RURAL-URBAN MIGRATION IN KENYA

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CHAPTER I

INTRODUCTION

This study will investigate the determinants of rural-urban migration in Kenya.

Nature of the Problem

Rapid Urbanization

The population of Kenya in August 1979 (CBS, 1979) was about 15,322,000. This makes Kenya the sixth most populous country in sub-Saharan Afrida, tenth in the African continent, and forty-seventh in the world. The annual growth rate of Kenya between 1975 and 1980 was 3.8 percent (World Bank, 1980). The current estimate of Kenyan population are around 4 percent (Mott and Mott, 1980). The growth rate of population is mainly attributed to an exceptionally high birth rate, estimated at 50 per 1,000, and a low mortality rate. Total fertility rate of Kenya is around 8.1, meaning on the average every mother in Kenya produces eight children in her life span. At this rate Kenya has the highest fertility rate in the world. If the 4 percent growth rate continued, Kenya's population will double to over 30 million in just over 17 years (Mott and Mott, 1980). This prospect presents a grim reality to policy makers.

In addition to the rapid population growth of Kenya in general.

urban areas (particularly Nairobi and Mombasa) are growing at a faster rate than the national average. The capital city of Nairobi is growing at 6.3 percent compared to the national rate of 3.8 percent (CBS, 1980). According to the latest census on 1979, the population of the two major towns, Nairobi and Mombasa were 827,775 and 341,148 respectively. Their populations were 509,286 and 247,073 in 1969. Although the population of Nairobi is more than double that of Mombasa, Mombasa is the second largest city in Kenya. The third and fourth largest towns are Nakuru and Kisumu and their populations were 47,151 and 32,431 respectively in 1969. The population of Mombasa is more than three times that of the combined populations of the third and the fourth largest towns in Kenya. The capital city of Nairobi which is a province by itself is larger than the next 20 towns combined. At the same time Nairobi and Mombasa account for more than 60 percent of the urban population with no signs of any other towns joining the league by the end of the century (Richardson, 1980). The urban population of Kenya was 1,080,000 in 1969 and half lived in Nairobi (World Bank, 1980).

The rapid growth of Nairobi and Mombasa is partly attributed to colonial legacy. Nairobi and Mombasa, according to Richardson (1980), emerged as the sole major urban centers because of their strategic location as trading and transportation nodes. Nairobi was borh the commercial center as well as the administrative center for the British. Mombasa was the main seaport and the principal route to the outside world. It serviced Nairobi and the whole country. Nairobi stands as the primate city, the leading industrial sector and the seat of government. About 27 percent of the wage employment in Kenya is in Nairobi. Another 10 percent is in Mombasa, giving the two towns 37 percent of

the wage employment in Kenya (CBS, 1980). The role of other towns was reduced to form a network of administrative centers. Their location was to be explained by the railway access to the cash-crop producing areas, climate, etc. The medium sized towns were invariably service centers for the white highlands, rather than the central places of the densely populated African areas. The colonial urbanization system did not cease as Kenya gained independence, but persisted and indeed increased. In addition to the retention of the colonial pattern of urbanization, the legal and institutional constraints of African mobility have been removed, inducing landless laborers to migrate in large numbers to seek modern sector employment in Nairobi.

Relationship Between Rural-Urban Migration and Urbanization

The rate of growth of the two major towns, particularly Nairobi, stems from two factors. The first is a high natural growth rate of population, considered to be the highest in the world. The second factor is a relatively high rural-urban migration, which is not showing any signs of slowing down. The city of Nairobi is growing at an average annual growth rate between 6 and 7 percent. Out of that rate, 3 and 4 percent is the natural population growth and 2 to 3 percent is due to rural-urban migration.

The population census of 1969 showed that 65 percent of Nairobi's population were born outside Nairobi and another 10 percent outside Kenya, meaning 75 percent of Nairobi residents were born outside Nairobi. According to a World Bank report, 76 percent of Nairobi residents are immigrants (Richardson, 1980).

Three fifths or 60 percent of all migrants to the urban centers between 1962 and 1969 made their way to Nairobi and another 23 percent to Mombasa. Nairobi and Mombasa combined absorb 83 percent of all rural-urban migrants (Richardson, 1980).

Problems of Urbanization

Part of the cause of urbanization is due to rural-urban migration. The causes of rural migration to urban centers are mainly two, economic and noneconomic. Individuals move from low-paying areas to high-paying areas. A typical low-paying area is the rural areas or traditional sector of Kenya. The urban sector or the modern sector is a high-paying area. So economic theory tells us that people will move from rural areas to urban areas in search of high-paying jobs. Individuals are concerned about the private returns to their investments whether the investment is in migration or other activities. However, private and social costs may diverge. Migration which could be justified at the individual level may be unjustified at the national level. What is good for the individual may not necessarily be good for society. Moves that add more to social costs than to private costs are an overinvestment from the society's standpoint (Collier and Rempel, 1977).

According to Collier and Rempel (1977) the social and private costs of migration to Nairobi diverge greatly. As a result, any policy that restricts rural-urban migrants reduced the social costs of urbanization.

Reduction of rural-urban migration reduced the number of people unemployed. The reduction of one unemployed person from the pool of unemployment in Nairobi, according to Collier and Rempel (1977), is

the opportunity cost of creating a rural job which induces

> one unemployed migrant in Nairobi to return to his home area is the value of the new output of that migrant since his output forgone in Nairobi is zero.

If migration to Nairobi is reduced, not only unemployment will be reduced but a large amount of government expenditure on social services will be freed for alternative uses.

The social costs of rapid urbanization include tangible costs such as increased public services (roads, sanitation, etc.) in urban areas; and intangible costs such as pollution, crime and decline in the quality of life. The reduction of rural-urban migration could also increase agricultural production (Byerlee, 1973).

Rapid urbanization in Kenya is also questioned on equity grounds as the rural households are forced to subsidize high urbanization costs (Linn, 1980). The evidence could be seen from Tables V and VI, where Nairobi gets almost twice the per capita central government expenditure.

The Objectives of the Study

This study will investigate the causes of rural-urban migration in Kenya.

I hypothesize that rural-urban migration is basically an economic phenomenon. Income differential between the rural and the urban areas is the primary cause of the migration process.

The Significance of the Study

The major thrust of this study is the determinants of gross rural-urban migration and the importance of the study stems from the following points:

1. This is the first study of its kind to attempt to determine what

causes rural-urban migration in relation to Nairobi and the rest of the country. Other studies using Kenyan data either studied migration of rural people to urban centers or interprovincial or interdistrict migration.

2. This study uses a one-year census data which is an improvement over the life-time migration data or survey data used by previous studies on Kenya.

3. Most of the studies done on Kenya were urban specific, i.e., pull urban variables were frequently used, where this study will try to use rural variables as far as possible. Only if the determinants of migration to Nairobi are known, the government will adapt appropriate policies to deter people from migrating to Nairobi.

Organization of the Study

This study contains seven chapters in the following order:

1. Introduction and statement of problem
2. The economic background
3. Literature review
4. A model of labor migration
5. Data sources and regression results
6. Interpretation of the results
7. Conclusions and policy implications

Limitations of the Study

The alternative net present value of the future income streams was postulated as the relevant variable in measuring per capita income differential in the migration model, however in this study the annual

alternative income will be used to test the hypothesis of the study. The annual alternative income as the income variable is thought to be more appropriate than the net present value for two main reasons: first, people do not actually calculate the net present values of future income in order to decide whether to migrate or stay. Secondly, the discount is either unknown or does not change from year to year due to imperfections in the market. Thus the per capita income differential in the year 1979 has been used to test the hypothesis of the study. The age distribution of the migrant population could not be calculated from available data. This variable would have explained what age group is more prone to migrate. What level of education is most affected or more likely to migrate. For policy effectiveness, such information may be crucial.

The Todaro adjustment factor which has been discussed in the model could not be made as unemployment rates could not be calculated.

CHAPTER II

ECONOMIC BACKGROUND

This chapter will look at the structure of the Kenyan economy and the factors that lead to the urbanization problems.

Kenya gained its independence from the British in 1963. Years of colonization and economic exploitation left Kenya very weak, inheriting many overwhelming challenges, such as pervasive poverty. On independence the government took on the task of organizing the economy and promised to put major emphasis on three overriding principles: (1) economic growth, (2) equitable distribution of income, and (3) Kenyanization of the business community. A look at the structure of the Kenyan economy after 20 years of independence may be a clue to the successes and failures of the Kenyan policy makers.

The population of Kenya according to the last census in 1979 was around 15,326,061, spread over a land mass of 564,162 square kilometers, giving an average density of 27 persons per square kilometer (CBS, 1979). Most of the population was concentrated in the southwestern highlands, the coastal strip and the lake area (see Figure 1).

Kenya is divided into seven provinces and the unitary territory of Nairobi. The seven provinces are Central, Coastal, Eastern, North-Eastern, Nyanza, the Rift Valley and Western. The population and density of each province according to the last census of 1979 are presented in Table I.

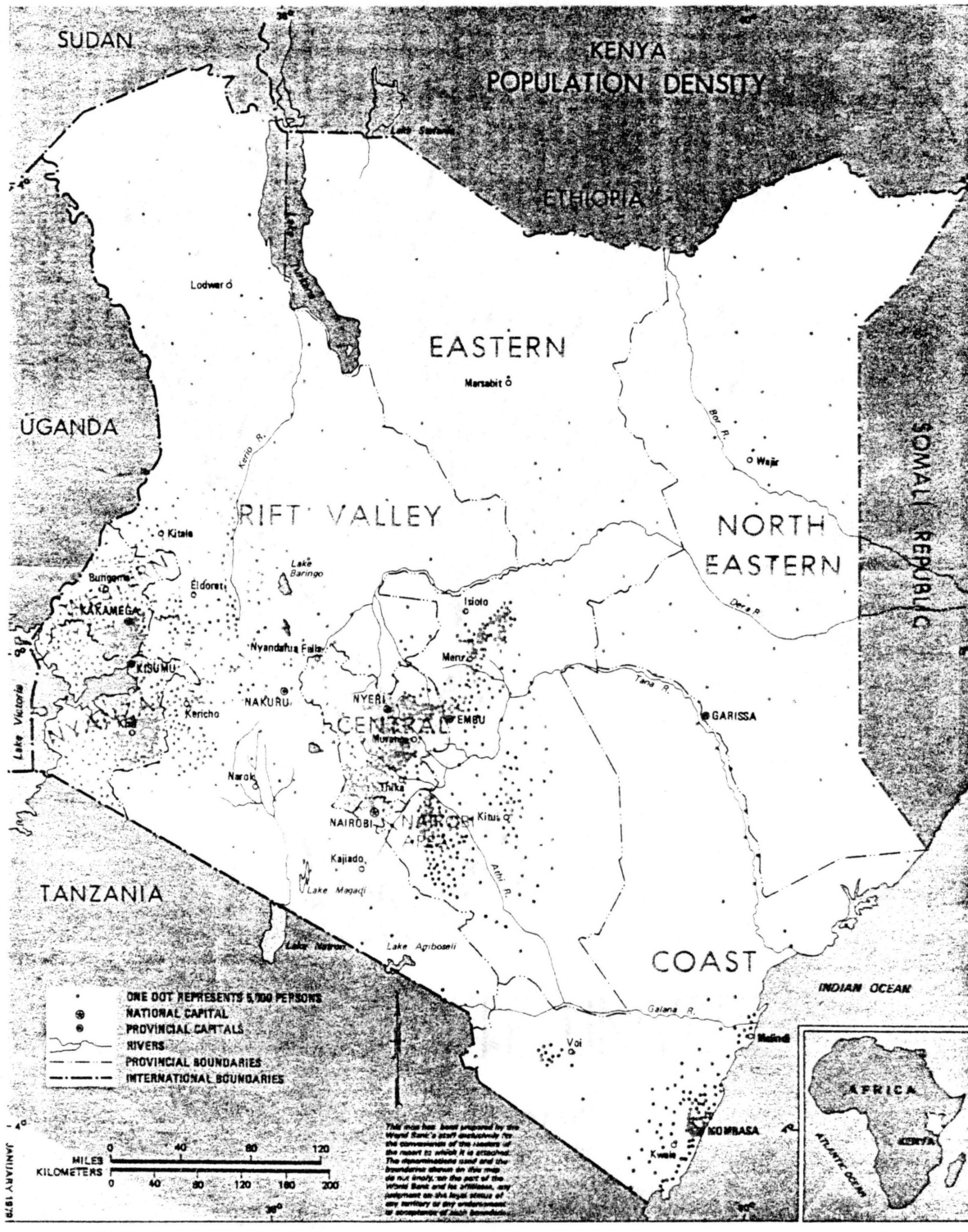

Figure 1. Map of Kenya showing provinces and population concentrations

TABLE I

POPULATION AND DENSITY OF KENYA PROVINCE

	Province	Population 1979	Density per km^2
1.	Central	2,345,833	178
2.	Coastal	1,342,794	16
3.	Eastern	1,719,851	17
4.	North-Eastern	373,787	2
5.	Nyanza	2,643,956	211
6.	Rift Valley	3,240,402	19
7.	Western	1,832,663	223
		14,499,286	27.16

Source: Central Bureau of Statistics: Census 1979.

The rate of population growth was 3.9 percent per year in 1980, and population growth in 1983 was estimated at 4 percent per year, making Kenya the fastest growing country in the world. The growth of the population is mainly attributed to an exceptionally high birth rate, estimated at 50 per 1,000, making Kenya one of the most fertile countries in the world. The total fertility rate in Kenya was estimated at around 8.1 in 1977-1978 (Mott and Mott, 1980). On the average every mother in Kenya produces eight children in her life time. If the population growth continues at the projected rate of 4 percent per year, Kenya's population will double to over 30 million in 17 years. There are only three countries in the world with growth rates comparable to Kenya: Kuwait, Libya and the Ivory Coast. And unlike Kenya, all of these countries have a significant population growth from immigration (World Bank, 1980).

Rural-Urban Migration

The population growth of Kenya is mainly due to the high birth rate based on the desire for a large family. The high rate of population growth is also due to a lower infant mortality rate which results from major successes in combating diseases and improving nutritional and economic conditions.

The other aspect of urbanization is the rural-urban migration. Provincial migration in Kenya is substantial. In 1969, there were 1.4 million people living in a province, other than their province of birth, and 1.8 million born in districts other than the district of enumeration. Therefore one of every eight persons living in Kenya in 1969 moved at least once in his lifetime from one province to another.

TABLE II

POPULATION GROWTH RATE IN KENYA FOR
1948, 1962, 1969, and 1979

Year	Population	Average Annual Growth Rate %
1948	5,406,000	
1962	8,636,000	3.3
1969	10,943,000	3.4
1979*	15,327,000	3.5

* Central Bureau of Statistics, Kenya (1980).

Source: Population and Development, World Bank Country Report

One in every six moved from one district to another (World Bank, 1980).

It could be seen from Table III, that Nairobi, Coastal and the Rift Valley province are net receivers of migration while Central Eastern and Western provinces are net losers.

At the district level, life time migration within provinces was also substantial. In 1969 alone, over half a million persons had moved from one district to another at least once a year, amounting to 40 percent of the volume of migration between provinces. Provinces with high inter-district movements of people were Central, Coastal, and Rift Valley, while the low inter-district migration provinces were Eastern, North-Eastern and Western (World Bank, 1980).

According to a study of the World Bank of rural-urban migration in Kenya, they found out that in 1969 about one-third of all lifetime migrants were classified as rural to urban, and about one quarter as urban to rural. The highest proportion of the migrants according to the report were rural to rural migrants which formed about 40 percent of all lifetime migrants, while only about 4 percent were classified as urban to urban migrants (World Bank, 1980). Table IV shows the direction of provincial migration from 1962 to 1969.

The two provinces which got the highest net-in-migration as shown by Table IV were Nairobi which gained 63,000 persons, or 62 percent of the natural population increase. Coastal province, including the principal seaport of Mombasa, gained 35,000 migrants, 21 percent of the natural population growth. Net rural-urban migration in Kenya during 1962-1969 was 111,000. Much of the rural-urban migration was directed toward Nairobi and Mombasa, the two principal towns in Kenya. Net migration to these two towns may be very close to the total rural-urban

TABLE III

LIFETIME MIGRANTS BY PROVINCES, 1969

Province	In-Migration		Out-Migration		Net Migration	
	Number	Percent	Number	Percent	Number	Percent
Nairobi	386,273	75.0	303,580	59.6	+ 82,693	+16.2
Central	168,281	10.0	332,554	19.8	-164,273	- 9.8
Coastal	212,652	58.9	27,666	7.7	+184,986	+51.2
Eastern	45,085	2.4	262,871	13.8	-217,786	-11.4
N. Eastern	10,962	1.8	10,380	1.7	+ 583	+ 0.4
Nyanza	193,986	9.1	186,068	8.8	+ 7,899	+ 0.4
Rift Valley	460,672	20.8	88,823	4.0	+371,849	+16.8
Western	72,210	5.4	200,946	15.2	-128,736	- 9.7
Kenya	1,550,122	14.2	1,412,889	12.9	+137,233	+ 1.3

Source: Population and Development, Kenya. World Bank Country Report, (1980), p. 29.

