Dynamics of Internal Labour Migration in Malawi

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By

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ABSTRACT

A report by the Global Commission for International Migration submitted to the United Nations in October, 2005 brought the issue of migration onto the international agenda. As an issue for both developing and developed countries, the migration debate is concerned with balancing the economic benefits with the social and political implications. World Bank (2005) considers migration as a growing challenge for policy makers in view of the rising number of migrants in the world today, which is estimated at 200 million.

Malawi as a developing country faces similar challenges with respect to migration. The pattern of labour movements in Malawi involves three main areas: the rural, the agricultural estates and the urban centers. This thesis explores in detail these labour movements focusing on the rural-estates (rural) and rural-urban migration flows. A review of economic theories and empirical evidence available in the current body of literature is conducted. Following this review, a modified version of the Harris-Todaro model is applied to original Malawian data to analyze determinants of migration.

Results show that the Harris-Todaro model performs reasonably well in explaining migration in Malawi. Overall the results suggest that urban migrants move in response to expected incomes. However this is not the case with estate migrants who appear to move due to push factors.

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ACRONYMS

ADMARC	Agricultural Development Corporation
ECAM	Employer's Consultative Association of Malawi
ESP	Economic Stabilisation Programme
EU	European Union
GDP	Gross Domestic product
GoM	Government of Malawi
HDI	Human Development Index
IMF	International Monetary Fund
MPRS	Malawi Poverty Reduction Strategy
NDE	New Development Economics
NSO	National Statistics Office
NELM	New Economics of Labour Migration
OPM	Oxford Policy Management
PRSP	Poverty Reduction Strategy Paper
TAMA	Tobacco Association of Malawi
SADC	Southern Africa Development Community
SAP	Structural Adjustment Programme
SDNP	Sustainable Development Network Programme
UN	United Nations
USAID	United States Aid for International Development
WAB	Wage Advisory Board
WAC	Wage Advisory Council
WB	World Bank

DECLARATION

I hereby declare that I am the author of this thesis; that the work of which this thesis is a record has been done by myself, and that it has not previously been accepted for a higher degree.

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CHAPTER 1

Introduction

A report by the Global Commission for International Migration submitted to the United Nations in October, 2005 brought the issue of migration onto the international agenda. As an issue for both, the developing and the developed countries, the migration debate has been on how to balance the economic benefits with the social and political implications. Following the enlargement of European Union, for example, supporters of migration cite the benefits of low cost skilled workers while critics warn of the impact on low paid natives, public services and national identity (Wagstyl, 2006).

Among the developing countries, migration of skilled labour from the developing to the developed world has become a major cause for concern for policy makers. For these countries particularly those in Africa, the loss of skilled labour is just one part of the problem. The other side of the problem concerns the high levels of internal labour migration, particularly rural-urban migration. Considering the poorly performing economies and limited infrastructural development in these countries, the migration challenge is daunting.

Malawi as a developing country is facing similar challenges with respect to migration. Between 1987 and 1998 compared to the national population growth rate of 1.98 percent per annum, population in the urban centres grew at the rate of 4.7 percent while Kasungu district where most agricultural estates[1] are found grew at 3.6 percent (NSO, 1998). These areas also exhibited high male to female ratios, suggesting that urban centres and agricultural estate districts are areas of high in-migration. It is this pattern of labour movements that motivates this study.

In order to explore this phenomenon further, Chapter 2 starts by presenting a picture of labour migration in the developing world in general and Africa in particular. Some highlights of features of labour migration in Malawi focusing on the two flows *viz-a-viz* rural-estates (rural) and rural-urban are presented.

Chapter 3 sets in more detail the nature of migration in Malawi. A sketch of the Malawi economy using various economic, and where appropriate, social indicators. It is argued in this chapter that the dualistic nature of the economy has contributed to shaping the labour migration flows that are observed today.

Chapter 4 conducts a critical review of the economic theories of migration and empirical literature for developing countries. The focus is on the Harris-

[1] Agricultural estates in Malawi, also called plantations, refer to leasehold or freehold land dedicated to large scale farming of export-oriented crops such as tobacco, tea, and sugar among others.

Todaro's expected income differential theory that seems to lend considerable empirical evidence to explaining migration in developing countries.

In chapter 5 a micro approach to the Harris-Todaro model is adopted in developing a prototype model for labour migration in Malawi. Since the Harris-Todaro model allows us to work with 'expectation'[2] it provides an opportunity to explore whether migrants in the two flows respond in the same way to this 'expectation'. Due to limited availability of secondary data, a survey was conducted in Malawi to collect primary data. In this chapter we also present aspects of the data collected.

Chapter 6 contains results from statistical analysis. The first part of the chapter contains basic data analysis that helps provide hypotheses that are investigated. The second part looks at earnings functions in the three locations under study. A modified version of the Harris Todaro model is then used to analyze determinants of migration in Malawi. Results support the hypothesis that incomes and wealth are important in explaining labour migration in Malawi. Findings suggest that urban migrants move in response to expected incomes lending support to the Harris-Todaro model. This appears not to be the case with estate migrants who appear to move because of push factors.

Chapter 7 contains a summary and recommendations.

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[2] In terms of wage 'expectation' is defined as an individual's wage in a given area adjusted for his/her probability of getting employed there (Todaro, 1969; Harris and Todaro 1970)

CHAPTER 2

Labour Migration in Developing Countries

2.1 Introduction

A report by the Global Commission for International Migration submitted to the United Nations in October 2005 brought back the issue of migration onto the international agenda. The report highlights the role of globalisation in creating disparities in economic opportunities between the developing and the developed worlds. The result has been an upsurge in skilled labour migration from the developing to the developed world where there are relatively more abundant economic opportunities. While this has furnished the developed nations with the much needed additional skilled labour force particularly in the health sector it has created acute shortages in the developing world. An article on "Health care in poor countries" that appeared in *The Economist* of November 26, 2004 illustrates the gravity of this problem better. They report that that there are more Malawian doctors in Manchester, England than there are in Malawi. It is not clear whether this report is based on empirical research or anecdotal evidence. It still serves to show how huge the problem of migration has become.

Upon receiving the Commission's report the United Nations Secretary General acknowledged that migration has now become one of the biggest challenges

faced by the world today (UN, 2005). World Bank (2005) concurs with this view when they note the challenge faced by world policy makers in view of 200 million migrants in the world today. They also however recognise migration as a potentially useful development opportunity for low income countries by way of remittances. The Bank's Annual Global Economic Prospects (GEP) Report for 2006, reports that officially recorded remittances accruing to developing countries were estimated at $167 billion which was more than twice the level of development aid from all sources. In this respect, the challenge facing policymakers according to World Bank is to fully achieve the potential economic benefits of migration, while managing the associated social and political implications.

Meanwhile most of the internal migration in developing nations goes undocumented. As Bilsborrow (1998) points out, migration in Africa is much less studied than fertility and mortality, to such an extent that there is considerable lack of migration data in most of these countries. This being the case, higher than average population growth rates are often taken as a manifestation of in-migration (Yap 1977). Beauchemin and Schoumaker (2005) observe that most African countries exhibit such high rates particularly where both public and private investments are concentrated in major cities. In cases where plantations, mines and other enterprises are located in rural areas and offer readier employment opportunities there is substantial flow of rural to rural migration as well, mostly involving the uneducated (Adepoju, 1983).

Recent studies however, show that in most developing countries, migration of the unskilled is not just confined to rural to rural migration; this group also constitutes a significant proportion of the rural to urban migration (Cole and Sanders, 1985). In such a setting where migration streams include both skilled and unskilled individuals it becomes a challenge to classify a typical migrant.

These observations raise a number of questions: Given the existence of plantations as an alternative destination to the city for labour migrants and the possibility that both the unskilled and skilled may migrate to any destination, what factors determine who migrates and to where. Furthermore, is it the case that all these migrants are merely responding to the differences in expected income?

This chapter explores the issue of labour migration in the developing world paying particular attention to Africa. A picture of migration in Malawi is then presented. Evident in Malawi are labour movements that share a similar type of origin (the rural) but move into two different directions (the agricultural estates and the urban sector). This chapter has five sections. 2.2 explore the issue of labour migration in the developing world focusing on migration in Africa. 2.3 presents labour migration in Malawi. 2.4 present the objectives of the study, while section 2.5 summarises. For purposes of this study, migration is as defined by Millington (1994) to mean *movement driven primarily by labour market considerations; in the sense of moves which entail both a change of*

residence and a change of job and which tend to typically involve non trivial distances.

2.2 Migration and the Developing World

Cities seem to hold considerable attraction for would be migrants as evidenced by high urban growth rates. Todaro (1997) reports that between 1950 and 1990 world urban population increased from 724 million to 2.3 billion. At the same time, the developing world's share of the urban population increased from 38 percent to 61 percent of the total urban population during this period. According to the United Nations projections, by the year 2025 77 percent of world urban dwellers will reside in developing nations. Compared to cities in other developing regions, African cities exhibit remarkably high growth rates. The United Nations Environmental Programme, (1999) report that in the 1960s Africa was the least urbanised continent with the urban population constituting only 18.8 percent of population. However with an urban growth rate of 4.7 percent, the urban population in Africa is growing faster than any other continent in the world (United Nations Centre for Human Settlement, 2002). In 1996 for example, the proportion of urban population became twice that of the 1960s and it is expected that it will reach 43 percent by 2010 (United Nations Population Division, 1997). This trend is particularly worrying for most African countries where economic decline over the past decades has manifested itself in falling incomes, rising unemployment and a breakdown in urban services (Beauchemin and Schoumaker, 2005).

Developing countries' perceptions about migration trends

Developing nations' concerns about the rapid urbanisation is demonstrated through a 1998 United Nations report on population policies in the world. This report showed that almost all governments from developing countries consider their geographic distribution of the population as 'highly unacceptable'. Most of these countries believe rural-urban migration to be a prominent contributor to 'excessive' city growth. The perception is that rates of rural-urban migration have greatly exceeded rates of urban job creation and overwhelmed the absorptive capacity of both the urban labour market and the urban social services. As a consequence the majority of these countries reported having had initiated policies aimed at slowing or reversing rural-urban migration trends. Evidence shows, however, that the recognition of high rates of urbanisation as a developmental problem and initiatives to correct it among developing nations started more than two decades ago but no solution seems to be immediately in sight as evidenced by several UN reports to date. The importance of migration studies, in this respect, to guide policy makers can not be overemphasized (Oberai, 1987).

Migration and the informal sector

The limited job opportunities in the urban formal sector have meant that the bulk of new entrants into the urban labour force either create their own employment or work for small scale family owned enterprises in the informal

sector[3]. Many researchers now recognise the role of the informal sector in the urban economy as either one of providing a safety net for the unemployed or one which allows unskilled labourers to escape from rural poverty and underemployment. Todaro and Smith (2006) however argue that the informal sector grants these migrants living and working conditions and incomes that are little better than those which they had before. Nonetheless there is a significant proportion of the urban labour force employed in the informal sector in most developing nations. It is estimated that the informal sector in Africa employs between 65 and 80 percent of the urban labour force (Beauchemin and Bocquier, 2004). The fast growth and expansion of the informal sector in Africa has been attributed to the effects of Structural Adjustment Programs[4] and Economic Stabilisation Programs[5] which resulted in the privatisation of public enterprises and formal sector labour force cuts. The reduction in the size of the formal sector labour force forced a great number of people to seek self employment or informal employment.

[3] The definition of the informal sector and what it represents varies considerably. To some, the sector comprises all small sized, labour intensive operations not enumerated in official statistics or those firms that operate outside the law (Wield and Chataway, 2000, Todaro and Smith, 2006). Cole and Sanders (1985) define the urban informal sector employment as comprising all urban persons employed at low wages whether found in petty trades and handicrafts, in domestic service in urban modern households or as menials in otherwise modern factories or service establishments

[4] Structural Adjustment Programs (here-after called SAPs) are World Bank monitored and sponsored programs implemented in developing countries aimed at reducing domestic absorption especially via cutbacks in public sector expenditure while adjusting price incentives to stimulate the production of tradable goods.

[5] Economic Stabilisation Programs (here-after called ESPs) are International Monetary Fund (IMF) monitored programs implemented often alongside SAPs, in developing countries.

Migration and growth of slums

Failure by African cities to cope with the burgeoning numbers of new urban entrants is clearly evident in the establishment and growth of slum dwellings across these cities. Today slum settlements in developing countries in many cases account for 60 percent or more of the urban population and most of these settlements lack clean water, sewage system and electricity (Ellis and Harris, 2004). It is observed that slum formation which is fuelled by a combination of rapid rural-urban migration and spiralling urban poverty will continue through out Africa and in many parts of the developing world (UN-HABITAT, 2003).

Migration and urbanisation in Africa

Adepoju (1983) observes that migration takes place in large part in response to imbalances between the regions of the country and that the general direction of such movement is often dictated by the location concentration of employment generating projects. For Africa it has been suggested that pursuits of development strategies over the past decades that have emphasized industrial modernisation and metropolitan growth created a substantial geographic imbalance in economic and non-economic opportunities and have contributed significantly to a steadily accelerating influx of rural migrants into urban areas. Kwasi Boadi *et al.* (2005) concurs with this view when he observes that most African cities were planned as growth poles with the expectation that growth impulses in the cities would trickle down to rural areas. They note that this concept of development has created uneven spatial development leading to the

concentration of social and economic infrastructure and services in African cities to the neglect of rural areas.

While some commentators have attributed high levels of urban migration to Africa's own domestic development strategies others have laid the blame on development strategies imposed on Africa by the World Bank (WB) and the International Monetary Fund (IMF). One argument is that most African countries under SAPs and ESPs have also experienced a persistent decline in agricultural investment over the past two decades (Kwasi Boadi *et al.* (2005). Evidence from literature suggests that this may have come about because of the removal of agricultural subsidies. Harrigan, (2000) for example observes that the removal of subsidies on agricultural inputs particularly fertilizer has increased the price of fertilizer beyond the reach of poor farmers. Reed, (1996) further argues that the removal of trade barriers and agricultural subsidies has not only lead to a decline in agricultural output, it has also encouraged many small farmers faced with declining incomes to migrate to urban centres in search for work.

According to Todaro (1997), migration in excess of job opportunities is both a symptom of and a contributor to African underdevelopment. This is the view shared by most policy makers in Africa as evidenced by their desire to slow down or reverse rural-urban migration (UN, 1998). In this regard understanding the causes, determinants and consequences of internal rural urban labour

migration is central to understanding the nature and character of the development process in Africa. The basic question therefore is what causes people to migrate and in the case of Africa why should migration continue in the face of unemployment and underemployment in destination areas.

2.3 Migration in Malawi: An introduction

Available demographic data on Malawi show evidence of significant levels of labour migration in the country. Data relating to the four urban areas[6] in Malawi: Blantyre, Lilongwe, Mzuzu and Zomba and the agricultural estate districts suggest that they are places of high in-migration as evidenced by high population growth rates and high male to female ratios[7]. An analysis of Malawi's 1998 population census results revealed that over the inter-censal period 1987-1998, total population increased by 24 percent, equivalent to an average annual rate of 1.98 percent per annum. However the urban population increased by 64 percent implying an average annual rate of 4.7 percent per annum. The UN in 2004 reported that Malawi's rate of urbanisation was among the fastest in the world. Among the agricultural estate districts[8] Kasungu had the highest growth rate at 3.6 percent.

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[6] Malawi's urban sector comprises three cities and one municipality. The cities include Blantyre the commercial city in the South, Lilongwe the capital city in the Centre and Mzuzu in the North. Zomba Municipality is also located in the South.

[7] The male to female ratio compares the numbers of males to the number of females in a population.

[8] The main estate districts in Malawi include Mulanje, Thyolo and Phalombe for tea; Chikwawa and Nkhotakota for sugar and Kasungu, Machinga, Mchinji, Dowa, Mzimba and Rumphi for tobacco

The areas with high population growth rates were also associated with high male-female ratios. The male-female ratio for the population of Malawi as a whole in 1998 census was found to be 96.1, that is, just over 96 males for every 100 females. However the four urban centres and Kasungu district had more males than females. The urban centres had a mean male-female ratio of 107.3 while Kasungu had a male-female ratio of 106.5. Among the four urban centres Lilongwe exhibited the highest male-female ratio of 110.8. At the same time there were a number of districts in the South which exhibited lower than average male-female ratios. For example the male to female ratios for Mulanje, Phalombe, Chiradzulu and Dedza were 88.3, 89.0, 89.3, and 89.8 respectively.

Malawi's internal migration pattern

Research has shown that migration is sex selective because the male members of the community have been found to have a higher likelihood of migrating than female members (Yap, 1977). In this regard areas with high male-female ratios are typically associated with high in-migration of males while areas with low male-female ratios are associated with high-out migration. This suggests that the cities and the estates in Malawi are two distinct destinations for migrants while the rural areas in general are migration source areas. This implies an existence of triangulation with respect to migration flows in Malawi. This triangulation gives us an opportunity to explore the different features that characterise specific flows i.e. the rural to estate flow and the rural to urban flow.

A number of studies (Siegal, 1985; Kalipeni, 1992; Orr and Mwale, 2001) support the census findings. These studies suggest there is high internal labour migration in Malawi with the four cities and the tobacco estates as the major destination areas. However apart from Kalipeni's (1986) study which had a geographical perspective there has not been any economic study to explore in detail the features of this migration triangulation in Malawi.

Migration to South Africa and Zimbabwe

Up to the 1970s international labour migration was more prominent than internal migration (Chirwa, 1996). Migration by Malawian men to South Africa and Rhodesia (modern day Zimbabwe) to work in mines and commercial agriculture estates started as early as the 19th century reaching an all time high in early 1970s (Kalipeni 1992). In 1975 the Malawian government imposed a constraint on this labour supply flow following the Francistown air crash which killed 82 Malawian labourers to South Africa (Devereux, 1999). Some analysts however observe that the decision to curtail international labour migration coincided with the increased demand for wage labour in the estate sector in Malawi. For example, the reduction in reported numbers of employed Malawian labourers in South African mines corresponded to an increase in reported numbers of hired workers on Malawian estates (Siegal, 1985; Chirwa, 1996).

Mass migration to South Africa has since dwindled down following a change of government policy in that country which sought to address internal employment

problems. The end of large scale labour recruitment to South Africa and the political transition of the 1990s in Malawi appear to have increased internal labour migration (Englund, 2002).

Migration and urbanisation in Malawi

Although there is high urban population growth rate, the proportion of urban population in Malawi is still quite modest compared to other countries in the region. According to World Bank (2004) the proportion of the urban population for period 1996-2002 for Malawi was 15.5 percent while that of the Sub-Saharan Africa was twice as high at 33.1 percent. Malawi's neighbouring countries had similarly high urban populations: Mozambique (34.2 percent), Tanzania (34.2 percent) and Zambia (40.1 percent). In South Africa and Botswana which are middle income countries in the region the proportion of urban population was three times that of Malawi- South Africa (58.4 percent) Botswana (49.9 percent). There is an historical explanation that may explain why Malawi has lagged behind. Large scale estate agriculture has been Malawi's main export earner since independence. Estates being the backbone of the economy therefore needed cheap labour from rural areas in order to compete internationally. In this regard, the government set up deliberate policies to encourage rural-rural (estate) migration (Harrigan, 2000) resulting in a corresponding reduction in rural-urban migration.

Although rural-rural migration still remains popular, available statistics suggest an increase in rural - urban migration as evidenced by high population growth rates and sex ratios for the cities. Both political and socio economic factors may have played a role in this turn of events. It seems that the increased liberalisation of the economy that came with the change of government in 1994 led to new possibilities for small scale entrepreneurship with no restrictions on spatial mobility within the country (Oxford Policy Management, 2004). Englund (2002) suggests that the influx of entrepreneurs into Malawi's urban centres is an indicator of the continuing importance of migration. At the same time, studies have shown that there is very little off-farm work in most of rural Malawi where real wages for unskilled labour have remained largely stagnant thereby forcing men to seek work elsewhere in order to send remittances to support their family (World Bank, 1996). This suggests that besides other factors, government intervention in the labour market through policy engineering has played a significant role in dictating both the direction and levels of migration flows.

Implications for migration in Malawi

Since agricultural production in Malawi, is dependent on one main growing season there is considerable underemployment after the harvesting period. In this respect high migration rates out of the rural areas to the cities do contribute positively to the rural economy by way of remittances and returnee migrant's savings. However, high out-migration from rural areas may also be detrimental.

Firstly, migration in Malawi is still very much a male phenomenon although this is slowly changing. In this respect, migration of men to urban areas and estates in search of employment results in women often with low literacy levels being left to manage farms and households alone. Government of Malawi (2002), reports that women continue to have limited access to agricultural extension services, credit, training and inputs which may have contributed to declining smallholder productivity.

One other cause for concern is the possible link between migration and HIV/AIDS. Malawi has one of the highest HIV infection rates in the world. The National AIDS Commission reports that infection rates in women attending antenatal clinic vary from 13 percent in rural areas to nearly 25 percent in urban areas. Malawian government in its Poverty Reduction Strategy Paper (PRSP) perceives that labour migration may be contributing to the increase in HIV/AIDS through more family breakdowns. It is also a common view that the growing number of single males in destinations areas poses an increased risk of the spread of HIV/AIDS.

High rural-urban migration rates do not just exert pressure on the labour market; they also put tremendous pressure on already over-stretched basic services in the urban centres. In Blantyre, for example it is estimated that 71 percent of residents live in squalid unplanned settlements (UN, 2005). The growing problem of unplanned squatter settlements in Malawian cities does pose an

increasing threat to the environment. Being illegal settlements they also reduce the effective provision of basic services such as water and sanitation services (Englund, 2002). Such problems show serious miscalculation on the part of government with respect to estimating the possible impact of its policies. While government's market liberalisation policy has encouraged high levels of internal migration, it has done little by way of infrastructure investments to prepare for it. This may partly explain high incidences of unplanned settlements without basic utility and sanitation services.

Pressure on the urban labour market by migrants is also reflected in the increasing importance of the informal sector in the urban centres. SADC (1997) estimates the size of the formal sector which is dominated by the public sector to be about 585, 000 constituting 12 percent of the labour force. The lean formal sector means that few new entrants to urban centres may be absorbed. The labour market survey of 1998 showed that of the 300,000 people leaving the formal education system each year only 30,000 entered formal employment leaving 270,000 people to seek alternative source of income other than formal wage employment.

There is evidence to suggest a significant growth in informal sector employment in Malawi with close to 70 percent of the urban labour force currently employed there (Todaro and Smith, 2006). The increased growth in informal sector employment, particularly open trading and vending is also reflected in the

changing structure of the urban economy. While the manufacturing sector is in decline there has been a significant rise in the service sector[9] which now employs the largest proportion of the urban labour force (GoM, 2000). A study by Gemini and United States Aid for International Development (USAID) in 1992 reported that small scale trading activities were dominant in the informal sector with manufacturing activities coming second.

Although high levels of labour migration into urban centres and estates are taking place, there is evidence to suggest declining job opportunities in the destination areas. The Malawi Growth Strategy notes that the economy has been registering low or negative growth over the past decade (GoM, 2004). In the urban sector, for example, the industry sector is in decline. Between 1995 and 2002 the manufacturing sector value added contracted from 15.8 percent to 10.9 percent and this was accompanied by persistent company closures and numerous redundancies and lay offs of employees (GoM, 2002).

A similar picture has been observed in the estate sector, particularly the tobacco sub-sector which is the number one export earner for Malawi. Changes in government policy, rapidly falling prices, declining yields and product quality have significantly reduced the profitability of commercial estate agriculture

[9] It is worth noting that the expansion of the tertiary sector and its role in the economy is likely to be different from that of Europe and the newly industrialized countries of Asia where it is an indicator of sustained economic development. Malawi's growth of the tertiary sector is likely to be a symptom of her dependency on foreign aid (for more information on the link between dependence on foreign capital and growth of the tertiary sector see Evans and Timberlake, 1980).

(OPM, 2004; Harrigan, 2000). Available research results into the problem suggest that unless drastic changes are made, the situation is likely to continue (Zeller, Diagne and Mataya, 1998; Mwasikakata, 2003).

The existing labour market climate in both the urban centres and estates may have negatively impacted on opportunities for migrant labour. Dorward and Kydd (2002) observe that as a result of the shocks that have affected the major migrant destination areas, rural households are facing declining opportunities to find jobs elsewhere and by the same token those households with members in employment in rural plantations face falling job security, net incomes and inability to save and remit incomes.

2.4 Study Objectives

Main Objective

The foregoing background raises a number of policy related questions. One important question is why more and more people continue to leave the rural areas and migrate to urban centres and estates even when employment opportunities there are in decline. The starting point in answering this question is to understand the characteristics of these migrants and their households and how different they are from those who do not migrate. The main objective of the study is therefore to analyse determinants of internal labour migration in Malawi with a special focus on the role of expected income on migration.

Specific Objectives

- to analyse characteristics that differentiate migrants from non migrants in Malawi.
- to analyse factors influencing migrants' choice of destination between the estates and the urban areas.
- to analyse determinants of earnings in the three locations: the rural area, the estates and the urban areas.
- to analyse employment patterns for urban migrants.

2.5 Summary

In this chapter the reader has been introduced to the nature of the migration phenomenon in the world today. Insights into the trend and implications of this phenomenon for developing countries in general and Africa in particular have been highlighted. The chapter also presents the two migration flows that originate from the same type of origin (the rural area) but goes in two different directions (the estates and the urban areas). This feature of migration in Malawi provides us with an opportunity to explore further the phenomenon of migration in this study.

In Chapter 3, which follows the issue of migration in Malawi is put into context by providing a detailed socio-economic background on Malawi.

Chapter 3

Labour Migration in Malawi

3.1 Introduction

In the previous the reader was introduced to some features of migration in Malawi. The purpose of this chapter is to set in more detail the nature of migration in Malawi while recognising particular characteristics of the Malawi economy. A sketch of the Malawi economy is presented using various economic and where appropriate social indicators. It is argued that the dualistic nature of the economy has contributed to shaping the labour migration flows that are observed today. The chapter also explores in greater detail the institutional structure and the role of government in determining labour movements.

There are five sections in this chapter. Section 3.2 presents a brief overview of the socio-economic indicators of the country. Section 3.3 looks at the agriculture sector. Being the primary source of livelihood for the majority of Malawians, agriculture constitutes the largest pool of potential migrants. The agriculture sector in Malawi is characterised by two distinct sectors; the

smallholder sector[10] and the estate sector. The subsection on smallholder sector gives an extensive coverage of the conditions in the sector so as to yield hypotheses about migration decisions in Malawi.

There is evidence to show that agricultural policies pursued by government have been adopted so as to manipulate the bimodal nature of the sector. Some studies (Kalipeni, 1986; Kydd and Christiansen (1982) have suggested that the way the sector has been manipulated through policy may have affected the migration trends in the country. In this regard the section on the agricultural sector is subdivided into three further sections; section 3.3.1 covers the smallholder sector; section 3.3.2 is on the estate sector and section 3.3.2 discusses Malawi government's agricultural policy. Section 3.4 looks at the labour market in Malawi and the main policies associated with it. Section 3.5 summarises the chapter.

3.2 Socio-economic Indicators and Government's Development Strategy

Malawi is a small country south of the Sahara Desert bordered by Zambia to the North and North West, Tanzania to the North and North East and Mozambique to the East, South and South West. The country has a total surface area of 118 484 square kilometres; 20 percent of which is covered by a body of water including Lake Malawi and various rivers.

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[10] The smallholder sector in Malawi comprises small-scale rain-fed traditional agricultural production using hand-held hoes on land governed by traditional or customary laws of tenure (Diagne and Zeller, 2001) .

With a population of 9.9 million, the Malawi 1998 census puts the population density at 105 persons per square kilometre. The population is characterised by a high dependency ratio[11] averaging 0.96 for the 1987-98 intercensal period (Benson et al, 2002). Life expectancy at 37.5 is considerably low and still declining as a result of HIV/AIDS and continued ravages of more traditional infectious diseases. Generally, health and education indicators are low in Malawi relative to other countries with similar income levels. World Bank (2004) in its world development indicators provides a number of statistics which helps us to compare Malawi to other countries in the region. According to these indicators, for the period 1996-2002 Malawi had the highest fertility rate in the region. At 6.1 births per woman, it was higher than the Sub Saharan African average of 5.1 as well as that of low income countries which was at 3.5. During the same period, apart from Mozambique which suffered decades of civil conflict, Malawi's infant and under-five mortality rates were higher than any of her neighbouring countries. The infant and under-five mortality rates per 1000 births for Malawi were 113 and 182 respectively, Mozambique (128 and 205) Tanzania (104 and 165) and Zambia (102 and 182). The rates for Sub Saharan Africa were 103 and 174. At the same time, the GNI/capita for Malawi at (US$160) was lower than the regional average (US£450) and considerably

[11] Dependency ratio refers to the ratio of the non working population to the working population using the international definition of the working population as those aged 15-64 years (Benson *et al*. 2002)

lower compared to all her neighbouring countries: Mozambique (US$200), Tanzania (US$290), and Zambia (US$340) [12].

According to World Bank (1996) the alarmingly high infant and child mortality rates indicate structural deficiencies consistent with extreme deprivation and poverty. As at 1998 over 80.0 percent of the population aged 15 years and order did not have the Primary School Leaving Certificate, the lowest level of education qualification in Malawi (Benson *et al.* 2002). In the rural areas over 90.0 percent do not have this certificate.

Malawi is one of the poorest countries in the world. The Human Development Report 2000 ranked Malawi 163 out of 174 countries on its Human Development Index (HDI). Poverty in Malawi is deep and severe, with 65.3 percent of the population classified as being unable to meet their basic needs (Benson *et al.* 2002). Income and expenditures are both very low and unevenly distributed. The national mean expenditure level per household at 1990-1991 average exchange rate was US$189, while the median was US$104 (World Bank, 1996). The large difference between the mean and median shows a highly positively skewed distribution. The difference between the rich and the poor is one of the highest[13] in Africa as evidenced by a national Gini coefficient of 0.62

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[12] Compare to South Africa and Botswana, the two middle income countries in the region. South Africa with a GNI/capita of US$2,500 during the same period had an infant mortality rate of 52 and an under-five mortality rate of 65. The rates for Botswana with a GNI/capita of US$3010 were 80 and 110 respectively (World Bank, 2004)

[13] The paradox of high inequality in a poor economy (e.g. Malawi) has been well explored by Milanovic (2003). The author argues that according to the Kuznets hypothesis a country that is

(World Bank, 1996). However, poverty in Malawi is predominantly rural with over 90 percent of the poor living in rural areas. Among the three regions of the country the Southern region has the greatest number of poor people.

Landlocked with no minerals the economy is overwhelmingly agricultural - agricultural products account for about 86 percent of export earnings providing wage and self employment to the bulk of the population (GoM, 2000). Tobacco production and exports dominate the economy with burley tobacco occupying the largest share. It accounts for 30 percent of GDP and 70 percent of domestic exports (Orr, 2000). The GDP growth rate between 1992 and 2002 averaged 3.5 percent, while growth in per capita GDP grew only by 1.4 percent (World Bank, 2003).

The government's development strategy

Following the introduction of multiparty democracy in 1992, the government embarked on major economic reform programs supported by IMF and World Bank programmes. Central to these reforms is a development strategy that focuses on poverty reduction known as the *Malawi Poverty Reduction Strategy (MPRS)*. This strategy which is set out in the Poverty Reduction Strategy Paper (PRSP) suggests that the key causes of poverty in Malawi are limited access to land, low education levels, poor health status, limited off-farm employment opportunities and lack of access to credit. This policy document highlights four

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poor and agricultural-based should in principle have low in-equality but this is not usually the case due to politically and ethnically determined causes.

main strategic components for development. These are (a) sustainable pro-poor economic growth (b) human capital development, (c) improving the quality of life of the most vulnerable and (d) ensuring that public and civil institutions and systems protect and benefit the poor.

In consideration of the majority of the poor who live in rural areas, rural development forms the core of the MPRS, aiming at creating an enabling environment for increased cash incomes and access to basic services (GoM, 2002). Despite increasing populations in the urban centres, government through the MPRS still considers the agricultural sector as key for the country's development. The PRSP states that Malawi's industrial growth will be greatly influenced by success in raising agricultural output and incomes which are expected to stimulate greater demand for manufactured goods. Although agriculture is the backbone of Malawi's economy frequent droughts and poor and volatile terms of trade have made it difficult for agriculture to guarantee the country's food security much less to provide sustainable economic growth. The government's economic reform agenda faces challenges on several fronts: a rapidly growing population, a high HIV/AIDS infection rate, limited natural resources, high levels of inequality[14] caused by years of an elitist development strategy and the corrosive effects of recurring droughts, poor resource management and environmental degradation (World Bank, 2003)

[14] This is supported by Pryor (1990) who observes that between 1960 and 1986 Malawi with her focus on 'capitalist' agricultural-led development, experienced widening differentials in income and increasing poverty.

