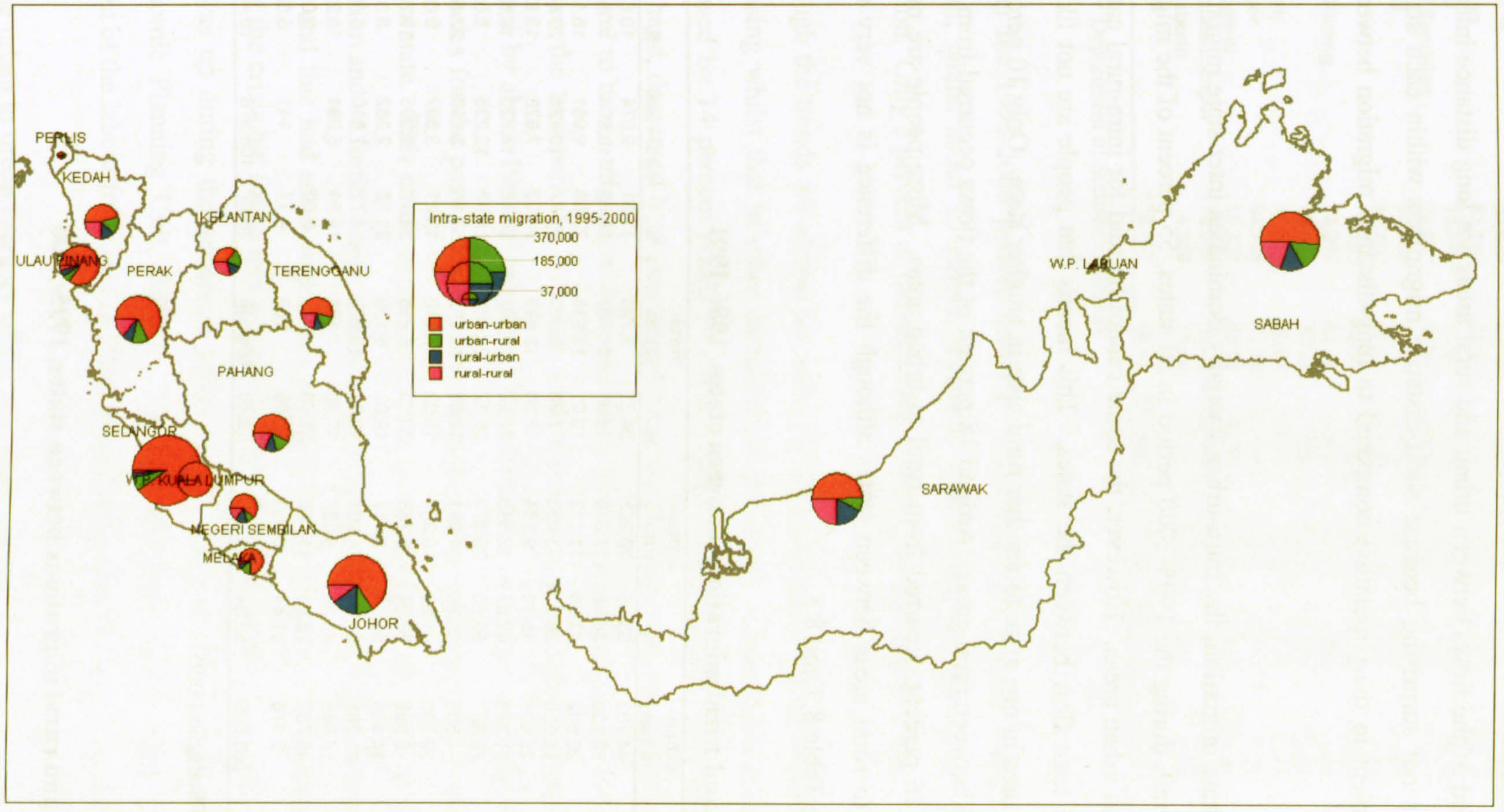


Figure 8.6: Intra-state migration by category, 1995-2000

8.3.2 Urban and rural migration between states, 1986-1991 and 1995-2000

Urban and rural migrations between the states are smaller than the intra-state migrations. Only about one third of the flows between urban and rural areas are long distance inter-state migration. This is not surprising because short-distance migrations within each state are much more convenient to the population compared to long-distance migration between the states.

As with the intra-state migration, the intra-urban category dominates inter-state migration in both periods. Overall, during the 1995-2000 period in all states, 55 percent of the migration takes place between urban areas. However, the same cannot be said for intra-rural category because this is the least flow between the states. This means that people are not likely to move from a rural area in one state to another rural area in another state. Only 10 percent of migration occurred between rural areas. Around 18 percent of the flows occurred from urban to rural areas and 16 percent occurred from rural to urban areas. More people are moving from urban areas to rural areas between states although the difference is not very much. These are shown in Table 8.7 and 8.8.

Table 8.7: Urban and rural migrations between states, 1986-1991

State	urban-urban	%	urban-rural	%	rural-urban	%	rural-rural	%
Johor	44,703	53.35	20,283	24.21	9,726	11.61	9,074	10.83
Kedah	30,230	38.98	11,640	15.01	21,787	28.09	13,894	17.92
Kelantan	26,682	43.25	11,112	18.01	13,933	22.59	9,961	16.15
Melaka	11,606	26.37	3,426	7.78	18,559	42.17	10,423	23.68
Negeri Sembilan	25,508	45.10	9,784	17.30	13,593	24.03	7,676	13.57
Pahang	31,728	42.32	12,948	17.27	15,583	20.78	14,720	19.63
Perak	78,527	55.50	22,879	16.17	27,841	19.68	12,235	8.65
Perlis	4,505	29.38	1,941	12.66	5,392	35.16	3,496	22.80
Pulau Pinang	32,880	61.09	10,239	19.02	7,110	13.21	3,597	6.68
Sabah	9,298	36.04	5,168	20.03	6,235	24.17	5,095	19.75
Sarawak	14,455	50.89	5,417	19.07	6,169	21.72	2,362	8.32
Selangor	83,285	66.17	24,001	19.07	10,970	8.72	7,610	6.05
Terengganu	16,945	45.87	6,635	17.96	7,368	19.94	5,994	16.23
W.P. Kuala Lumpur	149,739	78.44	41,155	21.56	-	0.00	-	0.00
W.P. Labuan	3,478	51.44	2,560	37.86	282	4.17	441	6.52
Total	563,569	55.04	189,188	18.48	164,548	16.07	106,578	10.41

Source: Department of Statistics (1995)

Table 8.8: Urban and rural migrations between states, 1995-2000

State	urban-urban	%	urban-rural	%	rural-urban	%	rural-rural	%
Johor	42,378	68.25	10,477	16.87	6,269	10.10	2,972	4.79
Kedah	32,878	55.24	7,082	11.90	14,311	24.05	5,243	8.81
Kelantan	33,116	50.67	8,017	12.27	17,884	27.36	6,338	9.70
Melaka	16,249	67.62	3,753	15.62	3,072	12.78	956	3.98
Negeri Sembilan	24,677	62.47	4,895	12.39	7,188	18.20	2,742	6.94
Pahang	30,735	54.58	8,215	14.59	11,558	20.53	5,800	10.30
Perak	61,702	67.63	11,186	12.26	13,978	15.32	4,367	4.79
Perlis	4,405	42.50	1,516	14.63	2,906	28.04	1,538	14.84
Pulau Pinang	23,057	64.28	5,962	16.62	4,656	12.98	2,193	6.11
Sabah	19,683	63.44	3,898	12.56	5,604	18.06	1,841	5.93
Sarawak	17,352	60.54	2,828	9.87	6,731	23.49	1,749	6.10
Selangor	64,798	71.55	17,581	19.41	5,611	6.20	2,568	2.84
Terengganu	18,327	56.76	4,560	14.12	6,504	20.14	2,900	8.98
W.P. Kuala Lumpur	179,982	89.75	20,552	10.25	-	0.00	-	0.00
W.P. Labuan	4,368	71.48	1,177	19.26	435	7.12	131	2.14
Total	573,707	68.84	111,699	13.40	106,707	12.80	41,338	4.96

Source: Department of Statistics (2004a)

During the 1995-2000 period, urban to urban migration shows a higher percentage at 69 percent, whilst about 13 percent occurred from urban to rural areas, and in the opposite direction. Only 5 percent of the migration occurred between rural areas.

Although the trends are almost the same for all categories, migration between urban areas is increasing whilst that in other categories is declining. Migration between urban areas has increased by 14 percent points or about 10,000 migrants. Rural to rural migration, on the other hand, decreased by 5 percent points or about 65,000 migrants. Urban to rural migration and rural to urban migration decreased by 5 percent points and 3 percent points respectively between the two periods. Overall, total urban and rural migration between the states has declined by about 190,000 people. This means that in recent years (latest census) there are tendencies for the population to move from an urban area in a state to another urban area in another state. This could be due to changing employment, getting new jobs, getting higher education and so forth. There was also an economic crisis in 1997 where the economy slowed down and this had some impact on population and employment. People were losing jobs during the crisis but found new jobs at the end of the census period. While the unemployment rate was up during the economic crisis it went down at the time when census was taken (Economic Planning Unit, 2001a). The Labour Force Survey report indicated that 55.3 percent of the labour force was in urban areas (Department of Statistics, 2001d).

For the urban to urban category of the inter-state migration, all states have greater percentage share during the second period compared to the first (Figure 8.7). On the other hand, for rural

to rural migration, all the states have greater percentage share during the first period. For other categories, migration shares for the states do not show a specific trend although the majority of the states have a higher share of urban to rural areas and vice versa during the first period. Selangor, Perlis and Melaka experienced a greater share of urban to rural migration during the 1995-2000 periods, whereas Kelantan, Sarawak, Terengganu and Labuan experienced a greater share of rural to urban migration during the same period.

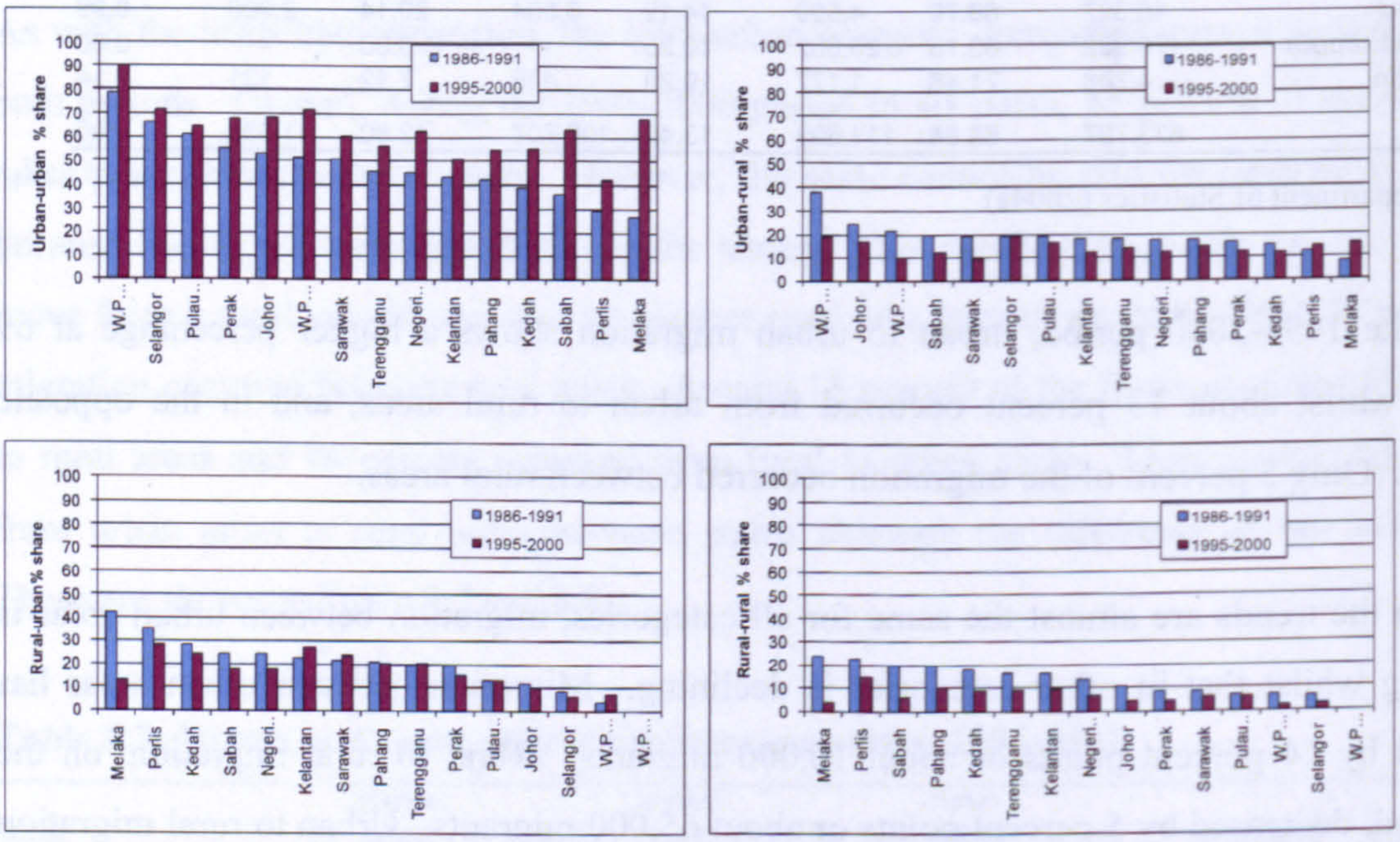


Figure 8.7: Shares of inter-state migration by category, 1986-1991 and 1995-2000

Overall, inter-state migrations between urban and rural areas do not show much difference in terms of the general trend. Urban to rural flows are still higher than the rural to urban flows, although the share and numbers are declining. When comparing between urban to rural and rural to urban migrations between the two periods, only one state shows a different trend compare to the other states in Malaysia. Melaka is the only state that has higher rural to urban flows than urban to rural flows during the first period but higher urban to rural flows than rural to urban flows during the second period.