TABLE IV

PROVINCIAL MIGRATION 1962-1969

Province	Population Growth 1962-1969 (000's)	Natural Increase 1962-1969 (000's)	Net Migration 1962-1969 (000's)	Net Migration as a percent of Natural Increase	Net Migration as a percent of Net Growth
Nairobi	164	101	+ 63	+62	+38
Central	335	439	-104	-24	-31
Coastal	200	164	+ 35	+21	+17
Eastern	361	447	- 86	-19	-24
N. Eastern	24	24	--	--	--
Nyanza	480	458	+ 22	+ 5	+ 5
Rift Valley	433	370	+ 64	+17	+15
Western	309	303	+ 6	+ 2	+ 2
Kenya	2,306	2,306	--	--	--

Source: Population and Development, Kenya. World Bank Country Study, (1980), p. 32.

migration (World Bank, 1980). Central and Eastern provinces suffered a net loss to the magnitude of 24 percent and 19 percent of the natural population growth respectively.

Urbanization Problems

Several social and economic problems result from the rates of urbanization population growth in Kenya. The prospect of the population of Kenya doubling in 17 years presents a formidable challenge to a government committed to rapid economic growth and the provision of basic education, proper nutrition, health care, water supply and an adequate housing for all. The government's commitment, for example, to education may falter if the population of the primary school age soars from 2.6 million in 1975 to nearly 8.5 million by the year 2000 (Mott and Mott, 1980).

As the school enrollment in past years increased tremendously in Kenya, the government expenditures on education rose from 8 to 28 percent of total government expenditures (Mott and Mott, 1980). Expenditures on health, housing, water supply and other social services are also likely to increase as the population increases.

Rapid population growth is bound to affect the agricultural community. Kenya is a large country and the density of its population is relatively low. More than 80 percent of cultivable land has very limited potential on the basis of the present technology. If the population continues to grow, it is imperative that the present technology be improved. Otherwise, as population increases additional pressure will be placed on the productive capacity of the land. In some places, the excessive population growth has already been felt in the form of

subdividing the land into smaller plots. Excessive fragmentation of the high potential land has led to loss of agricultural output (World Bank, 1980).

Efforts made to cultivate the marginal land without proper planning and adequate safeguards has resulted in degradation of soil and deforestation. To redress that the government is waging a consorted effort with proper safeguards to exploit marginal land. This endeavour includes irrigation identification of cropping patterns suitable for semi-arid conditions as well as research in allied topics.

Agriculture continues to dominate Kenya's economy, although its share of GNP recently declined slightly. Non-subsistence agriculture accounts for 34.6 percent of the GNP in 1979 and over 80 percent of the population still make their living on the land and 20 percent of the people in paid employment are in agricultural sector (World Bank, 1980). Agriculture is crucial to the economic development of Kenya. Excessive rural-urban migration, high population growth, and urban bias in the economic planning of Kenya is affecting the agricultural sector.

The social cost of urbanization is also too high. Rapid urbanization has created a lot of unemployment particularly in Nairobi and Mombasa. The amount of social services needed to offset the negative consequences of rapid urbanization is tremendous. The consequences of ever increasing social services in Nairobi and Mombasa have caused an urban bias in the central government's allocation of both developmental and recurrent expenditures as indicated in Table V.

The total recurrent and development expenditure allocation in Kenya is unequally distributed. Nairobi gets almost twice that of all other regions put together. Its share of the recurrent expenditure is about

TABLE V

REGIONAL DISTRIBUTION OF CENTRAL GOVERNMENT EXPENDITURE PER PERSON

Province	Expenditure Per Capita KS* Road Development 1974-1978	Total Recurrent Expenditure Per Person 1973-1974
Nairobi	4.42	70.76
Central	9.67	9.69
Coastal	6.25	13.07
Eastern	4.85	6.42
N. Eastern	3.84	3.54
Nyanza	1.90	3.28
Rift Valley	5.50	8.84
Western	4.47	4.09
Kenya	5.17	119.69

Source: Poverty and Growth in Kenya. World Bank Staff Working Paper (1980), p. 64.

* KS = Kenyan shillings.
U.S. $1 = 13.03 KS

59 percent. Mombasa, in the Coastal province, the next leading town gets around 11 percent of the recurrent expenditure.

If the present trend of urbanization of Nairobi and Mombasa continues unabated, they will absorb more than their proportionate share of the countries' resources and this is bound to have an adverse effect on the rest of the country. The social costs are substantial, partly because of rising costs for the provision of urban services and partly because of the social costs of unemployment since each job created in Nairobi attracts more than one in-migrant (Richardson, 1979).

Rural-urban migration is due to the distinct income difference between the rural and the urban centers and may be in the best interest of the individual making the decision, but to the society as a whole it may be an over investment. Collier and Rempel looked at the social and private costs of an individual migrating to Nairobi. They found out that the social costs far exceeded private costs. They estimated private costs at around shs 345 while social costs were estimated at shs 646 to 1,052 per migrant (Collier and Rempel, 1977).

Collier and Rempel estimated the inflow of adult migrants into Nairobi between 1962 and 1969 as 106,840. If those migrants on the average experienced 3.5 months of unemployment, their average social cost associated with each migrant per year would be between Kshs 492,990 and Kshs 802,826. In terms of 1962 values this represents 0.15 to 0.25 percent of Kenyan GDP. Thus the social cost could be reduced by reducing rural-urban migration which would reduce unemployment. Reduction of rural urban migration will reduce unemployment as well as other social costs. The following table shows the bias in the distribution of social services to all the provinces. As could be seen from

Table VI the social services are unequally distributed. By far Nairobi is getting the largest share, followed by Coastal and Central provinces. Nairobi and Coastal provinces get more than their share due to high urbanization. Central province is the peripheral surroundings of the unitary territory of Nairobi. Because the Central province is the immediate surroundings of Nairobi, it may have got a high share of the central government social services.

When Kenya got its independence, she was to make one of two choices in national planning. The two alternative strategies were either to emphasize growth or equity. Kenya has chosen the strategy that emphasized economic growth as opposed to income distribution. The main concern of the government policy makers at the beginning of the planning periods was focused on increasing the overall growth rates of the economy. As a result the economic performance was impressive and Kenya maintained an average growth rate of 6.5 between 1960 and 1970 (Farugee, 1980). The per capita income was estimated to have increased by 3.5 per annum. However income inequalities continued to increase and the economic growth achieved did not benefit all sectors of the economy. The government tolerated the deteriorating income inequality according to Memon, because "countries such as Kenya during the take off stage cannot sacrifice increments in the growth rate to satisfy equity consideration" (1980, p. 18).

Equity considerations were put aside for later considerations and at such a time that the country's pace of economic growth accelerates sufficiently. Equity considerations were thought to impede economic take off according to Memon. Such economic strategy has contributed to increasing disparity between regions and between individuals. People

TABLE VI

DISTRIBUTION OF SOCIAL SERVICES BY PROVINCES, 1970

Province	Percent of Total Population 1970	Percent of School Enrollment 1970		Percent of NHC Housing Expenditure	Number of People	
		Primary	Secondary		Per Hospital	Per Medical Practioner
Rift Valley	20.4	14.7	12.1	6.0	820	1,269
Nyanza	19.4	16.1	13.1	1.2	1,269	2,219
Eastern	17.4	20.2	13.6	2.4	834	1,734
Central	15.3	24.9	22.9	15.1	766	1,287
Western	12.3	13.1	10.1	2.9	1,033	3,569
Coastal	8.6	6.3	9.3	7.2	511	707
Nairobi	4.4	4.4	18.7	65.2	152	84
N. Eastern	2.2	0.3	0.2	0	1,308	1,230
Kenya	100.0	100.0	100.0	100.0	715	871

Source: African Perspective, Kenya. Memon (1980), p. 80.

blame the government policy for increasing income inequality rather than reducing it. As a result the most pressing problem now is the income inequality. Tables VII and VIII show the extent of the poverty and how it is unequally distributed. According to Table VII, 29.5 percent of the population of Kenya were below the poverty line in 1974. The situation has actually deteriorated since. Table VIII provides estimates of the national income distribution.

The number of people below the poverty line was estimated around 4,210,000 in 1974. If the ratio of people below the poverty line remains the same, the number of people below the poverty line in 1979 would have been 6,399,048. But there is every indication that the poor are getting poorer and therefore the number of people below the poverty line is even greater. Table VIII shows that the top 25 percent of the people get 67 percent of the national income and the rest only 33 percent. Such an income distribution has caused a lot of dissent and could lead to political violence. What worries people most is the increasing trend of the income inequality.

The World Bank calculations can shed some further light on the future trend of the income inequality. Take the income distribution of the capital city and one province. Tables IX and X show that both the poorest and the middle sector are losing relative to the rich although in Nyanza province only the poorest 40 percent sector are losing to the rich.

Summary

Kenya is the fastest growing country in the world. The current population growth is estimated at 4 percent per year. The population

TABLE VII

POVERTY IN KENYA, 1974

Number of People Below Poverty Line	Number of People Above Poverty Line	Total
4,210,000	10,085,000	14,295,000

Source: Poverty and Growth in Kenya. World Bank Staff Working Paper (1980).

TABLE VIII

THE DISTRIBUTION OF INCOME IN KENYA, 1974

Income Equivalent (spa)*	Percent of Population	Percent of Income
Above 8,000	25	67
2,000-8,000	46	27
Below 2,000	29	6
	100	100

Source: Poverty and Growth in Kenya (1980).

* Shillings per annum.

TABLE IX

THE DISTRIBUTION OF INCOME IN NAIROBI PROVINCE, 1969, 1974

Group	Percent of Population	Percent of Income 1970	Percent of Income 1974	Percent Change in Share
Poorest	40	17.2	15.1	-12.2
Middle	30	28.8	21.8	-24.3
Richest	30	54.0	63.1	+16.9

Source: Poverty and Growth in Kenya. World Bank Staff Working Paper (1980).

TABLE X

THE DISTRIBUTION OF INCOME IN NYANZA PROVINCE, 1970, 1974

Group	Percent of Population	Percent of Income 1970	Percent of Income 1974	Percent Change in Share
Poorest	40	28.85	18.44	-36.09
Riddle	30	25.61	25.47	- 0.55
Richest	30	46.54	56.09	+20.52

Source: Poverty and Growth in Kenya. World Bank Staff Working Paper (1980).

of Kenya was 15,326,061 in the year 1979. The total fertility was estimated at 8.1 in 1977-1978. This makes Kenya the most populous country in Sub-Saharan Africa.

The natural growth rate of population is attributed to two main factors: (1) unusually high birth rate, and (2) improved medical facilities.

In addition to high natural population growth, there is an influx of rural people coming to the urban centers in search of modern sector employment. Rural-urban migration is caused by the gap between rural and urban wages. Nairobi is the primate city. About 27 percent of the wage employment in Kenya is in Nairobi, and about 10 percent is in Mombasa. The two towns make up 37 percent of the wage employment in Kenya. Nairobi and Mombasa account for more than 60 percent of the urban population. Seventy-six percent of the residents in Nairobi are migrants.

Movement of people from the rural areas to the urban centers has diverted a lot of developmental and recurrent expenditure on fighting unemployment. The urban bias of the country's planning is obvious. Migration into urban centers also creates a lot of social costs. Collier and Rempel (1977), who calculated the social and the private costs of a migrant, came to a firm conclusion that the social costs far outweigh the private costs. As a result any policy that reduces rural-urban migrants will reduce social costs. There is a clear and unambiguous income inequality in Kenya and the trend seems to be increasing. This could be seen from the fact that the bottom 20 percent of the people get only 3.5 percent of the national GNP, while the upper 20 percent get 60 percent of the GNP, and the situation is getting worse.

CHAPTER III

LITERATURE REVIEW

Introduction

Many developing countries are concerned about the recent urban growth and the concomitant urban poverty. Such an urban growth is partly attributed to rural-urban migration. The current world urban population is estimated at 1.8 billion people and growing at just under 3 percent per year. The United Nations estimates that by the year 2000 the world urban population will be around 3.2 billion people, roughly double the size of today's urban population (Williamson, 1982). For that reason, people look at the world urban growth as being explosive. Rural poverty has undoubtedly contributed to the urban population growth and efforts to improve urban conditions for the poor have only increased the rural-urban migration.

Cities in the Less Developed Countries (LDC's) are growing at historically unprecedented rates. Since 1975, the majority of the global urban population has been located in the LDC's. By the year 2000 about 264 of the world's 414 million plus cities will be in the LDC's (Rogers, 1982). Therefore the number of people in the world will continue to increase, as will the number of people in urban areas. Population in the urban centers will continue to grow at an "alarming" rate, particularly in larger cities of the LDC's. The problems that

are created by this urbanization involve large private and social costs. It is this cost that worries policy makers in LDC's.

According to the UN's survey of national population policies (1982), only six out of 116 LDC's viewed the spatial distribution of their population as acceptable, 68 declared it as highly unacceptable, and 42 unacceptable to a certain extent. Most of them believed that rural-urban migration was the principal contributor to urban population growth, and about 90 out of 116 indicated that they had adopted policies to slow down or reverse this migration (Rogers, 1982).

In light of the apparent widespread dissatisfaction with rapid urban population growth and urbanization in LDC's, an important issue is the degree to which internal migration contributes to such growth. From a demographic point of view, urbanization depends on the interaction of two factors, the rural-urban differential in natural increase and the migration exchange between the rural and urban sectors. In most situations, however, the impact of the first factor is much smaller than the second, so that a large part of the world's continued urbanization is attributable to the continuation of rural-urban migration, which shows little sign of abating in the LDC's.

The magnitude of the problem is underlined by the address of World Bank president McNamara (Terzo, 1972) to the Board of Governors on the critis of cities:

> The scale of the problem is immense. During the decade of the 950's, the urban population of the Developing World expanded by about 50 percent. Today the major cities are doubling in size every decade. (p. 2)

The major problems of urbanization in LDC cities are traffic congestion, transportation inadequacies, growing unemployment and underemployment,

a severe and constantly widening gap between the need for housing and the effective demand of the urban poor; and the deterioration in urban water supplies, sewage and drainage systems. The inadequacies of social services despite the fact that the cities are absorbing more expenditures than justified by equity grounds. The most variant of this concern, according to Linn (1983, p. 644), is "the view that rural households are made to bear a substantial share of the public costs of urbanization."

The main concern is not only with equity but with the magnitude of the urban problem, which according to the UN Report (Terzo, 1972).

> have arisen through prolonged unplanned and uncontrolled growth which has resulted in increased overcrowding . . . exaggerated metropolitan concentrations, industrial overconcentration, urban sprawl, administrative confusion, and various difficulties attendent upon the provision of . . . facilities to keep pace with the rapid growth of the city and its periphery. (p. 3)

The rapid growth of the cities is partly a result of rural-urban migration resulting from rural poverty. To solve the urban problem, one has to reduce the rural poverty. So the focus of an urban solution radically changes from urban unemployment to rural development. This change of policy direction comes as a result of unsuccessful attempts to redress the urban unemployment by either government subsidization of the private companies or direct engagement in public undertakings. The root cause of the urban problem is not the lack of employment opportunities but rather the rural poverty, the symptoms of which are excessive rural-urban migration. This indeed raises the question of what causes people to move from one place to another? This chapter will trace what is known about rural-urban migration through studies undertaken by economists in the field.

Migration

The causes of migration could be conveniently divided into two parts, namely economic and non-economic. Economic factors include job opportunities, wage rates, cost of moving, etc., that induce individuals to improve their economic status.

Non-economic factors are not as easily quantifiable into monetary terms, such as psychological and sociological considerations. However non-economic factors can also induce individuals to migrate in order to seek a better life.

This study will investigate the economic factors that determine rural-urban migration.

Individuals are rational and choose the location or region that gives them the highest benefits. The decision to migrate will depend on which of the locations has more benefits than the other plus the cost of moving. So the individual will be weighing the discounted present values of the expected alternative future income streams of the two locations i and j, as well as the costs of migration. Thus Yotopoulous (1976, p. 226) points out that "migration is determined by the capitalized value of the differential of the net urban-rural earnings stream." Implicit in the migration function is the fact that individuals seek to increase their well-being when they move from one region to another.

