

MIGRATION AND FERTILITY IN A RURAL AREA OF KENYA:

The Case of North-Western Machakos District.

by

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A thesis submitted in part fulfilment for the degree
of Master of Arts in the University of Nairobi.

February 1980

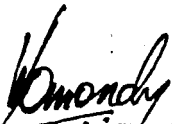
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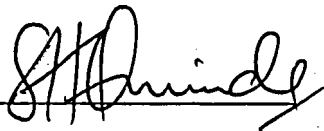


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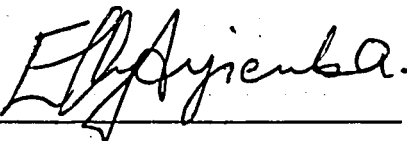
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ABSTRACT

This thesis is based on data collected from a sample survey conducted in north-western Machakos district between April and May 1978 for a multi-disciplinary, longitudinal population based study project of the Medical Research Centre, Nairobi. A one-in-three systematic sample was drawn (from a universe of 7,238 females aged 15 years and over), and 1,463 of them were interviewed. The survey, representing 20.2% of the entire female population in the 'Joint Project Machakos' study area as on February 1978, attempts to investigate the relation of migration to fertility and to examine the influence of several selected demographic and socio-economic factors on this relationship. It, further, examines the possible role of return migrants from urban places as agents of social change in the study area.

Migration status was defined in terms of birthplace data cross-tabulated with place-of-last-residence statistics, and then divided into three groups, namely, non-migrants, rural in-migrants and urban in-migrants. Fertility, on the other hand, was simply defined as the average number of children ever born to a respondent.

The analysis indicated that there was little variation in fertility between the migration categories, even when controls for age and the intervening demographic and socio-economic factors that affect this relationship, were introduced. Apart from a strong case of marital status influencing fertility and migration status, it was found that the polygynously married women had virtually the same number of children ever born as their monogamously married counterparts. Further, whereas age at first marriage was inversely related to fertility, the in-migrants who tended to marry late, had slightly fewer children compared with their non-migrant counterparts who married early. Moreover, this difference was statistically not significant.

Similarly, the data amply demonstrated that migration and fertility in the context of this study, were definitely not related even when controls for age, education, labour force status and practice of modern contraception, were introduced. Particularly noteworthy, was the fact that, although the urban in-migrants registered the highest levels of education, participation in cash employment, practice of modern contraception, coupled with a late age at first marriage, their fertility did not differ significantly from those of their rural in-migrant and non-migrant

counterparts. These percentage differentials, in all likelihood, suggested that selectivity was in operation. But whether this selection drew only those who had failed to adjust to the urban way of life, or those who could not stay in urban places long enough to absorb the urban values, or those simply frustrated, calls for much more thought and intensive investigation using more samples. Certainly, despite the existence of a considerable volume of circulatory movements between the study area and urban places, there is no reason to believe that these return migrants in decades ahead, will promote social change nor transmit the knowledge, attitude and personal behaviour associated with low fertility from the urban places to the study area.

It is concluded that the present generalizations as to the direction of the influence of migration on fertility, are preliminary and should be submitted to closer scrutiny with additional data in the future. Other ethnic groups should also be studied particularly as comparative data would render such analyses more fruitful. Finally, inferences from this study to larger geographic domains, must be made cautiously.

ACKNOWLEDGEMENTS

A great many individuals, assisted me in many ways to take this study to its logical conclusion. I now take this opportunity to acknowledge them all for the help, suggestions, comments, criticisms, encouragement, guidance, moral and financial support, without which, this study would never have been completed.

Firstly, I am deeply indebted to the Medical Research Centre, Nairobi, (MCN), who, not only offered me a job (my first job) as a junior research fellow, but also awarded me a post-graduate scholarship to study for an M.A. degree at the department of Geography, University of Nairobi, immediately after I had completed my undergraduate studies at the same university. The Centre was, equally, helpful to me in terms of the funds and the manpower it provided without which this study would not have been possible. At this juncture, I would like to convey my sincere thanks to Dr. A.S. Muller, then the project leader, "Joint Project Machakos" (JPM) and head of Epidemiology department at the Centre, and, currently, the director, department of Tropical Hygiene, Royal Tropical Institute of Amsterdam, The Netherlands, for the

role he, successfully, played in introducing me to the field of research work. The idea of studying the influence of migration on fertility in the JPM study area, was, actually, his brainchild.

I would also like to express my esteem sincere gratitude to my colleagues in the JPM Supervisory Committee, (MCN), particularly, Dr. J. Van Ginneken, the project leader, JPM, and head of Epidemiology department, for his personal interest in the study and, above all, for, thoroughly, reading through the drafts of all Chapters of this thesis. Throughout this study, I was most fortunate to have received assistance in solving statistical problems. Special debt of appreciation must, therefore go to Mr. W.T. 't Mannetje, statistician, MCN, for his valued counsel at many stages of the research on which this thesis is based, for the generosity he extended in advising me on statistics and for the pain he took in writing my numerous computer programmes.

This study, further, benefited from invaluable intellectual boost from my supervisors and tutors whose contribution I now have the pleasure to acknowledge. To Prof. S.H. Ominde, director, Population Studies and Research Institute, (PSRI), University of Nairobi, I owe a major debt of gratitude

for his inspiration, excellent advice and fatherly encouragement. Prof. R.A. Henin's (visiting professor, PSRI) often thought provoking remarks, constrictive criticism and sustained interest in the study, deserve special thanks. I am also grateful to Mr. E.H.O. Ayiemba, lecturer, department of Geography, University of Nairobi, for his constant attention, stimulating criticisms and suggestions which contributed to the success of this study. In addition, my thanks are also due to Prof. D. Sly (visiting professor, PSRI) for his stimulating suggestions and recommendations during the initial stages of this study. To Prof. F. Mott (visiting professor, PSRI) must follow many thanks for all the time spent in the discussions of the various Chapters of this thesis, and above all, his assistance with making this thesis readable.

The catalyst role played by my father Mr. S. Odhiambo-Murondo my mother Bibiana Orua and our family friend for many years, Mrs. Margaret Macpherson, lecturer, department of Literature, Makerere University, Kampala, are warmly commended. The co-operation, friendliness and hospitality of the population of Matungulu and Mbiuni locations, are, whole-heartedly, acknowledged. Similar thanks must go to the field staff of MCN who helped with

the collection of data in the field. I am, also, greatly, indebted to Mrs. Sophia Gathecha for her patience in typing the first draft of this thesis in addition to her usually many other duties as the JPM secretary. To Mrs. Maria Nyawade, I owe a major debt of gratitude for the excellent typing of the final draft of this thesis.

There were many other individuals, too numerous to mention, for whose assistance in many ways, I am most thankful. Of course, the views and opinions expressed in this thesis, plus all the shortcomings in the interpretations and any other deficiencies, are, solely, my own responsibility.

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CHAPTER I

INTRODUCTION

1. INTRODUCTION.

1.1 Introductory Remarks:

The interrelationship between migration and fertility, has in recent years, emerged as a topic of considerable research importance. The magnitude of this concern stems from the fact that from various studies conducted on this topic in different countries like the United States, Puerto Rico, Chile, Mexico, Brazil, India, Thailand, the Philippines and others, it has been reported that fertility of migrants often differ markedly from that of the non-migrant population (Macisco and Myers, 1975). Yet it is premature to assume that migration, *per se*, influences fertility since migration can also be selective of certain fertility levels. These findings have called for demographers and social scientists, alike, to search into the causation of these differentials, "how they are modified overtime and, lastly, to examine the dynamics of changing fertility of migrants and the factors that may explain them" (Ibid., p. 111).

Most, if not all, studies on fertility of migrant and non-migrant groups of women have tended to be concentrated in urban areas for reasons of practicality and because of the great importance attached to the role of urbanization as a factor of demographic, social and economic change (Zarate and

Zarate, 1975). Unfortunately, not much attention has been paid to the impact and consequences of migration and fertility in a rural milieu. Two types of streams are particularly relevant in this respect, namely, the urban to rural and the rural to rural migration streams. Assuming that the individuals who comprise the former stream had successful orientation in the urban areas, then one may presuppose that their movements back to their communities of origin, may have the potential of spreading urban values, ideas, customs and pattern of behaviour. But this is only possible through a significant number of individuals involved. Such return movements may have particular relevance for fertility if only those individuals involved were exposed for long periods to the "urban culture", thence, assimilating the low fertility norms characterizing urban places and diffusing these norms to the rural places to which they move. The difficulties of studying and testing this "carry-over" of low fertility hypothesis, from urban to rural areas, are formidable (as demonstrated in Chapters V and VI), but, nevertheless, crucial for the migrant-non-migrant comparison. On the other hand, the migrants from rural to rural places may, also, possess a certain interesting fertility behaviour that would be worth studying in relation to the urban-rural migration stream.

A systematic study of the determinants of fertility differentials, (which have their origin in the current modernization process in Africa), as related to migrant and non-migrant population segments, and their underlying consequences and implications, are not only vital to policy-makers and scholars alike, but would provide some clue useful in drawing inferences regarding actual and prospective fertility change.

1.2 The Study Area : An Overview:

1.2.1 'Joint Project Machakos':

The Medical Research Centre, Nairobi, (MCN), a department of the Royal Tropical Institute in Amsterdam, the Netherlands, operates a medical field project in the Northern division of Machakos district known as the "Joint Project Machakos" (JPM) whose primary aim is to contribute to the knowledge of the health situation of the people of Kenya and the factors determining it in order to contribute in developing alternative solutions to the existing and newly discovered health problems (Muller and Kleevens, 1973). The objectives of this multi-disciplinary, longitudinal population based study project, have been summarized elsewhere by Muller et.al. (1977).