Johor, Pulau Pinang, Selangor and Labuan are the states that have higher urban to rural percentage share in both periods. All other states except Melaka and Kuala Lumpur have a higher rural to urban percentage share in both periods. Kuala Lumpur does not have rural population (it is 100 percent urban) hence, does not experience inter-state rural to urban migration flows. The more developed states of Johor, Pulau Pinang and Selangor are

probably experiencing the suburbanization process as their urban areas have rapidly expanded and more housing developments shifted to areas outside the urban areas. With better transportation infrastructure, the population of Selangor can also live in the neighbouring states especially for those urban areas that are close to other states, such as Negeri Sembilan and Perak. Pulau Pinang, on the other hand, is an island state which has limited land for residential purpose and many of its residents live in the state of Kedah where the land is cheaper and the rent is lower. Labuan (an island which formally part of Sabah), which became the federal territory of Malaysia is rapidly expanding and many of its migrants go to Sabah.

The three states of Johor, Selangor and Pulau Pinang are all located in the west coast of Peninsular Malaysia. The west coast has a highly developed infrastructure with a north-south highway running across the west coast states from the north in Kedah to the south in Johor. The highway has made it easier for the people to commute from one state to the other. For example, inter-state migration from urban areas in Selangor to rural areas in Negeri Sembilan and Perak (its two neighbouring states) are the highest, comprising 3,500 and 4,500 migrants respectively during the first period and 4,300 and 3,900 migrants respectively during the second period.

The urban areas within the states are also considered as the three main conurbations on the west coast. There are centripetal concentrations of urban populations in the city of Johor Bahru (in Johor), Kuala Lumpur (within Selangor) and Georgetown (in Pulau Pinang) with highly concentrated cosmopolitan urban services (Department of Town and Regional Planning, 2005). This has made possible the population movement from urban areas to other urban and rural areas both within and between the states. Concentration of population in cities is the principal cause of high mobility in modern societies. Generally, affordable housing and varied housing stock market suited for different stages of life are also influencing migration (Rowland, 2003).

8.3.2.1 Migration pattern between states

Table 8.9 summarizes the inter-state migrations for urban and rural areas in the two census periods. The table shows each of the state migration categories ranked by urban to urban migration (from an urban area in a state, to urban areas outside the state) during the first period. It shows that Kuala Lumpur ranked at the top with highest urban to urban migration.

It also shows that higher migration occurred during the second period. Its urban to rural migration category is also high, especially in the first period, compare to other states for this category. Moreover, since it does not have any rural areas, there is no migration for other categories.

Table 8.9: Urban and rural migration to other states, 1986-1991 and 1995-2000

Origin		Destination (other states)			
State	**Period**	**urban-urban**	**urban-rural**	**rural-urban**	**rural-rural**
W.P. Kuala Lumpur	1986-1991	149,739	41,155	-	-
	1995-2000	179,982	20,552	-	-
Selangor	1986-1991	83,285	24,001	10,970	7,610
	1995-2000	64,798	17,581	5,611	2,568
Perak	1986-1991	78,527	22,879	27,841	12,235
	1995-2000	61,702	11,186	13,978	4,367
Johor	1986-1991	44,703	20,283	9,726	9,074
	1995-2000	42,378	10,477	6,269	2,972
Pulau Pinang	1986-1991	32,880	10,239	7,110	3,597
	1995-2000	23,057	5,962	4,656	2,193
Pahang	1986-1991	31,728	12,948	15,583	14,720
	1995-2000	30,735	8,215	11,558	5,800
Kedah	1986-1991	30,230	11,640	21,787	13,894
	1995-2000	32,878	7,082	14,311	5,243
Kelantan	1986-1991	26,682	11,112	13,933	9,961
	1995-2000	33,116	8,017	17,884	6,338
Negeri Sembilan	1986-1991	25,508	9,784	13,593	7,676
	1995-2000	24,677	4,895	7,188	2,742
Terengganu	1986-1991	16,945	6,635	7,368	5,994
	1995-2000	18,327	4,560	6,504	2,900
Sarawak	1986-1991	14,455	5,417	6,169	2,362
	1995-2000	17,352	2,828	6,731	1,749
Melaka	1986-1991	11,606	3,426	18,559	10,423
	1995-2000	16,249	3,753	3,072	956
Sabah	1986-1991	9,298	5,168	6,235	5,095
	1995-2000	19,683	3,898	5,604	1,841
Perlis	1986-1991	4,505	1,941	5,392	3,496
	1995-2000	4,405	1,516	2,906	1,538
W.P. Labuan	1986-1991	3,478	2,560	282	441
	1995-2000	4,368	1,177	435	131

Source: Department of Statistics (1995); Department of Statistics (2004a)

Selangor, ranked second after Kuala Lumpur in urban to urban category, has high inter-state migration. Its migration in this category is also higher in the first period but dropped substantially during the second period. Other categories also recorded high migration during the first period compared to the second period. The inter-state migration also shows the same trend for Perak and Johor which ranked after Selangor in the within state migration discussed previously. Perak ranked second in urban to urban migration within the state and ranked third for the same category in inter-state migration. The same trend follows both for Perak and Johor where migrations in all categories are higher during the first period compared to the second. The next state in the list is another more developed state of Pulau Pinang, which also has higher migration flows in all categories during the first period. Thus, all five states ranked from highest to lowest in inter-state urban to urban migrations are the more developed

states. High economic development in these states prompt people to move to other areas both within and outside the states.

At the end of the list, Labuan, a small territory in east Malaysia has the lowest inter-state migration in almost every category. Its urban to urban and rural to urban migrations show higher migration during the second period while other categories show higher migrations during the first period. Perlis ranked above Labuan, another small state, however, show higher migration in all categories during the first period. All other states and categories can be seen from the table, which shows many states experiencing higher migration in most categories during the first period.

I have discussed the migration flows from one state to other states in Malaysia based on different urban and rural categories. I now turn to each state as a destination of urban and rural migration or flows from other states in Malaysia, both for 1986-1991 and 1995-2000 periods. Table 8.10 shows the migration flows to each state in Malaysia during the two periods. The table is ranked from highest to lowest flows of urban to urban migration during the 1986-1991 period. As can be seen from the table the highest four states are the same as the out of state urban to urban migration, but in different order.

Selangor has the highest flow followed by Kuala Lumpur, Johor and Perak. In the out of state flows, the order is first Kuala Lumpur followed by Selangor, Perak and then Johor. Nevertheless, this shows that the four states have the highest urban to urban migration flows in the first period as well as the second period. These four states, plus the next two, Kedah and Pulau Pinang also have higher migration flows for all categories in the first period.

It can also be seen in the table that Kedah has higher urban to urban inflows compared to Pulau Pinang although the difference is quite small. Kedah is one of the less developed states in Malaysia and the level of development is relatively low compared to Pulau Pinang. However, Kedah is located next to Pulau Pinang and many people who work in Pulau Pinang live in Kedah. On the other hand, migration flows between the two states show that the flow of urban to urban migration is higher for Pulau Pinang, whereas net flow for urban to rural migration is higher for Kedah. One possible conclusion that can be made is that people in Pulau Pinang, which is highly urban, move to live outside urban areas in Kedah.

Overall, the urban to urban migration for both outflows from the state and inflow into the state (Table 8.9 and Table 8.10) do not show much difference in terms of its rank except one or two different positions. The top ranked states are also showing the high inflows and outflows (in and out of the state) for urban to urban migration but some of the low ranked states show higher urban to rural migration flows outside the state compared to their migration into the state.

Table 8.10: Urban and rural migration from other states, 1986-1991 and 1995-2000

Destination		From other states			
State	**Period**	**urban-urban**	**urban-rural**	**rural-urban**	**rural-rural**
Selangor	1986-1991	194,635	23,061	37,852	7,082
	1995-2000	236,687	10,454	24,383	1,877
W.P. Kuala Lumpur	1986-1991	104,754	-	24,888	-
	1995-2000	67,381	-	8,707	-
Johor	1986-1991	44,571	18,493	23,852	14,092
	1995-2000	38,702	8,500	20,180	5,727
Perak	1986-1991	39,491	18,793	12,245	11,217
	1995-2000	34,508	15,282	6,955	4,099
Kedah	1986-1991	34,609	18,081	11,375	11,124
	1995-2000	28,454	17,390	7,032	6,634
Pulau Pinang	1986-1991	34,505	7,962	14,591	4,897
	1995-2000	32,947	5,983	8,450	2,153
Pahang	1986-1991	23,856	23,967	8,365	14,369
	1995-2000	27,367	11,491	5,521	4,217
Negeri Sembilan	1986-1991	22,352	14,425	9,744	10,926
	1995-2000	30,977	12,686	8,393	4,615
Kelantan	1986-1991	15,364	10,385	5,408	7,502
	1995-2000	11,037	7,792	2,999	2,911
Terengganu	1986-1991	13,577	7,680	5,307	6,385
	1995-2000	14,000	5,718	5,135	3,784
Sarawak	1986-1991	10,807	12,503	1,836	3,558
	1995-2000	7,963	3,819	911	1,045
Sabah	1986-1991	9,091	10,084	2,191	2,099
	1995-2000	13,030	2,709	1,849	684
Melaka	1986-1991	8,838	16,250	3,070	6,971
	1995-2000	23,844	5,611	4,169	1,404
Perlis	1986-1991	5,070	6,385	2,363	4,966
	1995-2000	3,201	3,493	1,073	1,844
W.P. Labuan	1986-1991	2,049	1,119	1,461	1,390
	1995-2000	3,609	771	950	344

Source: Department of Statistics (1995); Department of Statistics (2004a)

8.3.2.2 Net migration balances between states

The analysis thus far has discussed flows of migration between urban and rural areas from one state to another. The census data have shown the volume of people's movements from one area to another that contribute to an area's population change. Further analysis will discuss the net migration balances of urban and rural areas in each of the states based on flows between states.

Table 8.10 shows the net balance of inter-state migration between the urban and rural areas during the first period. This is the number of migrants who go to an urban or rural area of a state from all other states. Selangor has the highest urban net in-migration with over 125,000 people. It is the only state that has a net migrant of over 100,000 people. The next state with

the highest net in-migrants is Pulau Pinang but with less than 6,000 people. This is a significant difference which shows that Selangor is gaining its urban population very rapidly compared to urban areas in other states. Selangor has been experiencing rapid development in the last few years and it has received considerable net migrants from Kuala Lumpur.