3.3 Agriculture Sector

The agriculture sector in Malawi is typically divided into two sub sectors: the smallholder sector on the one hand and the estate sector on the other. World Bank (1996) observes that there are three broad categories of the population engaged in agriculture- owners of large farms (estate owners), people who own and operate their own small farms (smallholders) and agricultural labourers who work mainly on estates or on more prosperous smallholdings.

3.3.1 Smallholder Sub Sector

The smallholder sub sector accounts for about 80 percent of domestic food production, 10 percent of total exports and contributes 25 percent of real GDP and 65 percent of agricultural GDP (SDNP, 1998). The laws under which smallholder land is held provide families with user rights which can be passed on to children since land is perceived as the property of the family in perpetuity in accordance with the prevailing norms and kinship systems (Diagne and Zeller, 2001). In this case, security of tenure is not at risk as once land has been allocated, it can not be taken away easily. However this form of land ownership is not conducive to investment, considering that land ownership in this case is informal and can not be used as collateral in the credit market (Feder and Feeney, 1991). This may probably explain[15] why the majority of small and medium scale businesses report that their main source of start-up capital is household savings. ECI and NSO (2000) reported that over half of the medium

[15] However there is need for further studies to explore the link between landownership and access to credit in Malawi.

enterprises created between 1996 and 2000 in Malawi sourced their start-up capital from own household savings.

Smallholders currently constitute about 71.3 percent of the Malawian population and about 90 percent of the country's poor. About 92 percent of smallholders do not have a primary school certificate (Benson *et al.* 2002). The lack of education further limits smallholder's opportunities to generate income outside of agriculture. The smallholder's production is almost exclusively rain fed using hand hoes and other simple implements. With a single rainy season in Malawi this results into pronounced seasonality in factor and product markets (Alwang and Siegal, 1999)

Household food security

Landholding size has been perceived as the major constraint limiting the income earning potential of smallholders in Malawi. Recent statistics have shown a decline in average landholding size from 1.5 ha in 1969 to 0.8 ha in 2000 owing to population growth (Malawi Government, 2001). Whiteside, 1999 argue that with present farm technologies an average Malawian household with 4-5 persons is expected to need about 1 ha of land to meet its basic maize requirements. Most smallholders cultivating less than a hectare can only support themselves for 3 to 5 moths per year from their own production (Orr, 2000).

The existing literature suggests a number of reasons why smallholders in Malawi fail to support themselves from their production. Key among these reasons is the argument that centres on cropping share patterns among smallholders. There is evidence to suggest that the majority of smallholders run out of food before their next harvest mainly because they devote their already small landholdings to low yielding and low market value crops, besides having little or no access to credit and agricultural inputs. Hazarika and Alwang (2003) reported that smallholders allocate 70 percent of their land to the dietary staple, maize. This is mostly local maize varieties whose mean yield has been found to be 49 percent below hybrid maize. Diagne and Zeller (2001) report that tobacco; a high income crop only occupies about 2 percent of smallholder land. Some studies have suggested an historical explanation for this arguing that past agricultural policies may have laid a foundation for this cropping pattern among smallholders. Agricultural policies in the first thirty years after independence emphasized increasing maize production in all parts of Malawi regardless of their agro-climatic conditions. Diagne and Zeller (2001), however, argue that this crop share pattern is due to smallholder's desire for self sufficiency in maize. Alwang and Siegal (1999) concur with this view when they observe that smallholders pursue food self sufficiency objectives due to lack of confidence in markets. Being a staple food, smallholders would rather grow maize and store it on the farm for fear that they would not easily find it in the markets in times of need. In this regard, they are likely to plant local maize varieties because though

low yielding, they perform better in times of drought and store well on the farm after harvest there-by reducing risk of food insufficiency for farmers.

The food gap and 'ganyu'

In order to bridge the gap between the times they run out of food and the next harvest, smallholders frequently resort to off-farm casual employment locally known as *ganyu*[16]. This kind of employment is agriculture related and is widespread in Malawi. *Ganyu* labourers are employed by better endowed smallholders or by estate owners whose wages are paid in cash or kind (Ellis *et al.* 2003). *Ganyu* has been reported to be one of the most important coping strategies for most poor households in Malawi. Unfortunately, *ganyu* labour tends to have a low supply price, which has also been declining further as part of a general decline in incomes (Livingstone, 1995, Whiteside, 1999).

The limited natural and financial asset base and the relatively high labour to land ratios that smallholders exhibit have often in the past led to the conclusion that the major underutilised asset that smallholders possess is labour. In addition the common practice of supplying off-farm labour such as *ganyu* gives an impression of surplus labour for on-farm activities. However available evidence seems to suggest that smallholders do experience acute labour shortages. Alwang and Siegal (1999) believe an explanation for this paradox lies in the

[16] Ellis *et al.* (2003) observes that this Malawian expression has no direct English translation. While it can simply refer to casual labour to other people's farms that is paid in cash or in kind, it also traditionally conveys a social obligation where-by better off farmers make this type of work available to their less fortunate neighbours.

critical financial and food security constraints that smallholders face. Since smallholders do not produce sufficient food in an environment where factor and product markets are absent or inefficient, they have to neglect their own fields and sell their labour to obtain cash or food. This neglect leads to low yields on their own farms as crucial farming activities are delayed or not conducted (Dorward, 1999). The resulting low returns to land and labour contribute to further food insecurity thereby trapping most smallholders in a vicious cycle of poverty.

Wealth, income and poverty

Studies have shown that there are considerable variations in the characteristics of smallholder farmers. Taking incomes of smallholders owning between 1.0 and 1.5 hectares as the reference point, Livingstone (1995) found that average incomes of those households owning below 0.5 hectares were only 1/3 of the reference group while average incomes of those owning more than 3 hectares were found to be 3 times as much. These results show that landholding size is an important socio-economic factor among smallholder farmers. A World Bank study in 1996 showed that there is a close relationship between area under cultivation and the poverty status of a household in rural Malawi. There is also evidence to suggest rural Malawians consider food security and poverty as synonymous. Ellis *et al.* (2003) illustrates this point clearly through a wealth ranking exercise they conducted in a number of villages in Malawi. This study revealed that rural Malawians consider as wealthy those with landholdings

between 1.5 and 2.0 hectares, who own some livestock, are able to hire labour, own some small business and enjoy year round food security. The middle wealth category have less of these assets, rely on selling labour and once in a while face food insecurity; while the poor have little or no land and livestock, are food insecure and rely on *ganyu* to get by.

These findings help to explain why the government classifies smallholders based on food security in association with size of holding. According to this categorisation, smallholders are classified into three groups: net food sellers, intermediate farmers and net food buyers. The net food sellers are those with land holdings of more than 1.5 hectares and who produce more than their subsistence needs. The intermediate farmers are those with landholdings of between 0.2 and 1.5 hectares who produce just enough for their survival but have little to sell. The net food buyers are those smallholder farmers with landholdings of less than 0.7 hectares who are not able to produce enough food for their subsistence needs.

This classification is somehow rigid as research has shown that farmers may slide into and out of a category based on such risk factors as weather conditions, health status and government policy (Benson 2002, Peters 2004). To this extent, Peters (2004) suggests that although land is among the most critical differentiating factors in the smallholder sector the distinction between the very poor and better off families is revealed most clearly in food and income earning

strategies. Her study showed that smallholders in the poorest income quartile sold twice the proportion of maize as other smallholders. The author argues that despite having smaller harvest to start with and fewer crops in their holdings, the poorest were compelled to sell some of their maize because it represented one of the very few sources of cash income.

Engagement in *ganyu* labour is one important factor that differentiates smallholder farmers. *A* number of studies have found that the poorer smallholder farmers are more likely to engage in *ganyu* than less poor households and that their share of income from this source is higher than the average household (World Bank, 1996; Devereux, 1999; Ellis *et al.* 2003). Given the nature of *ganyu*, it follows that participation in *ganyu* work is a good predictor of income level and poverty in Malawi (Whiteside, 1999)

3.3.2 Estate Sub-Sector

Estate agriculture in Malawi refers to large scale commercial production of export oriented cash crops conducted on long-term leasehold or freehold land. It utilises 9 percent of land area and is based mainly on leasehold tenure, although there are 52,000 hectares under freehold tenure. Land under estates is mainly used for growing cash crops such as tobacco (60 %), tea (20 %), and sugar (18%), with the remaining 2 percent used for other cash crops. Estate agriculture contributes about 90 percent of foreign exchange earnings and generates around 45 percent of formal employment in Malawi (SDNP, 1998).

Compared to the smallholder sector, production on estates is capital intensive and not limited to rain-fed agriculture.

Estate farming began as early as 1891 when the country, then known as Nyasaland, was made a British Protectorate, although fewer British farmers settled in the country compared to other countries in the region. Before independence, estate farming was confined to European settlers. This is evident from available data which show in 1957 all the estates which then covered about 400,000 hectares were primarily held by Europeans (Pryor and Chipeta, 1990). After independence, the government gradually began the process of buying this land from European farmers and thereafter began leasing either to former owners or to the Malawian elite. This move may have formed the foundation for the structure of estate ownership that still exists. Large estates owned by foreign interests concentrated on growing flue cured tobacco (which is more capital intensive) while the smaller estates owned by Malawians concentrated on the less capital intensive burley tobacco. The late 1980s and early 1990s saw a significant expansion of the estate sector. The number of estates was only 229 in 1970 but had reached 22,000 by 1997 although the share of small estates was significantly higher than it was previously (Mkandawire, 1999).

Estate agriculture has been the primary area of employment growth in Malawi for a number of years with the tobacco sector as the leading employer (Livingstone, 1995). Tobacco is grown in most parts of the country and

Kasungu Agricultural Development Division is a leading tobacco growing area in Malawi. Torres *et al.* (2000) estimate that the size of the labour force in the estate sector number 589 000.

Employment in the estate sector comprises monthly casual and permanent wage labour and tenants. The majority of estate workers come from the smallholder sector and only 34 percent of wage labourers and 28 percent of tenants are able to read (Mwasikakata, 2003). The tenancy system which has been a major feature of tobacco estate employment in Malawi started during the colonial period. It is a sharecropping arrangement under which smallholder farmers obtain land on estate on condition that they grow a cash crop which will be sold to the estate at a price determined by the estate owner. Wage labourers are paid on a monthly basis while tenants are paid annually from the value of their crop less the cost of inputs, food and other items provided by the estate owner.

Tenants in Malawi have no security of tenure. Only 16 percent of estate workers report having signed a contract with the estate owner (Mwasikakata, 2003). The absence of written contracts gives enormous scope for uncertainty, suspicion and malpractice. There has been a lot of debate in Malawi regarding condition of service and living standards among estate workers, particularly tenants. Some studies suggest that estate workers receive incomes that are in excess of the rural minimum wage. Pryor and Chipeta (1990) for instance report that the average and marginal productivity in the estate sector is higher than in the

smallholder sector so that part of this higher estate worker productivity is translated into higher incomes. However, Mkandawire (1999) and Torres *et al.* (2000) argue that this finding ignores the fact that the tenancy system is based on family labour. Even if it is only the head of household who is registered as an employee of the estate, everybody in the family (including the spouse and the children) take part in farming activities.

Another concern regarding the tenancy system has been related to food security among tenants. Studies by Ng'ong'ola *et al.* (1997a) and Nyanda (1989) report that estate workers, particularly tenants, are not only poor but also suffer from persistent food insecurity. Torres *et al.* (2000), however, dispute these findings. They observe that although tenants and tobacco workers may have too narrow a diet from a nutritional perspective, they have been found to have less food insecurity than previously thought.

It is interesting to note that although there have been these arguments against estate employment, more and more workers still leave their rural homes to work in the estates. There is evidence, however, of high labour turnover among estate workers, particularly wage labourers. A study report by Torres (2000) indicated that there is a turnover of 50 percent among wage labourers. It has been observed that most just move from one estate to another. In the past, most estate owners have been known to conduct annual labour recruitment exercises where they go to known "labour supply" districts, which are mostly in the Southern

Region, to recruit estate workers, particularly tenants. There are some indications showing that the tenancy system is gradually losing popularity among estate owners. Tenant recruitment exercises are rapidly declining (Van Donge, 2002) and while in the past, estates recruited more tenants than wage labourers nowadays it appears most estate workers prefer and recruit more wage labourers than tenants (Mwasikakata, 2003). This is probably a result of a change in the policy environment which is making it more and more difficult to control tenants on the estate.

Labour union organisation among estate workers is a fairly new initiative in Malawi. Efforts to organise estate workers into some form of labour union has only happened in the last 10 years. This may explain why only 5 percent of estate workers belong to a labour union (Mwasikakata, 2003). The absence of unionisation means that there has been little pressure on estate owners to improve wages and other conditions of service.

3.3.3 Government's Agricultural Policy

In order to understand the context in which internal labour migration has been taking place in Malawi, there is need to examine policies related to the country's economic driving force, agriculture. These policies and strategies have tended to exploit this dualistic nature of the country's agriculture sector (Mkandawire 1999).

Large scale commercial agriculture

After independence in 1964, the Malawian government set out to promote growth of large scale commercial agriculture (Kydd and Christiansen 1982, Harrigan 2000). In pursuing large scale commercial agriculture which is relatively labour intensive with negligible production economies of scale (Zeller *et al.* 1998), government sought to use low cost labour from the smallholder sector (Mkandawire, 1999). This was justified by the assumption that a significant number of smallholders owned very small landholdings and therefore had surplus labour. By employing this assumed "surplus labour", government was promoting export production as well as giving an opportunity to smallholder farmers to earn income that would enhance their livelihood. Research suggests that this policy objective while positively affecting estates had a negative impact on smallholder sector. Harrigan (2000) for instance observes that Malawi's impressive annual average GDP growth rate of 5.5 percent between 1964 and 1977 was driven by the estate sector which grew at an average of 17 percent, while the smallholder agriculture became progressively marginalised, growing at less than 3 percent per annum. A number of studies (Harrigan, 2000; Mkandawire, 1999; Kydd and Christiansen, 1982) have attributed the slow growth in the smallholder sector to a number of government policy interventions including the establishment of the Agricultural Development and Marketing Corporation (ADMARC), the Special Crops Act and the Land Act. It has been argued that these policy measures were adopted so

as to reduce the viability of smallholder production so as to ensure continued supply of labour from the smallholder to the estate sector.

The role of the Agricultural Development and Marketing Corporation

The establishment of an exclusive state controlled smallholder marketing parastatal known as the *Agricultural Development Marketing Corporation (ADMARC)* allowed government to impose a heavy tax on smallholders. ADMARC was the only channel through which smallholders were allowed to buy their inputs and sell their agricultural outputs. Government operating through ADMARC managed to keep prices paid to smallholders artificially low, thereby greatly reducing the rate of return to smallholder labour (Harrigan, 2000; Kydd and Christiansen, 1982). The reduction in the real rate of return to labour in the smallholder sector was sufficient to induce a transfer of labour from the smallholder to the estate sector.

In a policy move that exploited the smallholders even more, trade surpluses earned by ADMARC from export sales of smallholder output were used as direct investment in the development of estate agriculture. Kydd and Christiansen (1982) report that more than two thirds of ADMARC's surplus was invested in estate agriculture, while only 4.3 percent went into direct investment in smallholder agriculture. They also report that ADMARC used this surplus to purchase shares in commercial banks to enable estates to have ease of access to agricultural credit.

The Special Crops Act

Furthermore during this period smallholders were barred from growing export oriented cash crops through the *Special Crops Act* of 1972. This act disallowed cultivation of tobacco and other export crops outside of leasehold and freehold land (Diagne and Zeller, 2001). Considering that only large scale commercial producers had access to leasehold and freehold land it meant that smallholders could not produce tobacco. According to government restricting tobacco production was a quality control measure to ensure tobacco fetched high export prices. However available research (Makandawire, 1999) reveals that this Act also had two further objectives. The first was to protect large commercial agricultural companies[17] regarded as important sources of employment by reducing competition from a large traditional sector. The second objective was to limit income opportunities for smallholder farmers to ensure continued supply of cheap labour to estates.

The Land Act

Governmental bias towards the estate sector was further enhanced by the Land Act of 1965. This act was used to facilitate the transfer of land from customary land[18] to the estate sector (Ellis *et al.* 2003) thereby contributing to a further decline in smallholder landholdings, forcing them to sell labour to the estates (Chirwa, 2004). This bias became so serious that within decades leasehold land had grown tenfold from 79 000 ha in 1970 to 759 400 ha in 1989 (Mkandawire,

[17] The two main companies were General Farming Ltd and Press Agriculture group of companies.
[18] This refers to land government by traditional law where village chiefs are the custodians

1999). During this period land scarcity and stagnant growth in the smallholder sector became more evident. For example between 1981 and 1983 total smallholder output grew only by 0.3 percent per annum and the share of total agricultural output from the smallholder agriculture declined from 80 to 73 percent (Orr, 2000).

As a result of these policies there was an evident transfer of full year male labour from own holding agriculture (smallholder sector) to the estate sector which was sufficient to cause an absolute decrease in male full year employment on own holdings (Kydd and Christiansen, 1982). Ironically this labour transfer occurred in the face of declining real wage (Mkandawire, 1999). It has been observed that for the period between 1970 and 1980 nominal earnings per worker in estate agriculture increased at an average of 3.9 percent per annum while the low income retail price index increased at an average of 9.8 percent per annum (Kydd and Christiansen, 1982). They argue that the fact that such a large number of workers were prepared to go into wage employment when such employment offered falling real wages suggested a marked decline in the returns to their own farming activities.

Agricultural policy reforms and implications

Towards the end of 1970s, Malawi suffered severe economic hardships resulting from a steep fall in its terms of trade, disruption of a major trade route through Mozambique due to civil war in that country, adverse weather condition and

weakening internal demand. These shocks not only revealed severe weaknesses in the structure of the economy but it also raised fundamental questions about the sustainability of an estate-led export strategy that post independence Malawi was following. In an attempt to recover from the crisis, the government in 1981 adopted the World Bank sponsored SAPs and the IMF sponsored ESPs (Chilowa, 1999). Ever since, the World Bank and IMF have been major players in the government's policy reform agenda.

The reform program started in 1981. However, it is the 1988 to 1996 reform phase encouraged by the World Bank and the United States Agency for International Development (USAID) which may have had significant implications for migration (Harrigan, 2000; Tobin and Knausenberger, 1998). The reforms in this period focused on improving access to input and output markets, land and transport system. Consequently, longstanding restrictions on production and marketing of certain export crops, notably tobacco, were removed (Alwang and Siegal, 1999). To this effect, the 1990/91 season saw the first smallholders growing tobacco on a pilot basis (Orr, 2000). The positive response from smallholders led to the eventual repeal of the Special Crops Act in 1996 and by 1998, smallholders produced 70 percent of total tobacco production compared to 12.8 percent in 1990 (Harrigan, 2000).

Effects of the reforms on the smallholder sector

Chirwa (2004) and Tobin and Knausenberger (1998) report that following tobacco liberalization, some smallholders have experienced an increase in per capita incomes as well as an increase in welfare gains. However, some researchers have observed that it is mostly well off smallholders with relatively large landholdings who are involved in burley growing and therefore benefiting from it (Harrigan, 2000, Zeller *et al.* 1998). A number of poorer households that started to grow tobacco immediately following liberalisation have since stopped (Orr, 2000). Peters (2004) observes that many farmers raced into burley production without sufficient resources and were consequently unable to make consistently high incomes.

Some studies indicate that most poor smallholders have found difficulties making sustainable profits in tobacco production because their production is not cost effective. Hazarika and Alwang (2003) for instance found that although tobacco liberalisation has helped to promote equity in the rural economy it has made production of the crop more cost inefficient. Furthermore there is evidence to suggest that tobacco may have displaced maize among smallholders with small landholdings (Harrigan, 2000), which may have further worsened their food insecurity.

During the 1996/1997 season, in the spirit of liberalisation and under pressure from the World Bank, government removed all subsidies on fertilisers. This

move combined with the sharp devaluation of the kwacha made input prices soar. Harrigan (2000) reports that during this period, Malawi had one of the highest fertilizers to maize price ratios in the world due partly to high internal and external transport costs. The author suggests that this led to a decline in profitability of hybrid maize which may have contributed to the decline in smallholder growth rate during that time.

The liberalisation of the input and output market also led to a reduced role for ADMARC thereby allowing private traders to get involved in the marketing of smallholder agricultural inputs and outputs. Peters (2004) observes that smallholders have benefited from increased competition among buyers of their crops during the harvest period. However, the study report raised some concern that traders have not been able to provide the supplies needed during the deficit season. In general, the absence of ADMARC in most rural parts has caused considerable uncertainty and price variability in many rural areas particularly in remote areas (Alwang and Siegal, 1999).

Effects of the reforms on the estate sector

Liberalisation of tobacco production and marketing may have affected the smallholder sector but it is also becoming clear that it has left a lasting impact on estate agriculture. Immediately following liberalisation, estate production fell dramatically from 95,400 tonnes in 1990 to 40,300 in 1998 implying negative growth of -0.9 percent by 1999 (Harrigan, 2000). Competition from smallholder

tobacco production did contribute to the decline in estate production but it is the liberalisation of the marketing of tobacco which seems to have had the strongest effect. In the past, only estates had the privilege of selling their tobacco at the auction where they had access to market prices. However with liberalisation, any registered tobacco grower may sell at the auction floors. In addition, government introduced a critical player in the tobacco marketing chain; the intermediate tobacco buyers. These registered tobacco traders have a licence to buy tobacco from growers and sell at the auction floors. This change introduced cracks in the tenancy system on which the estate agriculture depended. In the past it was difficult for tenants to sell their tobacco anywhere else but to their landlord. However the introduction of intermediate buyers means that they can now sell their tobacco elsewhere. Van Donge (2002) observes that it has become very difficult for the estate owner to retrieve what had been advanced to the tenant if it could not be deducted from the sale price. This may partly explain why more and more estates are opting for wage labourers than tenants.

3.4 Malawi's Labour Market: Structure and Policy

The majority of the labour force in Malawi is engaged in primary sector production which includes agriculture, fisheries, forestry and mining. The 1998 census results show that more than 80 percent of the economically active individuals[19] work in the primary sector and most of whom are rural based. The secondary and tertiary sectors constitute 4 percent and 12 percent of the labour

[19] The census defined economically active individuals as those members of the population who are age 10 years and over and are in the categories of farmer (locally known as *mlimi*), employee, family business worker, self employed, employer or unemployed

force respectively. The census defines the secondary sector as involving processing and manufacturing, while the tertiary sector involves wholesale and retail trading and service provision. In Malawi primary economic activities are predominantly rural while secondary and tertiary activities are largely urban.

In terms of employment the census results revealed that about 56 percent of the total urban population were 'employees' compared to only 8 percent in the rural areas. Between 2004 and 2005 total unemployment[20] was estimated at 7.8 percent with the rural and urban centres having 6.4 and 19.4 percent respectively (NSO, 2005). Against a background of declining formal employment these rates of unemployment seem remarkably low. This may be explained by the fact that most subsistence and informal sector activities have already been included in the employment figures. Motala and Torres (2000) observe that this unemployment rate may be an underestimation in view of the great underemployment[21] that exists in the subsistence and informal sectors in Sub Saharan African economies.

3.4.1 Formal Sector Employment

The size of the formal sector in Malawi is quite modest. Motala and Torres (2000) quoting SADC (1997) report an estimated formal sector size of about

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[20] The unemployment rate is defined as the number of unemployed people expressed as the proportion of total persons in the labour force (NSO, 2005)

[21] Underemployment refers to work that does not permit full use of someone's highest existing skills or capacities i.e. working for shorter periods, less intensively than able or willing to work; working at a lower level of productivity than capable of doing; earning less than able or willing; or working in a production with abnormally low productivity (Wield and Chataway , 2000)

585, 000 individuals representing 12 percent of the labour force. The public sector dominates the labour market with close to half the formal sector working for the public sector (Kanyongolo, 1997) while the estate sector constitute the second largest formal wage employment provider in Malawi (Mwasikakata, 2003; Livingstone, 1995).

Some recent studies (Chirwa, 1999) suggest that the formal wage sector may have contracted further over the past few years. In the urban sector, studies show that government policy reforms under the SAPs and the general macroeconomic decline that the country has suffered have resulted in significant decline in total formal employment. The recent market liberalisation programs have also led to a significant number of large scale estates going into receivership and closing down their operations (Harrigan, 2000). Estate closure and the scaling down of operations may have released labour into the market.

However there are indications to show that while large scale estates have been on the decline, small scale estates have been on the increase (Livingstone, 1995). Mkandawire (1999) observes that small scale estates are more labour intensive than large scale estates. It is possible therefore that labour in the estate sector may have just shifted from large scale estates to the increased labour demand of small scale estates. It is not clear however whether the demand on small scale estates has been enough to absorb all the labour released from the large scale estates.

3.4.2 Informal Sector Employment

Malawi has seen an accelerated growth in urban informal sector employment over the past decade which may be a source of attraction for migrants. Todaro and Smith (2006) report about 70 percent of the urban labour force is currently employed in the informal sector. The surge in informal sector employment took off though at a slower pace as soon as government adopted SAPS. These reforms resulted in the loss of large number of jobs particularly in the public sector (Motala and Torres 2000). The retrenched members of the labour force had to create work in the informal sector. Chirwa (1999) observes an increase in informal sector activities during the reform period.

The rate of growth in the informal sector picked up pace in the middle 1990s following a change in government from one party system to a multiparty democracy. Mkandawire (1999) notes that emergence of a vibrant informal sector in Malawi faced a number of constraints including zoning laws and political harassment of vendors which discouraged its growth. However, Livingstone (1995) sees the rapid growth in the informal sector as unavoidable. He argues that given the annual expansion of Malawi's labour force and the limited capacity of the agriculture sector to continue absorbing surplus labour, it can be expected that an increasing proportion of the household will turn to informal sector activities and employment in the urban areas.

3.4.3 Government and the Labour Market

Government intervention in the labour market started as early as 1969 when it instituted the National Wages and Salaries Policy. In introducing this policy, the government wanted to contain wages of unskilled and semi-skilled workers in order to encourage the establishment of labour absorbing industries so as to expand paid employment. Under this policy different minimum wage rates are specified for the largest city Blantyre, for the three other urban areas of Lilongwe, Mzuzu and Zomba and for the rural areas. The rural minimum wage also covers the substantial volume of estate labour in Malawi.

To reinforce the wage policy the Government in 1971 passed a *Wage Restraint Policy*. This policy required that any employer wishing to make a general wage increase in excess of 5 percent had to apply for approval from the Wages and Salaries Committee. It was hoped that strict wage restraint would help Malawi's competitiveness in the international markets by containing domestic inflation and stabilising labour costs. Livingstone (1995) notes that this policy was reflected in the long period of wage stability in the 1970s that was commended by the World Bank in the 1980s.

Institutionally the government established the Wage Advisory Board for unskilled labour in general and the Wage Advisory Councils for semi-skilled workers in specific industries with the task of recommending revisions in the minimum wages. Some studies suggest that these institutions were ineffective in

the implementation of the policy. In the few cases where the rate was adjusted, there are no indications that government ever consulted the Wage Advisory Board while the Wage Councils on the other hand were just not active (Bose and Livingstone, 1993).

Governmental reluctance to consult the Wage Advisory Board and the Wage Advisory Councils appears to have been driven by the need to avoid regular minimum wage adjustments as dictated by changes in the economic environment. This was a direct reflection of government's objective which was to minimise industrial labour costs as a way of expanding employment. To consolidate this position government heavily controlled the activities of trade unions, making the process of wage bargaining almost non-existent. In this period, all trade unions were systematically eliminated leaving only five in the services, agriculture, transport, building and construction sectors which were further controlled through their affiliation to the ruling party (Chirwa, 1999). Employers on the other hand including estate owners besides being protected by government have been more active and well organised in their specific industries as well as through their umbrella organisation, the Employers Consultative Association of Malawi (ECAM).

The infrequent minimum wage adjustment and the weak trade union activities have meant that the wages have not kept pace with changes in price levels resulting in substantial decreases in real wages over time. It has been observed

however, that the declines in real wages have occurred without causing any difficulties in hiring of labour in the labour market. Mkandawire (1999) suggests that this is probably the case because of the corresponding decline in agricultural labour productivity and peasant incomes over the years. Livingstone (1995) concurs with this view when he observes that the main influence on the wages of hired labour in Malawi is the elastic supply of unskilled labour available at very low wages from the smallholder sector.

Although government managed to keep the minimum wage down Chirwa (1999) found no evidence that the tough implementation of the minimum wage policy in Malawi had any significant effect on employment. The author argues that this is probably the case because enforcement of the policy has not been effective. To this extent a substantial proportion of employed workers have been receiving wages below the minimum rate. The policy's incomplete coverage and enforcement problems have been highlighted in a number of study reports (Mwasikakata, 2003; Livingstone, 1995). Minimum wage legislation was found to have been effective only in the public sector, large estates and among large private urban employers. Non compliance was also found to be extensive among small urban employers of the informal sector.

Labour market reforms

The past decade has witnessed a number of reforms in the labour market. One prominent reform has been government's decision to establish a wage

indexation framework as a basis for minimum wage adjustment as opposed to ad hoc reviews of the past. According to the new policy minimum wage reviews are necessary when either the cumulative change in retail price index reaches 20 percent or at least every 2 years. The government has also prepared the tenancy bill to protect the rights of tenants on estates. More significantly the period has seen an increase in the activities of trade unions which has improved prospects for workers bargaining potential.

3.5 Summary

Using available socio-economic indicators, this chapter looks at the Malawi economy and makes some brief comparison to other countries in the region. In order to shed more light on labour migration, a more detailed look at the agricultural sector and the various roles undertaken by the government in a policy context is undertaken. By so doing this chapter has set the scene for what will follow in the empirical analysis presented in Chapter 6.

Chapter 4, reviews economic theories and empirical literature of migration for developing countries. The focus on the Harris-Todaro's expected income differential theory that seems to lend considerable empirical evidence to explaining migration in developing countries (Agesa, 2000; Ghatak *et al.* 1996)

CHAPTER 4

Economic theories of migration

4.1 Introduction

Migration has been the focus of numerous studies since the 19th century. To this date however there still does not exist a generally accepted theory to explain migratory behaviour. This is probably understandable considering the multifaceted nature of migration (Molho, 1986). There are doubts however, whether a single theory of migration would be a possible or indeed a useful research development. Arango (2000) observes that it is unlikely that migration can be explained by a single theory as the level of abstraction at which such an overarching theory should operate would be so high as to render it practically useless.

These observations not withstanding, there has been significant progress in the development of different theories intended to explain labour migration. While there are a number of reasons why individuals migrate, it is now a common view among researchers that economic incentives are the main cause of migration (Adepoju, 1984, Todaro, 1976). Among the many theoretical contributions so far, the expected income differential theory also known as the

Todaro or Harris - Todaro[22] model (Todaro, 1969, Harris and Todaro, 1970) remains the leading innovation in the field. Building on the dual economy model (Lewis, 1954) the Harris - Todaro model takes the form of a human capital investment theory as proposed earlier by Sjastaad (1962).

Chapters 2 and 3 presented a picture of labour migration in general and in Malawi in particular. This chapter presents a review of economic theories proposed in the literature to explain determinants of migration and their empirical evidence.

This chapter has two main parts. The first part is a review of economic theories of migration found in the existing body of literature. A detailed discussion on the expected income differential hypothesis of the Harris-Todaro model as it relates to developing countries in general and Africa in particular is undertaken. The second part reviews empirical evidence from the developing world, focusing on studies that have applied the Harris-Todaro model. Based on available evidence from study results reviewed, it is argued that the element of 'expectation' in the model appears to make it suitable for developing countries such as Malawi.

The plan for this chapter is as follows: Section 4.2 is a critical review of existing economic theories of migration. This section is further divided into five sub sections. Section 4.2.1 discusses Ravenstein's 'Laws of Migration' which are

[22] Hereafter referred to as the Harris-Todaro model

considered as the first theoretical explanation of migration. Section 4.2.2 is a review of Lewis' Dual Economy Model of Economic Development as it relates to labour migration. Section 4.2.3 provides a literature review of the Harris-Todaro model and its expected income differential hypothesis which is seen as offering an explanation for the high urban unemployment and high rural-urban migration exhibited by most developing countries. Section 4.2.4 discusses recent literature under the New Economics of Labour Migration[23] that provides alternative theories to the Harris Todaro model. 4.2.5, presents the gravity model as a general migration framework and considers how it may be linked to economic theories of migration. Section 4.3 covers empirical literature review. 4.3.1 presents estimation procedures used in literature while 4.3.2 covers determinants of migration.