Since the inception of the project in late 1972, and field operations in November 1973, a wealth of data has been, and is still being collected on the basis of fortnightly house-to-house canvasser method. A number of non-medical researches over these years, have also been attracted into the project out of the realization that the observed disease patterns may be caused by non-medical factors (Mburu, 1973; Onchere, 1976; Maina, 1977). Given that JPM is a population-based study project, demography, for instance, has been an integral part of the project and has provided the infrastructure for all medical and non-medical activities currently being pursued in the area. Consequently, enormous data on demographic information, especially vital statistics (births and deaths), mobility and non-mobility statuses of the population, have been collected and reports produced (Blok, 1975; Omondi, 1977a; Omondi, 1977b; Blok, 1978; Van Ginneken et.al., 1979; Voohoeve et.al., 1979, Van Ginneken and Omondi, 1979), although the bulk of this data still awaits proper analysis.

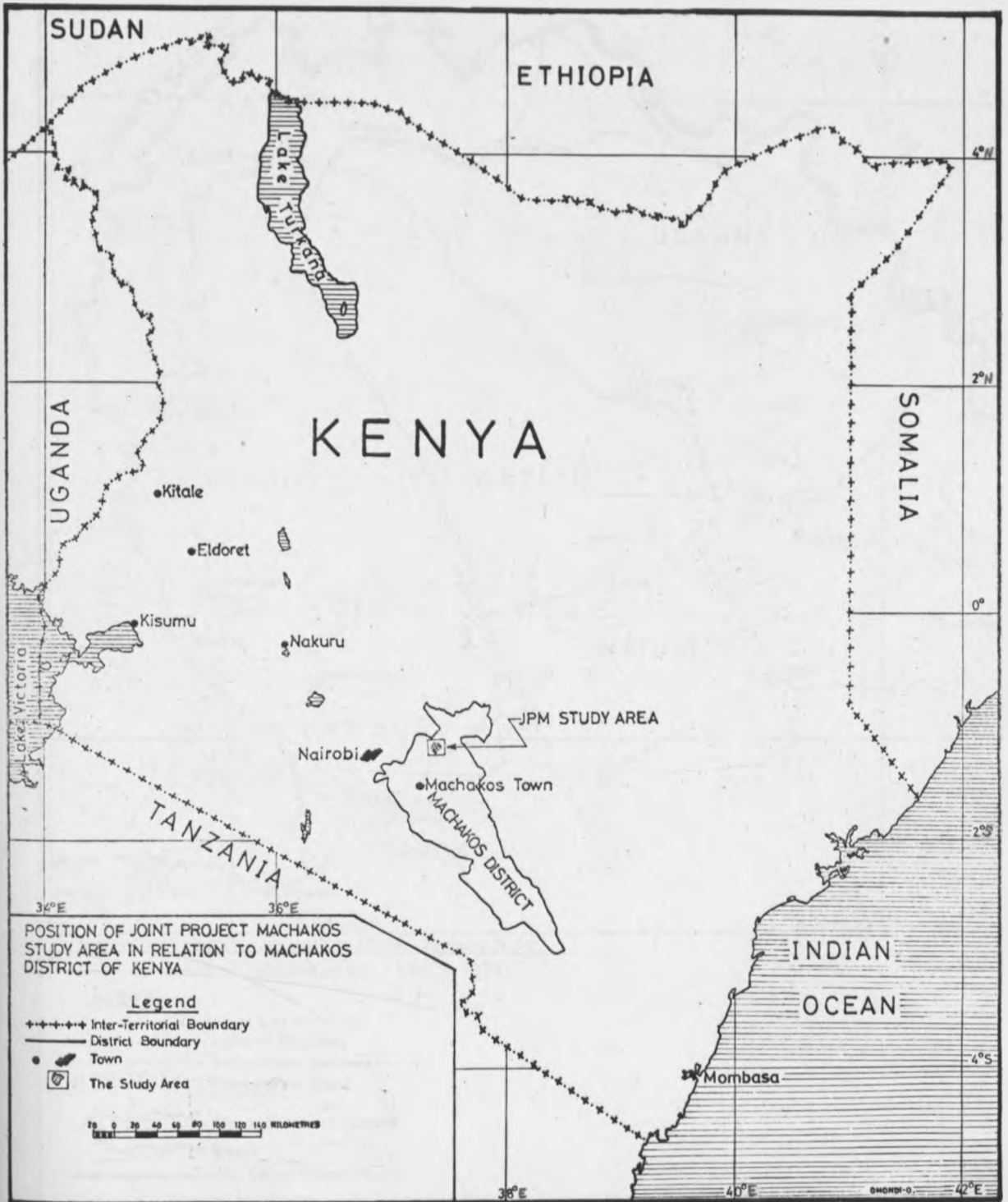
1.2.2 Location and Size:

The JPM study area, occupying the north-western part of Machakos district in Eastern province, Kenya, is approximately 80 kilometres east-north-east of Nairobi and covers about 87 square kilometres within latitude $1^{\circ} 10'$ South and $1^{\circ} 15'$ South of the

Equator and longitude 37° 20' East and 37° 25' East of the Greenwich (see Maps 1.1 and 1.2). The area comprises parts of Matungulu and Mbiuni locations in the Northern division of the district locally known as "Masaku". These two locations are roughly bisected by Kanzalu range, a physical barrier, with Matungulu to the west consisting of three sub-locations, namely, Kambusu, Kingoti and Katheka, and Mbiuni to the east with Katitu and Ulaani sub-locations (see Maps 1.2 and 1.3).

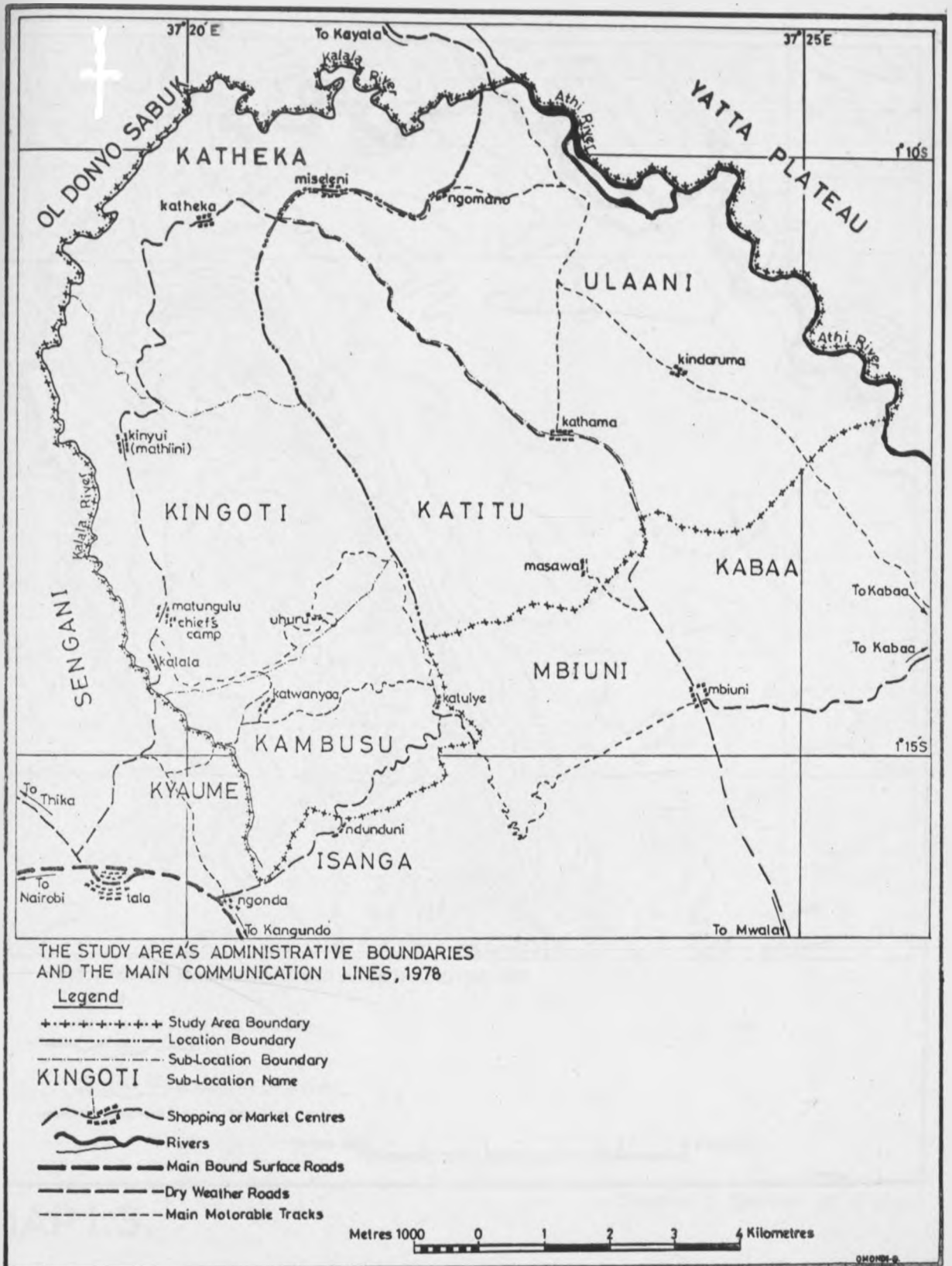
1.2.3 Historical Background of the Population:

The Akamba population, a Bantu linguistic group inhabiting Machakos and Kitui districts of Kenya, have been highly mobile since the time of their early settlement, undertaking extremely complex, often lengthy and sometimes drastic migrations. Some theories attempting to speculate on their origin, have been advanced by numerous scholars (Middleton and Kershaw, 1965; Hobley, 1971; Ndeti, 1972) and need not to be repeated here. Oral traditions of the Akamba themselves as well as the traditions of many other peoples scattered throughout East Africa, indicate that, originally, they were a pastoral and widely dispersed people (Lamphear, 1970). Oral tradition, further, asserts that