Table 8.11: Inter-state in-, out- and net migration, 1986-1991

State	*Stratum*	Inter-state in	Inter-state out	Net in-migrants
Johor	Urban	68423	64986	3437
	Rural	32585	18800	13785
Kedah	Urban	45984	41870	4114
	Rural	29205	35681	-6476
Kelantan	Urban	20772	37794	-17022
	Rural	17887	23894	-6007
Melaka	Urban	11908	15032	-3124
	Rural	23221	28982	-5761
Negeri Sembilan	Urban	32096	35292	-3196
	Rural	25351	21269	4082
Pahang	Urban	32221	44676	-12455
	Rural	38336	30303	8033
Perak	Urban	51736	101406	-49670
	Rural	30010	40076	-10066
Perlis	Urban	7433	6446	987
	Rural	11351	8888	2463
Pulau Pinang	Urban	49096	43119	5977
	Rural	12859	10707	2152
Sabah	Urban	11282	14466	-3184
	Rural	12183	11330	853
Sarawak	Urban	12643	19872	-7229
	Rural	16061	8531	7530
Selangor	Urban	232487	107286	125201
	Rural	30143	18580	11563
Terengganu	Urban	18884	23580	-4696
	Rural	14065	13362	703
W.P. Kuala Lumpur	Urban	129642	190894	-61252
	Rural	0	0	0
W.P. Labuan	Urban	3510	6038	-2528
	Rural	2509	723	1786

For rural net in migration, Johor's rural areas gain the most migrants from other areas (urban and rural) in Malaysia. It has almost 14,000 more people arriving in the rural areas in the state than leaving rural areas of the state. Selangor is in second position for having net in migration of over 11,000 people. Other rural areas in Malaysia have net in-migration of less than 9,000 people. In contrast, Kuala Lumpur has the highest negative urban net migration. It was mentioned in the previous chapters that Kuala Lumpur has been losing its population, especially to its neighbouring states. Perak is the other state that is losing its urban population

with a net migration loss of almost -50,000 from its urban areas. This is much higher than the less developed state of Kelantan which has a net loss of its urban population of only 17,000.

For rural areas, Perak has the highest negative net migration of -10,000 people. This is quite surprising because it is a more developed state and one of the three states that have negative net migration for both urban and rural areas (Melaka and Kelantan are the other two). It is losing population from both types of area to other states. Both Perak and Melaka are categorized as the more developed states. Kedah is the next state with highest negative rural net migration which registered at -6,000 people. Kelantan also come close to this figure with a difference of only about 400 migrants. Figure 8.8 shows a bar chart of net migrants for urban and rural areas in all states for the 1986-1991 period.

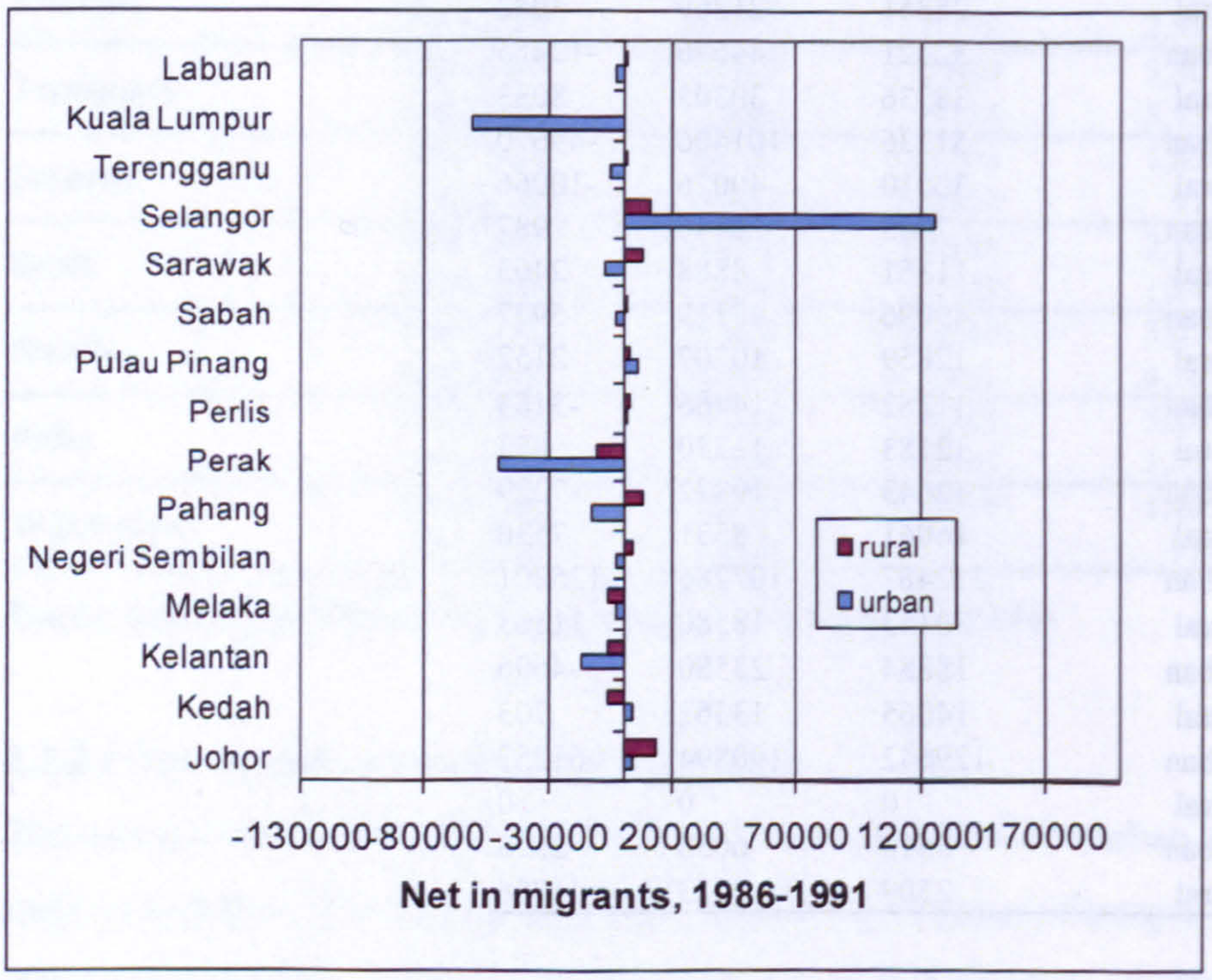


Figure 8.8: Inter-state net in migration, 1986-1991

For the second period, 1995-2000, the pattern of inter-state net migration for urban and rural areas is similar to the previous period. Selangor still registers the highest net in-migration in urban areas with even larger gain than in the first period (Table 8.12). With 179,000 net in-migration and the difference of 167,000 from the second highest ranked state of Pulau Pinang,

Selangor is the only state that has net migration gain of over 100,000. The two states were also the highest ranked states in terms of urban net in-migration during the previous period.

Table 8.12: Inter-state in, out and net migration, 1995-2000

ORIGIN *State*	*Stratum*	Inter-state in	Inter-state out	Net in-migrants
Johor	Urban	58882	52855	6027
	Rural	14227	9241	4986
Kedah	Urban	35486	39960	-4474
	Rural	24024	19554	4470
Kelantan	Urban	14036	41133	-27097
	Rural	10703	24222	-13519
Melaka	Urban	28013	20002	8011
	Rural	7015	4028	2987
Negeri Sembilan	Urban	39370	29572	9798
	Rural	17301	9930	7371
Pahang	Urban	32888	38950	-6062
	Rural	15708	17358	-1650
Perak	Urban	41463	72888	-31425
	Rural	19381	18345	1036
Perlis	Urban	4274	5921	-1647
	Rural	5337	4444	893
Pulau Pinang	Urban	41397	29019	12378
	Rural	8136	6849	1287
Sabah	Urban	14879	23581	-8702
	Rural	3393	7445	-4052
Sarawak	Urban	8874	20180	-11306
	Rural	4864	8480	-3616
Selangor	Urban	261070	82379	178691
	Rural	12331	8179	4152
Terengganu	Urban	19135	22887	-3752
	Rural	9502	9404	98
W.P. Kuala Lumpur	Urban	76088	200534	-124446
	Rural	0	0	0
W.P. Labuan	Urban	4559	5545	-986
	Rural	1115	566	549

Once again, Kuala Lumpur has the highest negative urban net migration for the second period of -124,000 people, 68,000 more than in the previous period. As in the previous period, Perak and Kelantan are also ranked second and third in terms of the highest urban net migration loss. However, comparing the two periods, Perak registers less negative net migration while Kelantan registers more negative net migration in the latter period. This pattern can be seen in Figure 8.9.

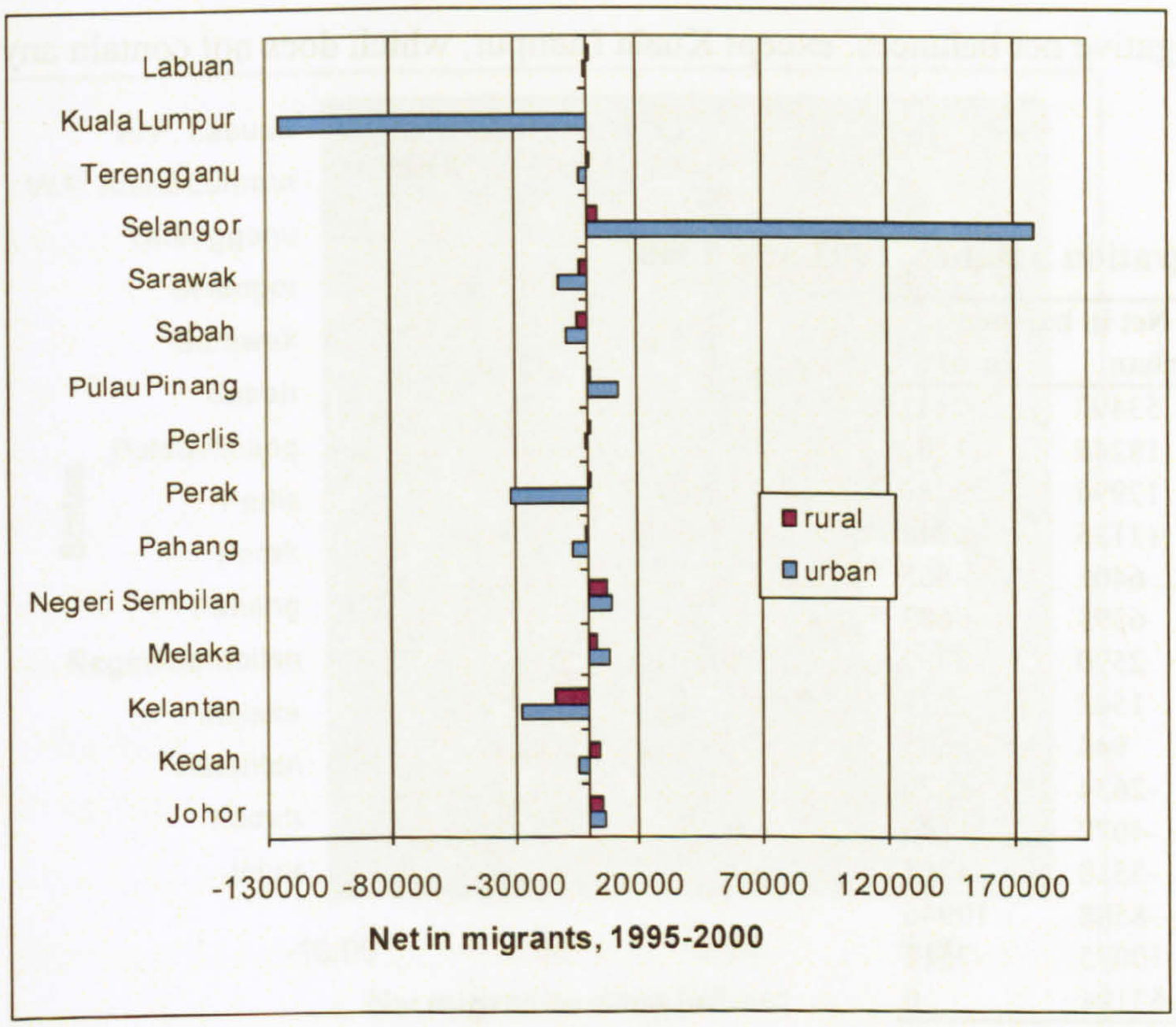


Figure 8.9: Inter-state net in migration, 1995-2000

For this latter period, there are few states that experienced net migration losses for both urban and rural areas. These are Kelantan, Pahang, Sabah and Sarawak, all of which are the less developed states. During the first period, only one state out of three is the less developed state. The less developed state is Kelantan, whilst the more developed states are Perak and Melaka. Moreover, Kelantan is the only state that experienced negative net migration for urban and rural areas in both periods. This means that Kelantan is losing population to other states through inter-state migration.