The basic hypothesis is that individuals move in response to economic and other incentives, and that the decision process concerning migration may be viewed as a comparison of the present value of the benefits and costs of transportation. In mathematical form, the basic migration theory looks like the following:

$$M_{ij} = f(B_i, B_j, T_{ij}) \qquad (3.1)$$

Where: M_{ij} = Number of people who migrate from region i to region j.

B_j = Total benefits in the jth region.

B_i = Total benefits in the ith region.

T_{ij} = Transportation costs from regions i to j.

This migration process will only occur if the condition that $B_j > B_i + T_{ij}$ is fulfilled. The higher benefits of destination may include relatively higher income or more pleasant social or physical environment.

Transportation costs is a composite variable including direct expenses involved in moving, plus the physical costs involved in breaking old ties. Thus the individual compares the alternative benefits between location i and j by discounting the present values of the expected alternative future benefits associated with each location, plus the costs of transportation. A number of studies on migration have provided considerable evidence that migration takes place as a response to regional differences in economic opportunities which are generated in the development process. Estimated migration functions based on data from countries as diverse as Brazil, Ghana, Egypt, Kenya, Tanzania, U.S. and India have indicated remarkable similarities of labor force response to many of the determinants of migration.

The Exogenous Variables

Income or Economic Variable

By far the most important explanatory variable in the migration function is the income difference between the two regions. In all the studies made, whether the country is a developing or a developed country,

the income difference variable or the income variable at the destination was found positive and significant. That confirms the hypothesis that people move from low income to high income area. The economic variable of a region is the most crucial attraction to potential migrants. Also important is the probability of getting a job. According to O'Neil (Greenwood, 1975), the attraction of the destination is due to:

> recognition of the role that consumption plays in migration may help account for the tendency for destination income variables to provide a better explanation of migration than origin variables. (p. 400)

Thus if migration is considered to be a normal good, any increase in the destination income will increase investment in migration as well as consumption of migration.

The income variable in the origin will not be affected as much since consumption and investment will have an opposing effect. Relative strength of investment and consumption will decide the direction of the effect. For that reason a priori, it is hard to tell what sign the origin income will have. Traditionally the sign of the destination income was always hypothesized to be positive. However, the sign of the coefficient of origin income remains ambiguous.

Many argue that the coefficient of the origin income to be positive and significant, while others argue otherwise. Some studies found the coefficient of origin income to be positive and significant and Fields (1983) argues that such a phenomena could be due to:

> Capital market imperfections may impede mobility. By this argument, superior economic conditions in the origin increases the ability of potential migrants to finance profitable moves. Another possible explanation for the same move could be due to consumption being a normal good and therefore the high income origin consumes more of it. (p. 541)

To come around the destination and origin incomes, many studies

use the difference between the two as an explanatory variable. When that is done, the direction of migration is evident.

When wage or per capita income differentials are included explicitly, the rate of migration increases with the size of the differential (Yale, 1977). When the wages of the origin and destination are used as separate explanatory variables, results confirm with little disagreement that migration rate is positively related with destination wages and negatively related with the origin wages (Yab, 1977).

Some of the few studies that came up with a positive sign for the origin wages include studies made by Knowles and Anker using Kenyan data. While Huntington and Rempel (1980) found out that destination income or wage to be a deterrant to migration, House and Rempel (1980) attribute this to individuals overstating the alternative opportunity at home. But Greenwood (House and Rempel, 1980) explained it differently.

> The positive sign to measure in some what a migrant perceives to be his ability to obtain urban employment. The lower the rural income the less well suited the migrant is for urban employment. Hence the more likely he will perceive a negative expected urban income even if the actual rural urban income differential was positive. (p. 30)

That implies that regions with above average income may engage in migration investment more than the below average income regions. Since migration is an investment, high income regions will make that investment more likely. That does not imply that potential migrants are oblivious to the prospects of getting an employment in the destination area. Todaro argues that in addition to the income difference between the two areas, the probability of employment must be taken into consideration. The probability of employment is handled in two ways. An

employment variable is explicitly added to the migration as a separate explanatory variable or the income of the two regions is adjusted for the probability of employment.

Studies conducted by Wadycki (1972) and Speare (1970) found the employment variable to be positive and significant. But other studies by Huntington and Rempel (1947, 1971) concluded that the rural-urban migrants are not attracted to the probability of employment. Later studies by Huntington and Rempel on the same country but different data came to the opposite conclusion. In spite of the arguments to the contrary, Greenwood (1975) believes that: "Low-income persons are likely to be more responsive to a given income differential than high income persons" (p. 403). This will imply that the more unemployed people in a region, the more out-migration.

There is a wide disagreement between economists as to how unemployment affects migration. Unemployment is generally seen as a push variable. People out-migrate from areas of high unemployment to areas of less unemployment. But findings by Gallaway, Gilbert and Smith (1967) seem to contradict that with U.S. data, where the evidence shows that high unemployment areas have high in-migration too.

Other studies by Lorry, Nelson, Rogers and Sjaastad came to the conclusion that the unemployment variable has the unexpected sign as well as not being significant (Greenwood, 1975). The unexpected sign on the unemployment variable could have either of the two meanings. First, either migration is not affected by unemployment rates or unemployment rates impede migration. There are two plausible explanations for this. If an area has a high in-migration, it might have high out-migration too, or as Lansing and Mueller suggest, unemployment tends

to be highest among the least mobile group in the labor force (Greenwood, 1975). Others attribute the failure of unemployment rate to affect migration to simultaneous equation bias.

Due to those results, the unemployment variable as a separate explanatory variable in the migration equation is often left out.

Distance

The most important impediment to migration is the distance variable. Moves over longer distances will obviously cost more than relatively shorter distances. The more one moves away from familiar surroundings, the more one encounters changes in the environment, climate, language, custom, etc. Information declines perceptibly with distance and thus uncertainty increases with distance. Informal contact with the source of information diminishes with distance. Distance impedes the flow of both candidates for jobs and recruiters for firms, and as such acts as an impediment to the flows of people and information (Miller, 1972). So distance variable may entail more than economic costs.

The fact that migration declines with increased distance is attributed to the fact that distance may be a proper proxy for transportation costs, psychic costs and information costs. Lansing and Mueller calculated the direct costs of 495 moves made between 1962 and 1963 and found out that the actual direct cost per move turned out to be around $50.00 (Greenwood, 1975). Direct expenses of that magnitude do not seem to impede an otherwise profitable migration investment. Therefore it will not be unreasonable to argue that direct expenses are not a major obstacle to migration. However the distance variable is not only negative but significant too in all studies. That suggests that

possibly the distance variable is picking up other important effects which are not specified in the equation. Being far away from friends and relatives and familiar environment may lead to enormous psychic costs, create uncertainty and psychological trauma for new migrants. In that light, the effect of distance as a surrogate for all those unquantifiable variables could be enormous. Nobody has correctly quantified the various costs which are normally proxied by distance, but Schwartz (1973) proposes a method of calculating the psychic costs.

> Psychic costs can be transformed into permanent transportation costs by figuring the needed frequency of visits to the place of origin so as to negate the agony of departure from friends and family. (p. 1161)

Friends and families not only inform the prospective migrants the availability of opportunities in the urban centers, but they also provide them with food and shelter when searching for a job. This is particularly common for the African migrant. Studies on Kenya by Tempel and on Ghana by Caldwell found that 50 percent of the migrants were provided with food and shelter on arrival by friends and families (Yab, 1977).

Also potential migrants expect help from their friends and families in the event that their expectations are not realized. Therefore the mere existence of friends and families reduces both the effects of distance and psychic costs. Education also partially offsets the deterrant effects of distance. Despite the effects of friends and families, the education, the distance variable acts as the most formidable obstacle to migration as all studies conclude. In all studies distance is negative and significant. It is usual then to specify the distance variable to proxy omitted variables in the migration equation.

Urbanization

Urbanization variable is often used in the migration equation. Urbanization is expected to increase migration at the destination. Cities according to Sahota (1968) "are considered to be the dynamic centers that through history, have been the cradles of civilization, progress and revolution" (p. 225). It is known that urban centers offer superior educational opportunities and wider varieties of benefits. It is also possible that over urbanization, which is often accompanied by unemployment, may lead to out-migration. That is why the net-migration is the more appropriate measure than out-migration.

Various studies used different measures of urbanization. Sahota, who studied internal migration of Brazil, used two measures of urbanization. One was the proportion of population living in cities of 5,000 persons or more, and the second the proportion of state income originating from manufacturing as a proxy for industrial-urban centers (Sahota, 1968).

Rempel (1971) who studied rural-urban migration in Kenya used 21 types of urban facilities or social services available in the urban centers as an urbanization index. But he found they were not significant for women.

The Brazilian study by Sahota found that the urbanization variable carried the unexpected sign and the study concluded that urbanization of the destination retards migration while that of the origin encourages it. This is contrary to expectations. The controversy surrounding the use of urbanization variable in the migration equation, as well as the lack of agreement as what should be used as a surrogate

for urbanization continues.

As far as the Kenyan studies are concerned, the results are mixed, and further work is needed in this regard. In response to Todaro's contribution that potential migrants are not indifferent to the probability of obtaining an urban job, the results are inconclusive. Rempel and Huntington studies using Kenyan data concluded that rural-urban migrants are not strongly attracted to the probability of obtaining a job in the modern sector (Yab, 1977). But later studies undertaken by House and Rempel with different data from the same country came to the opposite conclusion. They condluded that migrants are not attracted by income or wage differential alone, but also the probability of employment. Rempel also tried to test the "bright light" attraction theory as a proxy for urbanization by using 21 types of urban facilities or social services. Results of the test turned out to be positive and significant for women but not for men (Tempel, 1971). The bright light theory has not been conclusively proved. Other studies, using different variant of a proxy for urbanization, did not turn out to be significant.

The fact that the bright light theory was confirmed for women in Kenya by the Tempel study should not be surprising; after all it is the men who migrate first in Kenya and Africa in general. Women usually follow their husbands at some later date. Secondly, in Kenya there are more men in schools than women, and for that reason, more men will be expected to migrate than women, because education increases migration.

The most recent study of the determinants of rural-urban migration in Kenya was done by House and Rempel (1980). The results of the study were generally expected. However, a positive sign for the coefficient or origin wage was found. Although it was not expected, it was not

significantly different from zero. The urbanization coefficients were found to be positive and significant. The employment coefficient at the destination turned out to have the unexpected sign.

Age

Age is a common explanatory variable in migration studies. Age was found to be negative and significant by all studies. Age impedes migration. It is economically reasonable not to migrate at an older age, because older people have a shorter life span than relatively younger people. Thus they have less time to earn the higher income. Second, older people have already committed themselves to heavy investments, which are very costly to liquidate. Due to those and other factors that will be discussed more in Section III, age retards migration.

Education

As people get more education they become more mobile and less attached to their environment. As individuals get more education, the greater will be the perceived and actual opportunities elsewhere. Education also reduced psychic costs and hence uncertainty. Thus education increases migration. All studies show that education is both positive and significant. Education will be further discussed in Section III under selectivity.

Schools of Migration

Theories of migration are basically three:

1. The Neoclassical Theory of Investment (The Chicago School)

2. The Selectivity Theory (The Harvard School)

3. The Push and Pull Theory (The British School)

The three different schools of thought will be discussed briefly in turn.

The Neoclassical Theory of Investment

The neoclassical theory of investment postulates that the potential migrant will select that locality in which the real value of the expected net benefits are the highest (Greenwood, 1975). Following Schultz (1961), Sjaastad and Becker (1962), Riew (1973) and others, migration is viewed as an investment decision, and has become known as the Chicago school. The theory gained prominence as it has been derived from the postulates of microeconomic theory (Greenwood, 1975).

The proponents of the investment approach of migration consider migration as amounting to investment in humans and therefore should be analyzed like any other investment. Potential migrants who are contemplating migration investment consider the net returns of such an investment. The returns or expected returns consist of the income differential accruing to the migrant in time. Such returns would be discounted like any other investment.

Neoclassical general equilibrium theory postulates that interregional income differentials are the basic cause of migration and that movement of labor from low wage to high wage region will equalize wages. However Sjaastad and others are dissatisfied with the past migration performance in narrowing geographic income inequalities in spite of an enormous amount of internal migration in the U.S. (Sjaatad, 1962).

The human capital approach of migration conceptualizes migration in terms of individual behavior and assumes that individuals respond to wage differentials for the sole reason of maximizing their satisfaction. Todaro made significant theoretical contribution to migration theory by arguing that potential migrants will not only consider the income differences between the two regions, but will also consider the chances of employment. As such the mere existence of income differential between the rural and the urban areas may not induce an individual to migrate without concern for the probability of obtaining a job (Todaro, 1969). That could mean, the net present value of future income from migration could be positive but migration does not occur. The cost items of migration include money costs in the form of increased expenditure on food, lodging searching, transportation, income foregone, psychic costs, homesickness and acclimatization strains (Schota, 1968).

That is why, according to Sjaastad, substantial differences in current earnings may continue to remain without inducing migration. Income differentials per se do not end in migration (1962).

Although it may look a little odd to treat psychic costs as a component of costs of migration, such variable is crucial to the migration theory. Sjaastad explained psychic costs as analogous to consumer surplus (1962).

> The maximum amount that could be taken away without inducing migration represents the value of the surplus. By perfect discrimination, it would be possible to take away the full amount of the surplus, but in doing so leaves resource allocation unaffected. (p. 85)

The Chicago school approach of migration will be biased if psychic costs are not appropriately taken into account. To utilize the investment migration theory, one needs to assume zero psychic costs.

In the discussion of the Chicago school, the assumption of perfect information and perfect foresight were upheld. The potential migrant was assumed capable of making the correct decision by weighing advantages and disadvantages of alternative investment. If information is not correct, correct decision making would be hard to come by. Ill conceived perceptions will end up in the wrong investment. Friends and families who are the source of information may themselves not be aware of opportunities in areas other than the one they live. Imperfect information may thus lead to a faulty investment. To make the correct investment decision, potential migrants must be prepared to incur information gathering costs only if there is reason to believe that moving will be profitable. People invest in information gathering as long as the benefits of having more information are perceived to outweigh the costs of gathering it.

The crucial role of uncertainty should not be overlooked. The subjective evaluation of risks involved in a project could affect individuals differently though they face the same prospect. DaVanzo said (1976):

> Differences in attitudes toward risk and uncertainty, like other differences in subjective valuations of factors in alternative location, can impel two people to evaluate the same prospect differently. (p. 505)

The Selectivity Approach

The selectivity approach in migration argues that migration is basically selective. The migrants are, according to Sahota (1968, p. 220), "the dynamic risk-taking beings who have high capacity to detach themselves from the traditional surroundings and adapt themselves

to the unfamiliar environment." Migrants from rural to urban areas are the more educated and in their most productive ages. Gunnar Myrdal (1968, p. 297) has argued that "the migrants tend to be the most productive ages, and that therefore the regions receiving migrants benefit economically, while the originating regions are harmed." Education is an investment in humans and areas which receive this investment will gain at the expenses of the region which made the initial investment.

More educational accomplishments of individuals encourage migration as more educated people are more mobile than the less educated. This is so because the more education an individual has, the greater will be the perceived and actual opportunities elsewhere. On the other hand, more education means better information and therefore less uncertainty about the opportunities that lie further away. Education is found to reduce the psychological barriers to migration, by reducing the psychic cost education accordingly (Greenwood, 1975),

> may also reduce the importance of tradition and family ties and increase the individual awareness of other localities, with the consequence that the forces that hold him to his present locality are weakened. (p. 406)

Reduction in psychic cost and the better information about the opportunities that lie far makes the job market of the more educated more national in scope than the less educated whose opportunities may lie within limited distance.

The age of the potential migrant is also crucial to migration theory. As people progress in age, their inclination to migrate gets less. This is economically reasonable because older persons have a shorter life span to fully realize the advantages of migration

(Gallaway, 1967). The shorter life span of older people makes their expected income from migration less. Thus a rational prospective migrant will make the migration investment sooner than later. Works done by Schwartz (1973) strongly indicate that migration declines with age. Family ties, job security may mean more to an older person than to a younger person. There is a strong possibility that older workers may have already committed themselves in heavy physical investment in their present location. It will be difficult to liquidate as migration becomes feasible (Gallaway, 1967). This requires high costs and will discourage migration investment such as mortgage and seniority in service.