4.2 Economic Theories of Migration

4.2.1 Ravenstein's Laws of Migration

Ravenstein's 'Laws of Migration' published in 1885 marked the formulation of the first known theory of migration and provided a foundation for modern thinking about migration. Although Ravenstein did not provide an explicitly 'economic' framework for migration *per se*, he recognised that the key to migration motivation is an inherent desire in men to better themselves materially. In this sense Ravenstein suggests that economic motives dominate in most migration decisions. One of the important propositions under these 'laws' suggest that migration takes place in stages, with each migration stream

[23] Hereafter referred to as NELM

associated with a compensating counter stream. The 'laws' further propose that migration falls with distance and that long distance migrants are predominantly male who usually go to cities. In his theoretical propositions Ravenstein considers migrants' areas of origin as areas of low opportunity and the destination areas as high opportunity ones. Lee (1967) classifies the negative factors associated with areas of low opportunity, in this case origin areas, as 'push factors' while those factors associated with areas of high opportunity, in this case destination areas, as 'pull factors'

In both Ravenstein's and Lee's explanations of migration, distance is taken as an important regulatory factor in the migration process. However, Ravensten takes distance only in physical terms he foresees acceleration in migration with growth in the means of transport and communication. Lee on the other hand further considers cultural distance between destination and origin areas as an important factor that may influence potential migrants' decision. In addition, Lee hypothesises that lack of information about opportunities and conditions in the destination area may prove as a barrier to migration.

4.2.2 The Dual Economy Model of Development

Developed in 1954 by W. Arthur Lewis, the dual economy model is considered as a direct predecessor of the neoclassical theory and probably the first truly theoretical explanation of migration. Lewis' economic model included as an integral element the process of labour transfer and contained the basic elements

of the equilibrium model. The theory behind this model is based on the concept of a dual economy comprising a subsistence agricultural sector characterised by underemployment and a modern industrial sector characterised by full-employment. The model considers migration as an equilibrating mechanism through which transfer of labour from the labour surplus to the labour deficit sector eventually brings about wage equality between the two sectors.

One main assumption of the model is that the marginal productivity of labour in the subsistence sector is zero or near zero and yet workers are paid wages equal to their cost of subsistence, so that wage rates exceed marginal products. On the other hand wages in the modern sector are assumed to be much higher owing to high productivity or labour union pressure. Lewis estimated that a 'cliff' of about 30 percent was bound to exist between the wages of the two sectors. It is the existence of such a difference in wage rates that induces labour migration from the subsistence to the modern sector. The modern sector having at its disposal 'unlimited' supply of migrant labour has the opportunity to expand its production as well as profits. Since it is assumed that the profit is reinvested in the modern sector, it further increases demand for labour from the subsistence sector. For the traditional sector out-migration is the only way to shed surplus labour and to develop a more capital intensive production process. This process continues as long as surplus labour exists in the rural areas. It might continue indefinitely if the rate of population growth in the rural sector is greater than or

equal to the rate of migration, but it must end eventually if the rate of growth of demand for labour in the urban area exceeds rural population growth.

The applicability of the dual economy model has been found to be rather limited. One major weakness associated with the model is its assumption of near zero or zero marginal agricultural productivity and the notion of labour surplus in the rural sector. This assumption which is based on the existence of high pressure on agricultural land associated with institutional arrangements that promote family labour so long as returns are negative is considered as highly unlikely (Schultz, 1964). Others however have observed that severe population pressure does exist in developing countries that may give credence to this assumption (Cole and Sanders, 1985).

In support of the model, Simons (1982) observes that countries like 1980's India seemed to fit the Lewis model. Ranis (2004) however, argued that Lewis had been misunderstood. In Ranis' view, Lewis thought of labour surplus in terms of human beings rather than man-hours and his labour surplus was really defined in terms of an excess supply of labour at the going wage exceeding the marginal product which might be quite low even if not zero.

The assumption of high rate of employment expansion in the industrial sector has suffered similar lack of empirical evidence particularly for African countries. (Gould, 1986) notes that in African countries the opposite has

happened, in that the rate of employment growth in the modern sector has generally been not sufficient enough to absorb the increasing urban labour supply. To this extent Millington (1994) notes that the model fails to explain why there is an increase in rural urban migration despite high levels of open unemployment in urban areas of most developing countries Harris and Todaro, (1970) highlight this gap in Lewis' theory in their 'expected income differential hypothesis for migration'. They introduce a model that helps to explain how the urban areas of developing countries experience both high urban unemployment and high rural-urban migration

It has been further argued that besides treating the migrant workers as homogenous and the local labour market as a perfect one, the model completely ignores non-economic motivations of migration (Millington, 1994). He observes that to this extent the model fails to explain why certain areas of economic malaise may still experience significant in-migration. He argues that while local labour market might generally be depressed, it may offer relatively high returns to some workers with specific skills. With respect to 'non-economic' migration, Millington argues that relocation necessarily entails new housing, new local amenities and environment which all come into the weighted decision to migrate according to the individual's preference.

Although the model has faced severe criticisms, some still view it as relevant in some of today's economies. For example Arango (2000) suggests that the model

is applicable in the post colonial context of certain developing countries where a modern sector connected with the outside world coexists with a traditional one which relies on subsistence agriculture for survival. Simons (1982) observes that some newly developed countries such as the Republic of Korea which have in recent years experienced extremely rapid industrialisation, high levels of rural labour force absorption, labour shortages and rising incomes in rural areas seem to have followed this neo-classical two sector model. Harris and Todaro (1970) also note that Lewis' assumption were quite applicable in Europe during the Industrial Revolution where there was more investment in industries which gradually absorbed the agricultural movement of rural people into urban areas.

Other scholars believe that the North-South divide also reflects the position that different economists will take with respect to their perception about the relevance of the model (Ranis, 2004). He observes that most northern development economists find the model irrelevant because they are focusing either on aggregate cross sectional models to determine the sources of economic growth or at micro level on the econometric modelling of household behaviour with very little interaction between the two approaches. In contrast, in the South in countries such as China, India, Bangladesh, Central America and Sub Saharan Africa, where heavy pressure on scarce cultivable land is a reality, development economists find the dual urban-rural labour market dimension a theoretically valid and empirically relevant notion for policy makers.

4.2.3 The Harris-Todaro model

The theory proposed by Todaro (1969) and Harris and Todaro (1970) is probably one of the most influential theories to date. Emanating from neo-classical economics, it combines a micro perspective of individual decision making and a macro counterpart of structural determinants. The micro dimension of the theory highlights the reasons why individuals respond to structural differences between regions and engage in migration thereby providing a further clarification to Lewis' theory. Falling within the broad human capital investment approach as proposed by Sjaastad (1962), it perceives migration as an *investment* decision that involves an individual calculating returns and costs of migration over time. It is assumed that people desire to maximise their net real incomes over their productive life and can at least roughly compute their anticipated income streams in the present place of residence and in all other destinations. The theory postulates that a migrant moves to where the present value of lifetime benefits net of immediate migration costs is maximised. In so far as it implies incurring certain costs in order to reap higher returns from one's labour, migration constitutes a form of investment in human capital. In any time period the marginal potential migrant in any gross margin stream is indifferent between not moving and moving i.e. the current costs of migration are equal to the corresponding discounted future benefits. Theoretically, therefore the longer a potential migrant has to recoup the immediate costs of migration through net benefits at destination, the more likely the individual is to migrate although such gains will obviously be more heavily

discounted, the more time distant they are. This hypothesis helps to explain why empirically the young exhibit the greatest propensity to migrate (Millington, 1994).

In this theory, Harris and Todaro develop a model with two sectors: the rural in agriculture and the urban in manufacturing. The fundamental premise behind this model is that migrants as decision makers consider various labour market opportunities available to them in the rural and urban sectors and they choose the one that maximises their 'expected gains'. Essentially the theory assumes that members of the labour force, both actual and potential, compare their expected incomes (that is the difference between returns and costs of migration) for a given time horizon in the urban sector with prevailing average rural incomes and migrate if the former exceeds the later. The theory in this respect, considers that individuals have the desire to maximise utility and are able to make a rational choice based on *expected* returns.

In the model the migrant is aware of the limited chances of immediately securing wage employment and the likelihood that he or she will be unemployed or underemployed for a certain period of time. Consequently, in making the decision, the potential migrant balances the prospects of being unemployed against the positive urban - rural real income differential. Harris-Todaro suggest that the 'expected' stream of income depends on both the prevailing urban wage and the subjective estimate of the probability of

obtaining employment in the urban sector which is assumed to be based on urban unemployment rate. Since the expected incomes are defined in terms of both wages and employment probabilities, the model demonstrates that rural – urban migration will continue so long as the 'expected' urban real income exceeds real agricultural income at the margin.

The Harris-Todaro basic behavioural equation can be shown as follows:

$$V(0) = \int_{t=0}^{n} [P(t)Y_u(t) - Y_r(t)]\, e^{-rt} dt - C(0) \qquad (1)$$

Where $V(0)$ is the discounted present value of the net gain from a rural urban move, P(t) represents the probability of securing a job in the modern urban sector[24] in period t; Y_u, Y_r represents average real income in the urban and rural sectors respectively; C is the one time cost of the move and r is the migrant's preference rate of discount. In cases where $V(0)$ is positive the economically rational potential migrant will decide to move (Todaro, 1969).

For policy makers the model shows that within certain parametric changes, job creation in the urban modern sector may aggravate the problem of unemployment and even reduce the national product (Ghatak *et al.* 1996). The model seems to further suggest that certain policy interventions such as the eradication of differential earnings through measures that control an increase in urban industrial wage or increase rural incomes through rural development may actually reduce the motivation for rural-urban migration (Kwasi Boadi *et al.*

[24] In most literature this is the equivalent of the urban formal sector.

2005). The earnings differential may also be reduced by a high modern sector unemployment rate. These factors would reduce the expected gains from rural urban migration and lower the probability of finding urban employment respectively.

It has been argued however, that a marginal increase in rural incomes which is often the case during early stages of rural development, does not give enough motivation for people to stay in rural areas. In certain cases it may actually accelerate the rate of migration. This may be the case because potential migrants in rural areas face liquidity or borrowing constraints and a marginal rise in rural incomes may simply remove such constraints and raise the rate of migration (Ghatak and Levine, 1994).

Debate on the Harris-Todaro model

The Harris-Todaro model has perhaps attracted as much criticism as it has appeal. Among the major criticisms is the theory's emphasis on urban modern sector employment. The theory posits that urban migrants are attracted by prospects of employment in the modern sector. Those migrants not obtaining urban modern sector employment in the immediate period are said to join the urban labour surplus pool, also known as the urban traditional sector[25] where they accept temporary employment (Todaro, 1969). In this sense the model clearly assumes that all members of the urban traditional sector as well as

[25] What Todaro refers to as the urban traditional sector is increasingly being referred to in the literature as the urban informal sector (Cole and Sanders, 1985).

migrants are intent upon entering the urban modern sector which downplays the role of the urban informal sector (Fields, 1975; Gupta, 1992). In recent years, however, it has become increasingly apparent that the urban informal sector has become one of the major characteristics of the urban labour market in most developing countries (Mazumdar, 1976). This is reflected in the growing share of the sector in the urban labour market in several important cities of the developing world. High informal sector employment is evident in cities throughout the developing world with a typical range of between 30 to 70 percent (Todaro and Smith, 2006). It has been observed that this sector is growing due to rural-urban migration. According to Cornwell and Inder (2004), the urban informal sector is an established form of employment which can pull-in and employ migrants in its own right.

Probability of employment

The way the model interprets the probability of employment has also drawn criticism from some researchers. In the model the probability of being employed in the urban modern sector is given by:

$$\pi(t) = \gamma N_u(t) / N(t) - N_u(t) \quad \ldots\ldots (2)$$

Where:

$\pi(t)$ = The probability of being employed

γ = The rate of growth of employment in the urban modern sector.

$N_u(t)$ = Those employed in the urban modern sector at time *t*

$N(t)$ = Urban labor force at time t

Cole and Sanders (1985) argue that the way the model interprets the part of the labour market not employed in the urban modern sector (N - N_u) has fundamental implications in terms of the empirical relevance of the model. In equation 2, N represents the total urban labour force and N_u is the urban modern sector employed labour force. N - N_u also formally represents open unemployment[26]. Todaro (1969) refers to this component as representing "a large pool of unemployed and underemployed who arrived in the city and is waiting for a modern sector job". This pool is often seen as representing the urban traditional sector, also known as the informal sector. According to the model the probability of obtaining an urban modern sector job is inversely related to the urban unemployment rate (Todaro, 1976). However, evidence shows that rates of open unemployment tend to be relatively lower than the rate of urban informal sector employment. The choice of which indicator to use in calculating probability of employment implies significant differences for estimation results of an individual's probability of migration. In this regard, using open unemployment in calculating the probability of employment would paint an optimistic picture for the prospective migrant. However if the urban informal sector was used as (N - N_u) the migrant's chances of finding urban employment would appear very slim. This confusion also reflects the insignificant way in which the informal sector is treated in the model.

[26] Refers to economically active individuals who are willing and seeking work, but can not find employment (Fergany, 2001)

Unskilled labour

While the urban informal sector has low capital-labour ratios and requires few if any formal human capital requirements, it is widely recognised that urban formal sector jobs often carry educational requirements which creates a qualification barrier to entry. With its emphasis on formal sector employment, the Harris-Todaro model is able to explain the migration of individuals who consider themselves as possessing the necessary qualifications for such employment. It does not, however, explain those ready to work in the urban informal sector. There is increasing evidence however of a large number of relatively uneducated and unskilled rural labour joining the journey to the city. For many of these unskilled workers the focus is not on formal sector employment with its relatively high wages but on the informal sector with its relative ease of entry (Banerjee, 1983; Borjas, 1989). It is observed that many unskilled people migrate to the cities due to excessive pressure of the population on fixed agricultural land which reduces the rural subsistence wage significantly below that of the urban informal sector or when the growth of demand for the urban informal sector exports pushes the wage in the sector significantly above that of the rural subsistence sector (Ghatak *et al.* 1996). In this respect, the Harris Todaro model fails to give a complete picture underlying the motivation behind migration of labour.

Negative selection of migrants

Traditionally a typical migrant is considered as being a young, single and educated male, who is positively selected in his area of origin (Todaro, 1976), an observation in line with the Harris-Todaro model. However, a change in the landscape of the migration literature where observers note that the unskilled and uneducated now constitute a significant proportion of migration streams, calls for a re-examination of such a long standing assumptions. Borjas (1987) uses the Roy model (Roy, 1951) to re-examine the question of positive selection among migrants. Roy develops a model that investigates how the endogeneity of the migration decision in both the unobservable (ability, productivity and skill) and observable characteristics (education level and training) affects the labour market performance. Using this model, Borjas (1987) concludes that it is not always the case that there will be positive selection of migrants in origin areas. In cases where the income distribution in the sending country/region is more unequal than that of the receiving country/region and the correlation in earnings is positive emigrants will be chosen from the lower tail of the income distribution in the origin country/region. The Harris-Todaro model with its emphasis on the urban formal sector employment does not explain this negative selection of migrants such as the unskilled; the uneducated and older married individuals who are increasingly forming part of the migration flows. These observations seem to suggest that perhaps the question of positive selection is most appropriate in developed country labour markets where demand for young,

educated and dynamic individuals is strongest but may be less applicable for most developing nations with huge supplies of unskilled labour.

Information flows

It has been further argued that the underlying assumptions behind the migrant's calculation of expected income raise a number of questions about the model's relevance to developing countries. The assumptions of the theory completely ignore the possibility that an agent is more likely to move to a particular area because of the spatial pattern of information flows. Agents in the income differential theory are assumed to know the life-time earnings on offer in every possible location as well as corresponding non-labour market attributes. Research has shown that in the real world, economic agents do not enjoy perfect information about labour market opportunities in their own locality let alone complete knowledge of conditions further a field especially so where one recognises that information flows decay over space as the costs of data acquisition and transmission increase. This observation is particularly important when the theory is applied to developing countries. Studies have found that most developing countries are characterised by incomplete, deficient or non-existent markets in an environment marked by uncertainty (Sandron 2001, Stiglitz, 1986). In such an environment it is perceived that exchanges are subject to multiple risks and information as a resource is not just scarce, it is also incomplete and costly to obtain outside of a given area. The expectation is that in such situations risk avoidance rather than maximisation of income is the

central principle that guides the strategy of actors. Since the behaviour of rural residents is assumed rational and the information is incomplete and costly, their conduct may differ markedly from what it would have been if they had complete information (Stiglitz, 1986; Stark, 1991).

Indifference to positive expected income differential

Observers have also argued that if migration flows between areas were to conform to the prescriptions of wage differential theory, the number of migrants should be many times higher than those that obtain in reality given the huge differences in income and welfare levels that exist between regions. While predicting broadly unidirectional moves for an unidentifiable homogeneous group, the theory fails to explain why areas of similar macro structure exhibit different rates of in or out migration, suggesting that there is more to labour migration than just a response to wage differentials. Arango (2000) notes that the case of the European Union provides a good case in point, a case which casts doubt on the general propensity to move whenever wage differentials clearly off-set the cost of moving. He observes that following the principle of free movement in the EU there has been a very limited volume of labour migration despite the fact that important differences in levels of wages and welfare still remain. The black South to North migration in America further serves to illustrate this argument. Carrington *et al.* (1996) report that black South to North migration did not start for many years after the civil war despite a huge North-South income gap and perhaps an even larger gap in racial

tolerance. Although eventually labour moved to the North in line with the income differential theory, it is the timing and the manner in which this took place that calls into question the ability of the theory to fully explain migration behaviour. In other studies it has been argued, however, that these delays particularly for developing countries are possible since the response to imbalances between supply and demand for labour may be slow and incomplete (Guilmoto and Sandron, 2001). In agreement with this argument Pindyk (1991) observes that it may be optimal for a potential migrant to postpone the actual move whilst it is associated with large risks because greater uncertainty makes waiting for more favourable circumstances an increasingly attractive option.

4.2.4 The New Economics of Labour Migration

Recent developments in the so called New Economics of Labour Migration[27] also referred to as New Development Economics have provoked some new theoretical debate on theories of labour migration as they relate to developing countries particularly Africa (Taylor, 1999; Roseinzweig, 1988; Stiglitz, 1986) . As an alternative theoretical prospective they question the established Harris-Todaro view that the migration decision is mainly a response to an urban-rural wage differential made by a single individual. Considerably downplaying the importance of wage differentials, these theoretical propositions regard the role of household decision making, migration networks and origin income variations as important factors in the migration process.

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[27] Here in after called NELM

Household as a decision making unit

Roseinzweig (1988) and Guilmoto (1998) argue that some of the key underlying assumptions of neo-classical theories that migration is an individual decision making event and that the individual has complete information about the relevant markets associate with migration are not in line with the reality in developing countries. They argue that for migration to take place there is need for prior investment and information availability and in developing countries, the requisite investments and relevant information are very costly and beyond the means of the individual prospective migrant. This and the fact that different markets on which migration relies are not adequately developed will not make it easy for individual rural residents to risk migrating particularly to the city. In this sense it is perceived that migration is more a household decision than an individual one. The high levels of return migration and evidence that migrants send substantial remittances back do support the view that the household model is particularly relevant for many developing countries (Simons, 1982).

Roseinzweig (1988) observes that the concentration of family members in one location even if plots are diversified and fragmented makes it difficult for the household to smooth consumption given that positive correlations in weather outcomes will only diminish with distance. Families are therefore organised in such a way as to increase income sources whose risks are not highly covariant with those in agriculture. This principle creates an incentive for a household to invest in the migration of its members (Guilmoto and Sandron, 2001). Since

households give priority to diversification of their strategies due to risk associated with specialisation and lack of information migration therefore, becomes a means of diversifying risks at the family level. The many overt and covert intrafamily exchanges are thus an evidence of the collective nature of the migration decision making.

Migration networks

One other theoretical proposition advanced under NELM is one that focuses on migration networks[28] as key to explaining labour migration. It is believed that networks develop through a process that institutionalises migration in different communities. The common perception is that the imperfect nature of markets and the scarcity of information in most developing country settings have led to the emergence of institutions to function as their substitutes. These institutes delineate the limits of social economic behaviour and act as substitutes for failing or incomplete markets (Rosenzweig, 1988). Once migration has been recognised as a suitable economic strategy a complex set of rules, which aim at coordinating the behaviour of sedentary and migrant community members, emerges to define different aspects of the migration behaviour (Guilmoto, 1998). These systems of rules that permit the function of the exchanges are what constitute an institution of migration. The migration networks therefore develops as an integral part of the social institution offering support for maintaining migration flows by acting as a substitute for failing labour, housing

[28] Arango (2000) defines migration networks as sets of interpersonal relations that link migrants or returned migrants with relatives, friends and fellow home mates.

and credit markets in urban areas. The network develops gradually over time and it starts with an initial flow of migrants who go to unknown destinations and are ready to bear the costs and shocks of innovation. The initial migration will be that of individuals for whom the cost of staying in their place of origin is very high or those with substantial amount of transferable individual human capital but it may also be those whose migration is organised from the start and paid for by the recruiting sector (Guilmoto and Sandron, 2001).

The existence of the system of rules and their application results in a reduction in coordination and information costs because they restrict behaviours to a limited number of choices (Nabli and Nugent, 1989). Migration networks convey information, provide financial assistance, facilitate employment and accommodation and give support in various forms thereby reducing the costs and uncertainty of migration. These networks therefore raise the probability of being employed in the destination area because potential migrants can expect the support of the network (Bauer and Zimmerman, 1997). In this way migration networks can be seen as a form of social capital in so far as they act as social relations that permit access to goods of economic significance such as employment or higher wages.

Evidence shows that acquisition of information on available employment and the facilities offered by pioneer migrants to those who follow result in progressively diminishing costs as the migrant community grows (Carrington *et*

al. 1998). This progressive reduction in the costs of migration associated with the migration network provides an explanation as to why reduced income differences between rural and urban areas over time do not necessarily result in the slowing of the migration. So that in migration networks whose functioning is strictly institutionalised, the costs of migration have become sufficiently low so as to allow massive amounts of labour migration resulting in an 'overheating effect' that is reflected in a growing divergence between the number of migrants coming to try their luck in the city and the real absorption capacity in case of economic recession. Networks are seen as a mechanism that makes migration as a self perpetuating phenomenon in that they tend to grow even larger and denser. This is because every move constitutes a resource for those who stay behind and facilitate further moves which in turn widen the networks and the probability of their further expansion. For this reason migration networks may also offer an explanation as to why different areas exhibit different rates of migration.

Rural income distribution

Some theorists have attempted to explain migration behaviour by focusing on the rural income distribution. Stark and Taylor (1991) propose that household members undertake migration not necessarily to increase the household's absolute income but rather to improve the household's position with respect to a specific reference group in their communities. In this theory they construct a relative income hypothesis in which if the household's initial absolute income

and human capital variables are controlled the initial relative deprivation of the households will have a positive influence on the propensity to send migrants to destinations where the potential returns to migration are large enough to alter significantly the relative income positions in the village. In this respect migration will be observed if $U(RD_1^i) > U(RD_0^i)$ where RD_1 is the relative deprivation associated with migration and RD_0 is the relative deprivation in the absence of migration.

It is assumed that individuals or households that find themselves below the upper end of the income distribution may decide to engage in migration with the hope that they will thereby succeed in improving their position in the village by securing an income higher than their initial income. In this theory, equalisation of the rural income distribution is seen as one way of controlling migration. While Harris-Todaro predicts migration from higher income families because of its emphasis on capital variables, the relative deprivation theory helps to explain migration from among poorer households.

Lipton (1980) proposes another perspective to this theory. He suggests that out migrants from rural areas may be of two types: the well to do and the poor. The two types of migrants come from similar types of villages which are characterised by relatively unequal distribution of land, high proportion of landless labourers, relatively literate individuals with good access to migration information. In such a setting the poor and illiterate farmers are "pushed" out of

the rural areas while the literate sons of rich farmers are "pulled" out of the same areas. According to this theory it is seldom the poorest that move since they can not afford the initial cost of movement. On the other hand sons from the richest households rarely migrate since they have enough to prosper in the rural areas. Lipton suggests that push migration of the poor and illiterate is individual related while 'pull' migration of the better off farmers is linked to family requirements as articulated by the head of the household.

Under neo-classical theory, migration is expected to reduce rural inequalities, however under this theory rural income inequalities are likely to be aggravated. This is the case because 'push' migration fail to generate much extra income, because the individuals are poor, illiterate and often go to poor destinations while 'pull' migration of the better off tends to generate incomes, skills, knowledge and remittances useful to the family as a whole.

4.2.5 The Gravity Model

In the model, migration is hypothesized to be directly related to the size of the origin and destination populations and inversely related to square of distance. In its most general form it posits that gross bilateral migration flows are driven by relative economic (push and pull) factors but conditioned by a distance decay factor reflecting the degree of spatial separation between origin and destination (Millington, 1994). In this case the scale of the migration so generated depends on the population size at the origin and destination. In the model certain location

attributes such as high real wages attract workers and others such as unemployment tend to encourage out migration and to repel potential in-migration.

The gravity model originated in the study of human geography and was initially conceived from an analogy between spatial behaviour and Newtonian physics. In practice it has been found to be remarkably successful in explaining a wide range of different forms of spatial interaction. Literature shows that the fundamental issue in relating the gravity model to economic theory is because it allows for analysis of aggregated data. Molho (1986) observes that much as the assumptions of the gravity model contributes to migration theory; it is its ability to encompass different theoretical perspectives within a readily estimable empirical framework that makes it appealing.

The following format which is often used in the analysis of migration flows is a representation of a distance decay function in a typical gravity model (Millington, 1994)

$$M_{ij} = P_i \, P_j \, [A_{1i} \, B_{1j} \, d_{ij}^{-\beta_1} + A_{2i} \, B_{2j} \, d_{ij}^{-\beta_2}] \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Where:

M_{ij} = gross migration from area i to area j

P_i = Population of individuals born and enumerated in area i

P_j = Population of individuals born in area i enumerated in area j

$A^i_{xy} B^i_{xz}$ = Push and pull factors specific to stream x and pertaining to areas y and z

d_{ij} = Distance from are i to area j

The model has found considerable popularity among migration researchers. A number of empirically based studies that have examined place to place migration within the individual utility maximisation framework have often adopted for estimation purposes a gravity type model of gross migration. However there are a number of weaknesses associated with the model. Some observers have expressed concern that the model may produce distorted estimated parameters due to the possibility that the underlying microeconomic relationships may fail to aggregate linearly and that the process of summation of migration data may result into loss of information (Molho, 1986).

4.3 Empirical Evidence of migration

Developments in economic theoretical modelling of migration particularly after Todaro's seminal work (Todaro, 1969) have been followed by a flurry of empirical work aimed at testing the hypothetical assumptions of the model. The controversy surrounding these studies is the lack of consensus regarding the models relevance and consistency with different data sets (House and Rempel, 1980, Cole and Sanders, 1985, Agesa, 2000).

We start in this section by looking at estimation procedures used in migration studies and thereafter move onto determinants of migration

4.3.1 Estimation Procedures

In econometric studies of migration, two types of migration functions have been used for estimation purposes: the 'micro' and 'macro' functions. The basic difference between the two functions is reflected in the choice of the dependent and independent variables. While the macro function estimates the 'gross' rate of migration flow between origin area *i* and destination area *j*, the micro function estimates the probability that an individual with specific characteristics will migrate from origin area *i* to destination area *j*. The dependent variable in the macro function is typically the proportion of migrants which is specified to be a function of a vector of various macro-level independent variables such as location wage, income levels, employment rates, degree of urbanisation and distance between area of origin and destination. In the micro function, the dependent variable is specified as a function of various personal characteristics such as age, years of schooling, marital status and incomes.

Both functions have been found to yield useful results for policy makers. However Todaro (1976) notes that macro functions which produce estimates of elasticity of migration with respect to changing macro-level variables may be more popular with policy makers since they can serve as a basis for economy wide policy formulation. Generally the type of data available will determine the

specification adopted. Individual information collected through household surveys is often used to estimate micro-functions while aggregated data such as that from a census or regional labour data have been used to estimate macro functions.

Central in empirical studies is the migration function which is a form of a discrete choice model. The statistical analysis of such models involves predicting probabilities for the various possible values of the dependent variable (McFadden, 1974). In cases where there are only two possible responses: occurrence or non occurrence, a probit or logit analyses have been used to estimate the function (Maddala, 2001). A logit or probit function is in the form:

$$y_i^* = \beta_0 + \sum_{j=1}^{k} \beta_j x_j + \mu_i \quad \text{.....(4)}$$

Where y_i^* called a latent variable is not observed. What is observed is a dummy variable, y_i defined by:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{otherwise} \end{cases} \quad \text{.....(5)}$$

Classification of the model i.e. whether it is probit or logit depends on the behaviour of the disturbances. If the disturbances are normally distributed the probit model is produced while logistic disturbances produce the logit model (Green, 2000).

Theil (1969) extended the linear logit model and developed a multiple logit model which allows both an arbitrary number of responses for the dependent variable and continuous right hand side variables. Use of linear specification in estimating such a model has been found problematic because of the possibility of predicted probabilities being outside the zero – one range and because of the resultant heteroskedasticity of the disturbances (Schmidt and Strauss, 1975). The maximum likelihood estimation popularised by McFadden (1974) has been found useful in this respect.

Macro migration function

In the macro migration model, the probability (P_{ij}) that an individual faced with n possible alternative locations including his birthplace i will be residing in a region other than i in any time period is assumed to depend on a single valued vector (Z_{ij}) of weighted personal characteristics, regional characteristics and distance between the regions (House and Remple, 1980). Thus:

$$P_{ij} = \frac{\exp(Z_{ij})}{\sum_{j=1}^{n} \exp(Z_{ij})} \quad , \quad i, j = 1, \ldots\ldots, n \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

For each region of origin the P_{ij}*'s* sum to 1

Similarly the probability (P_{ij}) of the individual remaining in region i can be expressed as a function of the single valued vector (Z)

$$P_{ii} = \frac{\exp(Z_{ii})}{\sum_{j=1}^{n} \exp(Z_{ij})} \quad , \quad i, j = 1, \ldots\ldots, n;\ i \neq j \ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

The problem with this specification is that the probabilities (P_{ij}) and (P_{ii}) are constrained to the interval zero to one (since any one individual either moves or does not move) while the respective right hand side can take real values. Relating such unconstrained variables to a constrained dependent variable results into a potential specification error. A multinomial model allows the combining of these two probabilities (P_{ij}) and (P_{ii}) in terms of a ratio (P_{ij} / P_{ii}) which solves the problem (House and Remple, 1980). Such a ratio represents the odds of an individual being located in some region other than *i*. In this sense it allows for an interpretation of the dependent variable as a probability that individuals born in origin *i* will migrate to destination *j* (Levy and Wadycki, 1974).

In terms of measurement, the probability of migrating from region *i* to region *j* (P_{ij}) is measured by M_{ij} / B_i where M_{ij} is the total number of migrants born in *i* who were enumerated as resident in *j* at time *t*; B_i is the total number of persons born in *i* as enumerated in the census. The probability of not migrating (P_{ii}) is measured as M_{ii} / B_i where M_{ii} is the total number of persons residing in *i* at time *t*, who were born in region *i*. As a log function the dependent variable becomes:

$$\ln\left(\frac{P_{ij}}{P_{ii}}\right) = \ln\left(\frac{M_{ii}/B_i}{M_{ij}/B_i}\right) = \ln\left(\frac{M_{ij}}{M_{II}}\right)$$

The majority of macro migration studies have used census studies to measure migration. However the demographic and geographic aggregation carried in the census data masks a number of potentially important influences including differential migration responses of various sub groups in the population, the timing and people who moved more than once. Population census often misses out on collecting appropriately measured explanatory variables such as income. Furthermore, depending on time period under study it is possible that current wage and employment levels are as a result of past migration flows. In this case explaining cumulative migration up to recent year *t* represents a misspecification which results into a simultaneous equation bias in the model. It should be noted that while studies have found this to be the case, Levy and Wydick (1974) concludes that the bias is unlikely to be excessive since the difference between the coefficients in a cumulative and one year migration function has been found to be quite small. This finding may explain why most studies ignore the problem (Yap, 1977).

Micro migration function

In order to avoid problems encountered in using aggregated data some studies have used surveys to collect migration data. In this respect, a micro migration function is employed to model migration. Micro migration functions are normally interpreted to be supply decisions of individuals or their families. The

key difficulty faced when using such functions is the problem of unobserved variables. If one is to consider the expected wage differential between origin and destination as influencing the migration decision in a survey of migrants, their origin wage is not collected. Separate earnings functions to predict earnings in different locations for each person, using their personal characteristics have been employed to solve the problem (Da Vanzo et. al, 1980; Lucas, 1985).

The micro migration function takes the form of a simple utility function in which tastes have two components: the representative consumer component where-in tastes vary with some vector of measured attributes of persons; and a stochastic disturbance element reflecting individual's idiosyncrasies (Lucas, 1985). Thus:

$$u^{\alpha} = u(w^{\alpha}, e^{\alpha}, P^{\alpha}, \varepsilon^{\alpha}) \qquad \text{(7)}$$

Where:

u^{α} = Utility derived for individual α

w^{α} = Location wage for individual α

e^{α} = Employment status for individual α

P^{α} = A vector of personal characteristics such as age, education.