The migration exchange between the two censuses can also be analyzed from the urban and rural flows. Table 8.13 shows the net migration balance of urban and rural areas in each state. The table is ranked from the highest net balance of urban flows to the lowest. Selangor still registers the highest urban net in balance with 53,000 migrants but has negative rural net balance. All the more developed states, except Kuala Lumpur, have positive urban net migration balances. The less developed states of Pahang, Labuan and Terengganu also have positive balances. All other less developed states have negative urban balances. For rural areas only four states have positive net balances, three of which are the more developed states.

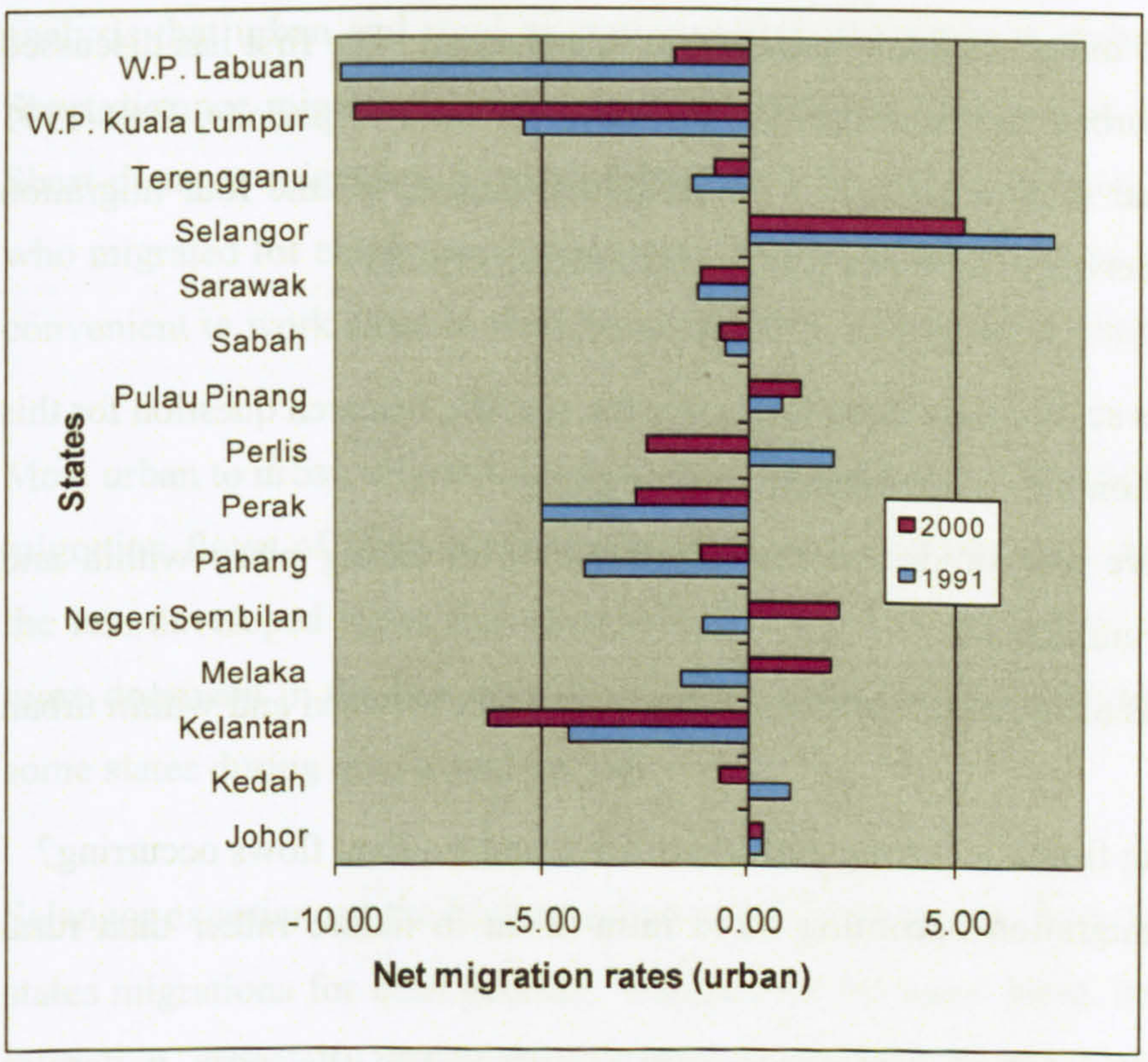
All other states have negative net balances, except Kuala Lumpur, which does not contain any rural areas.

Table 8.13: Net in-migration balance, 1991 and 2000

	Net in balance	
State	**urban**	**rural**
Selangor	53490	-7411
Perak	18245	11102
Negeri Sembilan	12994	3289
Melaka	11135	8748
Pulau Pinang	6401	-865
Pahang	6393	-9683
Johor	2590	-8799
Labuan	1542	-1237
Terengganu	944	-605
Perlis	-2634	-1570
Sarawak	-4077	-11146
Sabah	-5518	-4905
Kedah	-8588	10946
Kelantan	-10075	-7512
Kuala Lumpur	-63194	0

When analyzing the net migration rates for inter-state urban and rural areas, we can see the trend as shown in Figure 8.10. For net migration to urban areas, Selangor has the highest rates for both periods. Only a few other states have positive rates for both periods. Pulau Pinang and Johor have positive rates in both periods, whilst Perlis and Kedah have positive rates only in 1991. Perlis and Kedah are two neighbouring states located to the north of Peninsular Malaysia. Negeri Sembilan and Melaka have positive rates only in 2000. The two states are also located adjacent to each other in the middle of Peninsular Malaysia. Other states have negative net migration rates in both periods. Labuan has the highest negative net migration rate in 1986-1991 whilst Kuala Lumpur has the highest negative rate in 1996-2000.

For rural net migration rates, most of the states have positive rates in both periods. Labuan has the highest positive rates for both periods, which is the opposite of net migration rates for its urban areas. The rate for 1986-1991 is almost twice the rate for 1996-2000. Kelantan is the only state that experiences negative rural net rates for both periods. Perak, Melaka and Kedah have negative rates in 1991 whilst Sabah and Pahang have negative rates in 2000. Perak and Kedah are located adjacent to each other in the north of the Peninsular Malaysia. Sabah and Sarawak are also located next to each other in East Malaysia. Kuala Lumpur has no net migration rate because it does not have rural areas in its territory.



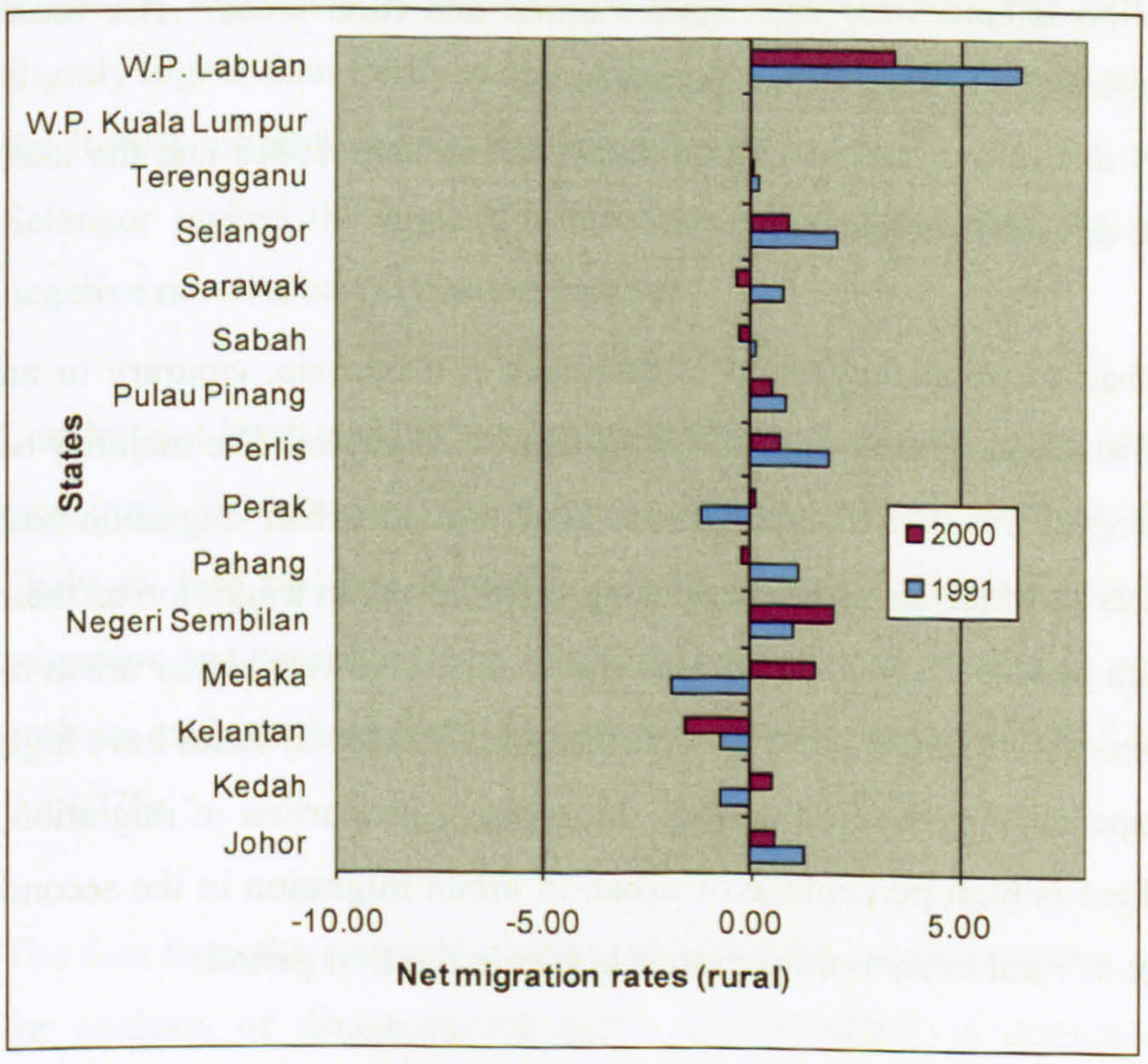


Figure 8.10: Inter-state net in migration rates for urban and rural areas, 1991 and 2000

8.4 Conclusion

In conclusion, there are two major sections discussed in this chapter. The first has discussed several migration flows in urban and rural areas in all states for the two periods, 1986-1991 and 1995-2000. The second section discussed the migration pattern for the four migration categories both within and between the states for the two census periods.

The analyses in the previous sections are done to answer the specific research question for this chapter posed earlier in section 8.1. The research questions are:

1. What are the relative magnitudes of the migration flows taking place within and between urban and rural areas?
2. What are the patterns of intra-state and inter-state migration between and within urban and rural areas?
3. Where are urbanizing flows occurring and where are counter-urban flows occurring?
4. To what extent is migration becoming more intra-urban in nature rather than rural urban in nature?
5. What are the migration balances for each state's urban and rural areas? Are these derived from exchanges within states or between states?
6. How do the answers to these questions change between the later 1980s and the later 1990s? What are the directions of change?

The analysis shows that urban to urban migration is dominant in Malaysia, contrary to an earlier hypothesis that rural to urban migration is still dominant in Malaysia. The majority of Malaysia population had already resided in urban areas and rural to urban migration had passed its peak. All the states in Malaysia are experiencing urban to urban migration as their major migration flows in both periods. The analysis also shows that there was higher urban to rural migration in the first period. It can also be seen that the more developed states have high urban to urban migration especially in the first period. In terms of proportion of migration, however, it is shown that there is high percentage of urban to urban migration in the second period, whilst the percentage of rural to rural migration is higher in the first period.

As opposed to the more developed states experiencing high urban to urban migration, the less developed states were experiencing higher rural to rural migration especially in the first period. This is also in contrast to an earlier belief that rural to urban migration to be dominant as the urban areas of the less developed states are expanding. The importance of the

agricultural sectors in these states may have contributed to this pattern. It is also shown in the analysis that urban and rural migration within the states is higher than inter-state migration. Short-distance migration, as shown in the previous chapters, is more dominant in Malaysia. Short-distance migration is more convenient for the population especially for the migrants who migrated for employment purposes. Workers, especially in lower categories find it more convenient to work close to their home and they also prefer to work in their home state.

Most urban to urban migration occurred in the majority of the states in both periods. The high migration flows of inter-urban migration occurred in the more developed states compared to the less developed states that experienced inter-rural migration. The inter-rural migration is more dominant in the less developed states during the first period but the trend is reversed in some states during the second period.

Selangor experienced the highest urban to urban migration, both for within-state and between-states migrations for both periods. Labuan, on the other hand, has the lowest urban to urban migration, especially during the first period, although during the second period, the number is slightly higher than Perlis in the within-state migration. For inter-state migration, Labuan has the lowest urban to urban migration in both periods. On the net urban migration balance, Selangor ranked the highest while Kuala Lumpur ranked the lowest. Kuala Lumpur has negative net in urban migration balance.