The Push Pull Theory of Migration

This approach is the oldest migration theory. It is based upon the push and pull theory of migration. Rural people are pushed from the rural areas to the urban centers by circumstances beyond their control. Such push factors include among others, inequitable land tenure, poverty, unemployment, drought, wars, flooding, crop failures and so on, in general, any of those natural and man made disasters that force people to leave their environment for another unfamiliar area in search of better life. On the other side, rural people are pulled to the urban centers by such factors as high income, better social service, bright lights, better housing, education, etc. Caldwell (1969), who examined African rural-urban migration in West Africa, has listed some of the responses of migrants in Kumasi, a town in Ghana. The question was why do people prefer to come to the cities, and the responses were:

1. To find a job.
2. To get consumer goods.

3. To get better city life.
4. To get better education.
5. To join friends and immediate family. (p. 89)

Many of those responses are not unique to the Kumasi migrants, but they correspond with the traditional pull theory. The responses could be reduced to three main pull factors:

1. Entertainment facilities--such as cinemas, radio, bars, clubs, etc.
2. Other urban facilities--such as better shopping facilities, better transport, water supply, electric supply, medical and education facilities.
3. Economic opportunities--better chances of employment, higher wages, etc. (Caldwell, 1969).

Many economicts lump together all urban facilities and call them the "bright lights."

Most of the above factors are called pull factors; the effect of push factors on migration may be even greater. For those who are pushed by circumstances beyond their control and are already contemplating movement, it makes no difference whether the urban attraction is strong or weak. Push factors include, according to Kumasi migrants (Caldwell, 1969), inequity in lang tenure, poor rural facilities, family or village difficulties, high unemployment, crop failure, and above all, natural disasters like famine, drought, earthquake, etc. All or some of the above factors aid rural-urban migration.

The combined effects of push and pull factors may be a very powerful force which increases the rural-urban migration. Push factors are common in less developed countries, like Kenya.

The three different migration approaches may superficially look different on their interpretation but the consequences are similar. For example, the investment approach would not object to the selectivity theory of migration but explains it differently by arguing that the younger, the better educated or the more enterprising people may migrate because of the high income expectations and the longer payoff period of the stream of future income (Sahota, 1968).

The Three Theories of Migration

To see what is common to all three theories, consider an individual laborer who is contemplating a change of residence. If rationa, he will move to that region in which, as far as information indicates, he will be best off. The concept of improving one's life is the common rod passing through all three theories. As individuals compare benefits between locations, they make decisions in favor of the higher benefit location, adjusted for the costs of transportation, i.e., $B_j > B_i + T_{ij}$.

All three theories obey this rule. Benefits could be economic or non-economic. As earlier stated, higher benefits may mean higher income or more pleasant physical environment. Thus for migration to occur the condition that $B_j > B_i + T_{ij}$ must be met by all three theories. The Neoclassical theory of investment obeys this condition by postulating that individuals compare the net present value of the future income at the different locations. Thus benefits are proxied by income or wages. That is $E_j > E_i + T_{ij}$, where: E_j is earnings at the jth region, and E_i. The investment theory postulates that migration will occur if the above condition is met, which is actually the basic migration theory.

The selectivity theory of migration could also be explained in a

similar fashion. According to the theory of selectivity, the younger, the better educated, and the more enterprising people engage in migration, because they are the ones who most gain by migration. They do so because they are better off by migrating. The same basic migration rule applies here. That is $B_j > B_i + T_{ij}$ is met. The benefits are proxied by the variables such as age and education. To put it differently, wages or earnings are determined endogenously in a simultaneous system.

The theory of push and pull also obeys the basic migration rule $B_j > B_i + T_{ij}$. The theory says that individuals are either pulled or attracted to one region versus the other or pushed away to one region due to the unfavorable conditions in the area. In this case individuals are attracted to region j and pushed away from region i. The conditions prevailing in region i are relatively bad compared to the favorable conditions in the region j. Benefits of jth region could be proxied by higher income, better educational facilities, bright lights, better entertainment facilities, etc. Those attractive forces in the jth region could be economic or non-economic, but they give higher benefits to the migrant than the benefits at the origin. Thus the rule of migration $B_j > B_i + T_{ij}$ is obeyed.

CHAPTER IV

A MODEL OF LABOR MIGRATION AND INCOME INEQUALITY

The models presented in this chapter give the theoretical explanation of rural-urban migration.

Most of the studies made in the U.S. as well as the third world countries identify economic forces as the major determinant of the decision to move (Greenwood, 1975). Individuals seek to maximize economic well-being when they decide to invest in migration. A common threat to many migration studies is the explicit or the implicit foundation of utility maximization. Greenwood (1975), who wrote about the U.S. migration, said:

> The potential migrant will presumably select that locality at which the real value of the expected net benefits that accrues to him from migration is the greatest. The relevant income measure for the individual to consider is the present discounted value of his expected future stream of net returns. (p. 399)

literature parts

Migration in general is found to be in response to economic inequality between areas, whether that is between regions or rural and urban areas. Generally, according to Schultz (1971), people migrate because they believe such a move will improve their eocnomic condition. The underlying economic rationale of internal migration or provincial migration, as in Kenya, is that migration is perceived to be a rational investment and the potential migrant evaluates alternative opportunities available in different localities. The potential migrant then looks at costs of moving and finally chooses that locality or residence

that maximizes his utility. Then he moves to the best location where the rate of return on his migration investment exceeds the rate of return from alternative investments (Levy and Wadycki, 1972). Positive benefits to migration include real increases in wages as well as nonwages and nonpecuniary returns such as higher welfare payments or even more pleasant climate. Negative benefits may include direct costs--actual outlays for transportation or out-of-pocket expenses, information costs, psychic costs, and above all the opportunity cost or earnings foregone while moving or looking for a job (DaVanzo, 1976). There are other costs involved in moving such as forfeiting the share of one's land particularly when one migrates to an urban center. This is particularly important in Kenya where the land is communally owned.

This study looks at migration as a human investment. It is based upon the familiar human capital approach. Migration is an investment in a human agent in terms of the capitalized lifetime earnings of an individual, net of costs. Thus according to Yotopoulos and Nugent (1976, p. 226):

> The decision rule for capital accumulation consists of comparing the capitalized alternative earnings streams of two activities, migration and nonmigration in the present case, given the parameter values for the rate of interest and for the duration of each activity.

The human capital view of migration decision could be formally expressed as follows:

$$m_{ij} = f(V_t, C_{ij}) \qquad (4.1)$$

Where: $m_{ij} = M_{ij}/P_i$, the number of people who move from rural to the urban areas divided by the population of the origin.

V_t = The present value of income differential during an average migrant's planning horizon.

C_{ij} = The cost of moving from origin to destination.

The cost of moving from i to j is composed of pecuniary and non-pecuniary costs. Such costs include out-of-pocket costs, psychic costs, earnings forgone, cost of search and other costs of maintaining oneself before one finds a job.

The present value of income differential could be calculated as follows (Riew, 1975):

$$V_t = (E_j - E_i)_t \, e^{-rt} dt \qquad (4.2)$$

Where: $(E_j - E_i)$ = the income differential between regions i and j.

r = the discount rate.

t = the number of years the individual expects to work in the rural or urban sector.

An individual residing in i would prefer to migrate to j if the net present value is positive. That is, $(E_j - E_i) > 0$ or $PV_{ij} > 0$ and moreover the migrant will choose that destination for which the net present earnings is the maximum. The net present value of the future earning streams is (Yotopolous and Nugent, 1976):

$$PV = (E_j - E_i)/r_i - C_{ij} \qquad (4.3)$$

Where: E_j = income in region j (earnings).

E_i = income in region i (earnings).

C_{ij} = cost of moving from i to j.

r_i = discount rate of region i.

The use of such aggregate earnings measures must be taken as being approximations at best since they are not present value measures. Regional per capita income is taken as approximating a reasonable measure or a proxy for present values (Gupta, 1981).

Since C_{ij} is composed of many economic and noneconomic variables,

and since many of these variables cannot be measured, it is usually assumed that the cost of moving is directly related with the distance of the destination. As the distance increases, costs of moving increases also. That is:

$$C_{ij} = f(D_{ij}) \qquad (4.4)$$

As a result one could use distance as a surrogate or proxy for all the components of C_{ij} measurable or unmeasurable. Migration decreases substantially with increased distance (D_{ij}) due to the fact that distance serves as a proxy for the costs of transportation, psychic costs and availability of information (Greenwood, 1975).

In short, distance is used to proxy for several missing variables in addition to transportation costs. Therefore migration is a function of both the income differential and distance.

Hence:

$$M_{ij} = f([E_j, E_i]/r_i, D_{ij}) \qquad (4.5)$$

Where: D_{ij} = distance between i and j regions.

Todaro devised a model where he argued that the potential migrants behave as though they maximized their expected earnings. Todaro's contribution takes into account the expected wage rate and the probability of getting urban employment. Although there may be a perceived wage differential between the urban modern sector and the rural or farm sector, the potential migrants should weigh the chances of getting an urban job. Whether a potential migrant decides to move to another area, crucially depends upon the prospect of employment in the urban sector. Todaro's model is basically applicable to third world countries where the chances of employment in the urban sector are very low. Thus Todaro argued the potential migrant must balance the

probabilities and risks of being unemployed or underemployed for a considerable period of time against the positive urban real income (Todaro, 1969). So the earning differentials of the rural and the urban areas must be adjusted for the probability of getting an urban job.

Todaro defines the probability (P_t) of a migrant finding a modern sector employment in time period as (House and Rempel, 1980):

$$P_t = g_t(1-U_{t-1})/U_{t-1} \quad 0 \quad P_t \quad 1 \qquad (4.6)$$

Where: g = the net growth of urban modern sector employment opportunity

U = the urban unemployment rate.

In order to adjust the income differential between the two regions, the probability of finding the urban job has to be considered. That is equation (4.6) must be combined into equation (4.5). Therefore, to get the income differential adjusted to the probability of obtaining a job, the following adjustments are necessary.

$$E_j = E_j \cdot P_t, \text{ and } E_i = E_i \cdot P_t \qquad (4.7)$$

Where: E_j, E_i = the adjusted income of the urban and the rural sector.

The income gets smaller when the Todaro adjustment is taken into account, because the probability of getting a job is reduced from one to less than one. The net income differential between the urban and the rural sector after the adjustment is equal to:

$$E_{ij} = E_j \cdot P_t - E_i \cdot P_t \qquad (4.8)$$

Where: E_{ij} = net income differential between i and j.

And equation(4.5) can be rewritten as:

$$M_{ij} = f(E_{ij}/r, \ D_{ij}) \qquad (4.9)$$

Where: M_{ij} = rate of migration from i to j.

E_{ij} = net income differential between the urban and the rural area.

D_{ij} = distance between i and j.

Equation (4.9) postulates that the rate of migration from the rural areas to the urban centers is a function of two variables, first is the net income differential and the distance between the two sectors, the receiving and sending regions. Distance is assumed here to be an impediment to migration whereas the net income differential acts as the major force of attraction. However, there are other important variables that also affect migration which must be embodied in the migration function. Some of those variables include education, age, population size, urbanization and friends and family. Friends and family act as the information link between those in origin and destination. The migration model as expressed in equation (4.9) assumes that the potential migrants stand equal chances of being selected should a vacancy avail, and that there is a reasonable flow of information of vacancies to both the rural people and the urban residents. Such an assumption may not hold entirely in Kenya. There may be discriminatory practices concerning clan or ethnic group loyalties and that could make the stock of unemployed heterogenous in nature. Particular age groups may be given special preference. As a result migration from a particular area will be affected by the discriminatory practices of the employers.

Thus, for example (Rempel, 1971):

> If in rural areas there is little variation in expected income across all levels of education attainment, then the men with above average educational attainment may be "pulled" to j while the men with little or no education are not attracted because they perceive a lower probability of being employed. (p. 9)

Education as one of the explanatory variables has been used frequently and all micro studies found considerable evidence that migrants tend to come disproportionately from among those with more education (Banerjee and Kanbur, 1981). In Kenya and most other developing countries, education accounts for employment opportunities as well as reducing the income inequality between members of the society. Education is also known to reduce traditional taboos of the rural communities that may otherwise inhibit geographic mobility. It is also a fact that higher income regions are the higher education regions (Sahota, 1968). Thus the education variable is expected to affect migration positively.

Another important variable that affects migration in Kenya is previous migration. Since migration would be adversely affected by uncertainties due to lack of information from the urban areas, those past migrants who have friends and families in the destination could act as information agencies. They inform the friends and relatives of any possible vacancies in the destination area. In addition to informing them, they may pay for the transportation and give them support while they are searching for a job. Thus this variable affects the migration rate and must be included in the migration equation. Each migrant keeps ties with the origin, at least for some time. Such contacts in the destination reduces the risks involved in migration and eases migration decision (Herrick, 1975).

Migration is selective and hence the young's propensity to migrate is higher than that of the elderly. The young are more mobile, because they tend to have fewer ties to the place of origin. Their expected life time earnings are much higher than the earnings of the old. Age would affect the rate of migration negatively. An increase

in age will reduce the migration rate or the rate of net migration (Schartz, 1975).

People move to areas with large populations because the chances of getting employment are higher. Cities are considered to be the center of business activities, inovation, superior educational opportunities and wider contacts (Sahota, 1968). Thus urbanization variable in the destination aids migration and impedes migration in the origin.

Since Kenya is essentially an agricultural land, the distribution of good fertile land (L_i) in the origin area may affect migration propensity to Nairobi or to alternative destinations. The inclusion of such variable in the migration function could impede migration propensity. Kenya has five major tribes. Some districts or provinces may be predominantly inhabited by one of those major tribes if one of the districts or provinces of the origin is predominantly inhabited by one of the major tribes. That could increase the migration propensity of that district or province of origin. The effect of such tribal contact could be captured by a dummy variable which increases the intercept. The rural wage (AW) is what is available for the potential migrant in origin. Prospective migrants compare the rural wage with the urban wage and other things being equal, increases in rural wage decrease the migration propensity. Thus the rural wage must be incorporated in the migration function. Growth of modern wage employment (GE) at the origin could be an important variable in decreasing the propensity to migrate. Increased modern wage employment at the origin will reduce the migration propensity as increased opportunities in the origin will have a decreasing effect on migration rate. The migration model must be adjusted for that.

The relationship between the dependent variable, the migration rate, and the set of independent variables could be expressed as follows:

$$M_{ij} = f(E_{ij}, D_{ij}, PM_{ij}, C_i, S_j, S_i, L_i, DV, AW, GE, A) \quad (4.10)$$

Where the subscripts i and j refer to respectively origin district and destination district.

E_{ij} = per capita income differential between locality j and i.

D_{ij} = distance between origin locality and destination locality.

PM_{ij} = Past migration from locality i to j.

S_j = percent of population in destination locality in primary schools.

S_i = percent of population in the original locality in primary schools.

A = Age distribution of the migrant population.

C_i = Density of population (proxy for urbanization).

L_i = per capita potential land.

DV = dummy variable (proxy for tribal contact).

AW = Rural wage (proxied by district wage).

GE = Growth of modern wage employment rate.

The above migration function states that the rate of migration is affected by the set of the explanatory variables in question and the function is expected to explain the direction and the rate of migration in Kenya.

Summary

The theoretical model developed in this chapter attempts to explain the interaction between migration and expected per capita income

differential. The dependent variable is the migration rate, and a set of independent variables which are postulated to affect the migration rate are specified in the model. The set of explanatory variables which is expected to affect the rate of migration is per capita income differential between the destination area (j) and the origin area (i), the distance variable between the origin and the destination which is a proxy for both transportation and psychic costs, past migration which is a proxy for friends and relatives, density of population variable which is a proxy for urbanization, per capita potential land, rural wage, growth of modern wage employment, and a measure of tribal contact.

CHAPTER V

THE RESULTS OF GROSS OUT-MIGRATION RATES

The purpose of this chapter is to present the empirical analysis of the model in Chapter IV. The equations estimated and the hypotheses tested use the gross migration rates and are estimated by ordinary least squares (OLS).

In this chapter the data sources and definitions of variables used in the study will be explained. The model presented in Chapter IV gives the main factors that are expected to explain migration behavior. The postulated migration model assumes that the relationship between the dependent variable and the set of explanatory variables specified is a linear relationship. Thus the relationship could be specified in log. linear form. Specification of the migration relationship in log. linear form has the added advantage that the coefficients are elasticities. The specification of the migration function typically includes a distance variable referring to the distance between the origin and the destination localities (in this case between the capitals of the 40 districts or between the capitals of the eight provinces) and a set of socioeconomic characteristics peculiar to the areas of the origin and destination. A typical migration function has the following format:

$M_{ij} = f\ (D_{ij}, X_n)$

M_{ij} = rate of migration from ith to jth localities.

D_{ij} = Distance between the ith and jth localities

X_n = a set of explanatory variables in origin and destination areas.