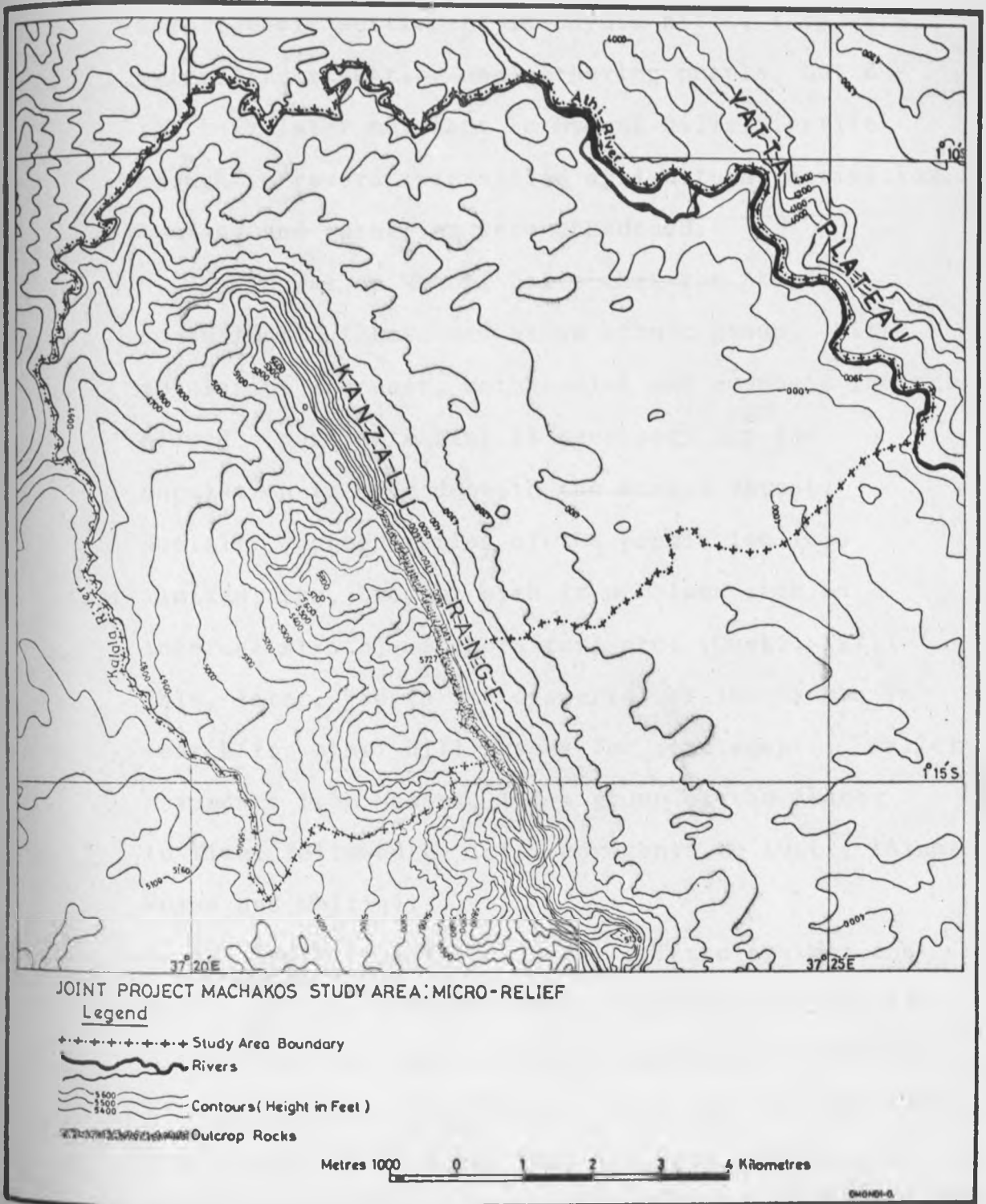
MAP I.I.

Source : Survey of Kenya



Source : Survey of Kenya

MAP I.2.



MAP I.3.

Source : Survey of Kenya

before their settlement in Chyulu hills, they were, primarily, a hunting and gathering people, but due to their later movement to Mbooni hills, fertile enough to reward intensified agricultural activities, hunting and gathering were abandoned.

It was on Mbooni hills that the Akamba consolidated themselves as an ethnic group. With population increase, both social and economic factors played a part in making it necessary for the population to move despite the Maasai threat. Socially, concentration of the population in a limited area, brought with it problems such as internal strife, witchcraftcy, etc. (Owako, 1971). This, later, led to the dispersal of the Akamba in search for other hill masses for settlement. Earlier movements from Mbooni, led a group of the Akamba to Kitui followed by later movements to Iveti, Kalama, Mukaa and Mbitini.

Apart from the need for defence against the Maasai threat, famine played a significant role in dispersing the Akamba. From historical information since the time of Dr. Johann Krapf and from the Akamba traditions, it is clear that the people of this region have suffered from periods of famine to a greater degree than any other people in this country (Kimambo, 1970). Repeated periods of drought and famine led to widespread and drastic movements towards the Kenyan coast and central Tanzania.

With the advent of the British rule, the Maasai threat was reduced and the Akamba slowly drifted to the, hitherto, sparsely settled lowlands and plains which offered better grazing grounds than the hills. However, most of the plains and the northern parts of the district, (including the JPM study area), did not become thickly populated until long after the arrival of the British. This was initially noted by Johnston of the African Inland Mission Station, who pointed out how by 1899, when a Mission station was established at Kangundo, there were hardly any people in Matungulu location to the north, yet by 1932, there were about 13,938 people there (Owako, 1971, p. 182). With drought and famine plus a wealth of other ecological, social and economic factors still preponderate within the Akamba environment, internal movements in search for cultivation and grazing land, continued in all directions of Machakos district and these movements, though to a lesser extent reduced in magnitude, still continue to the present day.

1.2.4 Physiographic and Population Geography:

Machakos district has been known in Kenya as a "Problem District". The earliest problems to attract the attention of the Colonial Government, were those of overstocking, soil erosion, and later,

overpopulation. These pressing environmental problems have been responsible for creating population imbalances throughout the district. Acute shortage of land, reflecting a population density, a high priority with regard to individual ownership of land, the rapidity with which land deteriorated, (characteristics of Matungulu environment), lack of surface water, deterioration of pasture, poor quality of land (Mbiuni environment) (Owako, 1971, p. 188), plus a wealth of other environmental and economic factors, have continuously triggered the Akamba to look for land elsewhere.

In the entire district, population pressure fluctuates from the favoured heavily concentrated hill masses, offering fertile agricultural grounds and abundant rainfall, to the virtually unpopulated tsetse-infested dry plains. However an attempt to relate the above mentioned factors to population growth and distribution particularly in the five sub-location of the designated study area, is hampered by lack of adequate and reliable data on population counts. The only recent and reliable sources of data available are from the 1962 and 1969 population censuses (Kenya, 1964; Kenya, 1970).

In Table 1.1 is presented a breakdown of the annual population growth rates and density per square kilometre in the five sub-locations of the study area as compiled from the two population censuses (1962

TABLE 1.1: ANNUAL POPULATION GROWTH RATES (IN %) AND DENSITY PER SQUARE KILOMETRE IN THE STUDY AREA BETWEEN 1962 AND 1978 ON A DE FACTO BASIS.

LOCATIONS AND SUB-LOCATIONS	AREA IN KM ²	1 9 6 2 [*]		1 9 6 9 ^{**}			1 9 7 8 ^{***}		
		POPULATION SIZE	DENSITY (inh/km ²)	POPULATION SIZE	GROWTH RATE PER ANNUM 1962-69	DENSITY (inh/km ²)	POPULATION SIZE	GROWTH RATE PER ANNUM 1969-78	DENSITY (inh/km ²)
Matungulu									
Kingoti	17	6,185	364	5,998	-0.4	353	7,956	3.2	468
Kambusu	8	4,309	539	4,544	0.8	568	5,688	2.5	711
Katheka	15	1,771	118	1,803	0.3	120	2,060	1.5	137
Mbiuni									
Ulaani	29	3,227	111	3,308	0.4	114	3,850	1.5	133
Kalitu	18	2,538	141	2,691	0.8	150	2,993	1.2	166

$$\text{Growth Rate} = \frac{\log P_2 - \log P_1}{n}$$

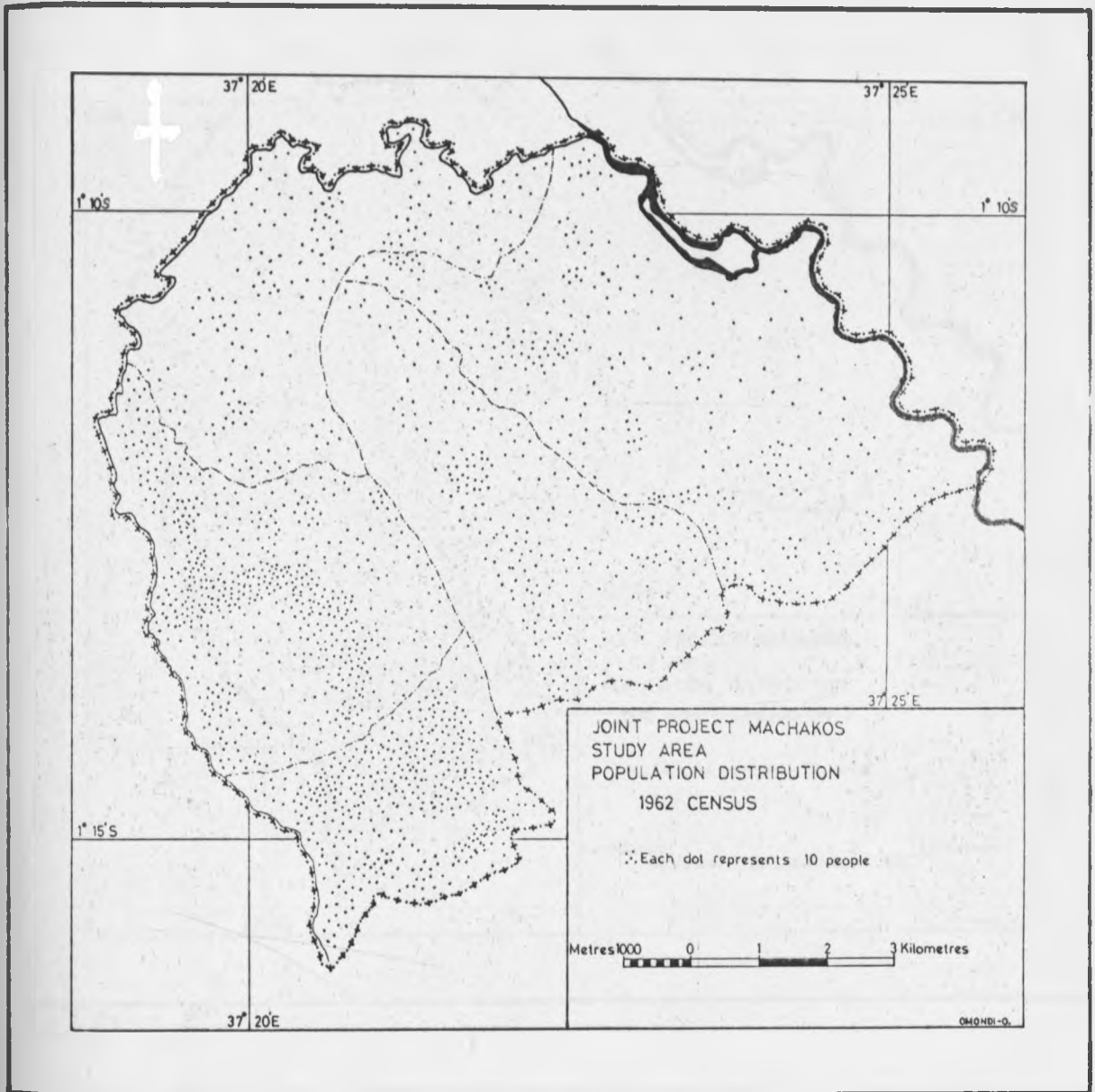
$$\text{Population Density} = \frac{\text{Population Size}}{\text{Area in km}^2}$$