Last but not least, rural to rural migration between states is the smallest type of migration that took place in Malaysia. The migrants especially those working in agricultural sector are less likely to find another agricultural type of employment in another state. Rural to rural migration has passed its time when the government introduced agricultural land development projects such as the Federal Land Development Authority (FELDA) scheme projects during the 1970s.

The data from the census for urban and rural migration provides a good source of information for analysis of disaggregated data. Unfortunately it does not provide a more detailed disaggregation of population characteristics such as gender and age cohort. This makes it impossible to examine the characteristics of the urban and rural migrants such as in the state migration analysis. The data (raw data), however, might be available at the Malaysian

Statistics Department and could be used for further research if the Department allowed the data to be taken.

CHAPTER 9

CONCLUSION

9.1 Introduction

When this research was started, not much was known about internal migration patterns in Malaysia. From observations, it was thought that migration has been very important in shaping cities in Malaysia, especially large cities such as Kuala Lumpur. The bus stations catering for long-distance travelling were always busy, more so during public holidays, when people travelled back to their home towns. Khoo (1984) mentioned that, historically, urban centres such as Kuala Lumpur, Georgetown in Pulau Pinang and Ipoh in Perak had population growth higher than the states in which they were located and higher than the country's average. While natural growth accounts for part of its increase, rural to urban migration has also contributed to this phenomenon.

The literature review has shed some light on migration in Malaysia. Rural to urban migration has been historically important in Malaysia especially before and after its independence in 1957. This is consistent with the theory that developing countries experienced high rural to urban migration. However, this has not happened in Malaysia during the last few decades. Studies show that rural to urban movement has slowed down because of the Government's rural development programs and the creation of the rural growth centres. Other factors such as economic status, lack of education, inadequate housing to cater for the demand in cities, etc. contributed to this situation.

Studies has also shown that as the country developed, rural to urban migration are being replaced by urban to rural migration or the counterurbanisation process (Nucci and Long, 1995; Elliott, 1997; and Champion, 1989). The literature has shown that in many developed countries this process took place in the later period of their development.

It is found in the literature that many developing countries are experiencing rapid urbanisation as a result of rural to urban migration. Studies in China, India, Vietnam, Thailand and several other countries confirm to this process, as mentioned in Chapter 2. The developed countries

such as the United States and the United Kingdom were experiencing the urbanisation process at their early stages of development and while their cities were expanding.

9.2 Pattern of migration in Malaysia

The first research question set out at the beginning of this research is to investigate the current patterns of migration occurring in Malaysia. The pattern of migration in Malaysia has been discussed at three levels: the state level, the district level and the rural/urban level. These are discussed in Chapters 5 to 8.

This analysis started out with Chapter 5, looking at the reasons for the population change in rural and urban areas. The historical background of population change was looked into. Then it discussed the changes in rural and urban populations within the states in Malaysia from the last four Censuses. This discussion formed some understanding of the structure that needs to be analysed in the next three chapters. It shows the numbers and percentages of urban and rural populations in every state in Malaysia in each Census from 1970 to 2000. An important generalisation that can be made for this section is that the level of development has a positive relationship with the percentage of people living in urban areas.

Historical background provides the answer to the level of urbanisation in Malaysia. The states that urbanised most are located along the west coast of Peninsular Malaysia, which at one time or another became important ports in the busy shipping lane of the Straits of Malacca. During the colonial times, these are important administrative centres for several colonial powers.

To better understand the urban and rural population dynamics, the population accounts table was constructed. This population accounts table tried to answer what determined the urban and population shifts in Malaysia, natural increase, internal migration or external migration.

Although it was found that natural increase and migration did not contribute much to the increase in the percentage of urban population change, but rather the expansion of urban areas was, an important conclusion can be made. Malaysia has experienced rapid urban growth, like many other developing countries. The shifts from agriculture to industrial development means that more land are required for development, resulting in the acquisition of adjacent land to become part of urban areas. The development of new housing estates in the urban

peripheries also mean that the areas that were previously rural is now considered urban, based on the definition of urban areas as defined in the Census report (see Chapter 3, section 3.5). Chapter 5 has partly answered research question no. 2; how important is the movement from rural to urban areas in comparisons with other population shifts?

The final part of Chapter 5 attempts to make a projection of the urban and rural population as well as the total population using simple model from the accounts table. The comparison made with the Department of Statistics and the United Nations reports showed that the projection is not very much different. Thus, it is reasonable to say that the accounts table constructed is quite a good method of analysing the population dynamics in Malaysia.

Chapter 6 of the thesis analysed the aggregate migration at the state level. This Chapter as well as Chapter 7 answered the research question no. 1; what are the current patterns of migration occurring within Malaysia and what are the magnitudes, composition and determinants of population movement?

The state level provides a spatial level to understand the major longer-distance migration in Malaysia. It shows the importance of Kuala Lumpur, the capital city of Malaysia, for generating migrants as well as receiving them. Selangor is the key state that attracts migrants from Kuala Lumpur as well as many other states. The analysis at this level also shows that the more developed states received more migrants. Selangor and Johor are the two states that received the most migrants from other states. These are the rapidly developing states during the 1990s. The number and percentage of migrations between states have decreased during the period of 1995-2000 compared to the period of 1986-1991. However, the relative importance of this long-distance migration has increased. This is especially true of migration to the more developed states. People are more mobile as the construction of major expressways has been completed and the registration of cars has increased.

In general most of the more developed states have higher in-migrants and all the less developed states have higher out-migrants during the more recent period. It can be concluded that development status of the state has attracted migrants from other states, probably in search of employment or other economic opportunities. This is not true, however, of Kuala Lumpur which has the highest negative net migration. As this metropolitan area sprawls outwards, aided by the construction of high speed rail transit to its surrounding areas and the

development of satellite towns, more people move outside the city centre to find better living conditions. Kuala Lumpur is more suitable for offices and businesses plus high rise buildings. The population, especially the Malays who prefer single family housing, can find better housing units outside Kuala Lumpur with ample space and lower costs.

In terms of age-specific migration, the pattern shows that 70 percent of the migrants are aged between 16 and 59. The high migration volumes and rates are for those between 15 and 35 with the highest at early 20s. This is consistent with the theories that most migrants are young people who have just finished school (Rhoda, 1983). It is also shown that gender plays an important role in migration. More women migrated at the early age of 20-30 compared to men who had higher migration rates at ages above 30. It was discussed in Chapter 2 that in the Malaysian labour market, women workers are preferred to men in modern sectors. Young women are needed in manufacturing and electronic industries. However, at a later age, women got married and have families, reducing the tendency to move.

As at the state level, migration within and between districts discussed in Chapter 7 also share the same pattern. During the latter period, the trend is towards longer-distance inter-district migration compared to migration within the same district. The percentage share of inter-district migration increases while percentage share of intra-district migration falls. Most inter-district migrations occurred in the districts containing big cities, especially those along the coast and state capitals. Based on the theories, large cities attracted migrants because they could offer employment, higher salaries, better living conditions, etc. or in other words, economic development attracted migrants and potential migrants expected their destination areas would be better than their places of origin (Todaro, 2000).

Although the migration volumes show that higher attractiveness of districts with big towns, the migration rates show a different picture. During the earlier period, the districts with high net in-migration rates (both positive and negative) are found mostly in the districts located in East Malaysia. During the second period, however, the districts with high positive net migration rates are mostly located in the more developed states, located in Peninsular Malaysia. Those with high negative migration rates, on the other hand, are located equally in both Peninsular Malaysia and East Malaysia.

The directional flow of the migrants shows almost the same migration patterns during both periods. Major flows are concentrated in the districts of Kuala Lumpur and its surrounding area (districts in Selangor) while secondary but important flows occurred in the districts in Pulau Pinang and South Johor (district of Johor Bahru). This strengthens the argument that migration flows occurred into the developed areas of the states or the country. Thus, the level of development has an impact on migration streams.

The last chapter for analysis, Chapter 8, discusses the rural and urban migration flows and tries to answer the second research question: how important is the movement from rural to urban areas in comparisons with other population shifts? Chapter 5 has answered part of this question. Rural to urban migration is no longer important in the Malaysian migration pattern. Chapter 8 compares the four categories of rural and urban migration; urban to urban, urban to rural, rural to urban and rural to rural migrations. The analysis shows that in terms of volume, urban to urban migration is dominant in Malaysia. All states have high urban to urban migration in both periods, which means the pattern occurred since before 1990. In terms of the proportions, however, the percentage of rural to rural migration is higher in the first period whilst the percentage of urban to urban migration is higher in the second period. Selangor stands out the most in inter-state net in migration for its urban areas in both periods. As can be seen in Figure 8.7 and Figure 8.8, other states are far behind in their urban net in-migration. As discussed earlier, urban areas in Selangor has experienced rapid development in the last few decades, owing to its proximity to Kuala Lumpur, the national capital.

As we go back to the second research question in Chapter 1 and the specific research questions for Chapter 8 (questions 3 and 4), we can look at the theory and literature of the rural and urban migration pattern occurring elsewhere in the world.

As the country was transforming from less developed to more developed, the pattern of migration changed from rural-urban to urban-rural. Between the two processes, there are other patterns occurring, i.e. urban-urban migration, as evidenced in the developed countries whereby the non-metropolitan areas surrounding the metropolitan areas become urbanised and transformed into metropolitan areas. Movement to these formally non-metropolitan areas can be considered as urban-urban migration. Later, when these metropolitan areas are densely populated, people tend to move to the less densely populated areas, the result is

deconcentration of population movement, what we term as suburbanisation or counterurbanisation (see Chapter 2 on empirical findings).

What happened in Malaysia is consistent with the theory. At an early stage of development, people move from rural to urban areas as more opportunities became available in those areas and because people expect it to get better income from urban employment (Todaro, 2000). Industrialisation of the country contributed to this process as well.

As the country becomes more developed, urban–urban migration becomes more dominant. Some urban centres have been concentrated and densely populated that people will move elsewhere to other expanding urban centres, or to newly urbanised areas as the existing urban areas expanded. This is evidence in Malaysia as more urban areas change their status from rural areas to urban areas between Census 1991 and Census 2000.

Finally, the counterurbanisation process is also happening in Malaysia although not at a high level. Urban to rural migration took place in some urban areas but smaller than urban-urban migration (see Table 8.9). It might be a dominant process in the future if it follows the process that occurred in the developed countries such as in the United States and the United Kingdom.

In summary the analysis rejects the hypothesis that rural to urban migration is dominant in Malaysia. The increase of the urbanisation level was the result of urban to urban migration especially short distance migration. Urban to urban migration is by far the dominant migration category in Malaysia.

9.3 Suggestions for further research in internal migration

During the early part of the study, after the data were collected, the plan was to build a model to determine the internal migration in Malaysia. However, since so much time was taken for data entry, preliminary analysis and further empirical study of the population and migration in Malaysia, it was not possible to carry out any migration modelling. It is suggested, however, for further research on internal migration in Malaysia, modelling could be an important contribution to the study of migration. There are many categories of factors that can potentially influenced migration behaviour, like those mentioned by Champion et al. (2002) such as demographic, cultural and social, labour market, housing environment, public policy

and impedance. These variables are available in reports published by different government agencies. The model that could have been used in this study may include the variables that are already available such as geographical (origin-destination distances, origin population sizes) and socio-economic variables (the level of development of destination states). The model would be much simpler compared to the one developed by Champion et al. (2002) for population migration in England.

Further research that could be important for decision makers is the policy implications of the internal migration in Malaysia. The study of policy implications could also include the impact of migration on urban or development planning in Malaysia. The Department of Town and Country Planning (2005) produced a report of the National Physical Plan for Peninsular Malaysia. Among others it includes the physical plan for the urban conurbations which connects large urban areas of Kuala Lumpur, Georgetown in Pulau Pinang and Johor Bahru in Johor (see Appendix E and F). These are highly and rapidly developed urban areas which has high migration flows, as discussed previously in this thesis. What are the impacts of this development planning to the migration pattern within and between these areas? What are the impacts of other urban and development planning to other areas such as those in the east coast of Peninsular Malaysia, where the development is still relatively behind? Or what type of planning should be done to these less developed states, especially those with negative net migration, to further enhance their urban areas and, thus, attract more quality migrants that can help develop the area?