ε^{α} = Stochastic disturbance term

The problem faced by individual α is to select from a set of locations offering various wages and employment probabilities represented by vectors W^{α} and E^{α}

for individual α. The probability of any person α drawn randomly from the population, choosing location *i* therefore take the following form where the dependent variable m_i^α is a polychotomous internal location measure:

$$m_i^\alpha = m(W^\alpha, E^\alpha, P^\alpha, \varepsilon^\alpha) \quad \text{..... (8)}$$

4.3.2 Determinants of migration

The literature suggest that an individual's decision to migrate will depend on a number of factors including, personal characteristics (such as age and education), household characteristics (such as household headship and household size) and characteristics associated with the origin and destination areas (such as earnings and employment rates). We present below empirical findings on some of these determinants.

Age

Most empirical studies report that migrants particularly to urban areas are often young and single (for example Wan, 1995 on China and Mbonile 1993 on Tanzania). It has been argued however that the effect of a disproportionate number of young adults in cities is often accentuated by a tendency for at least some of the older migrants to return to the rural areas (Caldwell, 1969). McCormick and Wahba (2005) reporting on their study in Egypt observe similar tendencies. They find that for those less than 35 years old, the probability of their migrating from rural to large cities is greater and more significant than their moving in the opposite direction. However when they disaggregate the

group, they find that individuals between 27 and 35 years are more likely to move out of the large cities to smaller urban areas than in the other direction.

Education

There is evidence to suggest that the propensity to migrate increases with the level of educational attainment (Cardwell, 1969 on Ghana, House and Remple 1980 on Kenya). Reporting on their study on Russia, Andrienko and Guriev (2004) found that education significantly increased both the outflows and to the inflows but their findings suggest that outflows are more sensitive than inflows. It is believed education may reduce the uncertainty associated with migration because it improves the person's ability to collect and process information. At the same time Fields (1982) suggests that the higher migration rate of the educated may partly reflect their responsiveness to larger spatial wage differentials than exist for the uneducated.

Contrasting results on education are reported by Wan (1995) on peasant migration in China. Findings show that education is inversely related to migration, in many cases it appeared as a deterrent to migration. The author attributes this to the huge surplus of the uneducated labour force, most of who migrate to the urban sector where low skill labourers are in large demand. Such conflicting results are not new in literature. Yap (1977) noting conflicting results from migration studies on Kenya observes that use of different migration

data, variable measurements and functional forms do matter and can significantly affect empirical results.

Such results however call for some re-examination of long-standing assumptions about the selectivity of migration. It has been proposed that migrants at point of origin are not randomly selected but are favourably selected individuals in terms of age, education, skill and ability (Todaro, 1976). Borjas (1987) in his study of international migrants into the United States labour market makes some remarkable conclusions that put to test the selectivity proposition. In this study it is found that if the income distribution in the sending country is more unequal than that of the United States and the correlation in earnings is positive, emigrants will be chosen from the lower tail of the income distribution in the country of origin. These findings do seem to suggest that perhaps the question of positive selectivity does work for industrialised labour markets where demand for young, educated, skilled and dynamic individuals is high but may be less applicable for most developing nations with huge supplies of unskilled labour[29]. Cole and Sanders (1985) conduct a survey of data from a number of developing countries and conclude that migration is becoming less and less selective. They find that along with the educated and skilled, there are masses of unschooled and relatively unskilled persons who also join the trek into cities.

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[29] This argument appears in a number of studies including Deshingkar and Start (2003) McDowell and De Haan (1997), Mohtadi (1990),and Cole and Sanders (1985)

Gender

Most migration studies have found that migrants in Asia and Africa are predominantly male while this is less the case in Latin America (1977). This probably explains why the majority of migration studies in Asia and African countries have only considered men. It has been observed that females exhibit less migratory tendencies due to culture and tradition (Wan, 1995, De Jong 2005). Wan (1995) observes that decisions concerning a household or its individual members are made by the elderly, and men and females are often not allowed to travel far away let alone migrate by themselves. Wan's other observation seems to suggest that this may be a livelihood option for rural residents. The author observes that in the absence of sustainable non-family income, the desire for food security and protection against food price hikes in bad harvest years prompts farmers to keep their own land to ensure household food sufficiency. Under these circumstances custom and tradition dictates that female labourers stay at home and keep the land while males go to seek non – farm income.

The type of work usually available for migrants may also explain the limited numbers of females in migration streams. It has often been observed that most unskilled migrants engage in heavy and sometimes dangerous work while living under appalling conditions considered inappropriate for females (Deshingkar and Smart, 2003). Bardhan (1997) further observes that since sex specific labour inputs are not perfectly substitutable in production; females may find it

difficult to satisfy the requirements on the demand side in areas of destination. Wu and Zhou (1996) however show that the sex selectivity of migration also depend to a large extent on the demand side in the destination areas. In their study of China they find that among the provinces which experienced net in-migration, those dominated by heavy industries experienced increase in the male-female gender ratio while those dominated by labour intensive manufacturing industries experienced a decline in the ratio.

In most cultures including in Malawi, females are expected to take care of the elderly and the children, a factor which limits their ability to migrate. De Jong (2000) reports similar findings in Thailand where he observes that the presence of children and the elderly in the household increases migration intentions for men due to increased financial family needs but it reduces intentions to move for women because of dependent care responsibilities.

Income

The majority of empirical work establishes that income incentives are important determinants of migration, with people moving from poorer areas to wealthier areas. In her empirical literature survey on migration, Yap (1977) observes that when wage or per capita income differentials are included explicitly in the migration functions, the rate of migration is typically found to increase with the size of the differential. By the same token, when average wages for the 2 areas

are included separately migration is positively related to the wage level in the destination and negatively related to the wage level in the area of origin.

Other studies (House and Rempel, 1980 and Agesa 2000 on Kenya) found that adjusting the wage rate for the probability of being employed as proposed by the Todaro model improves the significance of the wage differential. House and Rempel's regression results show that the coefficient attached to the probability of finding employment in the destination is positive and significant which supports the expected income hypothesis. One surprise in these results is the positive coefficient for income in the area of origin. The authors argue that this may indicate that their particular measure of income may have overstated the migrants' actual alternative income opportunities in their respective areas of origin. They also suggest that the positive coefficient for destination incomes may be a reflection of what migrants expect to obtain in the destination areas.

Liquidity constraints

Other empirical work however suggests that it is not always the case that labour will move in response to wage or income differentials. In a study on Russia, Andrienko and Guriev (2004) find that in spite of significant differences in real income wage and unemployment rates and the removal of barriers to labour movement, very low labour mobility has been observed in response to these interregional differences. The authors attribute this odd phenomenon to financial constraints facing potential migrants. In line with traditional economic

theory of utility maximisation, the expectation is that an individual will compare their utility at origin and destination and move if the expected utility change is more than the cost of migration. However, an imperfect financial market in these areas implies that individuals can not borrow to pay for their movement; hence only people with high income can afford to migrate. Ghatak *et al.* (1996) supports these findings when they suggest that a higher wage gap will only increase migration if potential migrants do not face borrowing constraints.

In support of the hypothesis that only people with high incomes can afford to migrate, Cardwell (1969) found in Ghana that most migrants to the urban originated from well to do households. He attributes this to the fact that in a rural setting it is mostly the well to do households which are able to keep their children in school. High education may therefore explain the high migration rates from wealthy households. Andrienko and Guriev (2004) on Russia argue that although hypothetically the rich are the most able to migrate, they are less likely to be willing to leave because by being rich in their place of origin they are unlikely to perceive significant income differentials in potential destination areas. Results of their model which tests the impact of liquidity constraints on rich and poor regions show that in regions with incomes below a threshold, the effect of income on migration is positive. While in richer source regions, the coefficient is negative and significant.

Hoddinot (1994) on Kenya also argue that migrants are likely to come from households with smaller landholdings as they are in greatest need of additional income. Study findings from Tanzania (Mbonile, 1993) also suggest that areas with high per capita cash earnings exhibit low out migration. In their empirical study of migration to cities in Burkina Faso, Beauchemin and Schoumaker (2005) also argue for the case of liquidity constraint. They found positive relationships between paid employment and migration. They also report that growing cash crops increases the probability of migrating because it pays for the costs of migration.

Taylor (1999) concurs with these findings but he argues his case from the point of view of NELM which advances the proposition that migration is a household decision. Under NELM also referred to as NDE, migration is hypothesized to be partly an effort by households to overcome market failures that constrain local production. Due to imperfect financial markets in most developing countries, farming households are forced to self finance their production and to self insure against income risks. Migrants' remittances therefore may be used to finance new production technologies and activities. They also insure households by providing them with access to an income source that is not correlated with farm income. Taylor (1999) therefore argues that this hypothesis implies that poorer households have the largest incentive to send migrants since they will face the most severe capital and risk constraints on investments in local production. In his review of empirical literature on remittances and international migration he

observes that poorer households face barriers to international migration in form of high costs, poor information and uncertainty which discourage poor households from sending their family members abroad.

Push and pull factors

Further empirical evidence however suggests that both better off and poor rural residents from same communities may migrate although influenced by different factors. Mohtadi (1990) identifies two groups of labour in rural Iran; small capitalist farmers who own land and the landless farmers. Findings in this study show that the propensity to migrate is significant in both groups though particularly so among the landless. The results suggest that the rural landless migration was influenced by rural push factors while that of the better off farmers was an urban pull phenomenon. Deshingkar and Start (2003) though reporting on seasonal migration show similar results from India where they find that while the poorer households are the majority in the migrating streams, a significant proportion (more than half) of the wealthy households were also migrating. Evidence from this study seems to suggest that the poorer group was migrating as survival strategy. This seemed not to be the case for wealthier households who the authors note may not have been migrating for coping. They suggest that migrants from the wealthy households may have been young men who have shown to have higher propensity to migrate.

Employment

As an important policy variable, employment is usually included as a key variable in most econometric migration functions. Results from available studies have been mixed. Some studies have found destination employment level as positively and significantly related to migration (Yap, 1977; House and Remple 1980; Agesa, 2000) a number of other studies for example Byerlee *et al.* (1976) on Sierra Leone and McCormick and Wahba (2005) on Egypt have found no evidence that employment and wage rates affect migration. Andrienko and Guriev (2004) also find similar results for Russia. While they attribute their insignificant coefficients to liquidity constraints among potential migrants, Byerlee *et al.* attribute the results to the weakness in the Todaro model which they used to estimate the parameters. They argue that the model's assumption that those who are unemployed in the destination areas have zero income leads to a misspecification of the urban prospects for potential migrants.

Byerlee's argument that the Todaro model underplays employment opportunities in the urban sector have been echoed in a number of empirical studies more popularly Banerjee (1983, 1984). Yap (1977) however argues that while the informal sector appears to be an important source of employment for migrants, there is very little evidence that migrants are disproportionately concentrated in the sector and many who start in the sector move to formal sector employment. Cole and Sanders (1985) however note that for many rural-urban unskilled migrants, the focus is not on the modern sector with its

relatively high wage but rather on the subsistence sector with its relative ease of entry. Banerjee (1983) makes a similar conclusion from an empirical study of rural urban migrants in Delhi. This study found that more than half of the informal sector entrants had been attracted to Delhi by informal sector opportunities and mobility into the formal sector was very low. The study found evidence to suggest that education and urban experience were rewarded at the same rate in both the informal and formal sectors.

House and Rempel (1980), however conclude that if employment is measured correctly, the Harris and Todaro hypothesis does contribute to the explanation of the migration decision making process. They suggest that to appropriately measure the effect of destination employment on migration the marginally employed should form part of the stock to be considered when calculating new labour hiring. It is important to note that the definition of informal sector sometimes vary greatly between studies. Some base their definition on size of production unit while others use activities involved (Yap, 1977) and this will affect measurement of the variables associated with it. These different migration study outcomes therefore, may partly be a reflection of different measurements employed when defining employment variables.

Destination contacts

A number of studies have found that the presence of contacts in the form of relatives and friends in the potential destination is a significant pull factor for

the majority of rural-urban migrants. Contacts are perceived as a source of information to potential migrants about the prevailing conditions of the labour market in the destination area. Empirically it has been found that this is particularly important for the young and the less educated (Rempel, 1976 on Kenya).

Wu and Zhou (1996) also note that the importance of contacts is strengthened by urban employers who use their current employees to recommend potential workers from their areas of origin. They observe that the system where kinship functions as a referral system that may reduce the employer's risk and cost in searching for the right workers is particularly active in a setting where lack of both government employment service and private recruitment agents are lacking or inadequate. Banerjee (1984) observes that this is particularly true for unskilled and manual jobs especially positions for which skill and education are not as important as dependability and potential for training. Rempel (1976) finds that the presence of a relative who provides assistance in an urban centre appears to give the migrant a greater possibility to remain unemployed while looking for the particular type of job he desires. Evidence for the importance of destination contacts has also been found in international migration. Zavodny (1998), report that the presence of other foreign born persons is the primary determinant of recent immigrant's location choices within the United States.

4.4 Summary

This chapter has presented a discussion on the economic theories available in the literature that help explain migration. The chapter also carries an in-depth analysis of literature on the Haris-Todaro model of migration. The model's expected income hypothesis is explored in greater detail so as to draw possible implications for what is experienced in Africa. Available evidence from the empirical literature, which is presented seem to support that the model offers practical relevance for an African setting.

Despite criticisms against the model, evidence appears to suggest that it is not the core hypothesis of the model that has limitation rather the choice of variables used in estimation procedures. For example the choice of a variable to use in calculating employment probabilities has implications for model outcomes (Cole and Sanders, 1985). Furthermore it is observed that some of the theoretical propositions under NELM such as migration networks do not necessarily undermine the Harris-Todaro model as argued by others, they appear to strengthen it. These theoretical propositions imply that geographical distance can be shortened with networks thereby reducing migration costs and increasing expected incomes.

In the chapter that follows the Harris-Todaro model is used to develop a prototype model of migration for Malawi. The global hypotheses for the study and the data-set used in the study are also presented.

CHAPTER 5

Model, Hypothesis and Data

5.1 Introduction

The previous chapter presented various economic theories and empirical evidence of migration found in the current body of literature. This chapter adopts the micro approach to the Harris-Todaro model to develop a prototype model for labour migration in Malawi.

The Harris-Todaro model provides a good basis for our model because it is general enough to incorporate most of the information relevant for developing countries. It also allows us to work in terms of expectation, a principle that is relevant to migrants as economic agents. Furthermore evidence from literature suggests that it has undergone a reasonable test in developing countries.

This chapter is divided into four sections. Section 5.2 presents a general specification for the Harris-Todaro model. Section 5.3 applies some aspects of the Harris-Todaro model and modifies it to suit the Malawi context. Section 5.4 presents the principal hypothesis to be investigated in this study. Section 5.5 provides a picture of the data used in this study and 5.6 summarizes.

5.2 General Specification of the Harris-Todaro Model

The Haris - Todaro model of migration assumes that migrants as rational decision makers choose to move from their area of origin to live and work elsewhere in order to maximise the expected net present value of their future stream of benefits. Central to this hypothesis is the economic element of the model which measures the present value of the expected difference in income between the destination and origin areas after netting out the direct costs of moving.

As a discrete choice model it takes the form of a simple utility function where the utility derived from choosing any location varies with an individual's personal attributes as well as location characteristics:

$$U_i = f\left(w_i, e_i, \mathrm{P}_i, \varepsilon_i\right) \quad \text{.....(9)}$$

Where U_i is utility derived by individual i. w_i, e_i, and P_i are wage, employment status and personal characteristics respectively. ε_i is the stochastic disturbance term. The probability that any individual i faced with a number of alternative locations including his area of origin will chose location j is given by the following function:

$$m_{ij} = f\left(W_i, E_i, P_i, \varepsilon_i\right) j = 0,..,2 \quad \text{.....(10)}$$

Where

m_{ij} = probability of individual i choosing location j.

W_i = vector of different location wages for individual i

E_i = employment probabilities for individual i

P_i = vector of personal and household characteristics for individual i

ε_i = Error term

5.3 Prototype Model for Malawi

In Malawi there are two main destination areas for a prospective migrant in a rural setting: the city and the estate. This rural resident is therefore faced with three key choices: migrate to the city, to the estate or to stay at home. An internal migration equation for Malawi is therefore developed using a three way polychotomous internal location measure whose dependent variable is an observation that an individual is either a non migrant, estate migrant or urban migrant. A multinomial logit equation relates this dependent variable to three groups of explanatory factors:

(a) Personal characteristics – age, years of schooling and marital status.

(b) Household characteristics – a measure of household vulnerability (Dummy variable for supplying *ganyu*, dummy variable for owning a non agricultural enterprise).

(c) Location variables – predicted earnings in the home village and the destination areas.

While the survey collected earnings data for respondents in each of the three locations, there were no values for what the respondents would earn in alternative locations. To this effect an earnings equation is estimated of conventional human capital variables where the log of earnings per day is explained by years of schooling and experience[30]. The earnings include both daily wages in cash as well as self employment earnings. The earnings equations are estimated from earnings data for individuals actually present in the various locations under study. The employment rates for different location are used in calculating the probability of employment for individuals.

The migration model will therefore be an estimated version of (2), which uses an earnings function while the employment probability is proxied by locational employment rates.

$$m_{ij} = f\left(\hat{W}_{i,}\, \hat{E}_{i,}\, P_i\right) \quad \text{.....(11}a\text{)}$$

$$w_{ij} = w\left(\rho_i\right) \quad \text{.....(11}b\text{)}$$

Where:

$\hat{W}_i$ = vector of location earnings predicted for i from (3b)

$\hat{E}_i$ = Employment rates for different locations

P_i = vector of personal and household characteristics

w_{ij} = predicted earnings for individual i in location j

[30] This approach has previously been used by Lucas (1985)

ρ_i = vector of information such as years of education and experience for individual *i*.

Based on a review of Malawian literature we also introduce three dummy variables in the model which we expect may help to explain determinants of migration between the two types of migrants. These variables are *ganyu,* which is used as a proxy for household vulnerability to poverty and food security, non agricultural enterprise dummy which is a proxy for household affluence and a dummy variable for destination contacts.

The internal migration model to be estimated for Malawi will therefore be the following:

$$M_{ij} = b_0 + b_1(A_i) + b_2(S_i) + b_3(MS_i) + b_4(C_i) + b_5(G_i) + b_6(NA_i) + b_7(W_i^U E_i^U) + b_8(W_i^E E_i^E) + b_9(W_i^R E_i^R) + \varepsilon_i \quad \text{.....(12)}$$

M_{ij} = the probability of individual *i* choosing location *j*. (*j*= 0,1 and 2). Let *j* be the location of residence for individual *i* during the survey period. *j*=0 when they stay in their home village, *j*=1 when they migrate to an estate and *j*=2 when they migrate to the city.

A_i = Age in years for individual *i*

S_i = Education dummy (<8 years of education = 0; 8+ years of education =1)

MS_i = Marital status dummy (never married=0; married or otherwise = 1)

C_i = Destination contacts dummy (no contacts=0; with contacts=1)

G_i = Household vulnerability dummy (did not supply *ganyu* labour =0; supplied ganyu labour =1)

NA_i = Non-agricultural enterprise dummy (Household had no reliable[31] non agricultural enterprises=0; Household had reliable non agricultural enterprise =1)

$W_i^U E_i^U$ = The expected urban income[32] for individual *i*.

$W_i^E E_i^E$ = The expected estate income for individual *i*.

$W_i^R E_i^R$ = The expected rural income for individual *i*.

Estimating earnings for individuals

To predict alternative location earnings for individual i, the following earnings function is estimated. We use the earnings estimated in these functions in our migration model.

$$W_i^U = c_0 + c_1(S_i) + c_2(Ex_i) + c_3(Ex_i^2) + c_4(Pe_i) + c_5(Pe_i^2) + c_6(SE_i) + \varepsilon_i \ldots\ldots(13)$$

$$W_i^E = c_0 + c_1(S_i) + c_2(Ex_i) + c_3(Ex_i^2) + c_4(Pe_i) + c_5(Pe_i^2) + c_6(IGA_i) + \varepsilon_i \ldots\ldots(14)$$

$$W_i^R = e_0 + e_1(S_i) + e_2(Ex_i) + e_3(Ex_i^2) + e_4(L_i) + e_5(NA_i) + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots(15)$$

Where

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[31] A reliable non agricultural enterprise referred to an enterprise that was in operation for at least six months in a year.

[32] Expected income is obtained by multiplying predicted earnings for individual *i* by his probability of finding employment there. The employment rates for different locations are taken as proxies for probability of finding employment. NSO(2005) reports the following employment rates for these locations in 2004 – rural (93.9%), Kasungu, where majority of estates are found (91.3%) and the urban (81.4%)

W_i^U = Predicted daily urban earnings in Malawi Kwacha for individual i.

W_i^E = Predicted estate daily estate earnings in Malawi Kwacha for individual i

W_i^R = Predicted daily rural earnings in Malawi Kwacha for individual i

S_i = The number of completed years of schooling for individual i

Ex_i = Experience of individual i measured by Age - years of education - 6[33]

Ex_i^2 = Experience squared[34]

Pe_i = Period in the destination in years

Pe_i^2 = Period in the destination in years squared[35]

SE_i = Self employment dummy (not self employed=0; self employed=1)

L_i = Household landholding size in Ha.

NA_i = Non agricultural enterprise dummy (household had no reliable[36] non agricultural enterprises=0; household had reliable non agricultural enterprise =1)

IGA_i = household has no income generating activity = 0 ; household has income generating activity

ε_i = Error term

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[33] This is a standard formula often used to define 'potential experience' where there is no information on experience of an individual. Its assumed that one starts school at 6 years old (Verbeek, 2004)

[34] We expect experience to have a non linear relationship with income i.e. income should increase with experience. However, after some time the contribution of experience to income becomes insignificant.

[35] We also expect period of stay in destination to have a non linear relationship with income

[36] A reliable non agricultural enterprise referred to an enterprise that was in operation for at least six months in a year.

5.4 Principal Hypotheses to Be Investigated

Evidence suggests that two distinct rural out-migration flows exist in Malawi; one to the city and the other to the estates. Although formal employment appears to be on the decline the city still provides a dynamic and flexible labour market. For example the existence of the informal sector where one can either work for someone or operate an own enterprise widens the choice of employment for new entrants in the urban labour market.

Evidence suggests that employment rate is high in estates although the wage rate is likely to be lower than in the city. Furthermore, workers in estates also benefit from monthly food rations (on loan) and lodging (often free) which are provided as part of the job offer. Although estate migrants appear to benefit from these non wage benefits, these benefits may not be significant because of high interest rates often charged on loans (Mwasikakata, 2003). At the same time although housing is often free, quality is usually poor (Nyanda, 1989). This implies that the ease with which migrants find employment is one of the major attractions in estate migration.

In general these observations suggest that besides being relatively more educated, urban migrants are likely to be more dynamic and risk loving individuals than estate migrants. However to consider such an option as what estate migration offers one should have equally limited economic opportunities

in their home areas. They are also likely to be relatively less educated and more cautious about taking risks.

In view of the foregoing observations the following are the main hypotheses to be investigated in the study:

(1) Income and wealth are important determinants of migration from rural areas in Malawi

(2) The rich are pulled to the city while the poor are pushed from the rural areas.

(3) The expected income hypothesis works in rural-urban migration but not in rural-estate migration.

(4) The probability of migrating to the estates is determined by how vulnerable a rural household is to food insecurity and poverty

5.5 Data

Due to lack of readily available secondary data we conducted a field survey to collect migration data at household level. Structured questionnaires were developed to collect primary data. The questionnaires were designed to be administered to three types of respondents: non migrants, urban migrants and estate migrants.

Questions administered to migrants sought information on their socio-economic status, before, at and after migration. The information required was at individual

as well as household levels. The individual level information included age, gender, education and marital status. The household level information included household size, household income, food security, land and other asset ownership as well as household headship.

The questionnaire further included questions on whether the migrant knew somebody in the destination area and whether they were in touch with the individual(s) before migrating. They were further asked whether they received any assistance in form of food, lodging and job information during the migration process.

The questionnaire for non-migrants was also designed to collect both individual as well as household information. The respondents were further asked questions about the migration history of family members, particularly those who were away during the survey period. They were also asked whether they themselves had considered migrating.

Field survey

Considering that key information to be collected in the survey was about the decision making process and other information that is often perceived as confidential in Malawi, it was decided that the questionnaires would only be administered to the head of household. The head of household was loosely identified as someone who made the major decisions for the household and to

whom all important matters were referred. The determination as to who fitted this criterion was made by the household members themselves. This meant that some households particularly for urban households were visited more than once if the interviewer did not initially locate the head of household. To ensure the likelihood of finding the household head interviews were also conducted after working hours as well as during the week ends.

There is evidence to indicate that there are significant levels of seasonal migration in Malawi (Devereux, 1999, Orr and Mwale). Since the study was on long term migrants it was decided that only those migrants who had arrived from their home villages between 1998 and 2002 would be interviewed. The interviews were conducted during the busy rainy season when most heads of households particularly in the rural areas are likely to be found at home. The survey took place from December, 2004 to February, 2005.

Recruitment of research assistants

In order to ensure efficient collection of data, ten research assistants with experience in data collection were recruited. A training session was organised to identify their knowledge gap and enhance their understanding of the interviewing technique. After training they were given an opportunity to go through the questionnaires as a group in order to establish a common understanding of the questions. The exercise involved a step by step review of the three questionnaires discussing the information that each question is looking

for and how best to ask the question in order to convey the right meaning. Following this exercise a number of questions were revised and others had to be reallocated to different sections to improve the flow of questions. The team also translated the questionnaires so that the each question carried both English and a Chichewa version, Malawi's national language.

Pilot Survey

As part of the training for the research assistants and as a test for the questionnaires, a pilot survey was conducted prior to the main survey. The pilot for all the three surveys took place in Lilongwe district. Following the pilot survey further improvements were made to the questionnaires.

Main Survey

The urban household survey was conducted in Lilongwe, the capital city. Lilongwe was chosen as the location for the urban survey in preference to the other 3 urban areas because the 1998 census results show that it had experienced the highest level of in-migration. The urban survey was conducted in 6 townships of the city. These were Kauma, Ngwenya, Mtandire, Chinsapo, Senti and Mgona. These are high density townships where the majority of new arrivals from rural areas are known to reside. A sample of 298 migrant heads of households who satisfied the following conditions were interviewed: (i) should have arrived in the city directly from their home village between 1998 and 2002

(ii) should have been 18 years or more at the time of arrival (iii) should have arrived having found a job or looking for one.

These criteria meant that those who had come to Lilongwe as seasonal migrants and those who had come for education, medical and job transfer reasons were automatically excluded.

Kasungu was chosen as a location for the estate survey because it is the largest tobacco growing district in Malawi both in terms of area under cultivation as well as the number of estates. At the same time the census results showed that it had experienced higher levels of in-migration compared to other estate districts. The study focused on wage paying estates other than estates which use the tenancy system where labourers are paid annually. This was done for ease of comparison with urban migrants where the majority earn wage or salaried income. A weighted stratified random sampling of estates from Limbe Leaf Tobacco and Stancom Companies was drawn from which 128 migrants who satisfied the following criteria were interviewed: (i) should have arrived at the estates directly from their home village between 1998 and 2002 (ii) should have been 18 years or more at the time of arrival (iii) should have arrived having found a job or looking for one.

The household survey for non-migrants was conducted in Dowa district. The district is strategically positioned in terms of study objectives and for purposes

of reducing costs. It is found between Lilongwe city and Kasungu district. A total of 281 non migrants were interviewed.

5.6 Summary

In this chapter the micro approach to the Harris-Todaro model is used to develop a migration model to suit the Malawian condition. The chapter also presents principal hypotheses to be investigated in this study. A report of the survey that was conducted to collect data for this study is also presented.

In the following chapter key findings from the study and the model results are presented.

CHAPTER 6

Statistical Evaluation of Labour Mobility in Malawi

6.1 Introduction

The previous chapter presented a general specification of the Harris-Todaro model whose notion of expected income is used to develop the model for Malawi. Features unique to Malawi are applied in order to modify the model to suit our context. This helps in constructing principal hypotheses to be tested. Finally the data set collected for the study is presented.

In this chapter statistical analysis of the phenomenon of migration in Malawi is undertaken. Three different forms of analyses are employed. In the first part basic statistical analysis in form of cross tabulations and comparison of means is undertaken to provide the reader with the context for the data used in this study. In the second part OLS regression is used to estimate incomes for the three types of location under study. The final part applies a modified version of the Harris-Todaro model to original Malawian data to analyse determinants of labour migration in Malawi.

The chapter plan is as follows: Section 6.2 presents initial analysis of survey data. Section 6.2.1 presents differences in characteristics of the three groups under study: the non migrant, estate and urban migrant. Section 6.2.2 contains results of differences in characteristics of estate and urban migrants at time of migration. Section 6.2.3 analyses the role of information in the two migration streams (estate and urban). Section 6.2.4 presents findings on migration networks in the two migration streams 6.2.5 explores urban migrant's employment opportunities. Section 6.3 presents an econometric analysis of migration in Malawi. Section 6.3.1 presents OLS regression results while 6.3.2 presents results of the estimation of the migration model. Section 6.4 summarises.

6.2 Initial Analysis of the Survey Data

As is clear from the literature review chapter a whole set of individual and household characteristics are viewed as important in explaining labour migration. We explore some of these characteristics in our data that include age, education, marital status, household headship, having destination contacts and access to information. We also examine other characteristics unique to Malawi such as household food security that appear to help us further in explaining migration of labour.

6.2.1 Characteristics at Time of Survey

Table 6.01 carries a comparison of means for variables that define selected characteristics of the respondents. To analyse the mean differences in the scores for an independent variable that is defined at more than two levels Analysis of Variance (ANOVA) test is employed. An ANOVA is appropriate for conducting this test because running several t-tests for all combination of groups tested is likely to increase the chance of falsely rejecting the null hypothesis i.e. making Type I error (Jackson, 2006; Field, 05). An ANOVA tests the null hypothesis that all group means are equal. In an ANOVA the F-statistic is used to establish how significant the differences are. An F-statistic produced in ANOVA is similar to the t-statistic in that it compares the amount of systematic variance in the data to the amount of unsystematic variance (Bryman and Crammer, 2005). Since the data-set had unequal sample sizes and unknown population variances the Games-Howell post hoc procedure is employed when analysing differences in means (Field, 2005)

The results show that there are significant differences among the three groups of respondents. These differences appear to put the estate migrant between a non migrant and an urban migrant status. In some characteristics the estate migrant resembles a non migrant while in others he/she resembles an urban migrant. However the urban migrant is significantly different from a non migrant in all characteristics examined.

Age

Those who have not migrated are on average the oldest. With an average age of 39.95 years a non-migrant is on average five years older than an estate migrant and almost ten years older than an urban migrant. These mean differences in the three groups are significant at $p<0.05$

Education

Non-migrants and estate migrants have completed middle primary school education with the mean of 5.09 and 5.52 years of education respectively. There is no significant difference in average education between a non-migrant and an estate migrant. With average of 8.57 years of education results show that most urban migrants have at least reached senior primary level of education. This level of education as shown in Table 6.01 is significantly different from that of non migrants and estate migrants.

Household size and dependency ratio

Rural non migrant households are on average bigger than migrant households. The average household size for a non migrant is 5.20 members which is significantly different from both the estate and the urban migrant households. Results show no differences in household size between an estate and an urban migrant household. The dependency ratios show that on average a non migrant household has more dependents than economically active members. The non-

Table 6.01: Characteristics of respondents at time of survey

Characteristic	Migrant type	Mean	Games - Howell test of mean difference significance		
			Non migrant	Estate migrant	Urban migrant
Age	Non migrant	39.95	-	5.51*	9.52*
	Estate migrant	34.44	-5.13*	-	4.014*
	Urban migrant	30.42	-9.52*	-4.01*	-
Years of education	Non migrant	5.09	-	0.44	-3.49*
	Estate migrant	5.52	0.44	-	-3.05*
	Urban migrant	8.57	3.49*	3.05*	-
Dependency ratio	Non migrant	1.25	-	0.13	0.39*
	Estate migrant	1.12	-0.13	-	0.26*
	Urban migrant	0.86	-0.39*	-0.26*	-
Household size	Non migrant	5.20	-	-1.13*	1.20*
	Estate migrant	4.06	-1.13*	-	0.07
	Urban migrant	3.99	-1.20*	-0.07	-

Source: Author's own survey * significant at p<.05 Non migrant N=280; Estate migrant N=128; Urban migrant N=29

migrant's mean dependency ratio of 1.12 is not different from that of an estate migrant household but is different from that of an urban migrant household. Although there is no significant difference in household size between the estate and urban migrant households the difference becomes evident when a picture of household dependency ratio is highlighted. Estate migrants have more dependents with a mean dependency ratio of 1.12 than urban migrants who have a mean dependency ratio of 0.86

6.2.2 Migrants Characteristics at Time of Migration

In Table 6.02, we compare differences in means of selected variables that characterise estate and urban migrants. In this case where the independent variable i.e. migration status is defined at 2 levels we employ an independent samples t-test (Miller *et al.* 2001). The hypothesis in a t-test is that the two groups have the same mean. Since the test is conducted between different groups, it assumes there is homogeneity of variance within the population and that the scores are independent (Filed, 2005).