This study will follow a similar format where the origin in (1) the 25 most rural districts, (2) all the 40 districts, (3) the 15 most urban districts, all to the city of Nairobi. A fourth set of data will be used in this study which is data related to interprovincial migration. In this case, 56 origins and 56 destinations will be observed. The variable in the equation (X_n) will be specified proxing rural and urban socioeconomic characteristics.

Empirical investigations of migration have the following problems (Yotopolous and Nugent, 1976):

1. The economic and other characteristics used to explain migration are likely to be imperfectly measured (e.g., by one period wage differentials instead of by differences in present values of alternative income streams).

2. Decisions to migrate are often made jointly with certain other decisions, such as to invest in health or education or to marry. If so, specification error and estimation biases will be introduced unless these other elements in the decision process are spelled out. The same is true if there are different steps in the migration path--first migration to towns, followed by migration to cities.

3. There can be simultaneous equation biases of various sorts. Higher incomes, for example, stimulate migration, but migration, especially when the composition of the migrants is biased in favor of persons with higher skills and educational attainment, also increases income differential.

4. There may be an aggregation problem in the sense that more meaningful results could be obtained if one were to distinguish between

different types of migration--short run, long run, autonomous (forced) as opposed to induced (chosen)--all of which may have different determinants.

These problems are common to empirical investigations of both gross migration and net migration functions. Net migration functions have two more additional problems that make them less preferable to gross migration functions for empirical investigations. First, if reverse migration is affected by factors other than those which affect the dominant migration, it introduces specification error that is likely to exert an upward bias on estimates of the returns to migration (Vanderkamp, 1972, 1971). Secondly, net migration is a function of net propensities of persons to move between regions. $NM = GM_{ij} - GM_{ji}$. Thus according to Greenwood (1975),

> Any variable expected to have the same sign in equations such as distance or population, would tend to 'wash out' of equation except to the extent that out and in migrants for region i were asymmetrical in their behavior. On the other hand, any variable expected to have different signs, such as income or unemployment rate, would appear to have its effects amplified. (p. 408)

As a consequence of such considerations, net migration model will be less desirable than gross migration models in explaining migration behavior, and for those reasons this study uses and specifies gross migration as the appropriate dependent variable. The following model will be used to test the hypothesis specified in Chapter I.

$$M_{ij} = B_0 + B_1E_{ij} + B_2S + B_3C_i + B_4L_i + B_5 D_{ij} + B_6S_i + B_7W_{ij} + B_8DV + B_9PM_{ij} + B_{10}AW + B_{11}GE + Error$$

M_{ij} = Gross migration rate (J_{ij}/P_i) from district of origin to the district of destination.

E_{ij} = Per capita income difference between origin district and

destination district.

S = Index of primary school population in destination to origin district.

C_i = Density of population in square miles at the origin district.

L_i = Per capita of potential land in the origin destrict.

D_{ij} = Distance in miles between the capital of the origin and the capital of the destination.

S_i = Percent of the population in the origin district who are in primary school.

W_{ij} = Average wage differential between the districts of destination and origin.

DV = A dummy variable which is a proxy for the five major tribes in Kenya in the district of origin (DV - 1 If any of the districts is predominantly inhabited by any of the major five tribes).

PM_{ij} = Migrants who were born and have lived in the origin district a year ago and who were enumerated in the destination district in 1979.

AW = Average district wage (rural wage).

GE = Growth of modern sector employment in the origin district.

BO is a constant term (intercept)

B_1, B_2, B_3, B_4, B_5, B_6, B_7, B_8, B_9, B_{10}, B_{11}, are all coefficients. The following are the expected signs of the coefficients.

1. Per capita income differential is the major cause of rural urban migration. Thus ($B_1 > 0$).

2. Index of primary school population between the destination and origin is expected to reduce rural-urban migration ($B_z < 0$).

3. Density of population could affect the migration rate in both ways. It could have a positive effect as high density might mean population pressure and a decreased employment opportunity. Or the effect could be negative as higher density in the origin means expanded opportunities. Thus ($B_3 \gtrless 0$).

4. The per capita potential land (good fertile land) in the origin district will be expected to decrease migration. Lack of fertile arable land may be a reason why people may be migrating from the land to the city of Nairobi. Therefore, less migration will be expected from districts with high per capita potential land. Thus ($B_4 < 0$).

5. Distance is an impediment to rural-urban migration rate ($B_5 < 0$).

6. The percent of the population in the district of origin who attend primary schools is expected to increase rural-urban migration ($B_6 > 0$).

7. Rural-urban migration rate increases with wage differential between the urban and the rural areas ($B_7 > 0$).

8. Tribal contact may increase rural-urban migration rate ($B_8 > 0$).

9. Past migration is a proxy for friends and relatives and therefore is expected to aid rural-urban migration ($B_9 > 0$).

10. Average rural wage decreases rural-urban migration rate ($B_{10} < 0$).

11. Growth of modern wage employment in the district of origin is expected to decrease rural-urban migration rate ($B_{11} < 0$).

Data Source and Definition of Variables

The data source for this study is the Central Bureau of Statistics (CBS) of the Kenyan government and is wholly based on the census data of 1979 which was compiled and published by the CBS in 1980. Most of the data related to the explanatory variables are available in the Edmond Library on Microfiche and the data related to the migration rate have been obtained through informal channels since the data concerning migration rates was just published this year.

Kenya, according to the census of 1979, is divided into 8 provinces and 41 districts. Nairobi is the capital city of Kenya and it is a unitary district.

The major focus of this study is the movement of people from the country to the city of Nairobi. This aspect of internal migration has been overlooked. However the study will also test the causes of internal migration in Kenya. For the latter part of the analysis, provincial data will be used.

The main attention of this study is what are the determinants of migration to Nairobi. Other studies on Kenya concerning migration process include Rempel (1971), Huntington (1974), Sly (1977), Anker and Knowles (1977), Rempel and House (1980), and all of them attempted to explain causes of either provincial or district migration and most of them put too much emphasis on the pull variables or urban specific determinants of migration. Rempel's (1971) work on rural-urban migration is a notable exception, however the determinants of his study are urban specific (pull variables). This study will use district level data to explain the causes of migration to Nairobi and a provincial

data level to explain interprovincial migration.

The following pages define and discuss the dependent variable and the set of explanatory variables.

Migration Rate

This study will use the census data of 1979 (CBS). Migration analysis at the macro level typically involves an attempt to relate the flow of migrants over a period of time to a set of explanatory variables which cover a much more limited period. This may lead to a specification problem (Greenwood, 1975). This study uses a shorter period of one year in order to avoid that problem. Since cross-sectional data are used to test the model in this study, the rate of migration has been used as the dependent variable to avoid heteroscedasticity (Yab, 1977). The data made available by the CBS concerning the migration flows are the gross migration flows between districts and between provinces in the year 1979. That is the number of people who lived in any of the 41 districts a year ago who were enumerated in any other district in 1979 census. Thus the gross migration flows are used in this study to calculate the rate of gross migration. The rate of gross migration is found by dividing the gross migration level by the population of the origin. The migration rate variable is preferable to the gross migration flow because it could be interpreted as a migration probability and avoids heteroscedasticity (Yab, 1977).

Past Migration

The population census of 1979 classifies the population by place of birth and place of residence. The census of 1979 registered the

gross number of people who were born in one of the 41 districts of Kenya who were living in another district during the census year 1979. The Statistical Abstract Supplement published in 1984 gives the number of people living in Nairobi who were born in one of the districts. The same migration flows were used for this study. The only adjustment made is instead of the gross levels, the gross rate is used for this study.

Expected Per Capita Income

The per capita income figures are calculated on an annual basis by the Statistical Abstract. The census data of 1979 gives the annual earnings of each district in the census year of 1979. Those yearly earnings given in Kenyan pounds were divided by the population of the respective district to arrive at the per capita income of the district or the province. To calculate the per capita income inequality, the per capita of the district or the province of origin is subtracted from the per capita income of the destination district or province (Ej/Pj - Ei/Pi). As the model in chapter IV specifies, the probability of getting a job could not be made as no data were available concerning unemployment rates. Thus the adjustment factor (Todaro, 1969), the probability of getting an urban job could not be made as anticipated because the census data mentions no reference to unemployment rates and the unemployment rates could not be calculated from other sources. Thus the study will attempt to test the model without the adjustment factor.

Education

The study uses two types of measures of education variable. The first measure is an index measuring the ratio of people in Nairobi who

are attending primary schools over the ratio of people in the respective district who are attending primary school. The primary school population in all the districts including Nairobi are given by the Statistical Abstract of the Central Bureau of Statistics of the government of Kenya.

The second measure of the education variable is much simpler, and it is the percent of population of the respective district of origin in primary schools. The figures are given no further adjustments.

Distance

The measure of the distance variable is the distance in miles between the capital of the district of origin and the district or province of destination. The distance is not given by the Statistical Abstract, but the distance variable has been calculated from maps for this study.

Density of Population

The population census of 1979 gives the density of population of each district and province. That is the number of people living in one square mile (CBS, 1980).

Rural Wage

The measure of rural wage has been estimated by using census data of 1979. The census data gives the total number of wage employment in each district as well as minimum wage rates in each district. An average wage which is a proxy for the rural-wage has been calculated. Both the minimum wage level and the wage employment level are given by the Statistical Abstract of the CBS of the government of Kenya

Potential Land

The variable (L_i), per capita potential land, is calculated from the figures given by the Statistical Abstract of the CBS. The total land area of potential or high grade land is divided by the total population in the district or the province. That is how many square miles of high grade land (potential) that could be obtained by each person in the district of origin.

Tribal Contact

The tribal contact variable is measured by a dummy variable. Kenya is dominated by give major tribes and some of the districts are predominantly inhabited by one or more of the five major tribes. Since the major five tribes are also predominantly in Nairobi, their presence in Hairobi may give preferential employment in Nairobi to the five major tribes' potential migrants. Thus districts that are predominantly inhabited by one or more of the major tribes may migrate more. The district of origin will be given a weight of one if the district is predominately inhabited by one of the major five trives, otherwise zero. Such variable is developed with the help of various maps and different readings.

Wage Differential

The statistical Abstract of the Central Bureau of Statistics (CBS) of the government of Kenya gives details of earnings of the various districts of Kenya and minimum wage laws in force in those districts as well as the number of modern wage employment. The minimum wage for

the capital city of Nairobi is given and a rural wage is calculated from minimum wage rates of other districts and the modern wage employment rate. The difference between the minimum wage of Nairobi and the average rural wage is the wage differential variable (W_{ij}) between Nairobi and the respective district.

Growth of Modern Sector Employment (GE)

The Statistical Abstract of the Central Bureau of Statistics gives the number of people who are employed in the modern sector in all districts. This is called wage employment. The variable (GE) is calculated from the figures given for 1978 and 1979. The growth rate of modern sector wage employment for 1979 for the respective district is calculated and this is a proxy for the rural wage.

Results of the Regression

Equations of Gross Migration

The results of the ordinary least squares (OLS) of the relationship between the gross migration rates (M_{ij}) and the set of the explanatory variables are reported in Tables XI, XII, XIII and XIV. The study involves four different estimation procedures of gross migration rates. The first estimation procedure involves regressing gross migration rates from the 25 most rural districts to the city of Nairobi on a set of specified explanatory variables. The second procedure uses gross migration rates from all 40 districts to Nairobi. The third selects the gross migration rates from the 15 most urban districts to the city of Nairobi. The fourth procedure uses inter-provincial gross migration data. The four different procedures test

the determinants of human migration. However, the first three procedures in particular test the determinants of rural-urban migration whereas the fourth procedure tests the determinants of interprovincial migration. The emphasis of this study concerns the determinants of rural-urban migration. The fourth procedure will also be tested vigorously to see the difference between rural-urban migration and interprovincial migration. Rural-urban migration in this study is much narrower than normally used. In this particular study, rural-urban migration means migration to the capital city of Nairobi (urban here means Nairobi).

Per Capita Income Differential (E_{ij})

The results of the various procedures concerning the gross migration rates and the per capita income are reported in Tables XI, XII, XIII and XIV. The results of the gross migration propensity from the 25 most urban districts to the district of Nairobi concerning the per capita income is reported in Table XI. Five equations and eleven explanatory variables have been set to test the effect of per capita income differential on gross migration rates. The first equation uses ten explanatory variables (See Table XI). For each equation the regression coefficients are presented along with the t-statistics whose value determines whether the coefficient is significantly different from zero or not. The coefficient of correlation (R^2) is also presented for each equation to test the goodness of fit. Such procedure will be repeated for all equations and all procedures.

The per capita income differential which was hypothesized as the major determinant of gross rural-urban migration did not turn out to be

TABLE XI

ORDINARY LEAST SQUARE (OLS) ESTIMATE OF THE RELATIONSHIP BETWEEN GROSS MIGRATION RATES FROM THE MORE RURAL DISTRICTS TO NAIROBI AND THE SET OF EXPLANATORY VARIABLES

Dependent Variable LM_{ij}	Equation 1		Equation 2		Equation 3		Equation 4		Equation 5	
	Coeffi-cient	T Values	Coeffi-cient	T Values	Coeffi-cient	T Values	Coeffi-cient	T Values	Coeffi-cient	T Values
Constant	16.7254	0.98	14.245	1.01	19.5000	1.53	25.9493	1.24	15.4526	0.85
LE_{ij}	-6.9812	-2.29	-5.3665	-1.79	-6.9387	-2.08	-6.8627	-1.83	-6.7058	-2.03
LPM_{ij}	0.8475	10.74	0.8718	10.39	0.7102	4.82	0.9327	8.64	0.8524	10.19
LC_i	-0.0639	-0.54	0.0530	0.51	-0.3969	-2.73	-0.7766	-4.31	-0.0723	-0.57
LS	0.9545	6.39	1.0287	6.54	--	--	--	--	-0.9573	6.18
LL_i	0.1852	2.41	0.1081	1.58	0.1219	1.00	0.2345	3.15	0.1885	2.34
D_{ij}	-0.0007	-1.07	-0.0010	-1.59	-0.0005	-0.55	-0.0015	-1.81	-0.0006	-1.00
LW_{ij}	1.9486	1.19	0.2236	0.22	--	--	--	--	1.8863	1.10
DV	0.3681	1.89	--	--	--	--	--	--	0.3660	1.10
LS_i	0.4254	1.87	0.7139	3.57	0.879	0.25	--	--	0.4205	1.78
LAW	0.2262	0.92	--	--	--	--	0.1053	0.52	0.2331	0.91
GE	--	--	--	--	--	--	--	--	-0.0018	-0.27
R^2	0.95		0.94		0.77		.89		0.96	
DF	14		16		18		17		13	
DW	2.32		2.33		1.95		2.43		2.37	

so in the first equation of this procedure. Its coefficient is negative which is unexpected and significant. In the second equation, the tribal contact variable (DV) and the rural wage have been dropped from the equation, and the result does not show a marked difference. The sign of the per capita income differential is still negative unexpected, but its significance decreased. Now it is only significant at 0.1 level of significance. When the level of education at the destination (LS) is also dropped in the third equation, the significance of the per capita income increases. In all five equations, the sign of the coefficient of per capita income differential is negative which is not expected and is significant.

In the second procedure where the gross migration rates of all 40 districts are regressed on the same explanatory variables (see Table XII), the results of per capita income differential show a marked difference. The sign of the coefficient remains negative, unexpected, but the level of significance decreases. It is statistically insignificant. The results as indicated in Table XII are not sensitive to what explanatory variable is dropped out.