In order to undertake this study on policy and planning implications, we need to review the development policies in Malaysia for several years. The policy changed since independence from agricultural to industrial. There are many policies that have to be looked at such as the Agricultural Policy, the National Economic Policy, the Industrial Development Plan, the National Development Policy, the five year Malaysia Plans and many more. Such a study would help the policy makers and planners to better plan the future to minimise the problems caused by migration and urban population growth.

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APPENDICES

APPENDIX A

Inter-State & Intra-State Migration, 1991

Origin (state)	Destination (state)				
	Johor	Kedah	Kelantan	Melaka	Negeri Sembilan
Johor	393,782	4,394	4,252	8,496	9,835
Kedah	7,295	213,873	2,561	1,487	2,960
Kelantan	8,409	3,542	182,036	1,735	2,753
Melaka	10,763	1,953	1,237	65,668	8,590
Negeri Sembilan	10,209	2,509	1,646	6,034	111,414
Pahang	12,742	4,683	7,398	2,844	6,226
Perak	17,812	15,411	4,309	3,108	5,413
Perlis	898	5,997	380	281	500
Pulau Pinang	4,879	22,775	1,895	1,025	1,452
Sabah	3,153	2,206	944	1,217	1,559
Sarawak	5,442	3,237	1,563	1,320	2,370
Selangor	13,437	6,488	3,797	5,099	10,290
Terengganu	5,049	2,041	8,071	859	1,371
W.P. Kuala Lumpur	14,685	7,534	4,769	5,362	8,613
W.P. Labuan	280	288	61	97	125
Total in	508,835	296,931	224,919	104,632	173,471
Between states	115,053	83,058	42,883	38,964	62,057
Total Population	2,055,000	1,294,465	1,175,984	496,011	685,771

Inter-State & Intra-State Migration, 1991 (cont'd)

Origin (state)	Destination (state)				
	Pahang	Perak	Perlis	Pulau Pinang	Sabah
Johor	10,157	7,880	1,023	3,055	4,530
Kedah	4,978	12,064	6,878	22,316	1,658
Kelantan	10,818	4,925	889	2,682	1,107
Melaka	2,470	3,081	1,025	1,172	1,134
Negeri Sembilan	4,378	4,214	671	1,298	1,658
Pahang	181,749	8,220	873	2,402	1,654
Perak	11,027	337,823	2,561	19,712	3,398
Perlis	890	1,702	23,297	2,208	1,187
Pulau Pinang	2,045	10,181	1,528	141,016	1,119
Sabah	1,260	2,622	644	971	395,929
Sarawak	2,646	3,364	484	917	3,712
Selangor	9,172	15,475	1,451	4,696	2,308
Terengganu	7,758	2,523	421	1,142	646
W.P. Kuala Lumpur	7,931	13,850	1,593	5,379	3,340
W.P. Labuan	224	568	54	134	3,725
Total in	257,503	428,492	43,392	209,100	427,105
Between states	75,754	90,669	20,095	68,084	31,176
Total Population	1,036,753	1,862,606	182,655	1,046,440	1,717,515

Inter-State & Intra-State Migration, 1991 (cont'd)

Origin (state)	Destination (state)				
	Sarawak	Selangor	Terenggan	W.P. Kuala Lumpur	W.P. Labuan
Johor	3,365	22,569	3,228	12,649	385
Kedah	2,543	14,217	1,468	7,703	274
Kelantan	1,655	14,843	10,272	7,833	138
Melaka	1,689	11,989	878	6,739	162
Negeri Sembilan	1,173	19,800	1,631	8,946	203
Pahang	2,605	19,414	7,094	9,304	337
Perak	2,803	48,815	2,549	22,873	1,110
Perlis	232	1,839	279	1,122	40
Pulau Pinang	1,070	10,545	1,000	6,420	336
Sabah	5,688	3,807	513	2,325	5,371
Sarawak	507,889	4,602	1,007	3,678	722
Selangor	2,359	354,312	3,388	56,045	347
Terengganu	1,454	7,452	117,604	3,467	81
W.P. Kuala Lumpur	4,454	109,334	3,436	152,786	737
W.P. Labuan	499	462	55	323	6,614
Total in	539,478	644,000	154,402	302,213	16,857
Between states	31,589	289,688	36,798	149,427	10,243
Total Population	1,633,795	2,284,066	761,229	1,118,419	53,396

Inter-State & Intra-State Migration, 1991 (cont'd)

Origin (state)	Destination (state)	
	Total out	Between states
Johor	489,600	95,818
Kedah	302,275	88,402
Kelantan	253,637	71,601
Melaka	118,550	52,882
Negeri Sembilan	175,784	64,370
Pahang	267,545	85,796
Perak	498,724	160,901
Perlis	40,852	17,555
Pulau Pinang	207,286	66,270
Sabah	428,209	32,280
Sarawak	542,953	35,064
Selangor	488,664	134,352
Terengganu	159,939	42,335
W.P. Kuala Lumpur	343,803	191,017
W.P. Labuan	13,509	6,895
Total in	4,331,330	
Between states	1,145,538	
Total Population		

APPENDIX B

Inter-State & Intra-State Migration, 2000

Origin (state)	Destination (state)				
	Johor	Kedah	Kelantan	Melaka	Negeri Sembilan
Johor	311,974	3,938	2,730	8,820	9,241
Kedah	6,500	113,435	2,086	1,912	3,028
Kelantan	12,134	4,486	79,410	2,173	4,565
Melaka	7,640	1,343	758	63,266	5,297
Negeri Sembilan	8,161	2,069	1,100	5,261	85,454
Pahang	10,769	3,482	4,674	2,862	5,677
Perak	14,960	10,154	2,756	2,890	5,119
Perlis	867	3,916	327	266	472
Pulau Pinang	4,050	17,051	851	1,134	1,448
Sabah	5,478	2,305	1,538	1,291	2,319
Sarawak	7,372	1,865	1,068	1,519	3,040
Selangor	11,369	6,108	3,088	5,290	16,021
Terengganu	6,609	2,212	4,839	1,630	2,477
W.P. Kuala Lumpur	11,267	6,462	3,358	5,565	10,291
W.P. Labuan	240	288	63	104	146
Total in	419,390	179,114	108,646	103,983	154,595
Between states	107,416	65,679	29,236	40,717	69,141
Total Population	2,584,997	1,571,077	1,287,367	605,239	829,774

Inter-State & Intra-State Migration, 2000 (cont'd)

Origin (state)	Destination (state)				
	Pahang	Perak	Perlis	Pulau Pinang	Sabah
Johor	7,871	6,481	476	3,050	2,067
Kedah	3,546	8,700	3,334	21,153	2,195
Kelantan	8,680	5,264	687	4,982	1,819
Melaka	1,891	2,062	173	1,134	904
Negeri Sembilan	3,667	2,856	296	1,049	858
Pahang	129,334	5,705	447	2,024	1,422
Perak	5,901	182,319	1,438	15,895	2,383
Perlis	389	1,127	10,744	2,022	155
Pulau Pinang	1,842	6,736	943	160,090	749
Sabah	2,110	2,628	214	1,662	285,642
Sarawak	2,821	2,648	698	1,557	3,786
Selangor	8,005	12,485	777	4,278	2,215
Terengganu	7,500	2,195	311	1,657	843
W.P. Kuala Lumpur	7,032	10,811	907	4,944	2,448
W.P. Labuan	395	636	21	126	3,247
Total in	190,984	252,653	21,466	225,623	310,733
Between states	61,650	70,334	10,722	65,533	25,091
Total Population	1,229,104	1,973,368	198,288	1,231,209	2,468,246

Inter-State & Intra-State Migration, 2000 (cont'd)

Origin (state)	Destination (state)				
	Sarawak	Selangor	Terenggan	W.P. Kuala	W.P. Labuan
Johor	1,818	27,393	3,930	10,213	210
Kedah	1,043	16,351	1,540	6,409	218
Kelantan	1,415	25,838	7,856	7,977	152
Melaka	904	10,614	1,064	3,897	104
Negeri Sembilan	1,301	17,898	1,068	5,628	103
Pahang	1,665	23,520	6,239	7,269	250
Perak	1,414	41,278	1,921	14,323	841
Perlis	583	2,411	213	861	13
Pulau Pinang	528	11,074	921	4,414	179
Sabah	3,842	14,060	1,090	4,103	3,439
Sarawak	242,298	9,706	1,240	5,264	652
Selangor	1,529	396,310	3,807	32,145	373
Terengganu	616	12,039	89,936	3,545	94
W.P. Kuala Lumpur	2,175	131,423	3,411	114,793	440
W.P. Labuan	429	785	168	239	6,486
Total in	261,560	740,700	124,404	221,080	13,554
Between states	19,262	344,390	34,468	106,287	7,068
Total Population	2,009,893	3,952,817	880,234	1,305,792	70,871

Inter-State & Intra-State Migration, 2000 (cont'd)

Origin (state)	Destination (state)	
	Total out	Between states
Johor	400,212	88,238
Kedah	191,450	78,015
Kelantan	167,438	88,028
Melaka	101,051	37,785
Negeri Sembilan	136,769	51,315
Pahang	205,339	76,005
Perak	303,592	121,273
Perlis	24,366	13,622
Pulau Pinang	212,010	51,920
Sabah	331,721	46,079
Sarawak	285,534	43,236
Selangor	503,800	107,490
Terengganu	136,503	46,567
W.P. Kuala Lumpur	315,327	200,534
W.P. Labuan	13,373	6,887
Total in	3,328,485	
Between states	1,056,994	
Total Population		

APPENDIX C

Urban and Rural Migration, 1986-1991

ORIGIN		DESTINATIONS					
		Johor		Kedah		Kelantan	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	184767	52744	1537	1330	1535	1252
	Rural	49913	97352	368	576	362	576
Kedah	Urban	2396	864	73619	20229	847	475
	Rural	2046	1042	36133	80779	506	383
Kelantan	Urban	2227	1129	1243	764	53147	25101
	Rural	2531	1018	589	513	22630	79229
Melaka	Urban	2292	971	262	197	258	104
	Rural	3703	2352	607	544	412	277
Negeri Sembilan	Urban	2983	1391	977	738	590	408
	Rural	2582	1939	301	273	215	230
Pahang	Urban	2777	1480	1215	812	1867	1700
	Rural	3461	3301	679	1417	1065	2026
Perak	Urban	8459	2542	5824	3143	1645	1144
	Rural	3231	1286	2437	2590	474	575
Perlis	Urban	218	111	1226	768	119	53
	Rural	338	117	1655	1941	58	80
Pulau Pinang	Urban	2253	665	11532	4062	1007	325
	Rural	559	193	2972	1924	119	80
Sabah	Urban	596	299	429	398	234	180
	Rural	1080	573	781	267	163	183
Sarawak	Urban	2173	420	1753	467	494	315
	Rural	1786	282	334	195	311	176
Selangor	Urban	6261	3449	3118	1916	1883	1244
	Rural	1301	1320	447	416	173	219
Terengganu	Urban	1368	857	636	539	1862	1391
	Rural	1230	667	192	468	1547	2696
W.P. Kuala Lumpur	Urban	10380	4236	4668	2862	2996	1769
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	188	79	189	85	27	25
	Rural	4	2	13	0	3	1
Total in	Urban	229338	71237	108228	38310	68511	35486
	Rural	73765	111444	47508	91903	28038	86731
Between states - in	Urban	44571	18493	34609	18081	15364	10385
	Rural	23852	14092	11375	11124	5408	7502
Between states - net	Urban	-132	-1790	4379	6441	-11318	-727
	Rural	14126	5018	-10412	-2770	-8525	-2459

Urban and Rural Migration, 1986-1991 (cont'd)