Testing for homogeneity of variance in grouped data is conducted using Levene's test[37]. A significant Levene's test leads to the conclusion that the null hypothesis is incorrect and that the variances are different. If Levene's test is not significant it is concluded that the two variances are roughly equal. In case of a significant Levene's test an assumption of separate variance is assumed when calculating the t-statistic while a non significant result assumes pooled variance (Bryman and Crammer, 2005). When the test result reveals

[37] Levene's test is a 1 way ANOVA conducted on the absolute difference between the observed data and the mean from which the data came (Field, 2005)

unequal variances (Field, 2005) suggests conducting the test on transformed data to see if the test result improves. Maddala (2001) however, cautions against extensive use of transformed data which sometimes makes interpretation of results ambiguous.

Household size and household dependency ratio at time of migration

A summary of results in Table 6.02 suggest that there is no significant difference in the average size of household between a household from which an estate migrant came and that from which an urban migrant came. However, a close analysis of the two types of households suggests that even at the time of migration an urban migrant came from a household with fewer dependents compared to an estate migrant. The dependency ratio for an urban migrant at the time of migration was 0.93 while that of an estate migrant was 1.11.

Considering that Malawi has a relatively young population, i.e. there are more children under fifteen years than there are adults; it is likely that these dependents are mostly children not old people. These results seem to suggest that the rural households from which estate migrants come have more young children to look after compared to urban migrant households. To the extent that high dependency ratios are often associated with less education and poverty, it seems likely that estate migrant households are poorer than urban migrant households[38].

[38] NSO (2005) found that poorer households had higher dependency ratios than wealthier households in rural Malawi

Table 6.02: characteristics of migrants at migration

Characteristics	Mean for migrant type		Lavene's equality of variance test		t- test for equality of means			
	Estate	Urban	F	Sig	Variance assumption	t	df	sig
Age	30.57 N=128	25.28 N=295	8.13	0.005	Equal variances not assumed	5.21	205.08	0.000
Years of schooling	5.30 N=128	8.31 N=295	1.59	0.208	Equal variances assumed	-7.97	421	0.000
Dependency ratio	1.11 N=128	0.93 N=292	2.32	0.13	Equal variances assumed	2.02	418	0.040
Household size	6.02 N=128	5.92 N=292	0.09	0.93	Equal variances assumed	0.35	418	0.730

Source: Author's own survey

Age at time of migration

At the time of first migration, an estate migrant is on average much older than an urban migrant with average ages of 30.57 years and 25.28 respectively. The reasons why older individuals are more likely to migrate to estates while younger ones go to the city seem to lie in the difference in employment opportunities available in the two destinations. Available evidence suggests that there is more uncertainty associated with employment opportunities in the city than on estates in Malawi. In estates, migrants on average take considerably less time to find employment than in the city. In this regard the risk facing an urban migrant in terms of acquiring employment of his choice within a reasonable time of arrival is relatively higher than for an estate migrant. In this respect younger individuals have the time and patience to wait longer for a job of their choice. Older individuals on the other hand are more likely to go to the estate because they start recouping returns to migration within a shorter period of time.

Education at time of migration

By the time individuals are ready to migrate, those who leave to work in the city have on average completed more years of education (8.31 years) compared to those who opt for estates (5.30 years). This level of education in Malawi means that urban migrants do migrate at least after reaching senior primary level of education while estate migrants have only attained middle primary level education. Looking at current job requirements in Malawi these two levels are unlikely to make significant differences in the employability of the two individuals. However, senior level primary education means that an individual has an understanding of and to an extent may converse in English

reasonably well. This is becoming more and more important as a requirement for most jobs in the city including manual or menial work in the informal sector.

Marital status at time of migration

To examine whether there is a potential relationship between discrete variables we use the Chi-square test of independence. The null hypothesis tested in this analysis is that the variables are independent i.e. there is no relationship between the variables under analysis. In the test the null hypothesis generates frequencies against which observed frequencies are tested. If the fit to the observed frequencies is good so that the Chi-square value is small, one concludes that the variables are independent while a poor fit implies a large Chi-square value and a rejection of the null hypothesis (Tabachnick and Fidell, 2007).

There is a restriction however on using the Chi-square test when the expected frequencies for the variables are small. Bryman and Crammer (2005) observe that when there are only 2 categories or 1 degree of freedom, the number of cases expected to fall in these categories should be at least five before this test can be explained. Furthermore Fields (2005) notes that although it is acceptable in larger contingency tables to have up to 20 percent of expected frequencies below five it results in loss of statistical power in that a test may fail to detect a genuine effect.

A significant chi-square statistic shows evidence of a relationship between marital status of an individual and the type of destination a prospective

migrant may choose. In table 6.03, it is shown that at the time of migration half the urban migrants had never been married. This proportion among estate migrants is only 39.1 percent. The results are in line with earlier findings that showed that urban migrants are on average younger than estate migrants.

Table 6.03: Marital status at time of migration

Marital status	Type of migrant	
	Estate (%)	Urban (%)
Never married	39.1	57.6
Married	45.3	40.0
Widowed/separated/ Divorced	15.6	2.4
N	128	295

Source: Author's own survey Chi-square = 31.08 S, p<0.001

There is also a difference between would be estate and urban migrants with respect to proportion of individuals who had been married but were either widowed, separated or divorced at the time of migration. This proportion among urban migrants was 2.4 percent while among estate migrants; it was almost eight times as much at 15.6 percent. A further analysis of this group of estate migrants shows that the majority are women, most of whom were heading their own households at the time of migration.

The economic status of female headed households in rural Malawi has often been found to be among the poorest. This strengthens the observation that estate migrants do come from economically deprived households. The reason as to why they choose estate migration over urban migration may be culturally as well as financially driven. Being women without husbands it may not be

culturally acceptable to migrate to the city where the way of life is considered 'fast and loose'. An estate is an appropriate alternative because as estates are also in rural areas, their social setting may not be significantly different from village life. At the same time these individuals may find it easier to migrate to estates because estates sometimes recruit directly from villages and they finance travel cost of migrants. This is likely to appeal to a poor rural widow with children who would see it as a safe and less costly route out of poverty.

Household headship at migration

Household headship at time of migration was found to be different for the two migration flows. Results from Table 6.04 show that the majority of would be estate migrants were already household heads at the time of migration.

Table 6.04: Household headship at time of migration

Household headship	Type of migrant	
	Estate (%)	Urban (%)
Respondent	58.6	36.9
Father/mother	31.3	51.9
Other	10.2	11.2
N	128	295

Source: Author's own survey Chi-square = 18.02 S, p<0.001

58.6 percent of estate migrants reported that they were heads of households at time of migration compared to 36.9 percent of urban migrants. The majority of urban migrants reported living in households headed by their parents at the time of migration. This appears reasonable since unlike urban migrants; most estate migrants were found to be older and married at the time of migration.

Household food security

One other important household characteristic that the study explored was household food security. Being 'food secure' in rural Malawi in the sense of having enough maize for the family to last till the following harvest period, is taken as a sign of wealth which may therefore have a bearing on the choice of destination. A non significant chi-square value in Table 6.05 shows that there is no evidence of a relationship between food security and type of migration. Migrants were asked the state of food security for their households in the year before they left. Almost the same proportion (about 60 percent) of both estate and urban migrants reported not being food secure in the year before migration. This is a little surprising because other indicators in this study such as incomes and household dependency ratios seem to suggest that urban migrant households were relatively wealthier households and therefore expected to be on average more food-secure than estate migrants.

Table 6.05: Household food security in year before migration

Household food security	Type of Migrant	
	Estate (%)	Urban (%)
Yes	39.1	40.3
No	60.9	59.7
N	128	295

Source: Author's own survey Chi-square = 0.061 NS, p>0.05

The absence of a relationship between food security and type of migration may be explained by the way food security was defined in this study. Household food security in the survey for this study referred to a household producing and harvesting adequate maize, Malawi's staple food to last the

households until the next harvest period. Maize is so central to a Malawian diet that producing inadequate maize in a household is often synonymous with household food insecurity. The unreliable product and financial markets make it a necessity for households to produce and store their own maize requirements. However results from this study seem to suggest that there are some rural households which may rely on buying maize to satisfy their household food requirements. With frequent droughts that have affected the country over the past decade, it would not be uncommon for households opting not to grow their own maize or growing very little. Such households which would often be those which rely non agricultural sources of income are likely to buy maize in bulk during harvest period when maize is readily available and cheap.

This seems to be the case as shown in Table 6.06. Results in this table show strong evidence of a relationship between type of migration and sources of income. Would be urban migrant households were more likely to derive their income from non agricultural enterprises while would be estate migrants depended more on agricultural incomes. An analysis of sources of income at time of migration for both groups of migrants show that 68 percent of estate migrant households derived their incomes from agriculture compared to 56.3 of urban migrants. With respect to non agricultural incomes 48.1 percent of would be urban migrant households had non agricultural incomes compared to 36.7 percent of estate migrants.

Table 6.06: Source of income at migration

Main Household source of income[39]	Type of migrant			
	Estate (%) N=128		Urban (%) N=295	
	Yes	No	Yes	No
Non agricultural	36.7	63.3	48.1	55.3
Agricultural	68.0	32.0	56.3	43.7

Source: Author's own survey

Agricultural incomes Chi-square = 5.08 S, $p<0.05$
Non Agricultural incomes Chi Square = 4.71 S, $p<0.05$

Bridging the food gap

One other relationship which is even more revealing of the differences between estate and urban migrant households is that of methods that different households employ in bridging the food gap in case of food shortage. Although no relationship was found between food security and type of migration, the means by which different would be migrant household use to bridge the food gap reveal significant differences between would be estate and would be urban migrant households. Findings show that when rural households are faced with food shortages, they employ two main methods to bridge the food gap. They either buy with cash or they supply '*ganyu*' in return for food or money to buy food. Would be urban migrant households were likely to buy food in case of food shortage while would be estate migrant households would often use '*ganyu*'. Table 6.07 shows that 67.1 percent of would be urban migrant households bought food to bridge the food gap compared to 25.6 percent of would be estate migrant households. 60.3 percent of would be estate migrant households used '*ganyu*' to fill the food gap compared to 28.9 percent of would be urban migrant households.

[39] Note that these are not mutually exclusive categories. A household may have both agricultural and non agricultural sources of income but they were reporting on what they considered as their main income source in terms of amount earned by the household.

Table 6.07: Method of bridging the food gap

Bridging food gap	Type of migrant	
	Estate (%)	Urban (%)
Buy food	25.6	67.1
Ganyu	60.3	28.9
Others	14.1	4.0
N	128	295

Source: Author's own survey Chi-square = 18.91 S, p<0.001

Reliance on '*ganyu*' labour in Malawi often indicates that a household does not have liquid assets to buy food. During food shortage periods, such households go out to seek '*ganyu*' in order to get food or to earn income to buy food. Unfortunately '*ganyu*' labour has a very low supply price and its availability varies considerably over time and space. This means that during peak 'hunger' periods these individuals have to travel long distances and work long hours to provide their households with needed food which is often not enough. Since the food shortage period coincides with the critical farming period in Malawi, these households abandon their fields to fulfil their immediate need: food. This results in low production from their farms putting them into further food insecurity for the following season thereby trapping them in a vicious cycle of poverty. In this regard involvement in '*ganyu*' is a sign that a household is vulnerable to both food insecurity and poverty in Malawi. These results suggest that estate migrants are likely to come from rural households which are agriculture dependent and often suffer from chronic food insecurity and poverty.

6.2.3 Household Access to Migration Information

Having access to information about a destination helps a prospective migrant make an informed decision about migrating. Table 6.08 contains findings about migrants' access to different types of migration information. The general picture emerging from the results in the table suggests that access to information on job prospects, food and accommodation availability was quite high among the two groups of migrants. Over 80 percent of migrants had access to these three types of information. Access to such information as wage and migration cost although slightly higher among urban migrants, was remarkably low for both groups. The cost of migration in the study refers to cost of travel and establishment in destination before a migrant starts work. In the case of estate migrants about 61.7 percent and 60.2 percent had access to wage and migration cost information respectively. Among urban migrants, 66.1 percent and 79.7 percent had access to wage and cost information respectively.

Table 6.08: Access to migration information

	Estate migrant N=128 (%)		Urban migrant N=295 (%)		Chi-Square	Sig
	Yes	No	Yes	No		
Job prospects	88.3	11.7	84.4	15.6	1.08	NS, p>0.05
Wage/income	61.7	38.3	66.1	33.9	0.75	NS, p>0.05
Migration cost	60.2	39.8	79.7	20.3	17.55	S, p<0.001
Food	91.4	8.6	80.0	20.0	8.41	S, p<0.01
Accommodation	80.5	19.5	86.4	13.6	2.44	NS, p>0.05

Source: Author's own survey

It is not clear at this point whether these differences in access levels reflect variation in availability of different types of information in origin areas or variability in migrant's efforts on sourcing information they regard as important for their decision making process. To the extent that both estate and urban migrants had higher or lower access to same types of information, it suggests that certain types of information were more readily available than others. Results further reveal that while the differences in access to information between the two groups are not significant in the case of job, wage and accommodation information, they are significantly different for food and migration costs information. This specific difference, particularly the differential access to food information, seems to reflect variability in the potential migrant's efforts in sourcing different types of information. 91.4 percent of estate migrants had information on food availability in the destination area compared to 80 percent of urban migrants. Considering that the majority of estate migrants come from food insecure households, it is understandable that most would seek information about food availability in the destination areas.

Migrant's perception about information accuracy

Migrants were asked to give an *ex post* assessment of the accuracy of migration information they accessed before departure. On a scale of 1 to 4, with 1 being not accurate, 2 slightly accurate, 3 accurate and 4 very accurate, they were asked their perception about how accurate were the different types of information they sourced. Table 6.09 summarises the results.

Table 6.09 Perceived accuracy of migration information

Type of migration information	Mean Accuracy		Lavene's equality of variance test		t- test for equality of means			
	Estate Migrant	Urban Migrant	F	Sig	Variance assumption	t	df	sig
Job prospects	3.50 N=113	2.69 N=249	31.12	0.000	Equal variances not assumed	10.53	344.56	0.000
Wage/income	2.59 N=79	2.65 N=195	1.98	0.160	Equal variances assumed	-0.45	272	0.655
Accommodation	3.40 N=103	3.47 N=255	9.38	0.002	Equal variances not assumed	-0.96	152.35	0.394
Food availability	3.16 N=117	3.46 N=235	29.15	0.000	Equal variances not assumed	-3.27	166.05	0.001
Migration costs	3.22 N=77	3.18 N=235	19.44	0.000	Equal variances not assumed	0.42	97.66	0.674

Source: Author's own survey

Comparing perceived accuracy of the different types of information among migrants, results show that on average wage information was perceived as least accurate by both groups of migrants. Estate migrants gave an average accuracy rate of 2.59 while urban migrants rated wage information accuracy at 2.65. Although this difference in means is not significant between the two groups, the low accuracy rate for both groups for this type of information suggests it is relatively more difficult to access accurate information on wages. Potential migrants may be getting more attractive wage information than is actually the case. With respect to job prospects, estate migrants on average found the information significantly more accurate than urban migrants. For this information estate migrants gave it an average of 3.50 while urban migrants rated it at an average of 2.69. Rating for food information was also significantly different between the two types of migrants with estate migrants giving an average rate of 3.16 while urban migrants gave an average of 3.46.

Sources of information

Some of the differences in the accuracy of the information may be explained by exploring the sources from which the migrants obtained their information. Results from Table 6.10 indicate that would-be migrants rely on the similar sources of information differing only in the relative importance of the sources

Table 6.10: Source of information

Sources of information	Estate migrant (%)	Urban migrant (%)
Relatives/mates in destination	15.9	55.8
Return migrants in area of origin	54.9	32.1
Employer/agent	17.7	4.4
Others	11.5	7.6
N	113	249

Source: Author's own survey Chi –square = 56.10 S, p<0.001

There are three major sources of information for the migrants: relatives or friends already living in destination areas, return migrants in areas of origin and prospective employers or their agents. The relative importance of these sources of information is significantly different between the two groups of migrants as evidenced by the significant chi-square value. The majority of urban migrants rely on relatives and friends in the prospective destination for information. Results show that 55.8 percent of urban migrants sourced information from relatives and friends already living in the city before they migrated. Their second most important source of information was return migrants in their areas of origin. About 32.1 percent of urban migrants used this source of information. Estate migrants relied mainly on return migrants as their main source of information. 54.9 percent sourced information from return migrants. The results also show that estate employers or their agents were also an important source of information for would be estate migrants with about 17.7 percent of the migrants using this source of information.

6.2.4 Migration Networks

The significant role played by relatives and friends living in the city in providing destination information for would-be urban migrants is indicative of

a migration network within the rural urban migration stream. Results show that the network for migrants is not very active within the rural estate migration flow as evidenced by the small proportion of estate migrants who relied on relatives and friends already in estates. In the case of urban migrants it is possible that relatives and friends passed on information that was a little exaggerated in order to create an impression that they themselves were doing well. This may explain why urban migrants found information about job prospects less accurate compared to estate migrants.

Table 6.11: Migrants with destination contacts

Had relatives in destination	Estate migrant (%)	Urban migrant (%)
Yes	32.8	81.4
No	67.2	18.6

Source: Author's own survey Chi –square = 94.66 S, p<0.001

Migrants were asked if they had relatives or friends in destination areas before they migrated. Results from Table 6.11 shows that compared to estate migrants, the majority of urban migrants knew of relatives or friends already living in their destination. 81.4 percent of urban migrants reported knowing somebody in the city compared to about a 32.8 percent of estate migrants. Table 6.12 shows that almost all (93.8 percent) of urban migrants who had contacts in the city reported having been in touch with them before departure. However, very few estate migrants (38.1 percent) who knew of someone in their destination actually got in touch with them before departure.

Table 6.12: Migrants getting in touch with destination contacts

Migrants got in touch	Estate migrant (%)	Urban migrant (%)
Yes	38.1	93.8
No	61.9	6.3

Source: Author's own survey Chi –square = 89.10 S, p<0.001

These findings are in line with earlier findings on information where urban migrants showed that they relied on relatives and mates already living in the city to provide them with different migration information. This strengthens the idea that there are some established migration networks on which prospective rural urban migrants rely during migration. However there is weak evidence for the existence of such a network within the rural estate migration stream. This may be the case because the estate owners play the role that the migration network plays among urban migrants. Upon arrival on the estate, a migrant is given housing and food for his family. It was revealed in the study that housing is often provided rent free while food in form of maize and relish is given on loan which is deducted from their monthly wage.

Other findings suggest that on average, estate migration is relatively shorter term than urban migration. The short period of migration may not allow a full fledged migration network to be developed for estate migrants. An analysis of return migrants in Table 6.13 shows that return estate migrants were away from their areas of origin for an average of 2.8 years, while return urban migrants were away for an average period of 6.4 years. This difference in means between the two groups is very significant and likely an important difference for the establishment of a migration network.

Table 6.13: Average period of migration

Return migrant	Mean	Levene's test for equality of variance		t-test for equality of means		
		F	sig	t	df	sig
Estate	2.80	19.70	0.000	-2.60	47.11	0.013
Urban	6.40					

Source: Author's own survey t – test assumes unequal variances, Estate N= 77 Urban N=42

Assistance toward cost of establishment in destination

While estate owners help estate migrants in meeting the cost of establishing themselves upon arrival, as is the case with migration information, it is relatives and friends who assist urban migrants. Findings from this study show that urban migrants may reside with relatives for up to an average of 6 months before they find their own accommodation. The majority only leave after they have found employment. Results from Table 6.14, show that more than 70 percent of urban migrants reported that they were residing and eating with their relatives upon arrival in the city. Meanwhile over 90 percent of estate migrants received food and accommodation from their employers.

Table 6.14: Assistance towards cost of establishment in destination

Assistance type	Estate migrant N=128 (%)		Urban migrant N=295 (%)		Chi-Square	Significance
	Yes	No	Yes	No		
Food	93.0	7.0	73.9	26.1	20.04	S, p<.001
Accommodation	94.5	5.5	80.3	19.7	13.83	S, p<0.01

Source: Author's own survey

Family migration

Since the majority of urban migrants have to reside and eat with their relatives and mates upon arrival, it may explain why the majority of those already with families leave them behind the first time they migrate. Table 6.15 shows that about 2/3 of urban migrants with families and dependents leave them behind when moving for the first time. Meanwhile only about a 1/3 of estate migrants leave their families behind. Would be urban migrants with dependent family members would therefore find it impractical to migrate with their families because they first reside with relatives and friends upon arrival.

Table 6.15: Migrating with family

Migrated with family		Estate migrant (%)	Urban migrant (%)
Yes		60.8	33.6
No		39.2	66.4
	N	79	137

Source: Author's own survey Chi –square = 15.06, p<0.001

Considering that most migrants would often stay with their hosts up until they find a job, it would put tremendous pressure on the host family if all members of the migrant family travelled with the migrant. Since estate migrants are provided with food and own accommodation upon arrival, it makes it easier for a migrant to leave with a family on first migration. At the same time experience shows that estates recruit directly from villages. When they recruit they also provide transport for the migrants. This makes it naturally easy for migrants to bring their families and dependents along.

One other reason for estate migrants moving with their families may have to do with their socioeconomic status before departure. Prospective estate

migrants may be obliged to bring along their families when they first leave for the estate because of difficulties they face in their areas of origin. As has been shown in this study, the majority of estate migrants come from households which are vulnerable to food insecurity and poverty in rural areas. In this case, the head of household as the main income earner may be obliged to take their dependents with them.

Results from Table 6.16 show that only 41.9 percent of estate migrant families left behind had followed the migrant to the destination, with more than half not having joined the migrant by the time of the survey.

Table 6.16: Family followed migrant

Family followed later	Estate migrant (%)	Urban migrant (%)
Yes	41.9	85.6
No	58.1	14.4
N 31	97	

Source: Author's own survey Chi –square = 23.852 S, p<0.001

However, 85.6 percent of families left behind by urban migrants had joined the migrant in the city. Three main reasons may explain why only few of estate migrant's families left behind end up joining the migrant. Firstly, to the extent that an estate migrant is likely to stay away for an average of 2 to 3 years, he or she might consider it costly on his part to have all his family members join him in the destination. Secondly, it may also be explained by distances covered by migrants and remoteness of estate locations in Malawi. Most estates are situated in rural areas of specific districts. Poor communication networks, combined with the low education of most estate migrants may make it difficult for estate migrants to coordinate travelling

arrangements for their families. Lastly, this finding may be a reflection of the fact that although it is easy to find work in estates there could be too little improvement to the migrant's economic life to enable him to transport his family when they are left behind.

6.2.5 Employment opportunities for urban migrants

To understand the availability of job opportunities for urban migrants, the urban labour market was divided into two sectors: the formal and informal sectors[40]. The formal sector in the study referred to non manual employment in the public and private sector operations that had more than 20 permanent employees. Informal sector referred to private or family owned operations that had less than 20 permanent employees. Migrants were asked what they considered as their main job[41] in the past seven days prior to the survey, their employer, the type of organisation they worked for. Further information included a record of their employment history since arrival in the city.

Current sector of employment

Results in Figure 6.01 shows that the majority of urban migrants are currently employed in the informal sector. This sector employs about two thirds of the migrants with a third employed in the formal sector.

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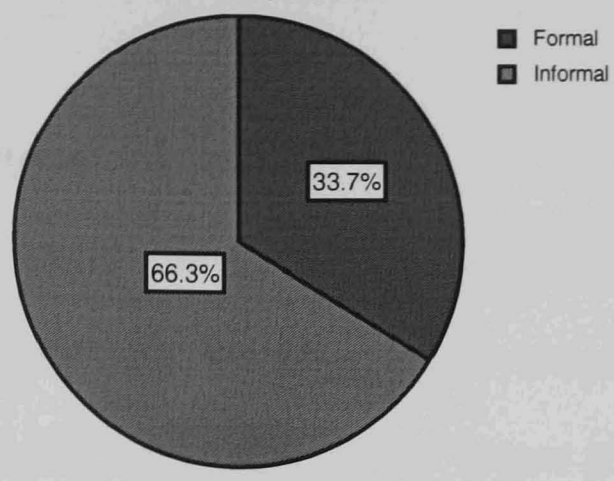
[40] Considering that the majority of Malawi's labour force is unskilled (Lewis et al. 2003 reports that the unskilled share of the labour force is 82 percent), we recognize that a number of migrants may be employed in the formal sector yet their conditions are not different from those employed in the informal sector. We therefore define the informal sector as comprising all individuals working in private and family owned enterprises with less than 20 permanent employees as well as those working in the formal sector but in low class occupations. This definition is consistent with that of Cole and Sanders (1985).

[41] A main job was defined as the job in which the respondent worked the longest hours per week

Figure 6.01: Migrant's current sector of employment



Current employment status

Further analysis show that depending on the basis of the employer in the main job, migrants could generally be classified into one of three main categories: (i) formal sector employed migrants (ii) informal sector employed migrants and (iii) informal sector self employed migrants. Subdividing the informal sector into self employed and those employed by others offers interesting insights into the different characteristics of migrants in the city.

Figure 6.02: Migrant's current employment type

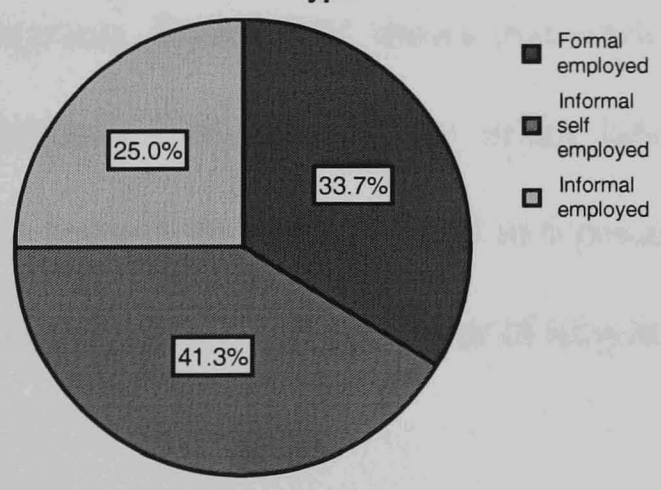


Figure 6.02 shows that according to this categorisation the informal self employed group form the majority of migrants with 41.7 percent. Those employed in the formal sector constitute 33.7 percent while 25.0 percent of migrants reported being employed in the informal sector. This point analysis

of migrants' employment structure conceals significant changes in migrants' employment patterns that occur over time.

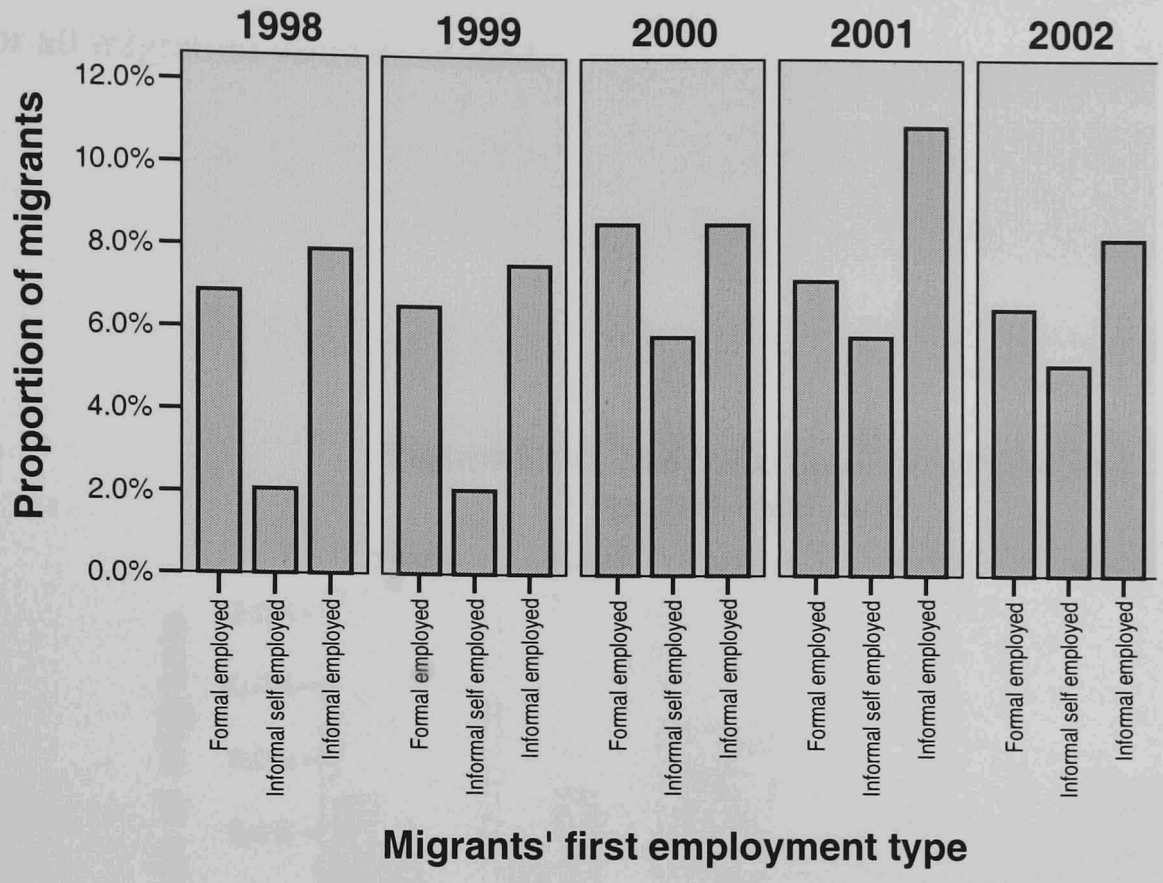
Migrant's first employment on arrival

When migrants were asked their employment history, the results reveal that the majority of migrants enter the urban labour market in category 3[42], as employees in the informal sector. The second largest group on arrival in the city are employed in the formal sector while the smallest group is that which go into self employment. For example, Figure 6.03 shows that those migrants entering the urban informal sector as employees in 1998 constitute about 8.0 percent of the sample compared to 6.9 percent formal sector employees and about 2.0 percent as self employed. This trend is true for all migrants arriving in the city in different years from 1998 to 2002.

Although self employment remains the lowest category among the three as the first category of employment, results show that it is becoming increasingly important for new migrants. Figure 6.03 shows that while in 1998 and 1999 the proportion of migrants first entering the urban labour market as self employed was about 2 percent, in 2000 it tripled to 6 percent. This proportion remains consistently high for 2001 and 2002 year of migration.

[42] Note that the proportions are calculated out of the total sample of the urban employed.

Figure 6.03: Year of migration by first employment type



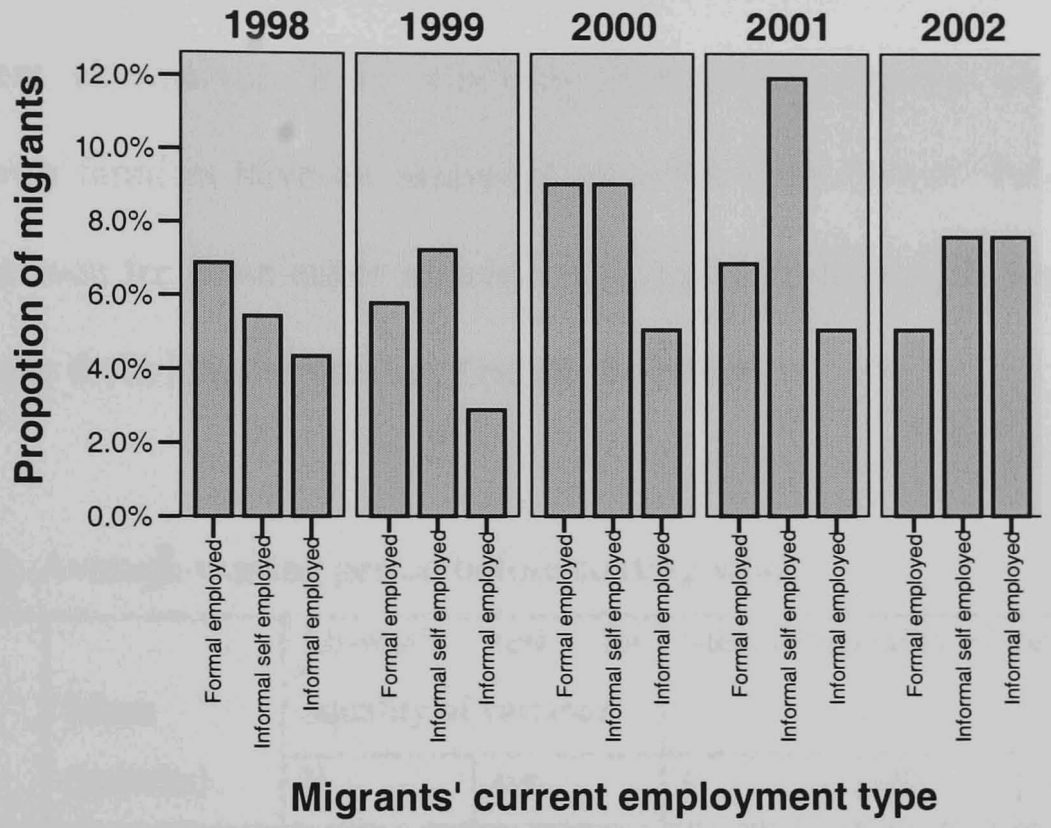
Current employment status by year of migration

Figure 6.04, shows the current employment status of migrants based on their year of migration reveals an interesting change in the category of employment for migrants. The results show a decline in importance of the informal sector employed category. In a striking reversal, the proportions of migrants who are employees in the informal sector now constitute the smallest category. There appears to be a shift from being employed in the informal sector to self employment and formal sector employment, with the largest shift into self employment.