Sources:

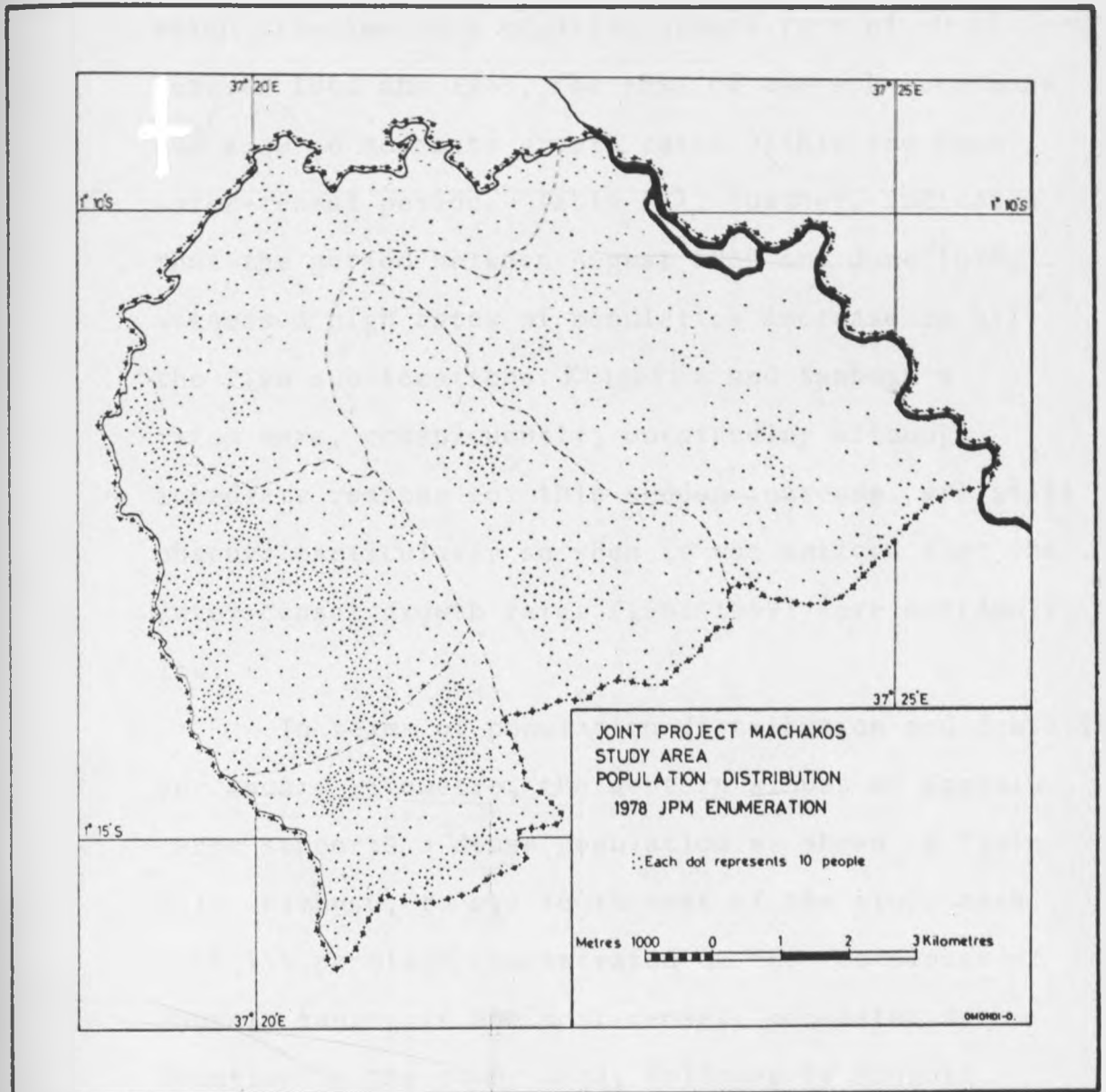
*Kenya Population Census, 1962, Vol. I, p. 109.

**Kenya Population Census, 1969, Vol. I, p. 32.

***JPM Demographic Surveillance Sheet No. 20, 30th June, 1978.



MAP I.4.



MAP 1.5.

and 1969) and from the JPM demographic surveillance sheet No. 20 of June 1978. Except for Kingoti, which experienced a negative growth rate of -0.4% between 1962 and 1969, the rest of the sub-locations had slow to moderate growth rates within the same inter-censal period. Table 1.1, further, indicates that the period between August 1969 and June 1978, witnessed high rates of population increase in all the five sub-locations. Kingoti's and Kambusu's rates were, conspicuously, outstanding although immediate reasons for this sudden increase, are still obscure particularly so when it was noticed that the inter-censal growth rates (1962-1969) were extremely low.

In terms of population distribution and densities per square kilometre, the western slopes of Kanzalu range supports a dense population as shown in Table 1.1. Kambusu, to the south-west of the study area with its populace concentrated on the footslopes of Kanzalu range, is the most densely populated sub-location in the study area, followed by Kingoti, similarly to the west of the range (see Maps 1.4 and 1.5).

The disparity between the eastern and western sides of Kanzalu range in the study area, are indicative of the similar physical and ecological characteristics which prevail in the entire Machakos district,

and, further, reflects the extent to which migration could be related to the environmental potentialities and hazards.

1.2.5 Summary:

The ongoing discussion on both the historical background and the physiographic and population geography of Machakos district, in general, and the designated study area, in particular, has indicated that, largely, due to the ecological hazards and the related population instability within the Machakos environment, the Akamba, time and again, were subjected to drifting from one place to another in search for "open breathing spaces" and freedom. This propensity to search for spacious and unoccupied territories, is the root cause of the recent internal and external movements, to be viewed in Chapter IV. Secondly, the discussion also draws our attention to the fact that, migration should be considered as a historically conditioned social phenomenon. This is to say that each society must be understood in terms of its own historical experience and the socio-cultural matrix within which they live. Such is the bondage that knits the society to give it pride, identity and tradition. It is this tradition which, to a large extent, determines the behaviour of the migrants and non-migrants wherever they may be found and also

influences their fertility. In brief, a collective and cumulative understanding of the relationship between migration and fertility, must be built and examined against such an intricate account of the historical, physiographic and population geography of an area.

1.3 Statement of the Problem:

The problem of increased numbers has, for some time now, not only been a drawback to regional and urban planning, but has drastically overstrained the limited financial resources available in the developing countries for improving living conditions (Ghansah, 1971). Yet an abrupt fertility decline through family planning measures, is not to be expected; perhaps the most effective way of lowering the current high population growth rates in the developing world is through economic growth and development in the rural areas which would change the traditional socio-economic and cultural incentives necessitating large families. As spelt out in Kenya's third Five-Year Development Plan, 1974 - 1978, the fundamental objective of the Plan and the government's key strategy, is to improve the overall standard of rural life, where nearly ninety per cent of the nation's population still live, by promoting rural welfare through such amenities as housing,

electricity, piped water and marketing centres. The ultimate goal is to control the current high rate of population growth estimated at approximately 3.5% per annum* (Kenya, 1974).

In spite of differences of opinion about the specific causes of the movement to control fertility at a low level and the conditions which may be necessary for it to get underway, it is generally agreed that progress in social and economic development and associated progress resulting from modernization, is conducive to this movement (United Nations, 1975). In many of the developed countries, for instance, the achievement of the low level of fertility, seem to have occurred simultaneously with the maintenance of high levels of migration (Goldstein, 1976). Although continued rural to urban migration in the third world often creates a dualism in the cities, which tend to perpetuate many of the values, traditions and activities associated with rural style of living, it is postulated that increased population interchanges and contacts between urban and rural places, may underscore the potential role of migration in producing greater homogenization and modernization in the developing areas.

* About 3.9% at the time this thesis was submitted.

Within this general context, one may indeed ask whether migration has possibly already played a key role within the developed world in the homogenization of fertility values and behaviour, and whether in the decades to come, migration may also act as an agent of fertility change in the developing countries, as migrants from urban centres bring with them to the rural areas, knowledge, attitude and personal behaviour associated with low fertility as part of other urban values and behaviour traits (Zarate and Zarate, 1975).

Taken together, the close interrelation between migration and other demographic and social aspects of behaviour, conducive to lowering fertility, argue for a continued monitoring of the event in relation to nuptiality and reproduction patterns. Although such a documentation would provide a unique opportunity for a multi-disciplinary research, especially when pursued within the broader context of modernization, few researchers particularly in Africa, have made minimal attempts to move towards this direction. Information collected through this kind of documentation, to a large extent, relates to the complex study of migration and fertility which, in itself, calls for an adequate and methodical descriptive and analytical treatment. It is therefore essential to recognize the fact that, a proper understanding and full evaluation of the relationship

between migration and fertility, requires the identification and classification of several factors, if a comprehensive and systematic framework of analysis of differentials, is to be attained. In this way, migration in relation to fertility would constitute a very important demographic indicator on which more detailed information would be required in order to evolve an efficient and effective policy for the future.