ORIGIN		DESTINATIONS					
		Melaka		Negeri Sembilan		Pahang	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	2107	2962	3099	2416	3137	3283
	Rural	991	1482	1147	2275	962	2064
Kedah	Urban	235	524	954	433	881	1069
	Rural	119	473	811	498	678	1861
Kelantan	Urban	242	681	940	497	2763	2728
	Rural	169	386	585	356	1974	2383
Melaka	Urban	27418	5465	1032	500	545	528
	Rural	7273	24370	3166	3344	499	663
Negeri Sembilan	Urban	865	1971	52337	10346	1130	1264
	Rural	730	1803	13337	33618	569	1061
Pahang	Urban	368	846	1396	1065	62790	22438
	Rural	340	882	1010	2196	16384	74924
Perak	Urban	675	1530	2524	1286	2946	3930
	Rural	228	416	770	478	767	2552
Perlis	Urban	50	73	216	78	105	190
	Rural	26	105	106	70	112	407
Pulau Pinang	Urban	307	371	681	283	869	618
	Rural	71	118	181	95	174	205
Sabah	Urban	116	422	418	215	370	329
	Rural	83	356	374	271	156	302
Sarawak	Urban	142	553	1143	309	547	1213
	Rural	58	343	441	152	388	247
Selangor	Urban	1565	2529	4286	3477	3142	3414
	Rural	182	485	956	1028	668	1480
Terengganu	Urban	184	328	563	234	2917	1766
	Rural	65	122	195	162	1414	1138
W.P. Kuala Lumpur	Urban	1949	3406	5025	3586	4327	3599
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	33	54	75	46	177	36
	Rural	8	0	2	1	4	6
Total in	Urban	36256	21715	74689	24771	86646	46405
	Rural	10343	31341	23081	44544	24749	89293
Between states - in	Urban	8838	16250	22352	14425	23856	23967
	Rural	3070	6971	9744	10926	8365	14369
Between states - net	Urban	-2768	12824	-3156	4641	-7872	11019
	Rural	-15489	-3452	-3849	3250	-7218	-351

Urban and Rural Migration, 1986-1991 (cont'd)

ORIGIN		DESTINATIONS					
		Perak		Perlis		Pulau Pinang	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	3703	1537	258	464	1996	408
	Rural	976	644	58	180	272	41
Kedah	Urban	3595	1654	1299	1486	8009	2229
	Rural	2567	3103	1360	2446	6910	2851
Kelantan	Urban	1934	775	215	305	1411	311
	Rural	884	717	80	187	530	112
Melaka	Urban	772	241	39	45	490	88
	Rural	1098	594	120	773	362	105
Negeri Sembilan	Urban	2019	695	208	245	765	140
	Rural	687	452	49	108	249	43
Pahang	Urban	2536	1264	149	235	1239	385
	Rural	1437	1939	103	319	362	165
Perak	Urban	188586	40493	774	935	10625	2120
	Rural	29602	75902	233	449	4267	1137
Perlis	Urban	510	193	4968	3464	738	204
	Rural	431	334	3196	11275	727	233
Pulau Pinang	Urban	5078	2187	439	548	111190	11315
	Rural	815	523	145	178	6041	8833
Sabah	Urban	1144	341	101	330	423	111
	Rural	420	216	74	74	167	51
Sarawak	Urban	1003	369	130	116	407	97
	Rural	1129	254	64	69	191	44
Selangor	Urban	6346	4507	580	659	3222	770
	Rural	1376	2159	42	84	351	66
Terengganu	Urban	1038	440	73	175	668	110
	Rural	425	282	35	99	203	48
W.P. Kuala Lumpur	Urban	9329	4518	779	814	4405	968
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	484	72	26	28	107	21
	Rural	0	0	0	0	0	1
Total in	Urban	228077	59286	10038	9849	145695	19277
	Rural	41847	87119	5559	16241	20632	13730
Between states - in	Urban	39491	18793	5070	6385	34505	7962
	Rural	12245	11217	2363	4966	14591	4897
Between states - net	Urban	-39036	-4086	565	4444	30000	6021
	Rural	-15596	-1018	-3029	1470	9199	1401

Urban and Rural Migration, 1986-1991 (cont'd)

ORIGIN		DESTINATIONS					
		Sabah		Sarawak		Selangor	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	868	2274	948	1729	14967	1928
	Rural	120	207	112	273	2420	435
Kedah	Urban	357	395	464	1437	6634	818
	Rural	194	122	129	255	3993	598
Kelantan	Urban	278	274	525	592	8266	821
	Rural	82	90	131	192	3119	333
Melaka	Urban	162	111	185	255	3404	343
	Rural	77	132	277	762	4915	687
Negeri Sembilan	Urban	332	579	330	502	9467	1621
	Rural	75	208	102	119	5225	1306
Pahang	Urban	287	656	1065	1200	10634	1691
	Rural	59	203	85	98	3724	871
Perak	Urban	1485	641	925	1206	26434	3585
	Rural	237	129	139	220	10221	2172
Perlis	Urban	79	56	43	74	673	103
	Rural	747	59	34	49	659	60
Pulau Pinang	Urban	316	177	360	376	5922	465
	Rural	29	19	62	51	1150	157
Sabah	Urban	100964	82793	1316	1727	1892	257
	Rural	45147	161981	565	1348	603	160
Sarawak	Urban	932	1054	134659	40842	2853	359
	Rural	183	369	68346	263006	507	97
Selangor	Urban	667	586	1181	690	262234	30698
	Rural	112	91	128	127	22119	33014
Terengganu	Urban	156	145	1057	176	4315	474
	Rural	32	44	71	62	1316	204
W.P. Kuala Lumpur	Urban	1965	1372	2142	2312	98829	10486
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	1207	1764	266	227	345	110
	Rural	244	426	1	2	0	2
Total in	Urban	110055	92877	145466	53345	456869	53759
	Rural	47338	164080	70182	266564	59971	40096
Between states - in	Urban	9091	10084	10807	12503	194635	23061
	Rural	2191	2099	1836	3558	37852	7082
Between states - net	Urban	-207	4916	-3648	7086	111350	-940
	Rural	-4044	-2996	-4333	1196	26882	-528

Urban and Rural Migration, 1986-1991 (cont'd)

ORIGIN		DESTINATIONS					
		Terengganu		W.P. Kuala Lumpur		W.P. Labuan	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	1300	680	9192	0	56	20
	Rural	453	302	1455	0	30	19
Kedah	Urban	485	255	4014	0	60	1
	Rural	281	250	2168	0	25	12
Kelantan	Urban	1952	2226	4649	0	37	9
	Rural	1521	3672	1729	0	9	2
Melaka	Urban	140	43	2007	0	18	0
	Rural	314	186	2988	0	21	4
Negeri Sembilan	Urban	755	230	5057	0	30	0
	Rural	243	131	2548	0	18	3
Pahang	Urban	2270	1599	5868	0	57	15
	Rural	1331	1297	1914	0	13	6
Perak	Urban	927	625	14962	0	322	192
	Rural	411	227	4380	0	46	4
Perlis	Urban	72	36	451	0	5	2
	Rural	85	41	405	0	9	0
Pulau Pinang	Urban	457	160	3612	0	47	2
	Rural	114	51	688	0	31	3
Sabah	Urban	165	56	1254	0	840	503
	Rural	137	28	473	0	1159	1266
Sarawak	Urban	471	101	2374	0	33	44
	Rural	174	74	530	0	73	60
Selangor	Urban	2041	724	48895	0	98	36
	Rural	242	126	4973	0	19	9
Terengganu	Urban	42216	15323	2104	0	4	0
	Rural	11474	46572	635	0	8	2
W.P. Kuala Lumpur	Urban	2503	932	152786	0	442	295
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	39	13	315	0	1302	1763
	Rural	1	0	2	0	867	2371
Total in	Urban	55793	23003	257540	0	3351	2882
	Rural	16781	52957	24888	0	2328	3761
Between states - in	Urban	13577	7680	104754	0	2049	1119
	Rural	5307	6385	24888	0	1461	1390
Between states - net	Urban	-3368	1045	-44985	-41155	-1429	-1441
	Rural	-2061	391	24888	0	1179	949

Urban and Rural Migration, 1986-1991 (cont'd)

ORIGIN		DESTINATIONS			
		Total out		Between states - out	
State	Stratum	Urban	Rural	Urban	Rural
Johor	Urban	229470	73027	44703	20283
	Rural	59639	106426	9726	9074
Kedah	Urban	103849	31869	30230	11640
	Rural	57920	94673	21787	13894
Kelantan	Urban	79829	36213	26682	11112
	Rural	36563	89190	13933	9961
Melaka	Urban	39024	8891	11606	3426
	Rural	25832	34793	18559	10423
Negeri Sembilan	Urban	77845	20130	25508	9784
	Rural	26930	41294	13593	7676
Pahang	Urban	94518	35386	31728	12948
	Rural	31967	89644	15583	14720
Perak	Urban	267113	63372	78527	22879
	Rural	57443	88137	27841	12235
Perlis	Urban	9473	5405	4505	1941
	Rural	8588	14771	5392	3496
Pulau Pinang	Urban	144070	21554	32880	10239
	Rural	13151	12430	7110	3597
Sabah	Urban	110262	87961	9298	5168
	Rural	51382	167076	6235	5095
Sarawak	Urban	149114	46259	14455	5417
	Rural	74515	265368	6169	2362
Selangor	Urban	345519	54699	83285	24001
	Rural	33089	40624	10970	7610
Terengganu	Urban	59161	21958	16945	6635
	Rural	18842	52566	7368	5994
W.P. Kuala Lumpur	Urban	302525	41155	149739	41155
	Rural	0	0	0	0
W.P. Labuan	Urban	4780	4323	3478	2560
	Rural	1149	2812	282	441
Total in	Urban	2016552	552202	563569	189188
	Rural	497010	1099804	164548	106578
Between states - in	Urban				
	Rural				
Between states - net	Urban				
	Rural				

APPENDIX D

Urban and Rural Migration, 1995-2000

ORIGIN		DESTINATIONS					
		Johor		Kedah		Kelantan	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	184021	23853	1539	1340	933	885
	Rural	41640	29479	314	290	239	187
Kedah	Urban	2241	359	50376	17351	714	405
	Rural	1460	280	14138	28389	327	250
Kelantan	Urban	2962	534	1319	1303	28006	15462
	Rural	3521	684	722	785	10604	23856
Melaka	Urban	2522	616	563	473	258	249
	Rural	1137	347	53	45	39	21
Negeri Sembilan	Urban	2461	699	857	553	362	290
	Rural	1831	761	223	217	144	117
Pahang	Urban	2582	762	1100	939	1409	1384
	Rural	2503	1246	510	572	521	660
Perak	Urban	5941	1223	3831	2742	1071	643
	Rural	2299	475	1421	1366	272	278
Perlis	Urban	178	63	1114	704	127	62
	Rural	260	80	911	844	59	34
Pulau Pinang	Urban	1277	157	8640	2941	298	134
	Rural	573	60	1910	1422	57	41
Sabah	Urban	1236	233	1046	702	713	290
	Rural	1152	316	148	190	149	116
Sarawak	Urban	1511	125	620	499	335	142
	Rural	1971	328	238	282	159	187
Selangor	Urban	4559	1374	2973	2076	1301	891
	Rural	1827	609	270	235	278	149
Terengganu	Urban	1840	349	623	620	1493	1042
	Rural	1595	529	300	381	742	866
W.P. Kuala Lumpur	Urban	9291	1976	4043	2419	2008	1350
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	101	30	186	79	15	25
	Rural	51	12	12	5	13	5
Total in	Urban	222723	32353	78830	34741	39043	23254
	Rural	61820	35206	21170	35023	13603	26767
Between states - in	Urban	38702	8500	28454	17390	11037	7792
	Rural	20180	5727	7032	6634	2999	2911
Between states - net	Urban	-3676	-1977	-4424	10308	-22079	-225
	Rural	13911	2755	-7279	1391	-14885	-3427

Urban and Rural Migration, 1995-2000 (cont'd)

ORIGIN		DESTINATIONS					
		Melaka		Negeri Sembilan		Pahang	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	4987	1258	3713	1597	3087	1672
	Rural	658	394	1041	716	516	633
Kedah	Urban	884	187	1047	359	1198	503
	Rural	351	71	666	289	438	504
Kelantan	Urban	1018	193	1355	474	2688	1589
	Rural	500	73	1251	482	1382	1085
Melaka	Urban	44763	8989	2238	907	821	332
	Rural	3227	3542	635	320	86	59
Negeri Sembilan	Urban	2780	740	50668	6731	1317	710
	Rural	817	435	11803	12750	359	495
Pahang	Urban	1332	366	1483	625	71027	14891
	Rural	564	156	1254	1038	12840	23968
Perak	Urban	1644	360	2268	776	2816	1109
	Rural	309	85	661	375	427	351
Perlis	Urban	113	15	125	55	111	66
	Rural	71	13	123	78	49	41
Pulau Pinang	Urban	581	74	525	184	769	259
	Rural	118	18	144	81	132	34
Sabah	Urban	669	138	714	255	638	374
	Rural	171	20	482	171	140	176
Sarawak	Urban	876	122	861	228	1088	230
	Rural	192	35	731	230	605	110
Selangor	Urban	3626	860	8094	4299	4058	2003
	Rural	175	60	963	629	315	192
Terengganu	Urban	834	136	775	305	3235	833
	Rural	242	43	417	204	1038	537
W.P. Kuala Lumpur	Urban	4434	1131	7675	2616	5258	1774
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	66	31	104	6	283	37
	Rural	1	1	25	2	34	0
Total in	Urban	68607	14600	81645	19417	98394	26382
	Rural	7396	4946	20196	17365	18361	28185
Between states - in	Urban	23844	5611	30977	12686	27367	11491
	Rural	4169	1404	8393	4615	5521	4217
Between states - net	Urban	7595	1858	6300	7791	-3368	3276
	Rural	1097	448	1205	1873	-6037	-1583