For example the 1998 urban migrants who reported their main current job as employees in the informal sector constitute about 4.1 percent, down from 8

percent when they first arrived. The self employed increased from 2 percent when they first arrived to just over 5 percent, while those employed in the formal sector increased by a negligible margin. This trend where those employed in the informal sector shift to the self employed category is evident for all migration years examined.

Figure 6.04: Year of migration by current employment type



Job availability on arrival

At 44 percent (Table 6.17) the proportion of estate migrants that found a job waiting was almost twice as much that of urban migrants. This is probably because in the past estates had the tendency to conduct recruitment exercises in rural areas for employees.

Table 6.17: Job availability on arrival

Job waiting	Estate Migrant (%)	Urban migrant (%)
Yes	44.0	22.7
No	56.0	77.3
N	125	295

Source: Author's own survey Chi-square 19.305 S, p<0.001

Securing a job prior to departure provides an insurance against the possibility of being unemployed for sometime upon arrival. Since employment in estates is linked to food and accommodation provision and there are limited employment alternatives, it is important that estate migrants who often migrate with families have an assurance of a job upon arrival. Table 6.18 shows that even for those estate migrants who arrive without a job waiting, it does not take them long before they find employment

Table 6.18: Average waiting period before starting work

Migrant	Mean (months)	Levene's test for equality of variance		t-test for equality of means		
		F	sig	t	df	sig
Estate	0.22	102.96	0.000	-9.97	289.52	0.000
Urban	4.22					

Source: Author's own survey t – test assumes unequal variances, Estate N= 128 Urban N=285

While estate migrants took less than a week to start employment an urban migrant took an average of 4.2 months. Among urban migrants however, those who arrived to operate their own business took much less time than those who came looking for employment. Migrants who obtained formal

sector employment took on average 5.41 months which was much longer than the average period for informal sector employed migrants with 2.88 months.

Summary

Results from the initial analysis of data highlight a number of points that suggest differences in characteristics of estate and urban migrants in Malawi. We summarise below the main points from this analysis.

- Younger, single and relatively more educated rural individuals migrate to urban centres while older married and less educated migrate to the estate.
- Estate migrants come from households that rely on *ganyu* labour, which is associated with households that are vulnerable to poverty and food insecurity.
- Urban migrants come from households that have reliable non agricultural enterprises, which is associated with affluence in the rural setting.
- Estate migrants rely on return migrants in the area of origin for migration information while urban migrants rely on relatives and friends already in the city.
- Urban migrants have contacts in the form of relatives and friends in the city and are in touch with them before departure.
- The majority of urban migrants are employed in the informal sector upon arrival in the city and eventually move into self employment with time.

6.3 Migration in Malawi: an Econometric Analysis

6.3.1 OLS Regression of Earnings Functions

As noted earlier, migration in Malawi involves mainly three locations: the rural, the estate and the urban. This section begins by building a picture of earnings in the three locations. This information and the information obtained from the initial analysis of survey data is used to specify the hypotheses for the migration model.

Rural earnings function

From the previous chapter, the earnings functions for non migrants, estate and urban migrants take the form of an individual wage equation. Our rural earnings function takes the form:

$$W_i^R = e_0 + e_1(S_i) + e_2(Ex_i) + e_3(Ex_i^2) + e_4(L_i) + e_5(NA_i) + \varepsilon_i \quad \text{.....(16)}$$

Where rural earnings are expressed as a function of years of education, Experience and its quadratic form, Experience squared, landholding size and Non agricultural enterprise dummy.

Hypotheses

1 Years of education – It is expected that years of education will have a positive relationship with income. The coefficient for years of education should therefore be positive

2 Experience – It is expected that the coefficient for experience will be positive.

3 The quadratic form of experience (experience squared) – It is expected that experience affects a person's wage non-linearly i.e. after many

years of experience the effect of an additional year on one's earnings becomes smaller. The coefficient for the quadratic form of experience is therefore expected to be negative.

4 Landholding size - As a proxy for wealth we expect the coefficient for landholding size to be positive.

5 Non agricultural enterprise dummy– Having access to a reliable non agricultural income (i.e. having an enterprise that is in operation for at least six months in a year) insures the households from the effects of stochastic variability in rainfall and ensures that the household has income even during the growing season. The coefficient for non agricultural enterprise should therefore be positive.

Estate earnings function

From the previous chapter our estate earnings function takes the form:

$$W_i^E = c_0 + c_1(S_i) + c_2(Ex_i) + c_3(Ex_i^2) + c_4(Pe_i) + c_5(Pe_i^2) + c_6(IGA_i) + \varepsilon_i \ldots\ldots(17)$$

Where, estate earnings are expressed as a function of years of education, experience and its quadratic form, period of stay and its quadratic form and income generating activity dummy.

Hypotheses

1 Years of education – It is expected that estate income will increase with years of education. The coefficient for years of education is expected to be positive.

2 Experience – It is expected that the coefficient for experience will be positive.

3 The quadratic form of experience (experience squared) – It is expected that experience affects a person's wage non-linearly i.e. after many years of experience the effect of an additional year on one's earnings becomes smaller. The coefficient for the quadratic form of experience is therefore expected to be negative

4 Period - Income is expected to increase with a migrant's period of stay on the estate. We therefore expect the coefficient for period to be positive

5 Period squared – After a period of time we expect the effect of any additional year on one's earnings to become increasingly smaller. The coefficient for the quadratic form of period of stay (period of stay squared) should therefore be negative.

6 Income Generating Activity – We expect that those estate migrant households which have an income generating activity are likely to have higher incomes than those who do not. We anticipate the coefficient for IGA to positive

Urban earnings function

From the previous chapter our urban earnings function takes the form:

$$W_i^U = c_0 + c_1(S_i) + c_2(Ex_i) + c_3(Ex_i^2) + c_4(Pe_i) + c_5(Pe_i^2) + c_6(SE_i) + \varepsilon_i \ldots\ldots(18)$$

Where, urban earnings are expressed as a function of years of education, experience and its quadratic form, period of stay and its quadratic form and self employment dummy.

Hypotheses

It is expected that years of schooling, experience, experience squared, period of stay and its quadratic form to behave in a similar way as in the estate earnings function i.e. the coefficients for years of schooling, experience and period of stay in the city will be positive. Similarly Period squared and experience squared are expected to be negative.

Self employment - Our initial analysis of survey data seemed to suggest that more and more migrants eventually become self employed. Findings suggested that average incomes for self employed are higher than those employed. It is expected therefore that being self employed has a positive relationship with income earned. The coefficient for self employment should therefore be positive.

Identification of outliers in the data

Identification of outliers in the study was done by exploring and plotting descriptive statistics of variables of interest. At a later stage Mahalanobis distances provided in SPSS regression were computed to identify multivariate outliers. This statistic, which measures the distance of a case from the mean of the predictor variable, has a Chi-square distribution with the number of degrees of freedom equal to the number of variables in the analysis (Pallant, 2005).

Tabachnick and Fidell (2007) however caution that Mahalanobis distance is not a perfectly reliable indicator of multivariate outliers. They observe that the statistic is tampered by patterns of variances and covariances among the

variables in that it gives a lower weight to groups with highly correlated variables which may result into Mahalanobis distance masking a real outlier or swamping a normal case. They suggest that a very conservative probability estimate for a case being an outlier of $p<0.001$ for the Chi-square value is appropriate for Mahalanobis distance.

In this respect the study used Cook's distances to examine whether the outliers identified through Mahalanobis distances caused undue influence on the regression results. Cook's distance is a measure of the overall influence of a case on the model with values of greater than 1 being a cause for concern (Filed, 2005). No decision however was taken at this point on the identified outliers, pending Ordinary Least Squares (OLS) regression assumption tests which were expected to determine the possibility of variable transformation.

Evaluation of OLS Assumptions

One of the OLS estimators states that all error terms have the same variance which is referred to as homoskedasticity. When there is unequal variance, known as heteroskedasticity, the least squares are inefficient and the estimates are biased thus invalidating the tests of significance (Maddala, 2001). Literature suggests that for wage or income this is not strange. Tabachnick and Fidell (2005) for example note that the relationship between wage and age is likely to be heteroskedastic since people start out making about same salaries but with increasing age people spread farther apart on income resulting into positively skewed income and therefore heteroskedasticity.

A test for heteroskedasticity was conducted using the White test (White, 1980), which involves regressing the square of the error terms (ε_i^2) on all explanatory variables, their squares and their cross products. The test statistics is asymptotically distributed as Chi-squared with P degrees of freedom where P is the number of regressors in the auxiliary regression excluding the intercept. White's test is a test of null hypothesis of no heteroskedasticty against heteroskedasticity of some unknown form. A significant White test leads to non rejection of the null hypothesis and acceptance of the alternative hypothesis.

While all other tests of heteroskedasticty test for deviations from the null hypothesis of homoskedasticity in a particular direction, the White test does not require an additional structure on the alternative and exploits further the idea of a heteroskedasticity consistent covariance matrix for the OLS estimator. (Verbeek, 2004) observes that this makes the White test capable of detecting more general forms of heteroskedasticity. Furthermore White describes his approach as a general test for model specification since the null hypothesis underlying the test assumes that the errors are both homoskedastic and independent of the regressors and that the linear specification of the model is correct. This implies that violation of any one of the assumptions lead to a significant White test statistic. Conversely a non significant test statistic suggests that none of the assumptions were violated.

A number of remedies for heteroskedastiy have been suggested in literature. One particular solution that has been widely suggested is the log

transformation of the variables in question (Verbeek, 2004; Maddala 2001). A log transformation was therefore conducted on the income variable in all the three functions. A further test for homoskedasticity in the three earnings functions reveal no further evidence of hetereskedasticity (See Appendix 7-9)

Multicollinearity

Some level of correlation may exist among explanatory variables in a regression equation. However when the explanatory variables are highly correlated, it becomes difficult to disentangle the separate effects of each of the explanatory variables on the explained variable (Maddala, 2001). The other consequence is that the presence of multicollinearity may lead to unreliable estimates that have high standard errors with unexpected sign and magnitude (Verbeek, 2004).

Literature often suggests two measures of multicollinearity; the Variance Inflation Factor (VIF) and the condition number. Myers (1990) suggests that a VIF value of 10 is cause for concern that multicollinearity may result into unbiased coefficients. Maddala (2001) however argues that the VIF and other measures of multicollinearity addressed in literature are of limited use in that they are "only complaints". He argues that it is mainly the t-statistics and standard errors of a regression that provide more information about how serious things are.

The earnings function for non migrants, estate migrants and urban migrants in this study take the form of an individual wage equation. In including variables age, years of schooling-6 often leads to multicollinearity (Verbeek, 2004).

This may explain why most often individual wage functions include just one variable between education and age when experience in the equation is defined in this manner.

In this study we consider that experience affects a person's wage non - linearly. That is after many years of experience the effect of an additional year of experience on one's earnings become smaller. Similarly the period of stay in destination may have a positive effect on earnings however after some time the effect of any additional year of period of stay on one's earnings may become increasingly smaller. In this regard the earnings functions include the squares of experience and period of stay. It is expected that these variables will be negative and significant if these hypotheses are true.

Although these functions have square terms in them they can still be estimated using OLS because although they are non-linear in explanatory variables, they are linear in parameters (Verbeek, 2004). However, including cross products or powers of products in the analysis along with the origin variables introduces multicollinearity in the model. The literature suggests that if the only goal of analysis is prediction this problem can be ignored (Tabachnick and Fidell, 2007; Field, 2005).

In this study however, to explore the hypothesis that experience and period of stay may have a non linear relationship with earnings, meant that the squares of these variables had to be included in the function to be estimated. In this regard, the resulting multicollinearity between the variables and their quadratic forms were likely to interfere with the signs of the coeeficient and

magnitude of the t-statistics. Tabachnick and Fidell (2007) observe that the problem of multicollinearity when powers of explanatory variables have been added to a prediction equation is greatly reduced when some collinear independent variables have been centred[43]. They argue that centring an explanatory variable does not affect its simple correlation with other explanatory variables such that analysis with centred variables leads to the same unstanderdised coefficients for simple terms in the equation as when un-centred.

To see how well the estimated the estimated regression fit the observations the study uses 3 main statistics: R^2, t-ratio and the F-ratio. R^2 is used as a goodness of fit statistic that measures the proportion of (sample) variance of the dependent variable that is explained by the model. The t – statistic tests the null hypothesis that a computed parameter coefficient $B_k=0$. If it is significant the null hypothesis is rejected it is concluded that B_k differs significantly from zero and the predictor variable concerned contributes significantly to the outcome of the dependent variable. The F-test on the other hand is a test for the joint hypothesis that all coefficients in the regression except the intercept B, are equal to zero. It is based on the ratio of improvement due to the model and the difference between the model and the observed data.

OLS regression results

An OLS regression was conducted to estimate the three earnings functions. Table 6.19 displays the intercept, the coefficients of the regression and their

[43] Centring of a variable means converting a variable to deviation scores so that each variable has a mean of zero (Aiken and West, 1991)

significance levels. Table 6.19 further displays the sample size and R- square and the t-statistics are in brackets.

Rural earnings

The R^2 value of 0.33 shows that 33 percent of the variations in the log of earnings per day for a rural Malawian are explained by number of completed years of schooling, experience, whether main income source is agriculture or non agriculture enterprise and the landholding size All coefficients for the independent variables except that of the square of experience differed significantly from zero.

The coefficient for education is positive and significant indicating that an increase in education increases income per day for rural individuals. Findings further show that the size of land holding is an important determinant of incomes in rural Malawi. This suggests that agriculture still remains an important source of income for rural Malawians. However, results show that having a non agricultural enterprise significantly contributes to explaining income variations. In an agricultural setting having a reliable non agricultural enterprise helps the household to diversify income and reduce the impact of stochastic variability in rainfall and weather conditions.

The coefficient for experience shows a significant negative relationship with incomes. This is a little surprising considering that experience is expected to help explain incomes of individuals. In the case of Malawi this result may come about because of the way experience was defined. Calculation of the experience variable was derived from age and education of an individual. The

Table 6.19: Results of earnings function: The dependent variable is log daily income

Variable	Type of location		
	Rural	Estate	Urban
	β (t-ratio)	β (t-ratio)	β (t-ratio)
C	1.769*** (50.022)	1.851*** (83.421)	1.837*** (56.731)
Years of schooling (Educ)	0.018*** (4.943)	0.005*** (3.703)	0.026*** (13.189)
Experience (Exp)	-0.002** (-2.363)	0.000 (0.593)	0.004*** (3.335)
Experience squared (Exp^2)	0.000 (0.480)	- 0.000 (-0.659)	-0.000 (-1.123)
Period of stay (Per)	-	0.004 (1.398)	0.022** (4.706)
Period squared (Per^2)	-	0.004* (1.725)	-0.007* (-1.815)
Landholding size (La)	0.080*** (4.126)	-	-
Income Generating Activity (IGA)	-	0.022** (2.570)	-
Self Employment dummy (SELFEMP)	-	-	0.092*** (7.071)
Non agricultural income dummy (NAGRIC)	0.052** (2.472)	-	-
	$R^2 = 0.33$	$R^2 = 0.23$	$R^2 = 0.52$

Source: Author's own survey Significance level * p<0.1 ** p<0.05 ***p<0.00

majority of old rural individuals have no or little education but often earn low income due to age.

Estate earnings

The regression result for estate earnings is significant at $p<0.001$ showing that multiple R in the population is significantly different from zero. However the R^2 value of 0.23 shows that the model is able to explain only 23 percent of the variation in estate incomes. Results show that variation in the log of income per day for estate migrants is explained by education, the square of period of stay and having an income generating activity.

As in the rural earnings function the number of years of education exerts a positive and significant influence on the dependent varaiable at $p<0.001$. Experience, although positive, is not significant. As far as the model is concerned experience of an individual (estate migrant) does not explain the income that individual may earn.

The number of years that a migrant spends on an estate has been found to have a positive but insignificant influence on estate incomes. The coefficient for the quadratic form for period of stay is positive and weakly significant at $p<0.10$. This suggests that it probably takes a long period of time for period to have an effect on incomes in estates.

However findings from Table 6.19 show that where estate households have an income generating activity besides wage employment it has a positive and significant relationship with income. The small variation in income with

respect to years of schooling period of service and experience suggest that the entry points for estate migrants do not vary much regardless of education and experience. This seems to suggest that estates may apply the government minimum wage announced across the board with few if any adjustments to wage based on skill and experience acquired over time. This may help explain why most estate migrants have relatively shorter migration periods than urban migrants.

Urban earnings

The R^2 of 0.52 shows that more than half of the variation in the log of income per day for urban migrants earnings are explained by number of years of education, experience, the number of years the migrant has been in the city and whether the migrant is self employed. The results show that all the coefficients in the urban equation have the expected signs

As expected, education contributes significantly to explaining variation in urban incomes for migrants. Results show that the higher the number of years of education that a migrant has the higher will be his income per day. Similarly the more experienced an individual is the higher will be his income per day. With time however the impact of experience on incomes declines as evidenced by a negative coefficient foe experience squared although this is not significant.

Unlike in the estates the longer one stays in the city, the higher the income per day. Although with time period of stay contributes negatively to incomes for an urban migrant as evidenced by a significant negative coefficient for the

square of period. Results also show that being self employed has a positive relationship with incomes for urban migrants. This may help explain earlier findings which found that self employment is becoming increasingly important for urban migrants.

6.3.2 Determinants of Migration in Malawi: The micro approach

In the previous chapter we present the migration model for Malawi as taking the form:

$$M_{ij} = b_0 + b_1(A_i) + b_2(A_i^2) + b_3(S_i) + b_4(MS_i) + b_5(C_i) + b_6(G_i) + b_7(NA_i) + b_8(W_i^U E_i^U) + b_9(W_i^E E_i^E) + b_{10}(W_i^R E_i^R) + \varepsilon_i \quad \text{.....(18)}$$

Use of the linear specification in estimating such a model has been found problematic because of the possibility of predicted probabilities being outside the zero – one range and because of the resultant heteroskedasticity of the disturbances (Schmidt and Strauss, 1975). We therefore apply a discrete choice model in form of a multinomial logistic model that uses maximum likelihood estimation method.

In our model M_{ij} = the probability of individual i choosing location j. (j= 0,1 and 2). Let j be the location of residence for individual i during the survey period. j=0 when they stay in their home village, j=1 when they migrate to an estate and j=2 when they migrate to the city. It is a function of age, education, marital status, destination contacts, *ganyu*, non agricultural enterprise, expected rural income, expected estate income, and expected urban income.

Based on the initial analysis of data in section 6.1 the following hypotheses are assumed with respect to the behavior of variables in the model:

Age (A_i) –It is expected that age will have a negative influence on odds of migration. This implies that being older reduces the odds of migration. The coefficient will be negative for both estate and urban migrant.

Education (S_i) (dummy[44]: <8 years = 0; 8+ years =1) - The majority of estate migrants have less than eight years of education. We therefore expect the education dummy to be positive i.e. having less than eight years of education will increase the odds for estate migration. Since most urban migrants have eight or more years of education having less than 8 years of education will therefore reduce the odds for urban migration. The coefficient for the education dummy for urban migrants is expected to be negative.

Marital status (MS_i) (dummy: never married=0; married and others = 1) - We expect the marital status dummy to have a positive influence on the odds of migration for both estate and urban migrants i.e. being unmarried increases the odds of migrating. However the odds ratio for urban migrants is expected to be higher than for the estate migrants. This is because the proportion of unmarried urban migrants is higher than that of estate migrants.

[44] Note that when calculating the logit (the log of odds) for a dummy variable with two response categories, the logit is only calculated for one category the other category becomes a reference category (Pallant, 2005). In this case the log of odds for all our dummy variables are calculated for the 0 response category.

Destination contacts (C_i) (dummy: no contacts=0; with contacts=1)

We expect the coefficient for destination contacts for estate migrants to be positive i.e. estate migrants are likely to be those with no contacts. Results from our initial analysis suggest that few estate migrants have contacts in destination area. This coefficient for urban migrants should be negative i.e. having no contacts in the city reduces the odds of being an urban migrant.

Ganyu (G_i) (dummy: No *ganyu* =0; supplied ganyu =1)- *Ganyu* enters the model as a proxy for household's vulnerability to food insecurity and poverty. We expect the coefficient for *ganyu* to be negative for an estate migrant i.e. the odds for estate migration declines when a household is not involved in supplying *ganyu* labour. The coefficient should have a positive sign for an urban migrant i.e. those not involved in supplying *ganyu* labour are likely to be urban migrants.

Non-agricultural enterprise (NA_i) (dummy: No reliable non agricultural enterprises=0; Has reliable non agricultural enterprise=1) - Non agricultural enterprise dummy enters the model as a proxy for household affluence. The coefficient for Non-agricultural enterprise should therefore be positive for an estate migrant i.e. the likelihood of being estate migrant increases when one does not have a non agricultural enterprise. However the coefficient should be negative for the urban migrant i.e. the odds of being an urban migrant should reduce when one does not have a non-agricultural enterprise.

Expected rural income - The coefficient for the expected rural income is expected to be negative for both the estate and urban migrant implying that having a higher expected rural income reduces the odds of migrating.

Expected estate income - The coefficient for expected estate income should be positive implying that the higher the expected estate income the higher the odds of being an estate migrant.

Expected urban migrant - Similarly the coefficient for expected urban income should be positive implying that the odds of being an urban migrant increases when an individual's expectation of the urban income is high.

Model estimation

A multinomial logistic model is used in this study to predict the probability that an individual will either be a non migrant, estate or urban migrant based on the actual observations of their migration status. In terms of estimation, logistic migration applies maximum likelihood estimation (MLE) after transforming the dependent variable into a logit variable[45]. MLE seeks to maximise the log likelihood LL, which reflects how likely it is (the odds) that the observed value of the dependent variable may be predicted from the observed value of the independent variables (Tabachnick and Fidell, 2007).

The log likelihood is analogous to the residual sum of squares in multiple regressions in the sense that it is an indicator of how much unexplained information there is after the model has been fit. -2LL has approximately a

[45] Refers to the natural log of the odds of the dependent variable occurring or not occurring

Chi-square distribution; this means it can be used for assessing the significance of logistic regression (Fields, 2005). Thus the likelihood ratio test of a model tests the difference between -2LL for the full model and -2LL for initial Chi-square in the null model.

The question of how much better the model predicts the outcome variable can be assessed using the model Chi-square. The model Chi-square tests the null hypothesis that all population logistic regression coefficients except the constant are zero. Significance of individual logistic regression coefficients for each independent variable uses the Wald statistic which tests the null hypothesis that a particular logit coefficient is zero. However Norušis (2005) warns that for large logit coefficients, the standard error is inflated, lowering the Wald statistic leading to Type II errors.

To assess whether the model fit the data, we use the chi-square test of goodness of fit. This test has two statistics the Pearson Chi-square and a deviance (likelihood ratio) chi-square version. The Pearson Chi-square statistic is used to assess the discrepancy between the observed and the expected counts. Large values and therefore a significant Pearson Chi-square indicate that the model does not fit well. The Deviance is the change in the -2loglikelihood when the model is compared to the full model. If the model fits well the difference between the log likelihoods should be small and not significant (Tabachnick and Fidell, 2007).

The success of the logistic regression can be assessed by looking at the classification table showing correct and incorrect classifications of the

polychotomous dependent variable. However Garson (2006) cautions against using the classification table as a goodness of fit measure for the simple reason that they ignore actual predicted probabilities and instead use dichotomised predictions based on a cut-off.

Logistic regression models however, do not have a widely accepted direct analog to OLS regression's R^2. A number of R^2 – like measures have been proposed which attempt to measure the strength of the relationship between the dependent and independent variables in a logistic regression. Nagelkerke's R^2 is the most reported of the R- square estimates although it runs lower than the corresponding OLS R^2 (Garson, 2006).

Requirements of the multinomial logistic model

Unlike OLS regression, logistic regression has less stringent requirements. However one main requirement is that there is a linear relationship between the independent variables and the log of odds of the dependent variable. When the assumption of linearity is violated, then logistic regression will underestimate the degree of relationship of the independent variables to the dependent variable and will lack power (Tabachnick and Fidell, 2007). The Box Tidwell transformation test (Hosmer and Lameshow, 2000) is used to test for linearity in the logits. In this procedure terms which are the cross product of each independent variable times its natural logarithm are included in the logistic regression model. If these terms are significant, then there is non linearity in the logit.

One other limitation associated with the logistic regression is the requirement that there are adequate expected frequencies and power. Tabachnick and Fidell (2007) observe that when a goodness-of-fit test is used that compares observed with expected frequencies in cells formed by combinations of discrete variables, the analysis may have little power if expected frequencies are too small. It is therefore suggested that all expected frequencies be greater than one and that no more than 20 percent be less than five.

Migration model results

A multinomial logistic regression analysis was performed to predict the probability that an individual will be a non migrant, an estate migrant or an urban migrant. The use goodness-of-fit test required an evaluation of the adequacy of the expected frequencies. Crosstab analysis in appendix 10 involving all categorical variables in the model revealed no need to restrict goodness-of-fit tests. Appendix 11 show results of a test for linearity in the logit. No serious violation of the linearity in the logit was observed.

Goodness-of-fit statistics with all predictors in the model show that the model provides an excellent fit for the data with Chi-square (1362, N = 691) = 1316.84, p=.81 using Pearson criterion and Nagelkerke $R^2 = 0.56$.

Table 6.20: Multinomial logistic regression analysis of migration status

Variable	Chi-square to remove	df
Age in years (Age)	31.962***	2
Education group (EDUGP)	47.977***	2
Marital status (MSTAT)	39.128***	2
Destination contact (RELAT)	44.090***	2
Non agricultural income (NAGRIC)	17.856***	2
Supply *ganyu* labour(*Ganyu*)	24.548***	2
Expected rural income (EXPRUR)	7.351**	2
Expected estate income (EXPEST)	1.740	2
Expected urban income (EXPURB)	16.243***	2

Source: Author's own survey

Table 6.20 shows the contribution of the individual predictors to the model by comparing the effect on the model with and without each predictor. All predictors except expected estate income significantly enhanced prediction. Outcome was predictable from marital status, destination contacts, education group, non agricultural income, ganyu labour, age, expected rural income and expected urban income.

Table 6.21 shows regression coefficients and their chi-square tests as well as odds ratios and the 95 percent confidence intervals around them for the estate migrant compared to the non migrant. Results show that compared to non migrants the older the individual the less likely they will be an estate migrant. The odds ratio for age of 0.95 indicates that for every extra year in age the odds of an individual being estate migrant decreases by a factor of 0.95, all other factors equal.

Based on the sign of the coefficient for the education dummy the result implies that those with less than 8 years of education were more likely to be estate migrants. However this result is not significant, showing that education does not significantly contribute to the prediction of estate migration. This may be the case because estate migrants and the non migrants who are the reference group do not have a significant difference in average years of schooling as shown in Table 6.01. It may also reflect the type of labour demanded by estates. The result seems to suggest that estates look for individuals with manual skills where education is not important. For some educated individuals who migrate to estates it may suggest risk-averse behaviour.

Marital status has a positive and significant coefficient indicating that compared to non migrants those who are not married are likely to report being estate migrants. The odds of an individual who has never been married reporting being an estate migrant are 2.49 times than the one who is already married.

A positive destination contacts coefficient indicates that estates migrants were likely not to have destination contacts. However the coefficient was not significant showing that it did not contribute to the estate migration prediction. Similarly the non agricultural income coefficient had a positive sign showing that the odds for being an estate migrant increased if one did not have a reliable non-agricultural enterprise. This is in line with our hypothesis that estate migrants are likely to be economically deprived rural individuals; however the non significant coefficient limits our conclusion in this respect.

Table 6.21: Logistic regression of migration: non migrants vs. estate migrants

Variables	β	Wald Chi-square test	Odds ratio	95% Confidence Interval for odds ratio	
				Lower	Upper
Age	-0.05**	10.12	0.95	0.92	0.98
<8 years vs. 8 + years of schooling	0.26	0.89	1.29	0.76	2.20
Never married vs. married	0.92**	5.17	2.24	1.14	5.48
Without contacts vs. with contacts	0.39	2.50	1.47	0.91	2.37
Without Non agricultural income vs. with non agricultural income	0.14	0.35	1.15	0.71	1.86
Non *Ganyu* labourer vs. *ganyu* labourer	-1.19***	22.56	0.31	0.19	0.49
Expected rural income	-0.09**	6.83	0.92	0.86	0.98
Expected estate income	0.29	1.57	1.34	0.85	2.11
Expected urban income	0.02	0.51	1.02	0.97	1.07

Source: Author's own survey Level of significance: ** p<0.05 *** p<0.001

The results further show that those who were *ganyu* labour suppliers were likely to be estate migrants. The coefficient for *ganyu* has the expected negative sign and is significant suggesting, that the *ganyu* variable significantly contributes to the prediction of estate migration. The estimated odds ratio of 0.31 suggests that the odds of a 'non *ganyu* labourer' being an estate migrant is about 1/3 of the odds that a ganyu labourer is an estate migrant, all other factors equal. Thus a '*ganyu* labourer' is 3 times more likely than a 'non *ganyu* labourer' to be an estate migrant. These findings are consistent with our hypothesis that estate migrants are likely to come from vulnerable rural households.

The negative and significant coefficient for the expected rural income variable suggests that an increase in the expected rural income reduces the odds of being an estate migrant *ceteris palibus.* The odds ratio for expected rural income is 0.92 showing that an increase of MK1 per day in expected income in rural Malawi reduces the probability of migrating to an estate by a factor of 0.92.

Expected estate income has the expected positive sign suggesting that an increase in the expected estate incomes increases the odds that one will be an estate migrant. However this result is not significant, showing that expected estate incomes do not contribute to explaining estate migration. This finding together with finding on *ganyu* support the hypothesis that estate migrants are likely to be poor rural individuals who, if their expected rural incomes were higher, would not migrate to the estates.

Table 6.22: Logistic regression of migration in Malawi: Non migrants vs. urban migrants

Variables	β	Wald Chi-square test	Odds ratio	95% Confidence Interval for odds ratio	
				Lower	Upper
Age	-0.08***	26.15	0.92	0.89	0.95
<8 years vs. 8 + years of schooling	-1.34***	32.93	0.26	0.17	0.41
Never married vs. married	1.97***	34.02	7.17	3.70	13.90
Without contacts vs. with contacts	-1.22***	26.93	0.30	0.19	0.47
Without Non agricultural income vs. with non agricultural income	-0.83***	13.00	0.44	0.28	0.69
Non *Ganyu* labourer vs. *ganyu* labourer	-0.25	0.97	0.78	0.48	1.28
Expected rural income	-0.02	0.46	0.98	0.93	1.04
Expected estate income	0.03	0.01	1.03	0.66	1.60
Expected urban income	0.85**	17.23	2.36	1.57	3.54

Source: Author's own survey Level of significance: ** p<0.05 *** p<0.001

Table 6.22 shows regression coefficients and their chi-square tests as well as odds ratios and the 95 percent confidence intervals around them for the urban migrant compared to the non migrant. Results show that age has a negative and significant coefficient which, suggests that the older an individual is the less likely they will report being an urban migrant. Compared to estate migrants the age variable in the urban migration results has a higher significance level, perhaps reflecting that urban migrant's are much younger than estate migrants.

The education coefficient result indicates that those with less than 8 years of education were less likely to be urban migrants. Unlike in estate migration, education contributed significantly to the prediction of being an urban migrant. The education dummy has an estimated odds ratio of 0.26 which means that the odds that an urban migrant will have less than 8 years of education is about a ¼ of the odds that an individual with 8 or more years of education will be an urban migrant. Thus an individual with 8 or more years of education is 4 times as likely as someone with less than 8 years of education to be an urban migrant.