1.4 Basic Concepts and Definitions:

The term study population is, hereafter, defined as that population composed of females aged 15 years and above as of February 1978 and who, as par that date, were living in the study area and were interviewed. This population should be distinguished from the study area population which comprises all individuals, children and adults alike, registered under the JPM surveillance system.

In this thesis, the terms Migration and Mobility are used synonymously to refer to spatial, physical and geographical movement. Migration has various shades of meanings. Most commonly, it is considered to involve a movement of some distance, which results in a change of permanent residence (Trewartha, 1969). For the purposes of this thesis, Migration is defined as a form of geographical mobility between one

geographical unit and another, generally involving a change of residence from the place of origin or place of departure, to the place of destination or arrival (United Nations, 1958). Brief excursions for visits, vacation, or business, daily commuting to and from the place of work, to name only a few, are temporary and do not constitute a change in the place of usual residence and are, therefore, excluded from the definition.

Be that as it may, a migrant, in this thesis, is a female who has made one or more movements thereby changing her usual place of residence and residing either in or outside the territorially defined study area for six or more months since the age of 15 years. A non-migrant, on the other hand, is a female born in the study area and, since the age of 15 years, has not undertaken any movement lasting six or more months. One factor that should be considered here is that, movements made during childhood, as a result of those made by adults, are, not included here.

Migrants into the territorially defined study area have been classified into two groups, namely, urban in-migrants and rural in-migrants. The former are females who enter the study area by crossing its boundary from urban areas, (population 2,000 and

more), - their places of last residence -, and who lived there for six or more months. The latter are females who departed from rural areas, (population below 2,000), having lived there for six or more months and, at the time of the interview, were living in the study area.

It is important to note here that, in this study, the terms "rural" and "urban" have the same connotations as was the case in the 1969 Kenya Population Census nine years ago. Rural background in this case is, hereafter, defined as former residence milieu with less than 2,000 and scattered population while urban background relates to former residence milieu with 2,000 or more inhabitants. This cut-off point is adopted for the purposes of delimiting rural and urban population settlements in Kenya to facilitate comparison with the definitions of population settlements as laid down in the 1948, 1962 and 1969 Kenya Population Censuses (Blacker, 1965; Kenya, 1971a; Kenya, 1971b; Blacker, 1972; Ominde, 1975b).

All the females, aged 15 years and above, departing from the study area by crossing its boundary to a point outside it, will be referred to as out-migrants.

The term fertility is employed in this thesis to refer to the reproductive patterns of a population

in the broadest sense. In the present context, the term will be restricted to live births only as recommended by the World Health Organization (1950), the United Nations (1953; 1954) and the United States Health Service (1977).

Systems of classifying the population by marital status, vary from country to country in accordance with prevailing marriage laws and customs (Shryock and Siegel, 1973). An attempt to classify a population by the four conventionally accepted western categories - single, married, widowed and divorced or separated - in Africa, is hampered by complex definitional problems which have been expressed elsewhere (Van de Walle, 1965).

In this thesis, three categories of marital statuses were used, namely, never-married, presently-married and presently-not-married. The term never-married is preferred to "single" to relate to all females aged 15 years and above at the time of interview who have never contracted a marriage in their lifetime. This preference stems from the fact that, from past experience and under field conditions, it has usually been a common practice for young women to misreport their marital status. For instance, females who have once been married and later divorced, frequently report themselves as "single" particularly

when they are enumerated in their parental homes. Such biases in reporting, have also been encountered elsewhere (Jamison and Akers, 1968). The category presently-married comprises all the females aged 15 years and above who, at the time of the interviews, were married. This category takes into account the number of marriages contracted and the type of marital union, or both as reported by the female respondent. The presently-not-married, category comprises all women who reported themselves being permanently separated by either informal separation or by divorce from their spouses and were, therefore, not in marriage when interviewed. Also inclusive, are all women whose spouses were dead at the time of interview and had not remarried. The term ever-married will, occasionally, be used in this thesis to refer, in general, to all women who have ever contracted a marriage in their lifetime. This includes the presently-married, and presently-not-married women as on interview date.

In this thesis, as a measure of Education, information was collected on the highest level of education achieved by a respondent, and if presently-married, information pertaining to the husband's educational attainment, was also collected. The majority of the respondents, had only achieved a primary level of education, that is, seven years of

schooling or less. A few had secondary education, (that is, between eight and eleven years of schooling), and none went beyond eleven years of schooling. Because of the small number of respondents with secondary and above levels of education, it was, therefore, decided that the levels of education be classified into two groups, namely, those with no formal education (who never went to school), referred to as the 'No Education' group, and those with formal education, referred to as the 'Primary and above Education' group. The latter group comprises all the respondents with primary and secondary levels of education combined.

The term Labour Force Participation is used, in the context of this thesis, to refer, specifically, to the females aged 15 years and above, regardless of their marital status, who were or had been in salaried gainful part-time or full-time employment, irrespective of the number of years involved. All those women who worked their plots ('shambas') or indulged in any other occupation as a usual and daily routine without any financial reward, were excluded. The number of years a woman actively participated in cash employment, were monitored and, if presently-married, the husband's work history, was also registered. The original intention, was to group the respondents in accordance with the number of

years of active participation in the monetary labour force. On realizing that the number of cases per cell, were too small for any confident interpretation, it was, therefore, decided that participation in the labour force, be classified into two groups, namely, the 'Never Participated' and the 'Participated'. The former group comprised all women who had never been engaged in cash employment, while the latter group consisted of women who worked or were currently working for a wage or a salary, irrespective of the years involved. However, we have to remind ourselves of the fact that, to use the number of years in monetary labour force as the only measure of economic activity, is probably too gross an index for testing the relationship between economic or employment status, and fertility by migration status. At this juncture, it is worth pointing out that the concept of employment, under-employment and un-employment, is perhaps one of the more difficult concepts to define and classify under field conditions within a rural setting.

Husband-Wife Physical Separation denotes a separation of a married couple caused by migration of married men unaccompanied by their wives. The purpose of collecting this information, was to measure the possible impact of temporary separation between husband and wife on fertility. It is,

furthermore, anticipated that constant absence of the husband from home, as the couple separate during parts of a year for long or short intervals, may contribute to low coital frequency and, therefore, low fertility. In this study, the presently-married women were asked "does your husband normally live in this household?", and the answers recorded in accordance with the frequency of the husband's home-visits, if temporarily living away from home. The visits varied from once a month to only once or none in a year. Due to the unsatisfactory distribution of these visits by the husband's, it was, therefore, decided that only two categories would be used in the analysis, namely, the "husband usually away from home" and the "husband always present at home". The former category comprises all the husbands reported to be living outside home, irrespective of the number of home-visits ever made, while the latter category consists of all the husbands living in their homes in the study area.

The survey questionnaire was also designed to elicit information pertaining to the Knowledge and Practice of Modern Contraception. All the respondents, in the reproductive ages 15 to 44 in the study, were asked whether they had heard of or had ever practiced or were currently practicing modern contraception. In this thesis, the responses were classified in accordance with the order given above, that is, "Not

Heard of", "Heard of but Never Practiced" and "Ever or Currently Practicing" modern contraception. It should be added here that the respondents classified under "Heard of but Never Practiced" category, comprised all women who were only aware of the existence of modern contraception as a method of reducing or "controlling" family size, but had no idea of how a technology of this kind could be employed to "control" fertility. This group constituted the majority of the respondents in the category. On the other hand, there was also a minority group in the category who had the knowledge of what modern contraception was all about and what it stood for, but had never tried out any method. There are possibilities that some of the women who were aware of modern contraception, actually had the knowledge of the practice and even used a method before, but did not want to say so to avoid possible embarrassment.

Outline of Chapters:

Chapter two reviews some research work on the subject of migration and fertility conducted in the developed and developing countries. Literature on African experience on this subject, though scarce, are also cited with a bias towards their theoretical

orientation particularly where return migrations and their underlying consequences are concerned. The practical relevance of such movements to the subject matter, migration and fertility, are explored.

Chapter three spells out the research objectives, assumptions and hypotheses as well as outlining the methodological frame used to accomplish this study. Special attention is given to the sampling technique employed, data collection and processing mechanisms and some of the problems encountered during enumeration.

Chapter four classifies the enumerated population into three migration categories, namely, the non-migrants, rural in-migrants and urban in-migrants. A brief discussion of the migration patterns into and out of the designated study area, is also afforded.

Chapter five dwells on migration and fertility with an aim of comparing the fertility levels of the in-migrants to those of the non-migrants. Two research hypotheses, are tested.

Chapter six relates migration and fertility to selected demographic, socio-economic and other factors. The *raison d'être* of this Chapter is to attempt an explanation of the possible difference in fertility, (if any), between the migration categories bearing in mind that migration and

fertility could be related to peculiar characteristics which act as intervening variables in determining fertility levels by migration status.

The last Chapter, Chapter seven, summarizes the conclusions reached from the analyses and discusses, briefly, the 'carry-over' of low fertility norms and other 'urban values' to the study area.

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CHAPTER II

A SYNOPSIS OF PREVIOUS RESEARCH WORK
ON MIGRATION AND FERTILITY

2. A SYNOPSIS OF PREVIOUS RESEARCH WORK ON MIGRATION AND FERTILITY

2.1 Introductory Remarks:

Before an attempt is made to outline the objectives as well as the theoretical assumptions on which this study will proceed and statements regarding the hypotheses the study is to substantiate or refute, we shall first review the studies conducted by other researchers on migration and fertility.