In the third procedure, less explanatory variables are used to test the determinants of gross migration rates. The results are reported in Table XIII. The results of the regression equations show that the sign of the coefficient of the per capita income differential becomes positive as predicted, but not statistically significant in all equations. The sign of the coefficient becomes negative in equation two; however, it is not statistically significant. When interprovincial data (fourth procedure) are used, the per capita income differential sign is positive as expected, but insignificant. However,

TABLE XII

ORDINARY LEAST SQUARES (OLS) ESTIMATES OF THE RELATIONSHIP BETWEEN GROSS MIGRATION RATES FROM THE FORTY DISTRICTS TO NAIROBI AND THE SET OF EXPLANATORY VARIABLES

Dependent Variable	Equation 1		Equation 2		Equation 3		Equation 4	
	Coeffi-cient	T Values	Coeffi-cient	T Values	Coeffi-cient	T Values	Coeffi-cient	T Values
Constant	-6.2298	-1.47	-7.7436	-2.11	-8.3942	-2.39	0.0741	0.01
LE_{ij}	-1.0425	-1.67	-0.8310	-1.51	-0.7572	-1.41	-3.8553	-1.54
LPM_{ij}	0.7049	9.18	0.7086	10.15	0.5883	11.93	0.5518	10.79
LC_i	-0.2970	-2.52	-0.2663	-2.58	-0.2194	-2.94	-0.1847	-2.22
LS	0.3342	2.84	0.3446	3.01	0.3398	3.00	0.3472	3.04
LL_i	0.0780	0.85	0.0510	0.67	--	--	--	--
D_{ij}	0.0006	0.59	0.0004	0.49	0.0003	0.34	0.0004	0.41
DV	0.1600	0.75	--	--	--	--	--	--
GE	-0.0010	-0.10	--	--	--	--	0.0026	0.26
LS_i	0.5606	2.02	0.6506	2.65	0.7357	3.58	0.7107	3.38
LAW	0.0904	0.71	0.0840	0.71	0.0694	0.60	0.2127	1.31
R^2	0.88		0.88		0.88		0.89	
DF	29		31		32		30	

TABLE XIII

ORDINARY LEAST SQUARE (OLS) ESTIMATE OF THE RELATIONSHIP BETWEEN GROSS MIGRATION RATES FROM MORE URBANIZED DISTRICTS TO NAIROBI AND THE SET OF EXPLANATORY VARIABLES

Dependent Variable (M_{ij})	Equation 1		Equation 2		Equation 3	
	Coeffi-cient	t-Value	Coeffi-cient	t-Value	Coeffi-cient	t-Value
Constant	-23.2304	-1.64	-7.5031	-1.01	-25.947	-2.18
LPM_{ij}	0.7546	4.75	0.8182	5.19	0.8634	5.90
CS	0.3112	1.90	0.3441	2.09	0.469	2.86
LC_i	-0.4779	-1.89	-0.2630	-1.78	-0.4173	-2.39
LE_{ij}	0.8107	0.58	-0.9991	-1.52	0.769	0.69
LD_{ij}	0.0052	1.65	0.3187	1.99	0.5311	2.48
LS_i	2.4483	1.08	0.1775	0.11	2.385	1.28
LE_i	0.3669	0.97	--	--	0.3700	1.33
R^2	0.83		0.80		0.87	
DF	6		8		6	
DW	1.89		2.03			

the sign of the destination income is positive and highly significant. Origin income also has a positive sign, but it is highly not significant.

Friends and Relatives

The friends and relatives coefficient reported in Tables XI, XII, XIII and XIV) show consistancy throughout equations and procedures. The hypothesized sign of the friends and relatives coefficient was positive. The results show that the coefficient is positive as predicted and very significant too. Dropping or adding more explanatory variables does not affect the sign of the coefficient nor its significance. The effect of the variable on the gross migration propensity may increase or decrease a little by dropping or adding certain explanatory variables, but in all cases the sign of the coefficient is predictable, and highly consistent. The results of the various equations describing the cross migration rates show that the t-values of the friends and relatives variable ranged from 4.75, the lowest, to 11.95, the highest. This indicates the consistency of the explanatory power of the friends and relatives variable in all equations and procedures.

Urbanization Variable

The urbanization variable is proxied by the density of population. The results of the effects of urbanization variable is reported in Tables XI, XII, XIII, and XIV. The coefficients of the urbanization variable range from 0.0064 to -0.78 in Table XI. The sign of the coefficient is negative except for Equation 2 (see Table XI). However, the coefficient of the urbanization variable is significant in Equations 3 and 4. The negative sign of the coefficient is expected.

TABLE XIV

RESULTS OF THE REGRESSION EQUATIONS OF GROSS MIGRATION RATES USING ORDINARY LEAST SQUARES OF INTERPROVINCIAL MIGRATION (M_{ij})

Independent Variable	Equation 1		Equation 2	
	Coefficient	t-ratios	Coefficient	t-ratios
LE_j	0.4816	4.95	--	--
LE_i	0.0250	0.31	--	--
LPM_{ij}	0.6613	8.75	0.6911	8.95
LC_i	-0.0090	-0.13	0.2011	2.72
LS_j	-0.8120	-5.74	0.2424	2.00
LS_i	0.2513	2.57	-0.1177	-0.95
LD_{ij}	-0.2369	-2.15	-0.1177	-0.95
LL_i	0.0691	1.55	0.0511	0.93
LGE	-0.1519	-1.53	-0.0125	-0.10
E_{ij}	--	--	0.0008	0.90
Intercept	-10.3393	-10.98	-9.9349	-8.83
$\overline{R^2}$	0.89		0.85	
DF	46		47	

The results reported in Table XII show a high consistency of the explanatory power of the urbanization variable. The sign of the coefficient is negative as expected and significant. The results reported in Table XIII concerning gross migration rates from the more urban districts show that the sign of the coefficient is negative as expected and significant at 0.05 in Equation 3. The urbanization variable just fails the test in both Equations 1 and 2.

The results of interprovincial migration rates reported in Table XIV show different results for the urbanization variable. In the first equation, the sign of the coefficient is negative as predicted but highly not significant while the coefficient is positive and significant in Equation 2 when per capita income differential is used as an explanatory variable.

Education Level at Destination

The education attainment at the destination (LS) was hypothesized to have a negative effect on gross migration rates; however, as shown in Table XI, the coefficient of the variable is positive and significant. The t-values of the variable range between 6.18 and 7.54 (see Table XI).

In Table XII, the explanatory power of the variable is reduced but still the coefficient is positive, unexpected and statistically significant. The t-values range from 2.84 to 3.04 (see Table XII).

The results of the gross migration propensity from the 15 most urbanized districts is reported in Table XIII. The results indicate that the coefficient of the educational attainment is positive, not expected and significant at 0.5 and 0.1 level of significance

respectively in Equations 3 and 2. In Equation 1 the coefficient just fails the test. The t-values fall between 1.90 and 2.86 (see Table XIII).

The results of the interprovincial imigration is reported in Table XIV. The coefficient of the educational level at the destination is negative as expected and significant. The values of the t-ration range from 2.00 to 2.57 (see Table XIV).

The educational level at the origin was hypothesized to have a positive coefficient. The results reported in Table XI show that the coefficient of the educational level is positive as expected and significant in Equations 1 and 5 at 0.1 level of significance while significant at 0.05 level in Equation 2 and not significant in Equation 3. The t-values range from 0.28 to 3.57 (see Table XI).

The results of the variable are more consistent in equations describing gross migration from all districts as shown in Table XII. The coefficient is positive as predicted and significant in all four equations. The t-values range from 2.02 to 3.58 (see Table XII). The results of gross migration rates from the urban districts indicate that the coefficient of the educational level at origin is positive but not significant. The t-values range from 0.11 to 1.28 (see Table XIII). Coefficients of the educational level at origin relating to interprovincial migration are consistently positive as predicted and significant.

Distance

The results reported in Table XI concerning gross migration rates from the most rural districts indicate a negative coefficient for the

distance variable as predicted but only significant at the conventional level in Equation 4. The other four equations fail the test. The t-values range from -0.55 to -1.81 (see Table XI).

Gross migration rates from all districts as shown in Table XII indicate that the coefficient of the distance variable is positive which is unexpected but statistically not different from zero. The t-values range from 0.34 to 0.59 (see Table XII).

Gross migration rates from the most urban districts as reported in Table XIII indicate a positive coefficient for the distance variable which is unexpected and it is significant at conventional level in both Equations 2 and 3. Equation 1 just fails the test. The t-values range from 1.65 to 2.48 (see Table XIII).

In interprovincial migration rates reported in Table XIV, the coefficient of the distance variable indicates a negative sign as hypothesized and significant when the per capita income differential at destination and origin are used as a separate explanatory variable. When the per capita differential is used as the explanatory variable but coefficient of the distance variable is negative as hypothesized but is statistically not significant. The t-values range from -0.35 to -2.15 (see TAble XIV).

Per Capita Potential Land

The results reported in Table XI concerning gross migration rates from the most rural districts indicate that the coefficient of the per capita potential land carries a positive sign which is not predicted and which is significant in three equations out of the five equations. In Equations 2 and 3, the coefficients fail the test. The t-values

range from 1.00 to 3.15 (see Table XI).

The results reported in Table XII relating to gross migration rates from all districts indicate that the coefficient of the per capita potential land is positive but statistically not different from zero.

Results reported in Table XIV pertaining to interprovincial migration rate show a positive sign which is not predicted, but it is not statistically significant.

Wage Differential

The results reported in Table XI relating to gross migration rates from the most rural districts indicate that the coefficient of the wage differential carries a positive sign which is expected but not significant in all equations. The t-values range from 0.22 to 1.19 (see Table XI).

Tribal Contact

Results reported in Table XI indicate that the coefficient of the tribal contact proxied by a dummy variable is positive as predicted and is significant at 0.1 level. The variable was also tried again in explaining gross migration rates from all 40 districts and the sign of its coefficient is positive as predicted but not statistically significant.

Growth of Modern Wage Employment

As Table XI indicates, the coefficient of the growth of modern wage employment indicates a negative sign which is expected but is not significant. While in Table XII the coefficient carries both a

negative sign which is expected and a positive coefficient which is not expected. However, both coefficients are highly not significant.

Results of interprovincial migration show that the coefficient of the growth of modern wage employment is negative as expected but not significant (see Table XIV).

Rural Wage

The results in Tables XI and XII indicate that the coefficient of the rural wage is positive which is not expected but it is not statistically significant in both types of data, namely gross migration rates from the most rural districts and all 40 districts.

Summary

The results of the several equations pertaining to the relationship between the gross migration rates from the districts to the capital city of Nairobi and the gross migration rates of interprovincial migration are reported in Tables XI, XII, XIII, and XIV. The relevant R^2 squares, the degrees of freedom (DF) are also reported in the same tables. The relevant t-statistics and the coefficients are also reported.

The results of the various equations were sensitive to the variables included in the equation as explanatory variables. Some variables were dropped from the various equations to see if the explanatory power of the equations change. The reported results (Tables XI, XII, XIII, and XIV) give a clear picture of what happened to the explanatory power of the equations as some variables were dropped from the equation. In general most of the variables retain their respective signs as

variables were dropped.

The friends and relatives variable has the most persistent explanatory power. Its coefficient is always positive as hypothesized and is highly significant. The friends and relatives in the destination aid migration as the past migrants help the potential migrants. The urbanization variable has also shown a persistent explanatory power. Its coefficient is negative as expected and is significant. Highly dense areas have expanded employment opportunities and that reduces rural-urban migration. The education variable at the destination and the origin have also showed a high explanatory power although the sign of the coefficient of the origin is expected. Both variables are significant. Education variable at the destination and origin increases rural-urban migration (see Tables XI, XII, XIII, and XIV). However, the signs of the coefficients of education at the origin and the destination in the interprovincial migration rates have the hypothesized sign and are significant. Education at the destination retards migration rate as job competition is very keen. Education at the origin increases migration rate as more educated people seek opportunities that lie far away. The coefficient of the distance variable is not significant for rural-urban migration while it is expected and significant for interprovincial migration. Per capita income differential is not significant for all the equations. It is not significantly different from zero. Coefficient of the destination income is expected and is significant while that of the origin is unexpected but not significant in the interprovincial migration rate equation.

CHAPTER VI

INTERPRETING THE RESULTS

The regression results set forth in the last chapter will be discussed and explained in this chapter. Analysis of this chapter will focus on the results reported in the four tables (XI, XII, XIII, XIV) of the previous chapter.

Gross Outmigration from the Districts to Nairobi

Gross migration rates from the rural to the urban city of Nairobi was hypothesized to depend upon the size of income differential between the capital city of Nairobi and the rest of the districts. This hypothesis is in conformity with the investment approach to migration rates which according to Yotopolous and Nugent (1976) is determined by the capitalized value of differential earning streams between the urban and the rural areas. Other explanatory variables based on the two other approaches viz selectivity and pull-push approaches has also been incorporated in the various equations tested on this study.

Interpretation of the Results of Gross Migration Rates from the More Rural Districts of Kenya to Nairobi

The findings of the gross migration rates from the 25 more rural

districts are reported in Table XI.

The results of the findings of this study concerning the major determinant of rural-urban migration is most disappointing. The results of the first equation show that per capita income differential (E_{ij}) not only has a negative unexpected coefficient but it is also significant. The result indicates that per capita income differential and the gross migration rate are negatively correlated contrary to the hypothesis of this study. This finding indicates that per capita income differential may in face be a deterrant to migration rather than a cause of migration as hypothesized. In the second equation where the tribal contact variable and the rural wage are dropped, the coefficient's significance has reduced although still significant at 0.1 level of significance. The results of the third, fourth and fifth equations show that the per capita income differential's coefficient is still negative and still significant at 0.1 level of significance. The findings of this study got support from similar findings of Rempel (1971, 1978) and Huntington (1974), who used Kenyan data to determine causes of rural-urban migration. They found out that the coefficients of the per capita income differential were negative and not significant. In most of the study concerning rural-urban migration using Kenyan data, the sign of the coefficient of the per capita income differential was found to have the unexpected sign. The findings of this could be explained in reference to similar findings by Greenwood using Indian data (House and Rempel, 1980)

> The lower the rural income the less well-suited the migrant is for urban employment. Hence, the more likely he will perceive a negative expected urban income even if the actual rural-urban income differential was positive. (p. 30)

The findings of this study may also imply that above average income areas may be more willing to invest in migration compared to the below average income areas. The implications of these findings may be construed to mean that potential migrants see the high urban income as unattainable or out of their reach, hence the higher the per capita income differential the less they are inclined to migrate to the urban areas. Glatz gives a different interpretation of the negative coefficient of the per capita income differential (Greenwood, 1975) by arguing that it is not the per capita differential that matters to the poor in the rural areas but the welfare benefits available at the urban centers. In the case of Kenya, those welfare benefits abound in the capital city of Nairobi. The results of these findings could also be explained along that line. It is also argued that migrants are utility miximizers rather than income maximizers. There are other things important to the migrants. Studies done by Caldwell (1969) on Nigerian rural-urban migrants indicate that the reason why migrants left the rural areas was to make use of the urban facilities. Thus according to Greenwood (1975, p. 411), "the Hick's contention that wage differences are the chief determinants of migration has not been confirmed." This study could not confirm that income difference is a determinant of rural-urban migration rate.

The friends and relatives variable was expected to increase rural-urban migration rate, and as shown in Table XI, the results of all the five equations confirm the hypothesis of the study. The coefficient of the friends and relatives variable is positive as expected and is highly significant. In addition to the findings of this study, all studies conducted using Kenyan data also found out that the coefficient

of the friends and relatives variable was positive as expected and highly significant. In Africa, friends and relatives who have already migrated may help others migrate too by providing them essential services that might make migration less painful. Potential migrants are provided with the essential information about the availability of jobs and so on. Sometimes the jobs have already been secured for them. In other cases potential migrants are provided with food and shelter while they search for a job (Caldwell, 1969), (Herrick, 1969), (Barnum, 1979). The friends and relatives variable as shown in Table XI has the highest and most consistent explanatory power of gross rural-urban migration from the more rural districts. Similar work done by Tobolli (1976) with Libyan data show also that the friends and relatives variable is a determinant of rural-urban migration. Thus the presence of friends and relatives in the destination areas plays an important role in the decision-making process of rural-urban migration in Kenya. In fact, according to Collier and Rempel (1975), "when the migrants were asked why they chose to come to Nairobi, some did indicate they had come because of the presence of friends and relatives" (p. 207). The results of this study are consistent with other studies using Kenyan data who specified this variable in the same way.

The urbanization variable proxied by the density of population in the rural districts has a consistent explanatory power; however, it is not significant in all five equations. The coefficients of Equations 1, 2, and 5 of the urbanization variable have the right sign (except Equation 2) but not significantly different from zero. Thus the coefficient of the urbanization variable is fluctuating around zero whether the sign is positive or negative. However, when the

variables of education at the destination and origin, as well as other variables such as tribal contact, rural wage, growth of modern sector employment were dropped from the equation, the coefficient becomes highly significant indicating that urbanization is a serious deterrent to migration. Highly dense areas accord the residents expanded opportunities of employment. Thus the more urban an area is the more opportunities may be there.

The sign of the coefficient of the distance variable is negative as expected but not very significant in some of the equations. However the coefficient meets the conventional level of significance (0.1) in Equation 4 and just fails in Equations 1, 2, and 5. The coefficient of the distance variable on Equation 3 is not significantly different from zero. Since the distance variable is a proxy for both monetary and nonmonetary costs of migration, the negative sign is expected proving that distance is an impediment to migration as hypothesized.