Results further show that compared to non-migrants, those who were not married were more likely to be urban migrants. The odds ratio for marital status of 7.17 was twice as high as the odds for marital status in estate migration. In this case the odds ratio suggests that an individual who is not married is 7 times more likely to be an urban migrant than someone who is already married, all other factors equal.

The higher odds ratio for unmarried individuals in urban migration and the comparatively lower odds in estate migration confirm earlier findings which suggest that compared to urban migrants there were more married individuals among estate migrants.

A negative and significant coefficient for destination contacts indicates that not having a contact in the city significantly reduced the odds of being an urban migrant. An odds ratio of 0.30 for the contacts dummy suggests that those who had contacts were 3 times more likely than those without contacts to be urban migrants.

The odds of urban migration also significantly improved if one had a reliable non agricultural enterprise while still in the village. The odds ratio of 0.44 suggests not having a reliable non agricultural enterprise significantly reduced the odds for urban migration.

The negative sign for the expected rural income coefficient is expected. It suggests that that the higher the expected rural income the lower the odds that an individual will migrate to the city. The non significant coefficient however limits our conclusion regarding the role of the expected rural income in urban migration. The expected urban income variable however, has a positive and significant coefficient which indicates that expected urban incomes contributes significantly to explaining the odds of being an urban migrant. An odds ratio of 1.05 suggests that increasing the expected urban income per day by MK1 increases the odds of being an urban migrant by 5 percent.

Predicted classification of migrants

In general overall classification was reasonably satisfactory. Results from Table 6.23 show that more than 2/3 of the outcomes were correctly classified in the model. However classification of estate migrants was unimpressive. Correct classification was 75.4 percent for non migrants, 29.4 percent for estate migrants and 80.4 percent for urban migrants.

Table 6.23: Predicted classification of migrants

Observed	Predicted			% correct
	Non migrant	Estate migrant	Urban migrant	
Non migrant	211	14	55	75.4
Estate migrant	69	37	20	29.4
Urban migrant	40	17	234	80.4
Total %	45.9	9.8	44.3	69.2

Source: Author's own survey

6.4 Summary

This chapter presents new material collected through a field survey in Malawi. The data-set generated from this material is analysed in two ways: In the first part some simple statistical analysis is conducted which helps us to highlight a number of hypotheses to be investigated. A formal econometric analysis is then conducted to explore the hypotheses raised in greater depth.

Results of the econometric analysis provide a degree of support for a number of hypotheses. Specifically, there is evident support for the expected income

hypothesis for the urban migrant. Results show that the odds for being urban migrant increases with higher expected incomes in the city.

The positive and significant coefficient for education and the non agricultural dummy also lends support to our hypothesis that urban migrants are pulled to the cities. While the significant *ganyu* coefficient lends support to our hypothesis that estate migrants are pushed from rural areas.

However the analysis provides inconclusive results with respect to *ganyu* which is one of the key variables. This may partly reflect statistical issues related to data or they suggest further investigations. The coefficient for *ganyu* exhibited an unexpected negative sign for the urban migrant although this was not significant. A negative coefficient for *ganyu* in this case, implies that the odds of being an urban migrant decline when one does not indulge in *ganyu*. Since the hypothesis is that urban migrants are wealthier individuals, they are not expected to indulge in *ganyu*. This may imply that the *ganyu* variable may be picking up other personal characteristics that we have not identified.

This may also suggest that perhaps the *ganyu* variable should have been defined in terms of proportion of household income earned from ganyu. Since the dummy did not specify the frequency with which a household indulged in *ganyu* the survey could have picked up even those who did not rely on *ganyu* for survival as was expected from estate migrants.

CHAPTER 7

Conclusion

This thesis set out to explore in detail the issue of labour migration in Malawi. To do this a modified version of the Harris-Todaro model is applied to the original Malawian data in order to examine determinants of migration in Malawi. Results provide an encouraging degree of support for the following hypotheses:

1 Urban migrants move in response to expected income in the cities.

2 Those who are relatively more educated and come from well-to-do households appear to be pulled to the cities

3 Estate migrants seem to be pushed from rural areas.

4 Estate migrants come from poorer rural households.

In overall terms these findings seem to suggest that the modified version of the Harris-Todaro model helps to shed more light on the phenomenon of migration in Malawi. However the model did not work adequately with respect to the *ganyu* variable. Although the variable performs well with respect to estate migrants, it exhibits an unexpected sign for urban migrants. The *ganyu* may be picking up other personal characteristics that we have not defined. However further research is needed to help clarify this issue.

Policy recommendations

Results from this study suggest that income differences whether at area or household level are an important motivation for migration in Malawi. To ensure manageable migration rates government should - among other initiatives - endeavour to reduce the expected income gap through integrated rural development programs that would include the following:

1 Rural infrastructure development

- Develop an adequate agricultural input and output market system which may help increase the supply of agricultural inputs and the demand for agricultural products. The resultant increased competition among buyers and sellers is likely to lead to competitive prices for agricultural inputs and outputs.
- Improve road and communication networks which would improve accessibility to remote rural areas to private traders and increase rural households' access to other markets outside their areas.

2 Establishment of cooperatives in rural areas- This may help farmers to improve their bargaining power with private traders.

3 Diversification of rural sources of income- The study results suggest that rural household's incomes increase with ownership of a reliable non agricultural enterprise. Facilitating investments in non agricultural enterprises among rural households should help improve rural incomes and food security.

4 Establishing irrigation schemes- Evidence from this study suggests that a number of rural households fall into the food insecurity trap because of the smallholder's reliance on rain-fed agriculture. Since

Malawi has one main growing season, if a household does not cultivate enough maize to last till the next harvest and does not have other sources of income, it has to rely on *ganyu* for survival which is likely to push them further into the poverty trap and migration. Establishment of irrigation schemes will ensure that rural households have multiple harvests that would improve their incomes and food security.

5 Improving title to land- Customary land tenure offers access to land to the majority of poor people. The individual's title to land however is informal, which may not be very conducive to investment. It has been argued that titling registered customary rights improves land market transactions and increases access to formal credit (Feder and Feeny, 1991). However where land is collectively owned as is the case for customary land in Malawi, establishing private rights through titling programs may create conflicts among family members causing insecurity of tenure. In this regard, a proper balance of pros and cons need to be taken into account when implementing titling programs.

6 Investing in education- Evidence from this study suggests that education in Malawi remains a challenge. In this regard government should endeavour to continue investing in education so as to improve human capital which is a necessary condition for economic development.

7 Strengthening estate agriculture- Estate agriculture remains an important source of export earnings for Malawi. The literature shows that growth in the sector has been negatively affected by

recent government policy reforms. Until other reliable sources of economic growth are identified, it is important that government policy does not disadvantage the estate sector. However the anti-smoking campaign in the developed world implies that the future for the tobacco industry is at stake. Since tobacco constitutes the largest proportion of estate production in Malawi, government should help promote diversification of estate agriculture to ensure the viability of the estate sector as an important source of export earnings.

8 Study findings suggest that vulnerability and poverty do play an important role in inducing rural residents to migrate. This suggests that government's current safety net programs may not be very effective. There is need therefore to improve the coverage and targeting of these programs so that rural individuals do not migrate out of desperation, which makes them prone to exploitation. The low earnings in estates where most of these individuals migrate, the short stay period for estate migrants and the continued low incomes and food insecurity in rural areas seem to suggest that estate migrants may be oscillating between estates and their rural villages. Government should recognise this 'labour force on the move' and devise appropriate interventions to improve their living standards and best utilise their capacity. The majority of these people also move with their families, it is important that government follows up on the plight of children of school going ages that are caught up in this trek.

9 Results further suggest that the informal sector plays a significant role in the urban labour market in Malawi. Findings seem to suggest that the informal urban sector which attracts the majority of young and risk taking individuals may be presenting as a potential sector for future growth. This sector therefore would need government support in form of technical education and infrastructure development. However there is need to conduct further research in order to make conclusive arguments about this.

Research Recommendations

1 The study results suggest that self employment in the informal sector has a significant role in the urban labour market in Malawi. A thorough study about determinants of sector of entry for migrant's employment in the city would shed more light on the characteristics of the two sectors and the workers associated with them.

2 It has also been shown that migrants who start work in the informal sector as employees do eventually graduate into self employed status. A study to determine the factors that determine who graduates from the informal sector and how long it takes them to graduate would be very informative in terms of determining the success of migration.

3 Due to lack of an adequate sample of the unemployed migrants, this study used employment rates for different locations as a proxy measure for probability of employment. A wider sample of unemployed migrants needs to be collected to allow calculation of

employment probabilities based on characteristics individuals. This will help to see whether there are any differences in the expected wage due to use of actual employment probabilities.

4 This study focused on estate workers that are wage employees. There is a significant proportion of estate workers who operate as tenants in private estates. A study that would examine differences in determinants of migration between wage earning estate migrants and estate migrants who are tenant farmers would provide further lessons for the migration phenomena in Malawi.

5 Due to financial constraints the non migrant sample was collected from one district. Although the rural environment is not very different in Malawi, differences in culture and geography of different districts may have implications for labour migration. A sample that takes into account these differences may provide further insights into motivation for migration.

6 The 1998 population census conducted by the National Statistics Office did not collect data on migration. It is recommended that subsequent censuses should consider including data on migration to allow for determination of migration trends over time.

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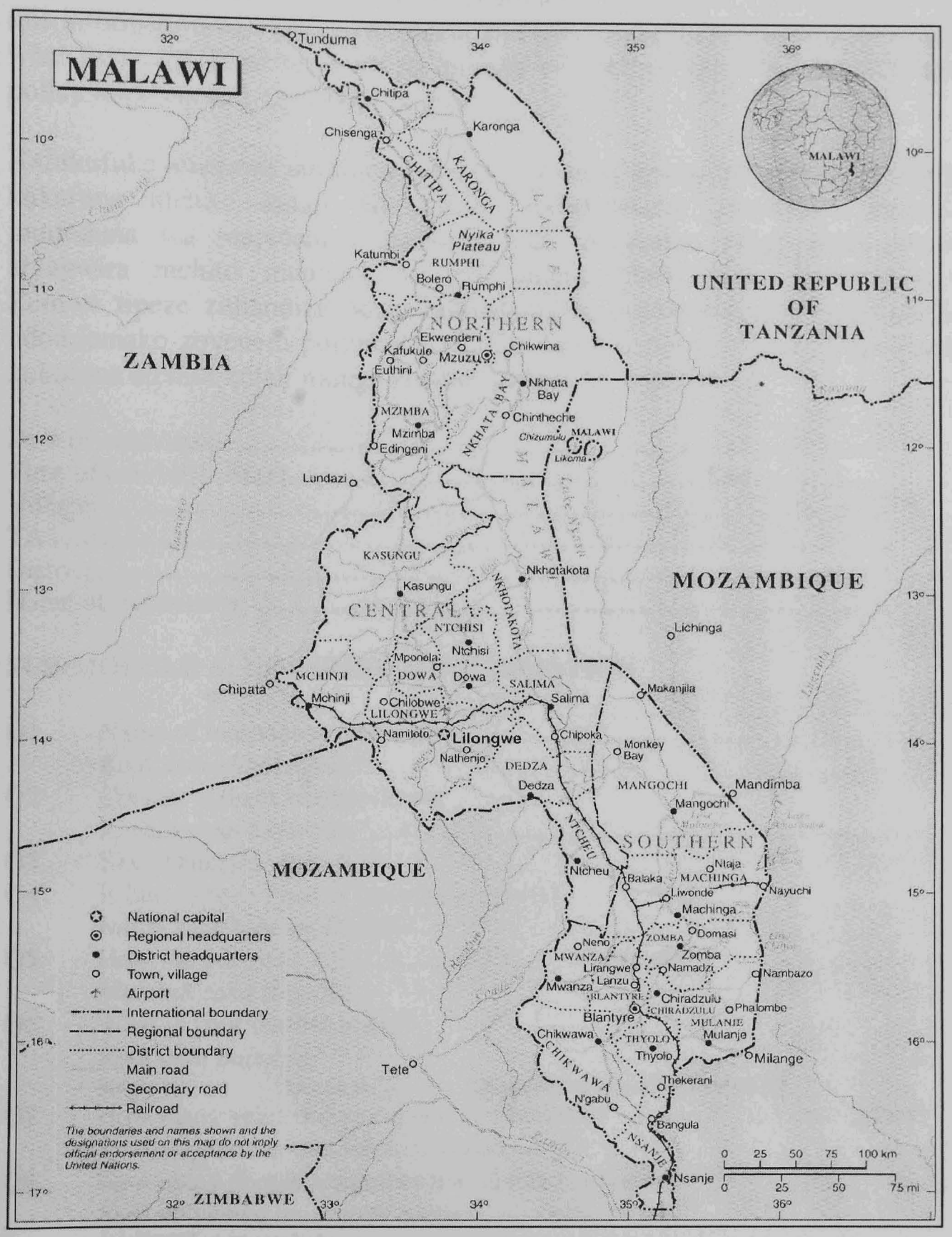
Appendix 1
Map of Malawi



Source : http://www.un.org/Depts/Cartographic/map/profile/malawi.pdf

Appendix 2
Non migrant Questionnaire

INTERNAL MIGRATION AND EMPLOYMENT IN MALAWI:
A Household Survey for Non- migrants

Martha Phiri, a PhD student at the University of Liverpool and an employee of Ministry of Economic Planning and Development, conducts this study. The purpose of the study is to analyse factors that determine household labour migration decision and the choice of destination in Malawi. It is expected that this information will help government and other stakeholders in understanding what motivates rural residents to migrate in order to come up with relevant policy interventions for labour migrants.

Kafukufuku ameneyu ndiofuna kufufuza za anthu amene amachoka ku mudzi kukafuna ntchito kutali ndi kwao. Kafukufukuyi akuchitika kudzera muunduna wa mapulani a zachuma ndi chitukuko. Mayi Phiri amene amagwira ntchito muundunawu ndi amene akutsogolera kafukufukuyi. Zomwe tipeze zithandiza boma ndimabungwe omwe siaboma kukhazikitsa ndondomeko zoyenera pofuna kuthandiza anthu ochoka m'madera akumudzi kukafuna ntchito kutali monga kutauni kapena ku maesiteti.

Date of interview:.....
Time of interview: **Start**.....**End**.....
Village: .....
TA .....
District: .....
Name of interviewer: .....

SUB-MODULE A: HOUSEHOLD INFORMATION

Q1 Name of interviewee (**optional**) .....
Kodi dzina lanu ndani?

Q2 Contact address of interviewee
Keyala yanu ndi chain?.....

Q3 Sex: **Male (1)** **Female (2)**

Q4 Is interviewee head of household? **Yes (1)** **No(2)**
Ndinu wamkulu wa banjali?

Q5 How old are you? .....**Years old**
Muli ndi zaka zingati?

Q6 What is your marital status?
Kodi muli pabanja?
Single (1) **Married (2)** **Divorced/separated/Widowed (3)**

Q7 How many years did you spend in education? ..... **years**
Kodi maphunziro munalekeza kalasi yanji?

Q8 How many people altogether live in this household?
Kodi mnyumba mwanumu mumakhala anthu angati?
Adults (15 years and above) .....
Children (Below 15 years) .....

SUB-MODULE B: Household Economic activities

Q9 (a) In the last 12 months, what was your main economic activity?
Mchaka chathachi ndi njira ziti mumapezera ndalama?
Selling annual food crops (Maize, Beans, Gnuts, Cassava, Potatoes (1)
Selling annual cash crops (Tobacco, cotton, sunflower, paprika (2)
Dimba farming (3) Seling fruits (4) Artisan work (5)
Grocery (6) Fish mongering (7) Livestock (8)
Casual labour (*ganyu*) (9) Other (specify) (66) .....

(b) How much income did the household earn from each of the sources you have mentioned?
Panjira zimene mwanenazi, munkapeza ndalama zochuluka bwanji pachaka?

Income source	Household head	Other adults	Children
Annual food crops (a) Maize			
(b) G/nuts			
(c) Beans			
(d) Cassava			
(e) Potatoes			
Annual cash crops			
(a) Tobacco			
(b) Cotton			
(c) Sunflower			
(d) Paprika			
Dimba farming			
Selling fruits			
Artisan work (Zaumisiri)			
Grocery			
Fish mongering			
Livestock			
Selling labour			
Other (specify)			

Q10 What is your average landholding size for your household ?
Kodi muli ndi malo ochuluka bwanji ? ..... **Acres**

Q11 (a) Did you grow enough food for your family last season?
Chaka chatha munalima chakudya chokwanila?
Yes (1) [GO TO Q12] **No (2)**

(b) If No, what did you mainly do to supplement your household food requirements? *Ngati sichinali chokwanila, chakudya china mumachipeza bwanji?*
Buy Food (1) Work for food (2) Work for cash to buy food (3)
Begging (4) Others (specify) (66) .....

SUB MODULE C: Household asset ownership

Q12 Please indicate if you own any of the following assets

Asset	Yes	No	If Yes, how many?
Brick walled iron roofed house			
Ox-cart			
Bicycle			
Cattle			
Goats			
Pigs			
Radio			
Poultry			
Others (specify)			

SUB MODULE D : Existence of a migrant in the family

Q13 (a) Do you have any member of your family who has migrated to work in estates or city? *Muli ndi wachibale amene anachoka kuno kukagwira ntchito ku esiteti kapena ku tauni?*

Yes (1) **No (2)**

(b) If yes, tell me more about the details of these family members? Tandiuzani zambiri za anthuwa?

Characteristics	Estate migrant	City migrant
Type of migrant		
Relation to him/her		
Sex of migrant **male=1 Female =2**		
Age of migrant	**…….. years old**	**……. years old**
Migrants' years of education	**……..years**	**…….years**
Migrant's marital status		
Migrant's work place		
Occupation		
Did migrant have relative/mate in destination **Yes=1 No=2**		
Does migrant keep in touch **Yes=1 No=2**		

Codes for relationship: **Father/mother (1) Brother/sister (2) Aunt/uncle(3) Son/daughter (4) Cousin/nephew/niece (5)**

Codes for marital status: **Single (1) Married (2) Divorced/separated/widowed (3)**

Codes for work place : **Own family business (1) Other family business (2) Government (3) Statutory Corporation (4) NGO(5) Private firm (6) Others (specify) (66) ……..**

Codes for occupation: **Farmer (1) Security Guard (2) Domestic worker (3) Builder (4) Businessman (5) Driver (6) Construction labourer (7)Others (specify) (66) ….**

SUB MODULE E: History and prospect for migration

Q14 (a) Have you been a migrant before?

Munayamba mwachokapo kukagwira ntchito kwina?

Yes (1) **No(2)** [Go to Q28]

(b) If yes, did you migrate to estate or to the city?

Kodi mudakagwira ntchito ku esiteti kapena ku tauni?

Estate (1) **City (2)**

(c) How long were you away? **…… years**

Mudakakhalako nthawi yaitali bwanji?

(d) Why did you come back?

Mudabwerako chifukwa chani?

High living costs (1) **Laid off (2)** **Retired (3)**

My expectations were not met (4) **Did not find a job (5)**

Others (specify) (66) ……..

Q15 (a) If no, have you considered migrating?
Ngati sichoncho munaganizako zokagwira ntchito kwina?
Yes (1) **No(2) [Go to Q15e]**

(b) If yes, where have you considered migrating to ?
Munaganizirako zokagwira ntchito kuti?
City (1) **Estate (2) [Go Q15d]** **Outside Malawi (3)**
Others (specify) (66) .....

(c) If you want to migrate to the city what is your main reason?
Nchifukwa chani mufuna kutauni?
Wages/incomes are better than estates (1) Have a relative in the city (2)
Estate employment is exploitative (3) Estate employment rate is low (4)
I have good education (5) Others (specify) (66) .....

(d) If you want to migrate to estates what are is your main reason?
Nchifukwa chani mufuna ku esiteti?
Have less education (1) **Estate provide food and accommodation (2)**
Have tobacco skills (3) **Employment in estate is guaranteed (4)**
Others (specify) (66) .....

(e) If no, why don't you want to migrate?
Nchifukwa chian simufuna kukagwira ntchito kwina?
No income for migration costs (1)
Have no information about destinantions (2)
No relatives in destinations (3)
Not sure I would be successful there (4)
Others (specify) (66) .....

THE END: Thank you for your time.

Appendix 3
Estate Migrant Questionnaire

INTERNAL MIGRATION AND EMPLOYMENT IN MALAWI:
A Household Survey for Estate Migrants

Martha Phiri, a PhD student at the University of Liverpool and an employee of Ministry of Economic Planning and Development, conducts this study. The purpose of the study is to analyse factors that determine household labour migration decision and the choice of destination in Malawi. It is expected that this information will help government and other stakeholders in understanding what motivates rural residents to migrate in order to come up with relevant policy interventions for labour migrants.

Kafukufuku ameneyu ndiofuna kufufuza za a anthu amene amachoka ku mudzi kukafuna ntchito kutali ndi kwao. Kafukufukuyi akuchitika kudzera muunduna wa mapulani a zachuma ndi chitukuko. Mayi Phiri amene amagwira ntchito muundunawu ndi amene akutsogolera kafukufukuyi. Zomwe tipeze zithandiza boma ndimabungwe omwe siaboma kukhazikitsa ndondomeko zoyenera pofuna kuthandiza anthu ochoka m'madera akumudzi kukafuna ntchito kutali.

Date of interview:.....
Time of interview: **Start**..... **End**.....
Name of Estate: .....
Estate Owner .....
District .....
Name of interviewer: .....
Year migrant moved to estate: **1998 (1) 1999(2) 2000(3) 2001(4) 2002 (5)**

SUB-MODULE A: HOUSEHOLD INFORMATION

Q1 Name of interviewee (**optional**) .....
Kodi dzina lanu ndani?

Q2 Contact address of interviewee
Keyala yanu ndi chain? .....

Q3 Sex: **Male (1)** **Female (2)**

Q4 What is your home district? *Kodi kwanu ndikuti?*

Balaka (1)	**Blantyre (2)**	**Chikwawa (3)**	**Chiradzulu (4)**	
Chitipa (5)	**Dedza (6)**	**Dowa (7)**	**Karonga (8)**	
Kasungu (9)	**Likoma (10)**	**Lilongwe (11)**	**Machinga(12)**	**Mangochi (13)**
Mchinji (14)	**Mulanje (15)**	**Mwanza (16)**		
Mzimba (17)	**NkhataBay (18)**	**Nkhotakota (19)**	**Nsanje (20)**	
Ntcheu (21)	**Ntchisi (22)**	**Phalombe (23)**	**Rumphi(24)**	**Salima(25)**
Thyolo (26)	**Zomba (27)**			

Q5 How old are you? *Kodi muli ndi zaka zingati?* .....**Years old**

Q6 How many years did you spend in education?..... **years**
Kodi maphunziro munalekeza kalasi yanji?

Q7 What is your marital status? *Kodi muli pabannja?*
Single (1) **Married (2)** **Divorced/Separated/Widowed (4)**

Q8 How many people altogether live in this household?
Kodi mnyumba mwanumu mumakhala anthu angati?
Adults (18 years and above) .....
Children (Below 18 years) .....

SUB-MODULE B: Pre –migration characteristics

Q9 What was your last residential address before you moved to live in Lilongwe?
Kodi musanabwere ku Lilongwe keyala yakumene munali inali chani?
.....

Q10 Who was the head of your household back in your home village before you left to live here? *Kodi mutu wabanja kumeneko anali ndani*
Myself (1) **Wife (2)** **Father (3)** **Mother (4)**
Brother/Sister (5) **Uncle/aunt (6)** **Others (specify) .....**

Q11 How many people lived in your household at that time? *Munkakhala anthu angati?*
Adults (Of 15 years and above) .....Children (Below 15 years).....

Q12 (a) What was your source of income at that time?
Kodi ndi njira ziti munkapezera ndalama kumeneko?
Selling annual food crops (Maize, Beans, Gnuts, Cassava, Potatoes (1)
Selling annual cash crops (Tobacco, cotton, sunflower, paprika (2)
Dimba farming (3) **Seling fruits (4)** **Artisan work (5)**
Grocery (6) **Fish mongering (7)** **Livestock (8)** **Casua abour (*ganyu*) (9) Other (specify) (66) .....**

(b) How much income did the household earn from each of the sources you have mentioned?
Panjira zimene mwanenazi, munkapeza ndalama zochuluka bwanji pachaka?

Income source	Household head	Other adults	Children
Annual food crops (a) Maize			
(b) G/nuts			
(c) Beans			
(d) Cassava			
(e) Potatoes			
Annual cash crops			
(a) Tobacco			
(b) Cotton			
(c) Sunflower			
(d) Paprika			
Dimba farming			
Selling fruits			
Artisan work (Zaumisiri)			
Grocery			
Fish mongering			
Livestock			
Selling labour			
Other (specify)			

Q13 What was your average landholding size for your household prior to migration? *Kodi musadabwere kuno munali ndi malo ochuluka bwanji* ?
..... **Acres**

Q14 (a) In the year before you left did your household grow enough food for the family? *Musanayamuke kubwera kuno munalima chakudya chokwanila?* **Yes (1)** [GO TO Q15] **No (2)**

(b) If No, what did you mainly do to supplement your household food requirements? *Ngati sichinali chokwanila, chakudya china mumachipeza bwanji?* **Buy Food (1)** **Work for food (2) Work for cash to buy food (3)** **Begging (4)** **Others (specify) (66) .....**

Q15 When did you start thinking about moving from your village to work somewhere else? *Kodi munayamba chaka chanji kuganiza zochoka kumudzi kukagwira ntchito kwina?*.....

Q16 Why did you start thinking about migrating? [Circle one]
Nchifukwa ninji munaganiza zochoka kumudzi?
Feuds in previous place of residence (1) **Lack of agricultural inputs (2)**
Lack of adequate land for farming (3) **Poor harvests (4)** **Low incomes (5)**
Other (specify) (66) .....

Q17 (a) Did you have any relatives or friends living in this place before you moved to live here? *Kodi munali ndi achibale kapena anzanu amene amakhala kuno musanabwere*? **Yes (1)** **No(2)**

(b) Were you in touch with these relatives/friends before you left your area of origin for this place? *Kodi munkayenderana nawo /kulemberana makalata/foni musanabwere kuno*?
Yes (1) **No (2)**

Q18 (a) At the time you decided to come here did you ever consider migrating to the city? *Musanabwere kuno munaganizapo zokagwira ntchito kutauni?*
Yes (1) **No (2)**

(b) What would you consider as your main reasons for coming here instead of the city? *Nzifukwa ziti munabwerera kuno m'malo mwaku tauni*? **I had someone I knew here (1)** **I had been here before (2)**
I had assurance of food in estates (3) **I had assurance of housing here (4)**
Employment was guaranteed in estates (5)
Transport was readily available (6) **I did not have adequate education (7)**
Others (specify) (66) .....

(c) Out of the reasons what was your main reason for choosing to come to estates? *Pazifukwazi ndi chifukwa chiti chinali chopambana?* **I had someone I knew here (1)**
I had been here before (2) **I had assurance of food in estates (3)**
I had assurance of housing here (4) **Employment guaranteed in estates (5)**
Transport was readily available (6) **I did not have adequate education (7)**
Others (specify) (66) .....

Q19 Please consider the following factors and tell me how important they were in influencing your decision to migrate? *Taganizirani mfundo zomwe nditchulezi ndipo mundiuze kufunika kwake m'mene zinathandizira kupanga maganizo anu osamuka?*

Factor *Mfundo*	As you prepared to migrate did you have information about each of these factors before you left home? *Mukukonzekera kunyamuka munamvapo kalikonse za mfundo izi?* **Yes=1 No=2**	What was the source of information? *Mudamvapo kuchokera kwa ndani*	Based on this information, how did you rank your chances of success in relation to each factor as they related to you **High=1** **Low=2**	Why did you rank each factor the way you did? **[See codes for each factor on the next page]**	Did you take this into account when migrating? **Yes=1** **No=2**	How accurate did you find this information upon arrival in destination on scale of 1-4 **Not accurate=1** **Slightly accurate=2** **Accurate=3** **Very accurate=4**
Prospect of getting a job *Mwai opeza ntchito*						
Cost of migration *Zomwe munaononga posamuka*						
Wages/Income in destination compared to home. *Malipiro*						
Housing availability *Mwayi wamalo okhala*						
Food availability *Mwayi opeza chakudya*						
Security in destination- *Umbava ndi umbanda*						
HIV/AIDS incidence in destination.						
Access to credit. *Mwayi wangongole*						

Source of information: **Relatives from here (1) Friends/mates here (2) Visited this place before (3)Labour office (4)Newspaper/radio (5) Return migrants (7) Other (specify)(66)**

CODES FOR REASONS FOR RANKING EACH FACTOR

1 PROSPECT OF GETTING A JOB
Unemployment rate very low (1)
Unemployment rate high (2)
High HIV/AIDS deaths create openings (3)
Had someone to help me (4)
Did not have someone to help me (5)
I have skills (6)
I do not have skills (7)
I am educated (8)
I am not educated (9)
Others (specify) (66) ……..

2 COST OF MIGRATION
Had saved money (1)
My home is close to destination (2)
Had someone to help me (3)
I would not move with family (4)
Wages and income were guaranteed (5)
Destination had more income opportunities (6)
Others (specify) (66)

3 WAGES
I had education (1)
Did not have education (2)
Had the right skills (3)
Did not have the right skills (4)
Wages and income were guaranteed (5)
Destination had more income opportunities (6)
Others (specify) (66) ……..

4 HOUSING AVAILABILITY
Had relative in destination (1)
Did not have relative in destination (2)
Was assured employer would provide (3)
Been herefore, I know my way round (4)
Had personal savings for housing (5)
Others (specify) (66) ……..

5 FOOD AVAILABILITY
Had relative in destination (1)
Did not have relative in destination (2)
Was assured employer would provide (3)
Been herefore, I know my way round (4)
Had personal savings to buy food (5)
Others (specify) (66) ……..

6 SECURITY
Insecurity is everywhere (1)
There was nothing I could do (2)
More police activities here (3)
Others (specify) (66) ……

7 HIV/AIDS
Have information about HIV/AIDS danger (1)
Know how to protect myself (2)
Planned to move with my spouse (3)
The problem is everywhere (4)
Others (specify) (66) ……..

SUB - MODULE C: Migration

Q20 When did you move to start working on the estates? ……
Kodi mutauni muno munabwera liti?

Q21 What was your age when you last moved to work in estates? **years old**
Panthawi yomwe muknabwera munali ndi zaka zingati?

Q22 At the time of moving how many years of education had you completed.
……**years** *Panthawi imene mumabwera kuno munali mutamaliza kalasi yanji?*

Q23 At the time of moving what was your marital status?
Pamene munkachoka kumudzi, munali pabanja?
Single (1) GO TO Q25 **Married (2)** **Widowed/divorced/separated (3)** GO TO Q25 **Other (specify) (66)** …… GO TO Q25.

Q24 (a) If you were married, at that time, did your family move with you from your previous place of residence? *Munabwera ndi banja lomwe?* **Yes (1)** [Go to Q25] **No (2)**

(b) If no, did they follow you later from the place of previous residence?
Ngati ayi adakutsatilani? **Yes(1) No (2)** [Go to Q25]

(c) If yes, after how long did it take them to join you? …… **years**
Padatenga nthawi yayitali bwanji kuti akutsatiren?

Q25 (a) How long have you worked on this estate? ……Years
Mwagwira ntchito kwanthawi yaitali bwanji pa esteti pano?

(b) Is this the first estate you have worked on since you left your home village? *Kodi ino ndiesteti yoyamba kugwira ntchito chichokereni kumudzi?* **Yes(1)** [Go to Q26] **No (2)**

(c) If no, where were you working before you came here?
Ngati sichoncho mumagwira ntchito kuti musanabwere kuno?
An estate in another district (1) **An estate in same district (2)**

SUB MODULE C: Help with migration costs

Q26 Please tell me if you received any form of assistance towards the costs of migration during your migration process? *Kodi munalandirapo thandizo lili lonse pamene mumasamuka ndi pamene mumafika kuno?*

Migration cost item *Thandizo pa kusamuka*	Any assistance *Thandizo*		Relationship to provider *Ubale*	Knew this person before you arrived *Mumadziwana nkale*		How long you received the assistance *Munalandira thandizo kwanthawi yayitali bwanji*	Employment status at time the assistance stopped *Kodi pamene amasiya kukupatsani thandizo munali mutayamba ntchito?*	Was assistance g or loan *Thandizolo linali ngongole kapena mphatso* **Gift (1) Loan (2)**
	Yes	No		Yes	No			
Transport to destination								
Food								
Accomodation								
Other (specify)								

Codes for relationship: **Father/mother (1) Brother/sister (2) Aunt/uncle (3) Cousin/nephew/niece (4) Homemate (5) Fellow migrant (6) Other (specify) (66) .....**

Codes for employment status: **Unemployed looking for a job(1) Doing occasional casual work but looking for full time employment (2) Employed in someone's business but looking for a formal job (3) Employed in full time job(4) Others (specify) (66) .....**

SUB-MODULE D: Post migration work experience

Q27 (a) When you moved here did you have a job waiting for you? *Pamene mumabwera kuno ntchito inali itapezeka kale?*
Yes (1) **No(2)** [Go to Q28] **Thought so, but no (3)** [Go to Q28]

(b) If Yes, who obtained the job for you? *Nanga anakupezerani ndani?* **Self (1)** **Relatives (2)** **Friend (3)** **Employer (4)**
Other (specify) (66) .....