Historically, the study of the fertility of migrants, (pioneered in the United States (Kiser, 1938 ; Thomas, 1938)), was intimately related, early in this century, to political issues and policy making needs. Migrants were identified as a target population for applied social programmes. The implication of differential fertility on the national population growth, the growth of urban centres and the general re-distribution of the population, received wide attention (Macisco and Myers, 1975). Since then, a substantial number of researches in the area of the relationship between migration and fertility, have been conducted and a comprehensive bibliography compiled (Myers and Macisco, 1975). These studies have tended to focus attention on the

"transmission" of high-fertility patterns by in-migrants from rural to urban areas and in this connection, several studies dealing with the fertility differentials in metropolitan cities by former residence background of the respondents, have been undertaken (Ritchey and Stokes, 1972). None of these studies has specifically touched on the return movements with an intention of examining the impact of such movements on fertility in the rural surroundings to which the migrants move.

Suffice it to say that, this Chapter assembles and carefully reviews the literature on studies and researches dealing with migrant-non-migrant fertility levels and differentials conducted in various countries like, the United States and Canada, Puerto Rico, Chile, Mexico, Brazil, India, Thailand, the Philippines and others. Investigations that specifically analyse the fertility of migrants and non-migrants in Africa of comparable magnitude as those of the countries mentioned above, are almost lacking. Yet it could safely be assumed that the relation of migration to fertility, operates in the same fashion in Africa as elsewhere although care needs to be taken in comparing findings in countries at markedly dissimilar stages of development.

Finally, an attempt will be made to discuss the relevance of return migrations to fertility in so

far as they could be associated with the "carry over" of low fertility patterns from urban to rural areas where the migrants move.

2.2 Studies in the United States and Canada:

As noted above, the first detailed analysis of migrant-non-migrant fertility levels and differentials was pioneered in the United States, and since then, considerable research work on this subject have been conducted in various parts of developed and developing countries.

Kiser (1938) studying white rural migrant women born in rural areas but who had moved to cities before marriage, and white non-migrant women of comparable age and social status in the cities, found no fertility differentials between the two groups. His findings did not therefore conform to the hypothesis that rural migrants have higher fertility than urban migrants and natives.

In his later study on the relation of residence and migration to fertility behaviour of couples living in metropolitan areas, Kiser (1959) (1961) (1963) points out that in most cases, the age specific fertility rates were lower for the migrants (either in-or out-migrants) than the non-migrants, despite younger ages of couples in the former than couples in the latter group. Besides this, there

was virtually no difference between the two groups with respect to educational attainment.

In separate studies, Kiser, et.al. (1968) in the United States and Long (1970) in Canada, arrived at the same conclusion as before, that fertility generally points to lower rates for migrants than non-migrants. Both analysed the fertility of interregional migrants, (region and not community of origin-destination), using the 1960 census data.

A new line of investigation was initiated by Goldberg (1959) when he examined socio-economic fertility differentials within migrant and non-migrant groups, regardless of the overall differences in fertility, in analysing data collected in Detroit during 1952-53. He delineated a group referred to as "two generation urbanites" by classifying older (wife 40 or more years) respondents by their father's occupation during their childhood, in order to study "urban" fertility. Their reproductive behaviour were compared to those of farm migrants and the findings were that, among the urbanites, socio-economic differentials were blurred, but among farm migrants, the expected inverse relationship, was quite distinct. Goldberg therefore suggested that "the inverse pattern that has always been found, can be attributed, primarily, to the fertility behaviour

of rural migrant families and their disproportionate representations in the lower status group" (pp. 216-217).

Next, Goldberg (1960) found no fertility differentials between migrants of rural and urban origin when analysing data collected 19 years previously in Indianapolis. This could quite well be due to the stringent eligibility requirements of the study resulting in the elimination of the highest fertility groups composed of Catholics, those married outside a large city and those with less than eight years of schooling.

The Growth of American Families Study conducted in 1955, provided data which were analysed by Freedman and Slesinger (1961) for two groups of people living in non-farm areas: indigenous non-farm couples and farm migrant couples. Whereas those who were currently living on farms, were excluded and direct information concerning size and characteristics of current residence, were missing, their analysis was not as clear-cut and comparable to that of Goldberg's (1960). They conclude, nevertheless, that when socio-economic status is measured by husband's income, the negative association disappears completely for the indigenous non-farm couples and becomes slightly positive. The pattern becomes more complex when status is measured

by wife's education.

Following the footsteps of Goldberg, Freedman and Slesinger, Duncan (1965), using data from the March 1962 Current Population Survey, had some interesting findings, but of essentially the same pattern as those observed in the above studies. The mean completed fertility of non-farm background, was lower than those of farm background. Equally, low fertility was characteristic of the couples who, though originating from farms, had attained greater than average amount of education. Other variables used, - labour force participation and age at marriage -, made less differences between the two groups. Educational attainment was, therefore, the only variable that explained differentials between the two groups and Duncan argues, justifiably, that, "variables like current income or husband's occupation, ascertained as of the survey date, may not represent the couple's socio-economic situation at the time their family growth was in process. Educational attainment is known for both couples" (p. 242).

2.3 Studies in Puerto Rico (Latin America):

Studies in Puerto Rico, though inconclusive, tend to arrive at the same conclusion, that rural migrants to Puerto Rican cities, exhibit lower

fertility than non-migrant urban residents.

Myers and Morris (1966) studied the relationship between fertility and migration in general, (that is, no information on community of origin was available), based on special tabulation of the 25% sample from the 1960 Puerto Rican census. They found that, migration experience tends to be associated with fertility for various marital statuses, including consensual unions, and for rural, urban and metropolitan residence. Thus, consistently higher fertility was found for non-migrants than for migrants.

Although they used both place of birth and place-of-residence statistics, they were unable to distinguish between rural and urban migrants. Overall, these findings should be generalized with caution.

Macisco, Bouvier and Renzi (1969), using educational attainment as an intervening variable obtained from the 1960 Puerto Rican census tabulations, studied two groups of women: legally married women whose husbands were migrants to San Juan Standard Metropolitan Statistical Area (SMSA) in both 1955 and 1960, and women whose husbands were migrants to San Juan from a non-metropolitan place of residence in 1955. The results were that, non-metropolitan migrants under age 34, had lower cumulative fertility than non-migrants at these ages. Holding level of education constant, younger migrants had lower and

older migrants higher fertility than their non-migrant counterparts. Education, therefore, partially, explained lower migrant fertility but did not affect the basic findings.

An extension of this study by Macisco, Bouvier and Weller (1970), (also see Macisco, Weller and Bouvier (1971)), examined the role of labour force participation as an intervening variable. This time, they found that, when fertility was cross-tabulated with labour force participation, migrant wife's, (over-represented in white collar occupations), continued to have lower fertility than non-migrant wife's in San Juan.

The two studies were, therefore, unable to completely explain lower migrant fertility by educational attainment and labour force participation in San Juan.

2.4 Other Studies in Latin America:

Contrary to the Puerto Rican findings, other studies in Latin America, uniformly, conclude that, migrants to cities, have higher fertility than natives in all cities, although the differences found are not particularly large.

Hutchinson (1961), using grouped data collected in eight Brazilian cities during 1959-60, studied once-married males in their tenth and above years of

marriage. He separated those born in the city of interview from those born in rural areas. The results were that "fertility is inversely related to class status, and for a given class, the lower the class of origin, the higher the fertility", (pp. 185-186) and this was not reflected in rural-urban migration status.

Iutaka, Bock and Varnes (1971), unaware of Hutchinson's (1961) earlier study, selected six Brazilian cities for their study. Once-married native males 18 years and over, were chosen. Migrants were classified by whether they were born in a large city, in small cities or in a farm. They found that fertility of urban natives was much lower than that of migrants for each category of age at marriage, occupation, colour and education. Those from large cities had lower fertility than those from other places. Lastly, migrants who arrived in the city of interview before age 20, had lower fertility than those arriving at age 20 and over.

In their second study, Iutaka, Bloomer and Berardo (1976), decided to extend their earlier research on the Latin America Metropolitan fertility patterns, using data from the seven-city Latin America fertility study carried out by the Latin American Centre for Demography (CELADE). Their

objective, this time, was to ascertain whether the patterns found in six Brazilian cities (Iutaka, Bock and Vernes, 1971), were also present in other metropolitan areas of Latin America. They particularly looked at the relationship between fertility (of ever-married women) and migration status in relation to selected socio-economic variables, - wife's education; husband's education; wife's father's occupation; age at arrival in the city, (if a migrant); and social mobility - using a multiple classification analytical technique.

Controlling only for duration of marriage, migration status was found to be significant in predicting fertility in only four of the seven cities. In all cases, the difference in duration of marriage came from the fact that rural migrants had much higher fertility than did either urban migrants or urban natives. By introducing socio-economic controls, the education of the wife and the occupational status of the husband, emerged as the most important variables in predicting fertility than either migration or the wife's original status. However, they were finally not able to conclude that migration status or place of origin was of no effect, at all, in their findings.

The data collected by the United Nations Latin America Demographic Centre (CELADE, Santiago, Chile)

during 1963 - 1964, on the fertility of women between 20 and 50 years of age in several Latin American cities, were analysed by Martine (1973) (1975). The study was basically concerned with establishing the migrant-non-migrant fertility differentials in urban places and explain factors that contributed to these differentials. Martine had an elaborate methodological framework of classifying migrants to urban areas. Whereas he intensively studied migration streams and age at arrival to cities in relation to fertility, the intervening socio-economic variables, were missing in the analysis. Despite this, the findings were plausible. First, by standardizing fertility levels by migration status of both partners (spouses), Martine was able to observe that the presence of migrants in marital unions (than natives of the city) from other urban areas, deflated fertility levels. Secondly, migrants who arrived as children or young teenagers, constantly, had significantly lower fertility levels than migrants who arrived when aged 25 and over. This relationship was true for both urban and rural migrants.

2.5 Studies in the Indian sub-continent and the Far East:

Outside North and South America, the demographic

literature on migration and fertility, is extremely limited. The few that are available and reviewed in this Chapter, are those from India, the Philippines and Thailand.