The result of the education variable at the destination was not expected. The coefficient's sign of the destination variable is positive which is unexpected and is highly significant. This implies that increase in education at the destination attracts migration. This study hypothesized that increased education in the destination will retard rural-urban migration because the educated individuals at the origin have to compete with the educated individuals at the destination. However, the results indicate otherwise (see Table XI). The results of this study are consistent with the findings of Greenwood (1969) for Egypt, Sahota (1968) for Brazil, House and Rempel (1980) for Kenya. All of these studies came up with a positive sign of the coefficient which is also significant. The positive sign of the coefficient indicates

that by and large education level in the destination is an attraction to migrants. More educated communities attract more migrants because more educated communities provide more public services or non-wage benefits to its citizens. That attracts more potential migrants. In Kenya the results of the study make sense since most institutions of higher learning are located in Nairobi. The availability of public services in Nairobi is much higher than the rest of the country. High income areas are also high education areas (Sahota, 1968). Nairobi is by far the highest income district in Kenya. The coefficient of the education variable in the origin has the expected sign although not as significant as the education level in the destination. However, the coefficient of the education variable at the origin is significant at the 0.1 level of significance. More education in the origin district increases migration as hypothesized. Educated youth are more likely to respond to migration opportunities. Education increases the earning of its recipient and reduces information costs, thus aiding migration.

This study is consistent with the findings of Greenwood (1976) on India, House and Rempel (1980) on Kenya. Both studies indicate that the migration rate increases with higher levels of educational attainment both at the origin and destination. Anker and Knowles (House and Rempel, 1980) obtained a positive coefficient for education in the origin district, but their coefficients were not statistically significant. This study supports the Myrdal hypothesis that migration is selective and that the more educated a person is the more he may be prone to migration.

The coefficient of the dummy variable has the expected sign and is significant at the 0.1 level of significance. The variable is

included in the equations to capture the effect of the preferential hiring practices. The propensity for the five major tribes to get hired is much higher than the rest of the tribes. The predominance of such tribes in Nairobi would give an added advantage for the members of their clan to get hired than the other less predominant tribes. The predominance of one particular tribe of the five major ones, in one district of origin may increase their propensity to migrate to Nairobi. Both Rempel (1971) and Huntington (1974), who used a different measure of tribal contact, found its coefficient positive and significant.

Per capita potential land (fertile arable land) coefficient is highly significant but has the unexpected sign. Results indicate that the more fertile a land there is available to the people at the district of origin, the more they migrate. It was hypothesized that the more of fertile land in the origin the less people will be inclined to migrate. The variable is used in this study for the first time. The rationale for using the variable as an explanatory variable was to see if the availability of potential land could be a deterrant to rural-urban migration. The results indicate that the availability of potential land is a cause of rural-urban migration. Perhaps people with high per capita potential land have the potential to finance profitable investment.

The coefficient of the wage differential between the urban and the rural areas has the expected sign but does not meet the conventional level of significance. The study, however, shows that there is a positive correlation between the gross migration rate and the wage differential between the destination and the origin. Increased wage differential slightly increases the propensity to migrate.

The rural wage which is proxied by the average district wage has no effect on rural-urban migration. Its coefficient has the wrong sign and it is highly insignificant in all equations.

The growth of modern wage employment in the origin district has no effect on rural-urban migration; however, the coefficient of the variable has the right sign. The size of its coefficient is so small that the variable has no effect on gross rural-urban migration rate. The hypothesis of the study was that growth of modern wage employment might decrease the propensity to migrate. Expanded opportunities would impede migration.

Interpretation of the Results of Gross Migration Rates from the 40 Districts to the City of Nairobi

The findings of the gross migration rates from all districts to Nairobi are reported in Table XII.

The coefficient of the per capita differential has the unexpected sign. The coefficient, although not significant at the conventional levels, shows a persistent negative relationship with the gross migration rate. The hypothesis of this study as already stated was that the major determinant of migration to Nairobi is per capita income differential. The results of this test are not significantly different from that of the previous sets of data where the data of 25 more rural districts were used for the analysis. The only difference here is that the significance level of the coefficients of the per capita income differentials has gone down a little bit. In this set of equations none of the coefficients pass the significance level test, however,

they all just fail to pass the conventional level. All signs, as in the previous case, are negative and unexpected (see Table XII). The possible failure of the hypothesis has been explained earlier in this chapter.

The friends and relatives variable continues to show the same consistent positive and significant coefficient as expected. The difference between this result and the previous result is that using all districts migration rates to Nairobi have slightly increased the significance level of the friends and relatives variable. Otherwise, the results of the two different sets of data are the same.

The results of the urbanization variable proxied by the density of population indicate that the urbanization variable is a strong deterrent to rural-urban migration. The sign of the coefficient of the variable is as expected and is highly significant. The explanatory power of the variable has dramatically improved. In the case of 25 more rural districts, the coefficient, although sometimes significant, was not always significant at the conventional level. In this case the sign of the coefficient is not only as expected but it is also highly significant in four equations (see Table XII). This is a further indication that urbanization variable at the destination retards rural-urban migration because increased urbanization increases employment opportunities and that decreases the flow of gross migration rate from the districts.

The per capita potential land variable has no effect on rural-urban migration rate. Its coefficient's sign is unexpected though. But it is highly insignificant. In the 25 district data, the variable showed a much higher effect on rural-urban migration rates, sometimes

insignificant at the conventional levels.

The coefficient of the distance variable in this data set shows the wrong sign, although not significant. The effect of the distance variable has markedly changed. In the previous case, the coefficient was either barely significant or just failed the usual test. Now the coefficient is so insignificant that it does not matter whether it has the wrong sign or not. The distance variable was hypothesized to proxy both costs of transportation and psychic. The reason why its coefficient may be so insignificant could be explained by sighting three main reasons given by Greenwood (1975) why such insignificant coefficients for the distance variable may be possible.

1. More information may flow from previous migrants to the potential migrants.

2. Jobs may already be secured for potential migrants by friends and relatives in the destination area.

3. Job search period will be reduced if no support is available.

As already discussed, the friends and relatives may be playing an exceedingly high role in reducing the deterrent effect of the distance variable. Friends and relatives in the destination reduce uncertainty pertaining to the psychological anxieties of leaving home and the familiar environment. The presence of friends and relatives in the destination reduces psychic costs and may also reduce transportation costs as friends and relatives may contribute financially to the cost of migration by providing food and shelter while the migrants search for a job. Greenwood (1975) using American data, said:

> In testing his model both for the economics and for the individual states, Greenwood finds that indeed the past migration of relatives and friends is an important deterrent of the

> distribution of present migrants, and that when account is taken of past migration, the true (current) direct effects of distance are not nearly so great as they otherwise seem. (p. 406)

Greenwood findings are supported by the survey conducted by Collier and Rempel (1976/1977) of the Nairobi residents where 75 percent of the unemployed migrants in Nairobi said they had obtained their information about Nairobi from relatives and friends who were living in Nairobi. Thus the surveyors (Collier and Rempel, 1976/1977) state that "from this evidence we might conclude that the psychological costs of the move are not as great as one might anticipate" (p. 207).

This reduction of psychological costs means reduced effect of the distance variable which is a surrogate for both psychological and monetary costs. The monetary costs may also be reduced due to better transportation facilities such as roads, trains, airfields, etc. In Kenya transportation facilities have been increased and this may have a bearing on the reduced effect of the distance variable. Greenwood has another possible explanation for the reduced effect of distance. When people move, they move again. This migration propensity may be increased by moving once. Thus Miller (Greenwood, 1975) and others suggest that migration is selective of the most movile segments of the society, and localities that experience much immigration possess relatively large numbers of persons who are migration "prone" and who are thus likely to move again. Studies on Venezuela (Levy and Wadycki, 1974a), Sierra Leone (Byerlee, Tommy and Fatoo (1976), came up with results similar to this study. The implication of their study is that distance is less of a deterrent to migration for the educated than for the uneducated migrants.

The education variable both at the destination and the origin continues to have a high explanatory power. The coefficients are highly significant although the sign of the destination variable has the unexpected sign. The results of these regression equations and that of the previous equations show a close similarity. They are the same in every respect except the coefficient of the origin education shows a greater explanatory power. Education, whether in destination or origin, increases the propensity to migrate (see Table XII). The tribal contact variable's explanatory power in these equations is insignificant although the coefficient of its sign has the right sign. Tribal contact variable measures preferential hiring practices, but these results show that their effect is extremely small. The result of this equation is markedly different from that of the previous equations (see Table XI). The explanatory power of the variable has gone down.

Growth of modern sector wage has the same result as that of the previous equations. In all cases the coefficient of the variable has the expected sign but has no effect on gross migration rates as its coefficient is highly insignificant. This is true for all equations and for all types of data set.

The rural wage's coefficient has the unexpected sign but is highly insignificant. The variable has no effect on the propnesity to migrate. The same result was found in the previous equations (see Table XI).

Ordinary Least Square (OLS) Estimate of Relationship Between Gross Migration Rates from 15 More Urbanized Districts to Nairobi

The results of three equations concerning relationship between

gross migration rates and seven explanatory variables are reported in Table XIII. These results will be compared to the previous results using the different data sets.

Friends and relatives variables as usual exhibit high explanatory power. In all the equations using the different data sets, the results of the friends and relatives variable had shown consistently to have the highest explanatory power of all the explanatory variables. Its coefficient is positive as expected and is extremely significant in all equations.

The results of the education variables are similar to the previous equations, except that the explanatory power of the origin variable has gone down to an extent that it fails to pass the significance test. The education variable at the destination consistently explains migration rate although it carries the unexpected sign. In all three sets of data, the coefficient of the variable showed the unexpected sign and a high level of significance. The per capita income differential in these equations does not explain the rural-urban migration, although in some equations the sign of the coefficient changes from negative to positive, the hypothesized sign, its significance level is so low that it does not affect rural-urban migration.

The coefficient of the distance variable is positive and either passes or just fails the test of the level of significance. The results indicate that distance might be a determinant of rural-urban migration since information declines with distance, information coming from a longer distance may be inaccurate but still there may be a higher degree of information flow between urban centers and the capital city of Nairobi. Thus people who may have already migrated from the rural

areas might migrate again to Nairobi under a false information. The reliability of the information coming from Nairobi may depend upon the distance between Nairobi and the respective district. The prospective migrant from the 15 more urban districts might be able to get the correct information of possible opportunities in the not far distant areas and hence may not engage in a wasteful investment in migration but might invest in a far away investment migration based on a false information which may be hard to disprove.

Interpreting the Results of Interprovincial Migration Rate

The regression results of interprovincial migration rate are reported in Table XIV. The dependent variable is the gross migration rates, and the set of explanatory cariables are per capita income at the destination (LE_j), at the origin (LE_i), past migration as a proxy for friends and relatives, the population density (LC_i) a proxy for level of urbanization, educational level at destination (LS_j) and at origin (LS_i), distance between the origin and destination (D_{ij}), per capita potential land (L_i), growth of modern wage employment at origin (GE) and the per capita income differential (E_{ij}).

The results of the two equations used in testing the gross interprovincial migration show a high explanatory power particularly when the per capita income variables at the destination and the origin are used as a separate explanatory variable. The coefficient of the per capita income at the destination province has the expected sign and is highly significant. That implies that the income of the destination is a very important determinant of interprovincial migration. These

findings support the hypothesis that people migrate from one area to another in order to earn more. The growth of the destination income is an attraction force to prospective migrants. The sign of the coefficient of the per capita income at the origin is unexpected but it is highly insignificant. It does not explain migration. In similar studies using Kenyan data, similar results were found. House and Rempel (1980) used destination and origin wages as explanatory variables in their migration study using Kenyan data. They found that the destination variable coefficient carried out the correct sign and was highly significant where the coefficient of the origin variable carried the unexpected sign, but was highly insignificant. Anker and Knowles (1977), who used inter-district migration rates, also found the coefficient of the origin income to be positive, unexpected, and highly insignificant. House and Rempel (1980, p. 30) explained the positive sign of origin income "to indicate our measure of income overstated the migrant's actual alternative in his home area." However the significance of the coefficient of the origin income is extremely low. The coefficient of the friends and relative variable consistently shows the expected sign and the high level of significance. The firm conclusion from this and in all equations tested earlier is that friends and relatives at the destination determine both rural-urban migration and interprovincial migration. Past migrants help potential migrants.

The coefficient of urbanization variable was negative and significant in all rural-urban migration equations, however, in the interprovincial case there seems to be a big difference. In the first equation where the per capita income variables are used as separate explanatory variables it retains its usual negative sign; however, it

is not significant. But in the second equation where the per capita income differential is used its coefficient's sign changes to positive and significant. The negative sign of the urbanization variable which is proxied by density of population was interpreted as more dense areas having expanded opportunities of employment. The positive could be interpreted as being a push variable. According to Sahotta (1968),

> The push factor may be due to the pressure of population. On the other side, initial density might have partly resulted from earlier immigration. If so, old migrants may attract new migrants simply because the latter are more aware of the advantages of migrating and may be assured of aid and information about jobs. Density may serve as a proxy for this snowball effect. (p. 226)

Thus the urbanization variable could act as the determinant or a deterrent to migration when proxied by the population density. In the rural-urban migration, the urbanization variable is a deterrent force inhabiting rural-urban migration while in the interprovincial equations urbanization is a determinant of migration rate.

The education variable at the destination carried the correct sign and is significant. It was hypothesized that education at the destination would inhibit migration from the origin because increased educational level at the destination would discourage potential migrants due to the expected fierce competition at the destination. This seems to be true in interprovincial migration but not in rural-urban migration. The attractive nature of Nairobi may be the difference.

Education at the origin shows consistency throughout the various equations using the various data sets. Its coefficient's sign is expected and is significant. More educated people have a high propensity to migrate.

The coefficient of the distance variable is sensitive to whether

the per capita income differential as an explanatory variable is used or whether the per capita income of the destination and origin is used as a separate explanatory variable when the per capita income of the destination and the origin are used the distance coefficient is as expected, negative and significant. Thus distance as hypothesized is a deterrent to interprovincial migration. The cost of transportation between provinces could be much higher than cost of transportation between districts and Nairobi. Psychic costs may be higher in interprovincial migration. Distance variable which proxies both transportation and psychic costs thus could be a deterrent to interprovincial migration. When the per capita income differential is used as the explanatory variable, the sign of the coefficient does not change but its significance drops to zero, once again supporting the previous findings that distance does not affect the propensity to migrate.

The coefficient of the per capita potential land shows consistently a very weak relationship with the dependent variable and with the wrong sign. This result is not different from the previous results; however, its explanatory power improved somewhat when the per capita incomes at the destination and the origin are used as explanatory variables. But, it still remains insignificant.

The results concerning the growth of modern wage employment has as before the expected signs but as before it could not pass the significance test. However, its explanatory power has improved somewhat by using the per capita income at the destination and the origin as separate explanatory variables. However, its effect seems to be very weak.

CHAPTER VII

CONCLUSIONS AND POLICY IMPLICATIONS

Urbanization in Kenya is growing at a fast pace particularly the capital city of Nairobi. The government cannot adequately meet the ever increasing population of Nairobi. Required social services include housing facilities, water systems, schools, hospitals, parks, electricity, sewage systems, protection against crime, etc. The increase in social services is due to increasing population in Nairobi because of rapid increases in natural population growth and a high rural-urban migration. The primary task of this study was to determine what causes people to migrate from the rural areas to the urban cities. The study hypothesizes that people migrate from low-paying areas to high-paying areas. Nairobi is a typical high-paying area while the rural areas are typical low-paying areas. Thus the study hypothesizes that migration is a result of income inequality. In broader terms, the individual weighs alternative benefits between staying in the rural area or migrating to the urban area. Thus the decision making process depends on whether benefits at the destination outweigh benefits at the rural area ($B_j > B_i + T_{ij}$). The cost of transportation (T_{ij}) between the two localities must also be taken into consideration.

The main hypothesis of the study was tested on Kenyan data compiled by the Central Bureau of Statistics (CBS) published in the Statistical

Abstract of Kenya in 1980.

Four different sets of data were used: (1) The gross migration rate of the 25 more rural districts to the capital city of Nairobi. (2) The gross migration rate of all of 40 districts to the capital city of Nairobi. (3) The gross migration rate of 15 more urban districts to the capital city of Nairobi. (4) The gross interprovincial migration rate of the 8 provinces in Kenya.

The summary of the results of the various equations using the four different data sets are reported in Tables XI, XII, XIII, and XIV. The tests of the various equations using different data sets reveal the following.

The results of the per capita income differential did not explain the migration decision process. The coefficients of the variable were negative but sometimes positive but in many cases not significant. The hypothesis that rural-urban migration or internal migration has been rejected by the results of the study. The results of the test may indicate that the propensity to migrate from the rural areas may be a decreasing function of per capita income differential. The deterrent effect of the per capita income differential is particularly obvious when the 25 more rural districts data set is used. The deterrent effect of the per capita income differential was less obvious when data set relating to the 15 more urban districts and the interprovincial were used. The study concludes that per capita income differential does not determine rural-urban migration nor interprovincial migration, but could be a possible deterrent to rural-urban migration.