Q28 Please tell me your employment history in the past five years?
Mundiuzeko mbiri yanu yantchito mutafika pa zaka zisanu zapitazi?

Job No	Occupation	Organisation type	Average no of workers	Net income per month	Period worked	Reason for quitting
First						
Second						
Third						
Current main job						
Current secondary income source						

Occupation codes: **Farmer (1) Security Guard (2) Domestic worker (3) Builder (4) Businessman (5) Driver (6) Construction labourer (7) Other (specify) (66)** .....
Organisation type codes: **Own family business (1) Other family business (2) Government (3) Statutory Corporation (4) NGO (5) Private firm (6) Other(Specify)(66)** .....
Codes for main reason for ending the job
Quit, low income (1) Ill - health, disability (2) Quit, poor working condition (3)
Quit to set up business (4) To take another job (5) Laid off no work(6)
Other (specify) (66) .....

Q29 (a) Do you have any labour contract with the estate? *Kodi pali mgwirizano uli wonse pamagwiridwe ntchito?*
Yes (1) **No (2)** [Go to Q31]

(b) If yes, what type of arrangement do you have? *Munapanga mgwirizano wanji?* **Day wage labourer (1)**
Annual cash labourer (2) Others (specify) (66) .....

(c) Have you signed this contract or its an understanding? *Kodi munasainilanamgwirizanou?*
Have signed (1) **Just an understanding (2)**

Q30 (a) Did you have any information about this contract before you left home? *Kodi munkadziwa chilichonse zamgwirizanau musanabwere kuno*? **Yes (1)** **No(2)**

(b) If yes, what was the main source of information? *Munamva kwandani*? **Relatives from here (1)** **Friends/mates here (2)**
Visited this place before (3) Labour office (4) Newspaper/radio(6)
Return migrants in area of origin (7) Others (specify) (66) .....

Q31 After you had just arrived, how did you finance your day to day activities? *mutafika kuno ndalama zothandizira moyo wa tsiku ndi tsiku mumazipeza bwanji?* **Loan from estate (1)** **Savings from home (2) Relatives/mates here (3)** ***Ganyu* outside estate (4)** **Others (specify) (66) ...**

Q32 (a) How much was your total income last growing season? *Chaka Chatha munapeza ndalama zochuluka bwanji?* **MK .....**

(b) Out of this amount, how much was your debt to the estate? *Kodi ngongole yaku esiteti inali zingati?* **MK .....**

SUB MODULE E: PERCEIVED VULNERABILITY OF THE MIGRANTS

Q33 Please tell me how much you agree with the following statements on a scale of 1-4 *Kodi mfundo izi mukugwirizana nazo bwanji mutapima pasikelo motere*? **Do not agree /Sindikugwirizana nayo(1) Slightly agree/ Pang'ono (2) Agree/Ndikugwirizana nayo (3) Strongly agree/Kwambiri (4)**

(i) My living standards have improved by migrating
Moyo wanga wasintha chifukwa chobwera kuno .....

(ii) I am poorer than I was in the village
Umphawi wanga waonjezereka kuno .....

(iii) My income will be higher next year
Chuma changa chidzachuluka chaka cha mawa .....

(iv) My income will be higher in five years
Chuma changa chidzachuluka zaka zisanu zikubwera .....

(v) I am an important person in this community
Ndine munthu ofunikira mdera lino .....

(vi) I was an important person in my last place of residence
Ndine munthu ofunikira kwathu .....

THE END: Thank you for your time

Appendix 4
Urban migrant questionnaire

INTERNAL MIGRATION AND EMPLOYMENT IN MALAWI:
A Household Survey for urban migrants

Martha Phiri, a PhD student at the University of Liverpool and an employee of Ministry of Economic Planning and Development, conducts this study. The purpose of the study is to analyse factors that determine household labour migration decision and their choice of destination in Malawi. It is expected that this information will help government and other stakeholders in understanding what motivates rural residents to migrate in order to come up with relevant policy interventions for labour migrants.

Kafukufuku ameneyu ndiofuna kufufuza za a anthu amene amachoka ku mudzi kukafuna ntchito kutali ndi kwao. Kafukufukuyi akuchitika kudzera muunduna wa mapulani a zachuma ndi chitukuko. Mayi Phiri amene amagwira ntchito muundunawu ndi amene akutsogolera kafukufukuyi. Zomwe tipeze zithandiza boma ndimabungwe omwe siaboma kukhazikitsa ndondomeko zoyenera pofuna kuthandiza anthu ochoka m'madera akumudzi kukafuna ntchito kutali.

Date of interview:.....
Time of interview: **Start**..... **End**.....
Location: .....
Name of interviewer: .....
Year migrant moved from home village to Lilongwe: **1998 (1) 1999 (2) 2000 (3) 2001 (4) 2002 (5)**

SUB-MODULE A: HOUSEHOLD INFORMATION

Q1 Name of interviewee (**optional**) .....
Kodi dzina lanu ndani?

Q2 Contact address of interviewee
Keyala yanu ndi chani.....

Q3 Sex: **Male (1)** **Female (2)**

Q4 What is your home district? *Kodi kwanu ndikuti?*

Balaka (1)	**Blantyre (2)**	**Chikwawa (3)**	**Chiradzulu (4)**	
Chitipa (5)	**Dedza (6)**	**Dowa (7)**	**Karonga (8)**	
Kasungu (9)	**Likoma (10)**	**Lilongwe (11)**	**Machinga(12)**	
Mangochi (13)	**Mchinji (14)**	**Mulanje (15)**	**Mwanza (16)**	
Mzimba (17)	**NkhataBay (18)**	**Nkhotakota (19)**	**Nsanje (20)**	
Ntcheu (21)	**Ntchisi (22)**	**Phalombe (23)**	**Rumphi(24)**	**Salima(25)**
Thyolo (26)	**Zomba (27)**			

Q5 How old are you? *Kodi muli ndi zaka zingati?* .....**Years old**

Q6 How many years did you spend in education? ..... **years**
Kodi maphunziro munalekeza kalasi yanji?

Q7 What is your marital status? *Kodi muli pabannja?*
Single (1) **Married (2)** **Divorced/Separated/Widowed (4)**

Q8 How many people altogether live in this household?
Kodi mnyumba mwanumu mumakhala anthu angati?
Adults (15 years and above) ..... Children (Below 15 years) .....

SUB-MODULE B: Pre –migration characteristics

Q9 What was your last residential address before you moved to live in Lilongwe? *Kodi musanabwere ku Lilongwe keyala yakumene munali inali chani?* .....

Q10 Who was the head of your household back in your home village before you left to live here? *Kodi mutu wabanja kumeneko anali ndani*

Myself (1) **Wife (2)** **Father (3)** **Mother (4)**
Brother/Sister (5) **Uncle/aunt (6)** **Others (specify) .....**

Q11 How many people lived in your household at that time? *Munkakhala anthu angati?* **Adults (Of 15 years and above) .....**
Children (Below 15 years) .....

Q12 (a) What was your source of income at that time?
Kodi ndi njira ziti munkapezera ndalama kumeneko?
Selling annual food crops (Maize, Beans, Gnuts, Cassava, Potatoes (1)
Selling annual cash crops (Tobacco, cotton, sunflower, paprika (2)
Dimba farming (3) **Seling fruits (4)** **Artisan work (5)**
Grocery (6) **Fish mongering (7)** **Livestock (8)**
Casua l labour (*ganyu*) (9) Other (specify) (66) .....

(c) How much income did the household earn from each of the sources you have mentioned? *Panjira zimene mwanenazi, munkapeza ndalama zochuluka bwanji pachaka*?

Income source	Household head	Other adults	Children
Annual food crops (a) Maize			
(b) G/nuts			
(c) Beans			
(d) Cassava			
(e) Potatoes			
Annual cash crops			
(a) Tobacco			
(b) Cotton			
(c) Sunflower			
(d) Paprika			
Dimba farming			
Selling fruits			
Artisan work (Zaumisiri)			
Grocery			
Fish mongering			
Livestock			
Selling labour			
Other (specify)			

Q13 What was your average landholding size for your household prior to migration? *Kodi musadabwere kuno munali ndi malo ochuluka bwanji* ?
..... Acres

Q14 (a) In the year before you left did your household grow enough food for thefamily? *Musanayamuke kubwera kuno munalima chakudya chokwanila?* **Yes (1)** [GO TO Q15] **No (2)**

(b) If No, what did you mainly do to supplement your household food requirements? *Ngati sichinali chokwanila, chakudya china mumachipeza bwanji?*
Buy Food (1) Work for food (2) Work for cash to buy food (3) Begging (4) Others (specify) (66) .....

Q15 When did you start thinking about moving from your village to work somewhere else? *Kodi munayamba chaka chanji kuganiza zochoka kumudzi kukagwira ntchito kwina?*.....

Q16 Why did you start thinking about migrating?
Nchifukwa ninji munaganiza zochoka kumudzi?
Feuds in previous place of residence (1) **Lack of agricultural inputs (2)**
Lack of adequate land for farming (3) **Poor harvests (4)** **Low incomes (5)**
Other (specify) (66) .....

Q17 (a) Did you have any relatives or friends living in this place before you moved to live here? *Kodi munali ndi achibale kapena anzanu amene amakhala kuno musanabwere*? **Yes (1)** **No(2)**

(b) Were you in touch with these relatives/friends before you left your area of origin for this place? *Kodi munkayenderana nawo /kulemberana makalata/foni musanabwere kuno*?
Yes (1) **No (2)**

Q18 (a) At the time you decided to come to Lilongwe did you ever consider migrating to the estate? *Musanabwere kuno munaganizapo zokagwira ntchito kuesiteti?* **Yes (1)** **No (2)**

(b) What would you consider as your main reasons for coming to Lilongwe instead of estate? *Nzifukwa ziti munabwerera kuno m'malo mwaku esiteti*?
I had someone I knew in the city (1) I had been in Lilongwe before (2)
There is exploitation in estates (3)
I had no information about estate employment (4)
I do not have tobacco farming skills (5)
Others (specify) (66) .....

(c) Out of the reasons what was your main reason for choosing to come to Lilongwe? *Pazifukwazi ndi chifukwa chiti chinali chopambana?* **I had someone I knew in the city (1)**
I had been in Lilongwe before (2) There is exploitation in estates (3)
I had no information about estate employment (4)
I do not have tobacco farming skills (5)
Others (specify) (66) .....

Q19 Please consider the following factors and tell me how important they were in influencing your decision to migrate? *Taganizirani mfundo zomwe nditchulezi ndipo mundiuze kufunika kwake m'mene zinathandizira kupanga maganizo anu osamuka?*

Factor *Mfundo*	As you prepared to migrate did you have information about each of these factors before you left home? *Mukukonzekera kunyamuka munamvapo kalikonse za mfundo izi?* **Yes=1 No=2**	What was the source of information? *Mudamvapo kuchokera kwa ndani*	Based on this information, how did you rank your chances of success in relation to each factor as they related to you **High=1** **Low=2**	Why did you rank each factor the way you did? **[See codes for each factor on the next page]**	Did you take this into account when migrating? **Yes=1** **No=2**	How accurate did you find this information upon arrival in destination on scale of 1-4 **Not accurate=1** **Slightly accurate=2** **Accurate=3** **Very accurate=4**
Prospect of getting a job *Mwai opeza ntchito*						
Cost of migration *Zomwe munaononga posamuka*						
Wages/Income in destination compared to home. *Malipiro*						
Housing availability Mwayi wamalo okhala						
Food availability Mwayi opeza chakudya						
Security in destination- Umbava ndi umbanda						
HIV/AIDS incidence in destination.						
Access to credit. *Mwayi wangongole*						

Source of information: **Relatives from here (1) Friends/mates here (2) Visited this place before (3) Labour office(4) Newspaper/radio(5) Return migrants in area of origin (7) Other (specify)(66)**

CODES FOR REASONS FOR RANKING EACH FACTOR

1 PROSPECT OF GETTING A JOB
Unemployment rate very low (1)
Unemployment rate high (2)
High HIV/AIDS deaths create openings (3)
Had someone to help me (4)
Did not have someone to help me (5)
I have skills (6)
I do not have skills (7)
I am educated (8)
I am not educated (9)
Others (specify) (66) .....

2 COST OF MIGRATION
Had saved money (1)
My home is close to destination (2)
Had someone to help me (3)
I would not move with family (4)
Wages and income were guaranteed (5)
Destination had more income opportunities (6)
Others (specify) (66)

3 WAGES
I had education (1)
Did not have education (2)
Had the right skills (3)
Did not have the right skills (4)
Wages and income were guaranteed (5)
Destination had more income opportunities (6)
Others (specify) (66) .....

4 HOUSING AVAILABILITY
Had relative in destination (1)
Did not have relative in destination (2)
Was assured employer would provide (3)
Been herefore, I know my way round (4)
Had personal savings for housing (5)
Others (specify) (66) .....

5 FOOD AVAILABILITY
Had relative in destination (1)
Did not have relative in destination (2)
Was assured employer would provide (3)
Been herefore, I know my way round (4)
Had personal savings to buy food (5)
Others (specify) (66) .....

6 SECURITY
Insecurity is everywhere (1)
There was nothing I could do (2)
More police activities here (3)
Others (specify) (66) .....

7 HIV/AIDS
Have information about HIV/AIDS danger (1)
Know how to protect myself (2)
Planned to move with my spouse (3)
The problem is everywhere (4)
Others (specfy) (66) .....

SUB - MODULE C: Migration

Q20 When did you move to Lilongwe city? .....
Kodi mutauni muno munabwera liti?

Q21 What was your age when you last moved to live in Lilongwe? **years old**
Panthawi yomwe muknabwera munali ndi zaka zingati?

Q22 At the time of moving how many years of education had you completed? ....
Years *Panthawi imene mumabwera kuno munali mutamaliza kalasi yanji?*

Q23 At the time of moving what was your marital status?
Pamene munkachoka kumudzi, munali pabanja? **Single (1)** GO TO Q25
Married (2) **Widowed/divorced/separated (3)** GO TO Q25
Other (specify) (66) ..... GO TO Q25.

Q24 (a) If you were married, at that time, did your family move with you from your previous place of residence? *Munabwera ndi banja lomwe?* **Yes (1) No (2)**

(b) If no, did they follow you later from the place of previous residence? *Ngati ayi adakutsatilani?* **Yes(1) No (2)**

(c) If yes, after how long did it take them to join you? ... **years** *adatenga nthawi yayitali bwanji kuti akutsatireni?*

SUB MODULE C: Help with migration costs

Q25 Please tell me if you received any form of assistance towards the costs of migration during your migration process? *Kodi munalandirapo thandizo lili lonse pamene mumasamuka ndi pamene mumafika kuno?*

Migration cost item *Thandizo pa kusamuka*	Any assistance *Thandizo*		Relationship to provider *Ubale*	Knew this person before you arrived *Mumadziwana nkale*		How long you received the assistance *Munalandira thandizo kwanthawi yayitali bwanji*	Employment status at time the assistance stopped *Kodi pamene amasiya kukupatsani thandizo munali mutayamba ntchito?*	Was assistance gift or loan *Thandizolo linali ngongole kapena mphatso* **Gift (1) Loan (2)**
	Yes	No		Yes	No			
Transport to destination								
Transport within destination (During job search)								
Food								
Accomodation								
Other (specify)								

Codes for relationship: **Father/mother (1) Brother/sister (2) Aunt/uncle (3) Cousin/nephew/niece (4) Homemate (5) Fellow migrant (6) Other (specify) (66) .....**

Codes for employment status: **Unemployed looking for a job(1) Doing occasional casual work but looking for full time employment (2) Employed in someone's business but looking for a formal job (3) Employed in full time job(4) Others (specify) (66) .....**

Q26 If you did not have support from other people before you started in your first main job here, what was your main means of support? *Ngati palibe amene amakuthandizani musanapeze ntchito, mumapeza chithandizo bwanji*? **None (straight to job (1) Personal savings (2) Casual jobs (3) Others (specify) (66) .....**

SUB-MODULE D: Post migration work experience

Q27 (a) When you moved to this area did you have a job waiting for you? *Pamene mumabwera kuno ntchito inali itapezeka kale?*
Yes (1) **No(2)** [Go to Q28] **Thought so, but no (3)** [Go to Q28]

(b) If Yes, who obtained the job for you? *Nanga anakupezerani ndani*? **Self (1) Relatives (2) Friend(3) Employer (4) Other (specify) (66) .....**

Q28 (a) What were the main methods you used to seek work after you arrived? *Kodi mumagwiritsa ntchito njira zanji pofuna ntchito*? [CIRCLE ALL USED] **Friends, relatives in this area (1) Newspapers (2) Labour office (3) Friends, relatives in previous area (4) Asking employers in offices (5) Tried to set up business (6) Other (specify) (7)**

(b) What was the main method by which you obtained your first main job in this area? *Ndi njira iti munapezera ntchito yanu yoyamba*? **Friends, relatives in this area (1) Newspapers (2) Labour office (3) Friends, relatives in previous area (4) Asking employers in offices (5) Other (specify) (66) .....**

Q29 After you arrived in Lilongwe, how long was it before you started work for pay, profit or family gain? *Kodi mutafika panapita nthawi yayitali bwanji musanayambe ntchito kapena bizinesi?* **Started immediately (1) ..... months (2) Never worked (3) [Go to Q30]**

Q30 Please tell me your employment history since your arrival in the city? *Mundiuzeko mbiri yanu yantchito mutafika muno kuno?*

Job No	**Occup ation**	**Organis ation type**	**Average no of workers**	**Net income per month**	**Period worked**	**Reason for quitting**
First						
Second						
Third						
Current main job						
Current secondary income source						

Occupation codes: **Farmer (1) Security Guard (2) Domestic worker (3) Builder (4) Businessman (5) Driver (6) Construction labourer (7) Other (specify) (66) .....**
Organisation type codes: **Own family business (1) Other family business (2) Government (3) Statutory Corporation (4)NGO (5) Private firm (6) Other(Specify)(66) .....**
Codes for main reason for ending the job **Quit, low income (1) Ill - health, disability (2) Quit, poor working condition (3)Quit to set up business (4) To take another job (5) Laid off no work(6) Other (specify) (66)**

Q31 (a) If you are self-employed, do you employ other people in your business? *Ngati muli ndi bizinesi, munalemba anthu antchito?*
Yes (1) **No (2)** [Go to Q36]

(b) If yes, how many migrants from your previous place of residence have you employed **..... people**
Ngati ndi choncho munalemba anthu angati ochoka kumudzi kwanu?

(c) How many of these employees arranged for their employment with you before they arrived here in the city?

Mwa anthu amenewa ndi angati amene mudapangana nawo zantchito asnabwere kuno?

None (1) **Few(2)** **Most(3)** **All(4)**

Q32 (a) Since your arrival in Lilongwe have you sought any form credit?
Yes (1) No(2)

(b) If yes, what form of credit have you sought for?
Agricultural credit (1) Non-agricultural credit (2) Both agricultural and non-agricultural credit (3)

(c) If yes, from whom did you seek credit?
Commercial Banks (1) New Building Society (2) SEDOM(3) Malawi Rural Finance (4) SEDOM (5) Others (specify) (66) .....

(d) Were you successful in getting credit?
Yes (1) No (2)

(e) If yes, where did you get credit?
Commercial Banks (1) New Building Society (2) SEDOM(3) Malawi Rural Finance (4) SEDOM (5) Others (specify) (66) .....

SUB MODULE E: PERCEIVED VULNERABILITY OF THE MIGRANTS

Q33 Please tell me how much you agree with the following statements on a scale of 1-4 *Kodi mfundo izi mukugwirizana nazo bwanji mutapima pasikelo motere*?
Do not agree /Sindikugwirizana nayo(1) Slightlyagree/Pang'ono (2) Agree/Ndikugwirizana nayo (3) Strongly agree/Kwambiri (4)

(i) My living standards have improved by migrating
Moyo wanga wasintha chifukwa chobwera kuno .....

(ii) I am poorer than I was in the village
Umphawi wanga waonjezereka kuno .....

(iii) My income will be higher next year
Chuma changa chidzachuluka chaka cha mawa .....

(iv) My income will be higher in five years
Chuma changa chidzachuluka zaka zisanu zikubwera .....

(v) I am an important person in this community
Ndine munthu ofunikira mdera lino .....

(vi) I was an important person in my last place of residence
Ndine munthu ofunikira kwathu .....

THE END: Thank you for your time

Appendix 5

Field survey location

Non migrant survey

The following villages came from TAs Kayembe, Dzoole, Mkukula and Msakambewa in Dowa district:

1 Kayembe
2 Mchimata
3 Buno
4 Chinavinga
5 Chiphule
6 Chanda
7 Maliyamu
8 Wonderammimba
9 Masinja
10 Msenga
11 Chimbwala
12 Nyalugwe
13 Ngaladzuka

Estate survey

1 Estate 13
2 Estate 14
3 Estate 18
4 Estate 19
5 Estate 20
6 Estate 81
7 Estate 82
8 Estate 83
9 Chankhungu Estate
10 Chimwankango Estate
11 Chimbwadzi Estate

Urban Survey

1 Kauma Township
2 Ngwenya Township
3 Mtandire Township
4 Chinsapo Township
5 Mgona Township
6 Senti Township

Appendix 6

White Heteroskedasticity Test: Rural earnings function

F-statistic	0.963981	Probability	0.502020
Obs*R-squared	17.45442	Probability	0.492099

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 09/08/06 Time: 11:43
Sample: 1 280
Included observations: 280

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001754	0.036466	-0.048092	0.9617
EDUC	0.001483	0.003432	0.432068	0.6660
EDUC^2	0.000316	0.000234	1.352187	0.1775
EDUC*EXP01	-5.10E-05	7.81E-05	-0.652546	0.5146
EDUC*EXPSQ1	5.80E-07	3.35E-06	0.173226	0.8626
EDUC*LANDSIZE	-0.001001	0.001502	-0.666598	0.5056
EDUC*NAGRIC	-0.002496	0.001658	-1.505717	0.1333
EXP01	0.000851	0.002706	0.314352	0.7535
EXP01^2	-1.04E-05	4.77E-05	-0.217512	0.8280
EXP01*EXPSQ1	1.31E-07	1.09E-06	0.119938	0.9046
EXP01*LANDSIZE	-1.26E-06	0.000371	-0.003389	0.9973
EXP01*NAGRIC	3.07E-05	0.000406	0.075695	0.9397
EXPSQ1^2	-9.55E-11	2.02E-08	-0.004722	0.9962
EXPSQ1*LANDSIZE	-9.57E-06	1.64E-05	-0.582138	0.5610
EXPSQ1*NAGRIC	-2.68E-06	1.41E-05	-0.189741	0.8497
LANDSIZE	0.011734	0.018938	0.619596	0.5361
LANDSIZE^2	-0.000130	0.005355	-0.024365	0.9806
LANDSIZE*NAGRIC	-0.000246	0.009391	-0.026166	0.9791
NAGRIC	0.006972	0.016024	0.435090	0.6639

R-squared	0.062337	Mean dependent var	0.028234
Adjusted R-squared	-0.002329	S.D. dependent var	0.038142
S.E. of regression	0.038187	Akaike info criterion	-3.627213
Sum squared resid	0.380597	Schwarz criterion	-3.380567
Log likelihood	526.8098	F-statistic	0.963981
Durbin-Watson stat	1.487248	Prob(F-statistic)	0.502020

Appendix 7
White Heteroskedasticity Test: Estate earnings function

F-statistic	0.536562	Probability	0.959035
Obs*R-squared	14.24833	Probability	0.940841

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 09/08/06 Time: 11:39
Sample: 1 126
Included observations: 126

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.036681	0.033339	1.100240	0.2738
EDUC	0.000454	0.000552	0.822247	0.4129
EDUC^2	-5.95E-06	2.37E-05	-0.250482	0.8027
EDUC*EXP01	-5.42E-06	1.36E-05	-0.399893	0.6901
EDUC*EXPSQ	6.51E-07	7.42E-07	0.877067	0.3825
EDUC*PER	-8.67E-05	6.00E-05	-1.444795	0.1516
EDUC*PERSQ	2.50E-06	5.36E-05	0.046698	0.9628
EDUC*IGA	6.18E-05	0.000161	0.382904	0.7026
EXP01	0.000407	0.000820	0.495668	0.6212
EXP01^2	-7.68E-06	1.67E-05	-0.460790	0.6459
EXP01*EXPSQ	2.36E-07	2.90E-07	0.811509	0.4190
EXP01*PER	-8.15E-06	2.49E-05	-0.326657	0.7446
EXP01*PERSQ	-1.96E-05	2.25E-05	-0.870796	0.3859
EXP01*IGA	-1.67E-05	7.26E-05	-0.229415	0.8190
EXPSQ^2	-2.39E-09	5.29E-09	-0.450933	0.6530
EXPSQ*PER	-8.38E-07	1.49E-06	-0.562482	0.5750
EXPSQ*PERSQ	3.52E-07	1.19E-06	0.295229	0.7684
EXPSQ*IGA	4.21E-07	5.33E-06	0.078989	0.9372
PER	-0.019655	0.016232	-1.210872	0.2288
PER^2	0.002438	0.001919	1.270298	0.2069
PER*PERSQ	-0.000264	0.000283	-0.931214	0.3540
PER*IGA	-0.000364	0.000442	-0.822094	0.4130
PERSQ^2	-0.000220	0.000180	-1.219751	0.2254
PERSQ*IGA	8.09E-05	0.000360	0.224358	0.8229
IGA	0.001595	0.002949	0.540725	0.5899

R-squared	0.113082	Mean dependent var	0.001738
Adjusted R-squared	-0.097671	S.D. dependent var	0.002309
S.E. of regression	0.002419	Akaike info criterion	-9.035118
Sum squared resid	0.000591	Schwarz criterion	-8.472363
Log likelihood	594.2124	F-statistic	0.536562
Durbin-Watson stat	2.231641	Prob(F-statistic)	0.959035

Appendix 8
White Heteroskedasticity Test: Urban earnings function

F-statistic	0.567763	Probability	0.950229
Obs*R-squared	14.19689	Probability	0.942078

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 09/08/06 Time: 11:34
Sample: 1 291
Included observations: 283

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.27729	9.922259	1.136565	0.2568
EDUC	-0.000299	0.002327	-0.128411	0.8979
EDUC^2	1.54E-06	8.88E-05	0.017352	0.9862
EDUC*EXP01	6.09E-05	7.24E-05	0.840907	0.4012
EDUC*EXPSQ	-2.18E-06	3.63E-06	-0.600383	0.5488
EDUC*PER	-0.000145	0.000227	-0.637510	0.5244
EDUC*PERSQ	-0.000118	0.000203	-0.582091	0.5610
EDUC*SELFEMP	5.05E-05	0.000624	0.080865	0.9356
EXP01	-0.004803	0.002642	-1.818231	0.0702
EXP01^2	0.000117	6.60E-05	1.778598	0.0765
EXP01*EXPSQ	-2.04E-06	1.94E-06	-1.053824	0.2929
EXP01*PER	0.000148	0.000127	1.167750	0.2440
EXP01*PERSQ	5.04E-05	0.000109	0.464371	0.6428
EXP01*SELFEMP	-0.000158	0.000326	-0.484659	0.6283
EXPSQ^2	1.21E-08	5.18E-08	0.233411	0.8156
EXPSQ*PER	-5.47E-06	7.78E-06	-0.703267	0.4825
EXPSQ*PERSQ	-1.89E-06	7.40E-06	-0.254968	0.7990
EXPSQ*SELFEMP	-1.51E-05	2.41E-05	-0.628735	0.5301
PER	-5.330595	4.710675	-1.131599	0.2589
PER^2	0.632572	0.559138	1.131335	0.2590
PER*PERSQ	-0.000293	0.000716	-0.408744	0.6831
PER*SELFEMP	-0.000460	0.001417	-0.324527	0.7458
PERSQ	-0.631509	0.558209	-1.131313	0.2590
PERSQ*SELFEMP	-0.000381	0.001213	-0.314110	0.7537
SELFEMP	0.004022	0.009746	0.412697	0.6802

R-squared	0.050166	Mean dependent var	0.010894
Adjusted R-squared	-0.038191	S.D. dependent var	0.014526
S.E. of regression	0.014801	Akaike info criterion	-5.504051
Sum squared resid	0.056520	Schwarz criterion	-5.182015
Log likelihood	803.8232	F-statistic	0.567763
Durbin-Watson stat	1.977515	Prob(F-statistic)	0.950229

Appendix 9
Test for expected counts in categorical variables

Type of Migrant * Education Group

Crosstab

			Migrant's education group		Total
			1-7	8+	
Type of migrant	Non Migrant	Count	197	83	280
		% within Type of migrant	70.4%	29.6%	100.0%
	Estate migrant	Count	98	28	126
		% within Type of migrant	77.8%	22.2%	100.0%
	Urban migrant	Count	104	187	291
		% within Type of migrant	35.7%	64.3%	100.0%
Total		Count	399	298	697
	% within Type of migrant		57.2%	42.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	96.365(a)	2	.000
Likelihood Ratio	98.295	2	.000
Linear-by-Linear Association	70.473	1	.000
N of Valid Cases	697		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 53.87.

Type of Migrant * Destination contact

Crosstab

			Migrant had relative in either destination		Total
			No	Yes	
Type of migrant	Non Migrant	Count	156	124	280
		% within Type of migrant	55.7%	44.3%	100.0 %
	Estate migrant	Count	84	42	126
		% within Type of migrant	66.7%	33.3%	100.0 %
	Urban migrant	Count	69	222	291
		% within Type of migrant	23.7%	76.3%	100.0 %
Total		Count	309	388	697
	% within Type of migrant		44.3%	55.7%	100.0 %

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	90.306(a)	2	.000
Likelihood Ratio	93.596	2	.000
Linear-by-Linear Association	59.835	1	.000
N of Valid Cases	697		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 55.86.

Type of Migrant * Non agricultural enterprise
Crosstab

			Non agricultural enterprise		Total
			No Non agricultural enterprise	Had non agricultural enterprise	
Type of migrant	Non Migrant	Count	166	114	280
		% within Type of migrant	59.3%	40.7%	100.0%
	Estate migrant	Count	81	45	126
		% within Type of migrant	64.3%	35.7%	100.0%
	Urban migrant	Count	116	175	291
		% within Type of migrant	39.9%	60.1%	100.0%
Total		Count	363	334	697
	% within Type of migrant		52.1%	47.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	30.752(a)	2	.000
Likelihood Ratio	30.982	2	.000
Linear-by-Linear Association	21.769	1	.000
N of Valid Cases	697		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 60.38.

Type of Migrant * Non agricultural enterprise
Crosstab

			Migrant supplied ganyu labour		Total
			No	Yes	
Type of migrant	Non Migrant	Count	177	103	280
		% within Type of migrant	63.2%	36.8%	100.0%
	Estate migrant	Count	46	80	126
		% within Type of migrant	36.5%	63.5%	100.0%
	Urban migrant	Count	216	75	291
		% within Type of migrant	74.2%	25.8%	100.0%
Total		Count	439	258	697
	% within Type of migrant		63.0%	37.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	53.668(a)	2	.000
Likelihood Ratio	52.816	2	.000
Linear-by-Linear Association	7.718	1	.005
N of Valid Cases	697		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 46.64.

Type of Migrant * Marital status
Crosstab

			Migrants' marital status		Total
			Never married	Married or otherwise	
Type of migrant	Non Migrant	Count	15	265	280
		% within Type of migrant	5.4%	94.6%	100.0%
	Estate migrant	Count	16	110	126
		% within Type of migrant	12.7%	87.3%	100.0%
	Urban migrant	Count	94	197	291
		% within Type of migrant	32.3%	67.7%	100.0%
Total		Count	125	572	697
	% within Type of migrant		17.9%	82.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	73.259(a)	2	.000
Likelihood Ratio	76.675	2	.000
Linear-by-Linear Association	70.521	1	.000
N of Valid Cases	697		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.60.

Appendix 10

Test for Linearity in the Logit

	Likelihood Ratio Tests		
	Chi-Square	df	Sig.
Intercept	.000	0	.
AGE	1.598	2	.450
EXPRUR	1.026	2	.599
EXPEST	.008	2	.996
EXPURB	1.561	2	.458
LN_AGE	1.637	2	.441
LN_EXPRUR	.922	2	.631
LN_EXPEST	.008	2	.996
LN_EXPURB	1.644	2	.440
MSTAT	41.882	2	.000
RELAT	45.304	2	.000
EDUGP	47.126	2	.000
NAGRIC	18.034	2	.000
GANYU	22.144	2	.000

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.