Rele and Kanitkar (1974) analysed data from a fertility study conducted in Greater Bombay, India, during 1966, on currently married women. An attempt was made to establish differentials in marital fertility by residence background of the wives. These were classified into three groups: non-migrants, urban migrants and rural migrants. The authors observed that rural migrant wives exhibited significantly higher fertility than the other groups and this was explained by their lower educational attainment. Between the non-migrant and the urban migrant wives, the latter, consistently, showed lower fertility for all age-groups up to 40, while there was a reversal in the age group 40 and above, where non-migrants exhibited lower fertility. The urban migrant wives showed a, somewhat, higher level of education, most likely on account of selectivity, compared to the non-migrants. The existence of an ethnic group, (the "urbanite" Parsee), was largely responsible for the low fertility of the non-migrant wives in the age group 40 and above.

Vasaria (1971), on the other hand, studied 23 villages in two districts of Western India which

had experienced heavy out-migration. Concentrating on the effect of husband's absence on wife's fertility, wives whose husbands had been away for more than six months, had lower fertility than wives whose husbands were present, had left and returned, or were born elsewhere. Coupled with this, those husbands who left for Bombay, had the lowest fertility of all migrants in one district but not the other. The same pattern was found in one of the 23 villages. No migrant group had fertility as high as those who did not leave the village.

The study points to a very important factor not documented elsewhere and which helps explain lower migrant fertility in the period immediately following migration, and that is, the husband-wife physical separation. This separation accounts for lower marital fertility among young migrants arriving at their places of destination between the ages 20 and 30.

In a study conducted in Manila in 1966-67, Hendershot (1971a)(1971b) observed that the mean number of children ever born, standardized for age and duration of marriage, was lower for migrants than non-migrants in Manila. These differences were, however, not uniform among all age groups and marriage duration. A comparison of migrants to Manila and migrants to other urban areas, showed

that, it was only migrants to rural areas who were selective with respect to income and education. Hendershot's findings are rather unique and usual, compared to the already reviewed literature, given that in a less developed country like the Philippines, we would expect migrants to Manila and other urban places to have higher fertility than the non-migrant urban residents. This deviation could be due to the peculiarity of the societies in the Philippines. Another unusual findings was that, it was among migrants, with only elementary educational attainment, that much lower fertility, (than that of the native urban non-migrants), was found.

Based on special tabulation of the 1960 population census data on migration within Thailand, Goldstein (1973) assessed the role of migration in the urbanization process and the relation between migration and fertility. There were three categories of persons studied and classified as, lifetime migrants, five-year migrants and urban non-migrants by their 1960 place of residence. The specific relationship between fertility and migration, varied depending on the measure of migration used. Compared to non-migrants in their place of destination, the fertility levels of lifetime migrants were not very different, but those of five-year migrants were considerably lower. To this end, Goldstein notes

that, "place-of-birth data, therefore, fail to point to any substantial difference in fertility levels between the migrant and non-migrant segment of the Thai population, except in the urban and rural agricultural categories, and, for those two categories, the patterns are opposite". And for the five-year migration data, he continues that, "for the total Kingdom, the fertility levels of migrant women is considerably below that of non-migrant women. Even with age standardized, the overall pattern remains unchanged" (p. 235).

2.6 Studies in Africa:

As already mentioned, demographic literature on migration and fertility in Africa, is either extremely scarce or virtually missing. An attempt is made here to uncover some of the studies undertaken so far, which, in part, bear near similarity to the literature already reviewed.

Badenhorst and Untehalter (1961), studied fertility of a Bantu community numbering 80,000 in Alexandra Township, located near Johannesburg, in South Africa. The main objective of their sample survey was, to establish accurately the levels of fertility and infant mortality in the community. Attention was also focused on some of the factors affecting fertility within the community and the

means of exercising control on fertility.

In their analysis of fertility data, they particularly examined the relationship between the number of live births per woman and the period of residence in any "urban place", (defined in South Africa as a place with some form of local government). Their findings were that, the old traditional pattern of high fertility, had undergone relatively little change as a result of urban influence. Despite this, they also observed that there was a slight, though small, but fairly distinct decline in fertility as the length of urban residence became longer.

Ominde (1972) examined the regional implications of migration and fertility in Kenya based on the 1962 population census data. The question raised was whether the pattern of economic development had resulted in regional modifications of fertility.

Analysis of mean number of children ever born to African women by age-group in various parts of the country, indicated generally high fertility throughout the country. Fertility was found to be highest in Nyanza Province and lowest in the urban areas of Nairobi and Mombasa, and a number of districts in the Rift Valley Province.

As regards the influence of migration on fertility, Ominde, using child-woman ratios to

outline significant regional differences, concludes in part that, "the regional pattern of fertility is, thus, greatly distorted by the widespread effect of the phenomenon of migration. On the other hand, migration does not appear to have an appreciable effect on the country-wide fertility pattern". He continues that, "lack of adequate data on migration and fertility, restricts the scope of generalization regarding the pattern and trend of fertility among migrants and non-migrants. Such data, as are available, show that there is little difference between fertility in rural and urban areas of the country" (p. 196).

Henin (1968) studied fertility differentials between the nomadic and settled population in Sudan, based on data from a demographic survey covering about 4,750 women, aged 15 years and over, and carried out in 1961-62 in different parts of the country. His findings were that, current levels of fertility were higher amongst the settled population than those of the nomads. Other than this, the settled populations were characterized by high fertility patterns among the young women on account of earlier age at marriage

This study was extended by Henin (1969) to examine the nature of the differentials and to assess their possible causes, (which are also discussed elsewhere (Henin, 1971)). He found that, first, larger proportions of nomadic women were still

single, while those who had married, had tended to do so at later ages. A large proportion of the nomadic women, had experienced higher rates of pregnancy loss, a high incidence of venereal disease and malaria, and tended to breast-feed their children for periods two to three times longer than the settled women. Nutritional standards among the nomads, were also, substantially, lower, and could well have affected fecundity.

Although, in principle, Henin's studies are compatible with the subject migration and fertility, they do not mutually conform to the already reviewed literature due, in the first place, to methodological and analytical variations, and in the second place, to the types of movements involved.

Other studies in Africa worth examining and which do not add anything new to what has already been reviewed on migration and fertility, are those of Mitchell (1964), Abu-Lughod (1964), and Batutis (1971).

2.7 Evaluation of Return Migration Literature in relation to Fertility:

Return migration is of special significance in the present study, in as far as, it would serve as an avenue for the "transmission" of the low

fertility values from urban to rural areas where the migrants belong. Although the reasons for such movements back to rural areas, are many and not easily classifiable, return migration is, doubtless, quite substantial in all countries, although data deficiencies, preclude comparisons (Browning, 1972).

Return migration from urban to rural areas is particularly common in sub-Saharan Africa where the majority of the adult population, males and females in the cities, are rural born and bred. Once in town, many maintain close ties with their areas of origin, their homes. Even families that manage to establish themselves in towns, typically, value the ultimate security the rural area promises. In the face of a growing tide of urban unemployment and underemployment and of social security systems, rights to land back home, continue to guarantee final shelter for many (Rouch, 1956; Greenberg, 1965; Gutkind, 1968; Gugler, 1975).

Very few migrants to urban places begin a new life and forget the old. On the contrary, for most, there are continuing links of all kinds with the village; very often the town is regarded as a kind of a stopping place, and the stay there, as a kind of sojourn (Caldwell, 1969).

The city is a prototype of society toward which the rural areas must change. It is, as well,

the centre of political and economic power. In these respects, the city is the potential source of urbanizing influence, and the seat of power to decide whether or not such influence will be exerted (Miner 1965). There is also immense respect for towns and especially town life, - a belief that, new, worthwhile, modern ideas, flow from the city, and a widespread conviction that "civilized" manners are to be learnt there. It is evident too that there are obvious non-economic reasons for migrating to the town; it is a way of winning respect and increasing one's prestige amongst one's people. As long as such a viewpoint prevails, not only is rural-urban migration likely to continue, but a ready rural reception is likely to be given to ideas and modes of behaviour flowing from the towns (Caldwell, 1969; Segal, 1972).

Apart from the socio-psychological role the towns or urban areas play in modernizing the rural population's "way of thinking", there is abundant evidence that migration between villages and towns, has played an important role in bringing change to rural areas (Zachariah, 1966; Goldstein et.al., 1976). Return migration of workers, after retirement, and the regular to-and-fro movements between villages and cities, while working, provide many contacts between the migrants and the rural population. Every time

a migrant goes to his village, he takes back with him some urban ideas or customs - the discipline of the factory, the concept of a job with a fair wage, the advantage of trade union organizations, ideas of health and hygiene, the convenience of piped water supply and of electricity, the usefulness of books and newspapers, the radio and the cinema, the bicycle and the bus service, and the need for educating children, both boys and girls. The rural population is, thus, exposed to the urban way of life (Zachariah, 1966, p. 385).

What is more important for this thesis, is to assess the extent to which such return movements may be related to low fertility norms. One important question raised by Iutaka et.al. (1976) is, whether or not the urbanization processes (in Latin America), will eventually lead to a decline in the birth rate of the region, assuming that urban dwellers manifest a lower level of fertility than the rural population. This question is an academic challenge, that argues for continued research along those lines and only when sufficient data on return migration and fertility become available, will it be possible to formulate an answer.

In summary, the above evaluation has mirrored the possibility of ascribing future modernization of the rural areas to permanent returnees from the urban

milieu. What still remains to be attended to by demographers and other social scientists alike, is the extent and degree to which the impact of modernization is received and translated to signify social change in the rural environment. Also important is an explanation of how this impact could transform a society's traditional high fertility norms, values and beliefs, in favour of smaller families.

2.8 Summary and Discussion:

The demographic literature on migration and fertility already reviewed, point to a number of important issues which need clarification, if comprehensive and systematic framework for analyses of migrant-non-migrant fertility differentials, are to be attained. What has been determined from the literature is that there is, simply, too much variation in the research findings from one region to another, and even within one specified region. This paradox is attributable to, among other things, the diversity in the analytical procedures and measurements used, peculiarity of the samples studied, and the social, cultural and historical context in which the studies were observed.