The results relating to the distance variable is discouraging,

too, in the case of rural-urban migration. The hypothesis that distance is a deterrent to rural-urban migration has not been substantiated by the regression results. However in the case of interprovincial migration there is reason to say that distance is an impediment to interprovincial migration when the per capita income of the destination and the origin are used as separate explanatory variables. There is no conclusive evidence that distance is an impediment to migration.

The explanatory power of the friends and relatives has been proved beyond doubt. The results indicate that there is a conclusive evidence that the propensity to migrate is an increasing function of friends and relatives. The hypothesis of the study has been accepted.

The results of the rural-urban migration equations show a conclusive evidence that rural-urban migration is an increasing function of education both at the destination and origin. However, in the interprovincial case the propensity to migrate is a decreasing function of education level at the destination.

There is also conclusive evidence that urbanization in the destination is a deterrent to rural-urban migration. However there is some evidence that it may be a determinant of interprovincial migration (its coefficient is positive).

Results show that the per capita potential land did not explain rural-urban migration nor interprovincial migration. Thus there is a conclusive evidence that the per capita potential land does not affect migration. The hypothesis of the study that per capita potential may retard the propensity to gross migrate has been totally rejected by the results.

The other variables--rural wage, growth of modern wage employment and wage differential--that have been tested in the study seem to have a weak effect on migration.

Policy Implications

From the results of the study reported in Tables XI, XII, XIII, and XIV, rural-urban migration may continue unabated not because the per capita income differential is positive but, in general, the benefits available at Nairobi may far exceed the benefits available at the rural areas. Since individuals are assumed to be rational, the trend may continue. The findings of the study suggest that since per capita income differential fails to explain the propensity to gross migrate in spite of the heavy rural-urban migration may imply that consumers are utility maximers and not income maximers. Availability of welfare benefits may explain rural-urban migration better if it could be quantified.

1. Thus policy implications to narrow urban-rural incomes may only increase migration to Nairobi. Thus efforts attempting to close the urban-rural gap in order to reduce rural-urban migration may be ill advised.

2. The policy implication relating to the distance variable is not clear in this study. According to the results in Table XI, i.e., migration from more rural areas, distance is somewhat a deterrent while results in Table XIII show that distance may be a determinant of rural-urban migration. In Table XIV, distance is a clear deterrent and in other cases it may not matter. A clear policy implication may be lacking. However, a policy of decentralizing the industrial base

of the country may reduce the deterrent effect of distance and facilitate mobility of labor.

3. Since the coefficient of the density (urbanization variable) is negative in most equations, this implies that a policy of decentralization would create alternative opportunities by spreading economic activities throughout the country. This may be crucial to rural-urban reversal.

4. Growth of modern wage employment may also have some policy implication, although it may be weak. Increase of wage employment in the rural areas may retard rural-urban migration. However, increasing the rural wage would have the undesirable effect of increasing rural-urban migration.

5. Since migration is selective in nature, more educated people migrate from the rural areas to the urban areas in search of either high pay or higher education. In either case, the policy implication requires that the educational system be decentralized. Decentralization of economic activities may also imply that educated individuals may be accommodated outside Nairobi.

SELECTED BIBLIOGRAPHY

Banerjee, B. E., and Kanbur, S. M. "On the specification and estimations of macro rural-urban migration functions, with application to Indian data." Oxford Bulletin of Economics and Statistics, Vol. 43 (1981), pp. 31-51.

_____. "Rural-urban migration and family ties: an analysis of family consideration in migration behavior in India." Oxford Bulletin of Economics and Statistics, Vol. 43 (1981), pp. 7-30.

Barkin, Solomon. "The economic costs, benefits and human gains and disadvantages of international migration." Journal of Human Resources, Vol. 8 (1974), pp. 542-566.

Barnum, H. N., and Sabot, R. H. "Education, employment, probabilities and rural-urban migration in Tanzania." Oxford Bulletin of Economics and Statistics, Vol. 39 (1977), pp. 109-126.

Bartel, Ann. "The migration decision: what role does job mobility play." American Economic Review, Vol. 69 (1979), pp. 715-786.

Beals, Ralph, and Manezes, Carmew. "Migrant labour and agricultural output in Ghana." Oxford Economic Papers, Vol. 22, No. 1 (March 1970), pp. 109-128.

Berry, Albert, and Sohgo, Ronald. "Some welfare aspects of international migration." Journal of Political Economics, Vol. 77 (June/December 1969), pp. 778-794.

Bowles, Samuel. "Migration as investment: empirical tests of the human investment approach to geographic mobility." Review of Economics and Statistics, Vol. 52 (1970), pp. 350-381.

Byerlee, Derek. "Rural-urban migration in Africa: theory, policy and research implications." International Migration Review, Vol. 8 (1974), pp. 542-566.

Byerlee, D., Tommy, J. L., and Fatoo, H. "Rural-urban migration in Sierra Leone: determinants and policy implications." African Rural Employment Paper No. 13. East Lansing: Department of Agricultural Economics, Michigan University, 1976.

Caldwell, John. African Rural-urban Migration, the Movement to Ghana's Towns. New York: Columbia University Press, 1969.

Carnoy, Martin. "Aspects of labour force mobility in Latin America." Journal of Human Resources, Vol. 2 (1967), pp. 517-537.

Carvajal, M. J., and Geithman, David. "Migration flows and economic conditions in the Dominican Republic." Land Economics, 52 (May, 1976), pp. 207-220.

Cebula, R. J., Kohn, R. M., and Vedder, R. K. "Some determinants of interstate migration of blacks, 1965-1970." Western Economic Journal, 11 (4) (December, 1973), pp. 500-505.

Central Bureau of Statistics (CBS), Government of Kenya, 1979 Census.

Chang, Tuck Hoong Paul. A Review of Micro Migration Research in the Third World Context. New York: Pergaman Press, 1981.

Collier, Paul E., and Bigsten, Anne. "A model of educational expansion and labour market adjustment applied to Kenya." Oxford Bulletin of Economics and Statistics, Vol. 43 (1981), pp. 31-51.

Collier, P. "Migration and unemployment: a dynamic general equilibrium analysis applied to Tanzania." Oxford Economic Papers New Series, Vol. 31 (1979), pp. 205-236.

Collier, Paul, and Lal, Deepak. Poverty and Growth in Kenya. World Bank Staff Working Paper No. 389. Washington, D.C., 1980.

Collier, Valerie, and Rempel, Henry. "The divergence of private from social costs in rural-urban migration: A case study of Nairobi, Kenya." Journal of Development Studies, Vol. 12 (1971), p. 200-214.

Davanzo, Julies. Why Families Move: A Model of the Geographic Mobility of Married Couples. Santa Monica: Rand, 1976.

_____. "Does unemployment affect migration? Evidence from micro-data." Review of Economics and Statistics, 60 (4), pp. 504-514.

Dehlberge, Ike. "The interaction of migration, income, and employment in Sweden." Demography, Vol. 1 (June 1974/July 1975).

Dunlevy, James, and Ballante, Don. "Net migration endogenous income and the spread of adjustment to North-South differential." The Review of Economics and Statistics, Vol. OXV (February 1983), pp. 66-76.

Fields, Gary. "Place to place migration in Colombia." Economic Development and Cultural Change, Vol. 30 (Oct. 1981-July 1982), pp. 529-559.

_____. Rural-urban migration, urban unemployment and under-employment, and job-search activity in LDCS." Journal of Development Economics (1975), pp. 165-187.

Gallaway, Gilbert, and Smith. "The economics of labour mobility: an empirical analysis." Western Economic Journal, 5 (June 1967), pp. 211-223.

Gallaway, L. E. "The effects of geographic labour mobility on income: A brief comment." Journal of Human Resources, 4 (Winter, 1969), pp. 103-109.

Gallaway, Lowell. "Industry variations in geographic labour mobility patterns." Journal of Human Resources, Vol. 2 (1967), pp. 461-474.

Godfrey, E. M. "Economic variables and rural-urban migration: some thoughts on the Todaro hypothesis. Journal of Development Studies, Vol. 10 (Oct. 1973, July 1974), pp. 66-78.

Goldstein, Sidney. Migration and Rural Development. Rome: Food and Agriculture Organization of the U.N., 1979.

Graves, Philips E. "A re-examination of migration, economic opportunity, and the quality of life." Journal of Regional Science, 16 (April 1976), pp. 107-112.

Greenwood, Michael. "Research in internal migration in U.S.: A survey." Journal of Economic Literature (1975), pp. 397-421.

Gupta, S. Archana. "An Economic Analysis of Migration in Oklahoma." (Unpublished Doctoral Dissertation, Oklahoma State University, Stillwater, 1981).

Herrick, B., and Kindleberger, C. P. Migration in Economic Development. Third Edition. New York: McGraw-Hill, 1975.

House, J. Williams, and Rempel, Henry. "The determinents of interregional migration." World Development, Vol. 9 (1982), pp. 25-33.

_____. "Labour market pressures and wage determination in less developed economics: The case of Kenya." Economic Development and Cultural Change, Vol. 26 (Oct. 1977 - July 1978), pp. 609-619.

Inoki, Takenori, and Suruga, Terukazu. "Migration, age and education: a cross sectional analysis of geographic labour mobility in Japan." Journal of Regional Science, Vol. 21 (Nov. 1981), pp. 507-517.

Jones, Richard. "The role of perception in urban in-migration: a path analytic model." Geographical Analysis, Vol. 12 (1980), pp. 98-108.

Kim, S. "Rural-urban migration and technological changes in agriculture of a developing country." Economic Record (1973), pp. 15-23.

Laber, G., and Chase, R. X. "Interprovincial migration in Canada as a human capital decision." Journal of Political Economy, 79 (4)

(July/August), pp. 795-805.

Ladinsky, Jack. "The geographic mobility of professional and technical manpower." Journal of Human Resources, Vol. 2 (1967), pp. 473-494.

Lansing, John B. and Morgan, James. "The effect of geographical mobility in income." Journal of Human Resources, Vol. 2 (1967), pp. 449-460.

Ledent, Jacques. "Rural-urban migration, urbanization and economic development." Economic Development and Cultural Change, Vol. 30 (Oct. 1981/July 1982), pp. 507-539.

Levy, J. B. S. "Migration from the land and urban unemployment in Sierra Leone." Oxford Bulletin of Economics and Statistics, Vol. 35 (Nov. 1976).

Levy, Mildred B., and Wadycki, Walter. "What is the opportunity cost of moving? Reconsideration of the effects of distance on migration." Economic Development and Cultural Change, Vol. 22 (Oct. 1973 - July 1974), pp. 198-214.

Levy, Mildred, and Wadycki, Walter. "Life-time versus one-year migration in Venezuela." Journal of Regional Science, Vol. 12, No. 3 (1972), pp. 407-415.

Linn, Johannes. "The cost of urbanization in developing countries." Economic Development and Cultural Change, Vol. 30 (Oct. 1981 - July 1982), pp. 625-648.

Mathur, Ashok. "Regional development and income disparity in India: A sectoral analysis." Economic Development and Cultural Change, Vol. 31, No. 3 (April 1983), pp. 475-505.

Miller, Edward. "A note on the rate of distance in migration: Costs of mobility versus intervening opportunities." Journal of Regional Science, 12 (Dec. 1972), pp. 475-478.

Miracle, Marvin, and Bernry, Sara. "Migrant labour and economic development." Oxford Economic Papers, Vol. 22, No. 1 (March 1970), pp. 86-108.

Mott, Frank, and Mott, Susan. "Kenya's record population growth: dilemma of development." Population Bulletin, Vol. 3 (1980), pp. 1-44.

Mundlak, Yair. "Occupational migration out of agriculture: a cross-country analysis." Review of Economics and Statistics, Vol. 60 (1978), pp. 392-398.

Munyo, John. "Migration in Turkey." Economic Development and Cultural Change, Vol. 11, (July 1974), pp. 634-653.

Myrdal, Gunnar. "Population migration and income inequality: A simultaneous equation approach." Economic Development and Cultural Change, Vol. 16 (Jan. 1968), pp. 297-313.

Nelson, Joan M. "Sojourners versus new urbanites: Causes and consequences of temporary versus permanent migration in developing countries." Economic Development and Cultural Change, Vol. 24, pp. 721-757.

Okun, Bernard and Richardson, Harry. "Regional income inequality and internal population migration." Economic Development and Cultural Change, Vol. 9 (1961), pp. 128-143.

Olvey, Lee. "Regional growth and interregional migration--their pattern and interaction." Regional Studies, II (Winter, 1972), pp. 139-158.

Pack, Howard. "Unemployment and income distribution in Kenya." Economic Development and Cultural Change, Vol. 26 (1977, 1978), pp. 157-168.

Pindyck, Robert S., and Rubenfeld, Daniel L. Economic Models and Economic Forecasts. 2nd Edition. New York: McGraw-Hill Book Company, 1971.

Plane, David A. "An information theoretic approach to the estimation of migration flows." Regional Science, Vol. 22 (1982), pp. 441-45.

Ralph, E., Beals, Mildred B. Levy, and Moses, Leon N. "Rationality and Migration in Ghana." Review of Economics and Statistics, Vol. 49 (Nov. 1961), pp. 480-486.

Rempel, Henry. "Labour migration into urban centers and urban unemployment in Kenya." (Unpublished dissertation, University of Wisconsin, 1971.)

Richardson, Harry W. "An urban development strategy for Kenya." The Journal of Development Areas, 15 (Oct. 1980), pp. 97-118.

_____. "Growth centers, rural development and national urban policy: A defense." International Regional Science Review, Vol. 3, No. 2 (1978), pp. 133-152.

Riew, John. "Migration and public policy." Journal of Regional Science, Vol. 13, No. 1 (1973), pp. 65-76.

Rogers, Andrei. "A regression analysis of interregional migration in California." Review of Economics and Statistics, XLIX (May 1967), pp. 262-267.

_____. "Sources of urban population growth and urbanization, 1950-2000: A demographic accounting." Economic Development and Cultural Change, Vol. 3- (Oct 1981/July 1982), pp. 483-506.

Sahota, Gian. "An economic analysis of internal migration in Brazil." Journal of Political Economy, 76 (March/April 1968), pp. 216-245.

Schwartz, Aba. "Interpreting the effect of distance on migration." Journal of Political Economy, 81, 5 (1973), pp. 1153-1169.

_____. "Migration, age, and education." Journal of Political Economy, 84 (1976), pp. 701-719.

Schultz, Paul. "Lifetime migration within educational strata in Venezuela: Estimates of a logistic model." Economic Development and Cultural Change, Vol. 30 (Oct. 1981 - July 1982), p. 595.

_____. "Rural-urban migration in Colombia." Review of Economics and Statistics, Vol. 53 (1971), pp. 157-163.

Sjaastad, Larry. "The costs and returns of human migration." Journal of Political Economy (1962), pp. 80-93.

_____. "The relationship between migration and income in the U.S." Papers and Proceedings of the Regional Science Association, 1960, pp. 37-64.

Terzo, Frederick C. "Urbanization in the Developing Countries: The response of international assistance." International Urbanization Survey, The Ford Foundation, 1972.

Totoli, A. O. "An economic analysis of internal migration in the Libyan Arab Republic." (Unpublished doctoral dissertation, Oklahoma State University, Stillwater, 1976.)

Todaro, Michael. "Income expectations, rural-urban migration and employment in Africa." International Labour Review 104 (Nov. 1971), pp. 387-413.

_____. "A model of labour migration and urban unemployment in less developed countries." American Economic Review, LIX (March 1969), pp. 138-148.

Trott, Charles. "Differential responses in the decision to migrate." Regional Science Association Papers, Vol. 28 (1956), pp. 203-219.

VanderKamp, John. "Migration flows, their determinants and the effects of return migration." Journal of Political Economy, Vol. 79 (1971/2), pp. 1012-1103.

Waydcki, W. J. "Alternative opportunities and interstate migration: Some additional results." Review of Economics and Statistics, 56 (May, 1974), pp. 254-257.

Williamson, G. Jeffrey and Rogers, Andrei. "Migration, urbanization and Third World developing countries." Economic Development and Cultrual Change, Vol. 30 (Oct. 1981/July 1982), pp. 463-482.

World Bank. Population and Development: Kenya. Washington, D.C.: The World Bank, 1980.

Wrage, Peter. "The effect of internal migration on regional wage and unemployment disparity in Canada." Journal of Regional Science, Vol. 20, No. 1 (1981), pp. 51-63.

Yab, Y. L. "The attraction of cities: A review of the migration literature." Journal of Development Economics, 4 (1977), pp.

Yotopoulos, Pan A. and Nugent, Jeffrey B. Migration, Economics of Development Empirical Investigations. New York: Harper and Row, 1976.

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