Urban and Rural Migration, 1995-2000 (cont'd)

ORIGIN		DESTINATIONS					
		Perak		Perlis		Pulau Pinang	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	3248	1342	168	157	1476	167
	Rural	406	166	22	47	132	21
Kedah	Urban	3393	1485	766	860	9299	2025
	Rural	1647	1115	590	917	4249	1287
Kelantan	Urban	1867	1030	118	204	2257	367
	Rural	866	629	76	188	884	156
Melaka	Urban	1016	392	63	66	373	96
	Rural	83	41	3	18	30	4
Negeri Sembilan	Urban	1338	502	70	105	515	103
	Rural	423	204	37	56	77	17
Pahang	Urban	2426	842	99	97	864	196
	Rural	1040	656	47	132	199	55
Perak	Urban	119256	19961	514	395	8609	1381
	Rural	13727	24621	128	228	2037	443
Perlis	Urban	405	135	4161	1089	753	124
	Rural	287	109	2131	3093	362	89
Pulau Pinang	Urban	3026	1321	265	361	117590	8485
	Rural	565	310	58	129	8799	6296
Sabah	Urban	1279	405	105	42	661	57
	Rural	266	89	17	10	173	8
Sarawak	Urban	1133	416	97	445	731	49
	Rural	421	127	39	31	103	9
Selangor	Urban	6179	3902	300	318	2351	620
	Rural	648	505	29	48	67	37
Terengganu	Urban	870	481	66	89	630	163
	Rural	279	148	27	39	137	25
W.P. Kuala Lumpur	Urban	7846	2965	555	352	4320	624
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	482	64	15	2	108	11
	Rural	24	0	0	1	0	2
Total in	Urban	153764	35243	7362	4582	150537	14468
	Rural	20682	28720	3204	4937	17249	8449
Between states - in	Urban	34508	15282	3201	3493	32947	5983
	Rural	6955	4099	1073	1844	8450	2153
Between states - net	Urban	-84748	-4679	-1204	1977	28542	4467
	Rural	-6772	-20522	-1833	306	5544	615

Urban and Rural Migration, 1995-2000 (cont'd)

ORIGIN		DESTINATIONS					
		Sabah		Sarawak		Selangor	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	834	272	715	307	14650	787
	Rural	129	35	45	37	1489	92
Kedah	Urban	1077	81	370	146	8009	451
	Rural	318	37	109	66	2717	231
Kelantan	Urban	654	171	349	281	12321	554
	Rural	223	77	132	131	5114	270
Melaka	Urban	464	32	426	168	5091	301
	Rural	49	13	18	10	669	32
Negeri Sembilan	Urban	424	79	890	119	9829	845
	Rural	57	49	32	36	2270	244
Pahang	Urban	521	268	563	556	11570	1052
	Rural	61	62	47	49	3040	344
Perak	Urban	1316	139	504	335	23149	1447
	Rural	124	19	73	43	4685	477
Perlis	Urban	63	8	55	201	872	54
	Rural	34	7	17	192	519	28
Pulau Pinang	Urban	239	62	194	77	4869	250
	Rural	34	21	10	10	677	37
Sabah	Urban	143535	41438	1045	702	7276	301
	Rural	36911	55612	344	402	1249	33
Sarawak	Urban	1620	280	109723	19898	5300	164
	Rural	497	240	35853	57676	769	30
Selangor	Urban	1360	210	768	258	324883	23059
	Rural	68	9	26	15	6835	5436
Terengganu	Urban	264	111	180	122	5669	307
	Rural	57	22	40	47	1171	59
W.P. Kuala Lumpur	Urban	2172	276	1718	457	127538	3885
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	2022	720	186	90	544	56
	Rural	198	93	18	7	14	0
Total in	Urban	156565	44147	117686	23717	561570	33513
	Rural	38760	56296	36764	58721	31218	7313
Between states - in	Urban	13030	2709	7963	3819	236687	10454
	Rural	1849	684	911	1045	24383	1877
Between states - net	Urban	-6653	-1189	-9389	991	171889	-7127
	Rural	-3755	-1157	-5820	-704	18772	-691

Urban and Rural Migration, 1995-2000 (cont'd)

ORIGIN		DESTINATIONS					
		Terengganu		W.P. Kuala Lumpur		W.P. Labuan	
State	Stratum	Urban	Rural	Urban	Rural	Urban	Rural
Johor	Urban	1600	673	5330	0	98	20
	Rural	500	354	771	0	7	0
Kedah	Urban	454	215	3313	0	113	6
	Rural	329	193	1094	0	16	3
Kelantan	Urban	1852	1313	4295	0	61	4
	Rural	1805	1775	1402	0	6	3
Melaka	Urban	407	112	1970	0	37	9
	Rural	75	44	185	0	10	2
Negeri Sembilan	Urban	403	148	3400	0	31	2
	Rural	199	111	689	0	30	0
Pahang	Urban	2371	1093	4278	0	137	35
	Rural	1012	830	751	0	9	0
Perak	Urban	790	361	8907	0	342	275
	Rural	219	160	1316	0	7	67
Perlis	Urban	65	29	414	0	10	0
	Rural	38	23	176	0	0	0
Pulau Pinang	Urban	387	135	1895	0	92	7
	Rural	74	30	289	0	15	0
Sabah	Urban	345	104	2241	0	1715	295
	Rural	213	75	348	0	752	235
Sarawak	Urban	288	65	2606	0	286	63
	Rural	400	106	522	0	84	34
Selangor	Urban	2252	752	26738	0	239	18
	Rural	234	80	706	0	5	0
Terengganu	Urban	47338	12542	1805	0	43	2
	Rural	8767	18574	450	0	9	0
W.P. Kuala Lumpur	Urban	2719	692	114793	0	405	35
	Rural	0	0	0	0	0	0
W.P. Labuan	Urban	67	26	189	0	4836	732
	Rural	37	3	8	0	497	263
Total in	Urban	61338	18260	182174	0	8445	1503
	Rural	13902	22358	8707	0	1447	607
Between states - in	Urban	14000	5718	67381	0	3609	771
	Rural	5135	3784	8707	0	950	344
Between states - net	Urban	-4327	1158	-112601	-20552	-759	-406
	Rural	-1369	884	8707	0	515	213

Urban and Rural Migration, 1995-2000 (cont'd)

ORIGIN		DESTINATIONS			
		Total out		Between states - out	
State	Stratum	Urban	Rural	Urban	Rural
Johor	Urban	226399	34330	42378	10477
	Rural	47909	32451	6269	2972
Kedah	Urban	83254	24433	32878	7082
	Rural	28449	33632	14311	5243
Kelantan	Urban	61122	23479	33116	8017
	Rural	28488	30194	17884	6338
Melaka	Urban	61012	12742	16249	3753
	Rural	6299	4498	3072	956
Negeri Sembilan	Urban	75345	11626	24677	4895
	Rural	18991	15492	7188	2742
Pahang	Urban	101762	23106	30735	8215
	Rural	24398	29768	11558	5800
Perak	Urban	180958	31147	119256	19961
	Rural	27705	28988	13727	24621
Perlis	Urban	8566	2605	4405	1516
	Rural	5037	4631	2906	1538
Pulau Pinang	Urban	140647	14447	23057	5962
	Rural	13455	8489	4656	2193
Sabah	Urban	163218	45336	19683	3898
	Rural	42515	57453	5604	1841
Sarawak	Urban	127075	22726	17352	2828
	Rural	42584	59425	6731	1749
Selangor	Urban	389681	40640	64798	17581
	Rural	12446	8004	5611	2568
Terengganu	Urban	65665	17102	18327	4560
	Rural	15271	21474	6504	2900
W.P. Kuala Lumpur	Urban	294775	20552	179982	20552
	Rural	0	0	0	0
W.P. Labuan	Urban	9204	1909	4368	1177
	Rural	932	394	435	131
Total in	Urban	1988683	326180	631261	120474
	Rural	314479	334893	106456	61592
Between states - in	Urban				
	Rural				
Between states - net	Urban				
	Rural				

APPENDIX E

Development Strategy for Peninsular Malaysia

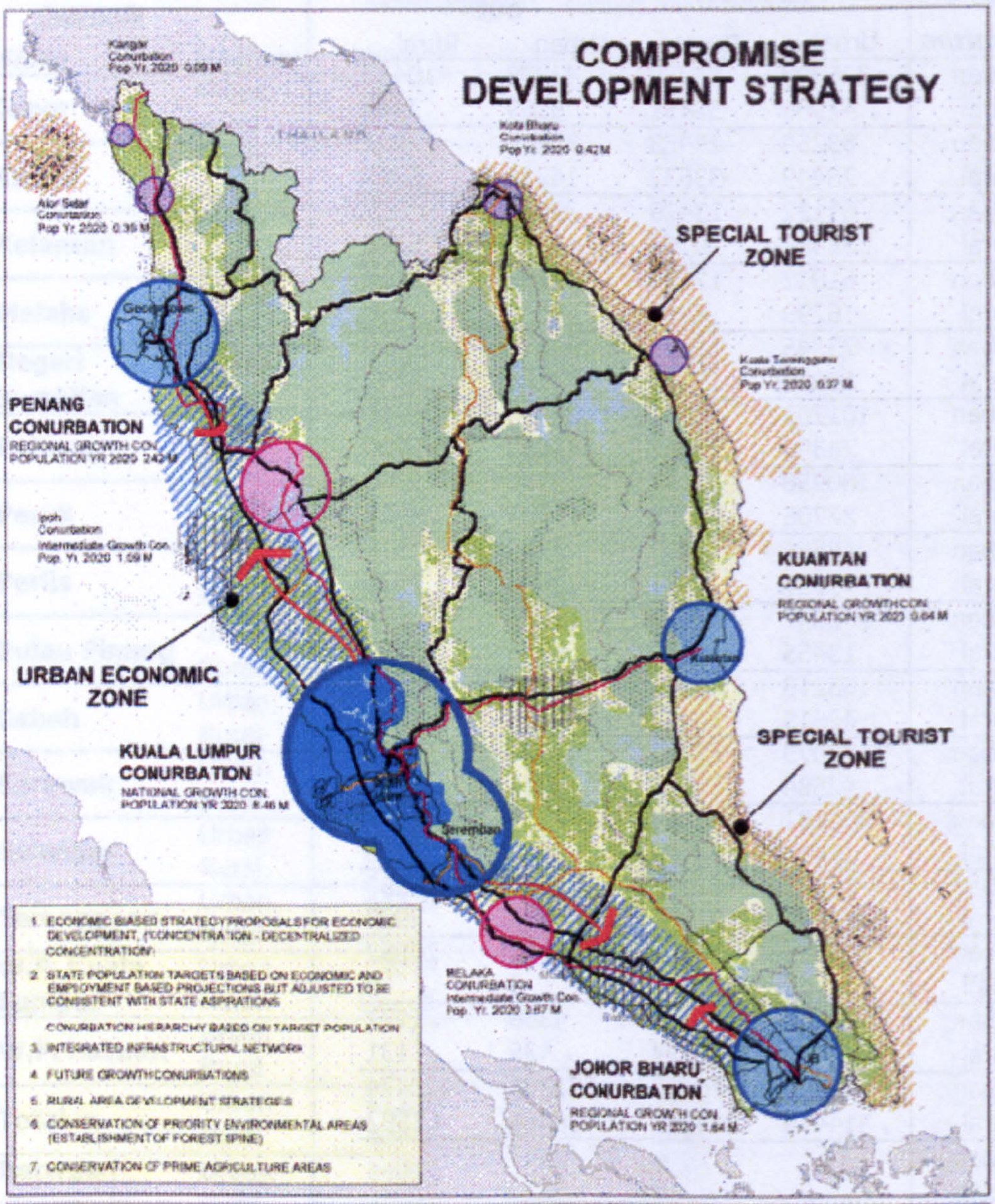

Figure 5.3.3

COMPROMISE DEVELOPMENT STRATEGY YEAR 2020

Source: Department of Town and Country Planning (2003)

APPENDIX F
Growth Centres in Peninsular Malaysia

Source: Department of Town and Country Planning (2005)