The variations in the results of the studies

conducted in the United States, for instance, are a reflection of the historical and developmental stages in which the country was passing through. For that matter, the earlier findings, which spans nearly forty years, registered no fertility differentials between the migrants and the non-migrants in urban centres. In the later stages, while some regions were reporting higher migrant fertility, others registered the exact opposite. We must also recall that the variations in the later studies, were primarily due to the differences in research objectives, the stringent eligibility requirements, methodological diversity, treatment of rural and urban places as homogeneous, lack of information concerning the migrant's communities or origin, and in some studies, the inability to separate migrants from the non-migrants.

The Puerto Rican studies, on the other hand, tend to arrive at the same conclusion that migrants from rural to urban areas, exhibit lower fertility than the non-migrant urban residents. Compounding factors, such as, age, education, and labour force participation, were taken into account. Both place of birth and place of residence at fixed time periods were used in determining migrant fertility in urban areas, but among other methodological setbacks, the studies did not distinguish between rural

and urban migrants. Information on the communities of origin, were also lacking. Although these studies appear to be convincing, their findings, are, by no means, conclusive and should be treated with extreme caution.

The Latin American findings, in addition to being internally homogeneous, are quite similar to the findings of the United States. They, uniformly, conclude that migrants to cities have higher fertility than natives in all cities, although the differences found, are not particularly large. There is also evidence of relatively low migrant fertility at younger ages. Besides North and South America, researches conducted elsewhere, have tended to arrive at mixed results, that would not be easily summarized here in simple terms.

Such remarks, though pertinent, merely underline the pressing need to make explicit the way in which research procedures affect findings, and to what extent we may specify the conditions under which differential migrant fertility is to be expected (Zarate and Zarate, 1975). Several observations that may help to achieve a better understanding of the relationship between migration and fertility are:

(a) availability of sufficient information on migratory movements. The methods of measuring

migration are vital and migration itself must be separated from place of birth and last residence, analytically;

(b) recognition of the fact that a proper and thorough understanding of the relationship between migration and fertility, must take into account the behaviour of migrants and non-migrants wherever they are found. In other words, the social, cultural and historical background in which the study is observed, need to be delineated;

(c) a substantial and adequate control for demographic determinants, socio-economic factors and other possible indicators of migrant-non-migrant fertility differentials. It is also essential to isolate the effects of one or several other factors besides the factor under consideration, in studying fertility differentials by migration status;

(d) realization of the fact that any thorough explanation of the relationship of migration to fertility, must come to grip with the differences presented by regions at different stages of economic development and/or demographic transition; and finally,

(e) the treatment of rural and urban places as homogeneous, impedes sophisticated analysis.

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CHAPTER III

RESEARCH ASSUMPTIONS, HYPOTHESES AND
METHODOLOGY

3. RESEARCH ASSUMPTIONS, HYPOTHESES AND METHODOLOGY

3.1 Introductory Remarks:

In the preceding Chapter, references were made to some of the available literature on the subject of migration and fertility, in terms of specific problems identified and stated in Chapter I. Both Chapters described and discussed the situation that gave rise to this study and, further, indicated the lack of, or limitations regarding knowledge of the subject matter, migration and fertility, and the practical difficulties related to obtaining data for such a study. It is expedient, at this point, to include statements regarding the theoretical assumptions on which this study will proceed and statements regarding the hypotheses the study is to substantiate or refute.

This Chapter, therefore, outlines the research objectives, assumptions and hypotheses and, also, describes all the details of methodology, of sample selection, of data collection instruments, of field operations and of data processing and analysis.

3.2 Objectives of the Study:

The first general objective is to identify streams of migration into and out of the designated

study area. Specific objectives here are:

- (i) To classify migrants by place of birth and place of last residence statistics.
- (ii) To find out whether there exists specific differential characteristics between the classified migration groups.

The second general objective is to determine whether there is a migrant-non-migrant fertility differential in the study population. Specific objectives here are:

- (i) To investigate how fertility relates to place of birth and/or place of last residence statistics between different groups of migrants.
- (ii) To establish the existence of differentials in levels of fertility between the migrants and non-migrants.

The last objective is to examine some of the factors which may account for differences, if any, between the migrants and the non-migrants.

3.3 Assumptions of the Study:

The theoretical assumptions which guide this study, are briefly summarized below in the following terms:

i) The more dissimilar the places of origin, the age-distribution and the migration histories of the in-migrants to the study area, in comparison with the non-migrants in the area, the greater the fertility differences between the in-migrants and the non-migrants.

ii) Variations in fertility by migration status, if any, would best be explained by the underlying differentials between the demographic and socio-economic characteristics of the in-migrants and the non-migrants in the study area. The assumption here is that, the in-migrants differ, importantly, from the non-migrants in such crucial fertility determining characteristics as marital status, age at first marriage, type of marital union, education, labour force status and knowledge and practice of modern contraception.

iii) If the in-migrant women of urban origin, represent persons who had earlier moved to urban places from the study area, and have been assimilated to the "urban way of life" due to long exposure to the urban environment, then it would be assumed that return migration, exposes the rural population in the study area to "urban values" including knowledge of changing values in relation to using modern birth control methods, and the age at first marriage. Thus, return migration is an instrument

of social and economic change vital for overall social and economic development of the rural environment.

3.4 Statements of Research Hypotheses:

In order to achieve the already outlined objectives and assumptions of this study, the following hypotheses are made:

3.4.1 Migration and Fertility:

1. In-migrant women, tend to have lower fertility than their non-migrant counterparts in the study area.
2. The in-migrant women of urban origin, have lower fertility than both the non-migrants in the study area and the in-migrants of rural origin.

3.4.2 Marriage, Migration and Fertility:

3. Lower marriage probabilities and higher probabilities of divorce, separation and widowhood among the in-migrants compared with the non-migrants in the 15 to 29 age category, should lead to relatively lower fertility among the

in-migrants.

4. Presently-married women in monogamous union, are more mobile and have less children than do their counterparts in polygynous union at similar ages.
5. Fertility is lowest for the in-migrants of urban origin and highest for the in-migrants of rural origin and the non-migrants in the study area, standardized for age at first marriage and current age.

3.4.3 Socio-Economic Status, Migration and Fertility:

6. Urban in-migrants have lower fertility than their rural in-migrant and non-migrant counterparts at similar age-groups because of their higher levels of education.
7. The educational attainment of the wife, is more strongly related to the number of children ever born, than does the husband's level of education. This is much more pronounced among the urban in-migrants with lower fertility, than the rural in-migrants and the non-migrants at similar age-groups.
8. Higher labour force participation rates, contribute more to lower fertility among

the in-migrants of urban origin, (where abundant job opportunities exist), than for those of rural origin and the non-migrants in the study area.

9. Standardizing for current age, the wife's labour force participation, is more strongly related to the number of children ever born, than does the husband's work history. This is much more pronounced among the in-migrants or urban origin with lower fertility, than the rural in-migrants and the non-migrants in the study area.

3.4.4 Migration and Fertility as determined by Other Factors:

10. Physical separation of married couples during, both, the initial stages of marriage and the most fertile ages of a woman, lowers marital fertility during that period.
11. Urban in-migrant women, may have less children because they practice more modern birth control methods than do their rural in-migrant and non-migrant counterparts, controlling for educational levels, labour

force participation or current age.

3.5 Sampling Design:

The migration and fertility data to be examined, were based on a one-in-three systematic sample selection technique in which a total of 2,681 females (37.0% of the entire adult female population in the study area aged 15 years and above as on February 1978), were chosen for interview.

From the sample, 1,463 (54.6%) of these females, were, actually, interviewed. There were only 12 (0.4%) cases of refusals coupled with another 12 (0.4%) cases of reported deaths and finally 6 (0.2%) respondents in the sample, could not be interviewed because they were emotionally unstable. Of those respondents who, for one reason or another, could not be found for interview, 559 (21.0%) were temporarily absent from the area, either because they were living with their husbands elsewhere, or staying with parents, or relatives, or were in boarding schools, or in employment outside home. This group introduces a bias in the study as this group were more likely to be migrants. On the other hand, 373 (13.9%) of the females, were present in the area but could not be traced for interview largely due to commitments outside the households. A reasonably

large fraction of these women, at the time the survey was in progress, were engaged in coffee picking in the nearby, extensive coffee farms managed by local co-operative societies. The rest of the respondents who could not be interviewed, had either changed residence from one household to another within or between the villages (105 (3.9%)), or had emigrated from the area, (100 (3.7%)), or could not be traced because the households they lived in, had been destroyed, (51 (1.9%)).

In all, therefore, a total of 1,463 cases, form the basis of this study. It is worth while to mention here that the omission, from the analysis, of a large fraction of women in salaried gainful employment outside home, or in the nearby coffee farms, introduces a possible under-enumeration of the women in active labour force participation and precludes a systematized assessment of the role female labour force participation plays in influencing the relationship between migration and fertility.

Differential exclusions, as noted above, response error, problems associated with data processing, and sample selection, are additional limitations that need to be borne in mind as they would introduce a certain scepticism when interpreting the findings of this thesis, (see Appendix II Table II.1).

3.6 Data Collection Instruments:

A Comprehensive Questionnaire designed for this study and translated from English to Kikamba, was the primary source of data, (see Appendix IV). The questionnaire, consisting of six parts, was used to collect information on the marital status of the female respondent, number of children ever born alive, - distinguishing those born elsewhere from those born in the study area -, socio-economic status of the respondent with emphasis on educational background and labour force participation, and if married, the status of the husband. Information was also gathered on the respondent's knowledge and practice of family planning. Finally, the migration history of the female respondent was obtained by a set of questions ranging from place of birth, place of last residence, number of movements made since age 15, age at arrival to the study area, to number of years lived outside the study area, if a respondent ever lived elsewhere after age 15, for six or more months. The completeness and reliability of this kind of investigation, largely depends on the accuracy of the female respondent's memory. A calendar of local events, was employed to assist respondents in their estimations of age, (see Appendix IV). The Comprehensive Questionnaire, therefore, yielded data on the in-migrants to the

study area and the non-migrants in the area, and it must be added here that, all respondents were living in the study area at the time of the survey.

There were no specific problems encountered in administering the Comprehensive Questionnaire other than a few cases of refusals and the start of the long rains in the area. Data collection started in the third week of March and continued up to the third week of May 1978. The successful execution of the questionnaire, relied very heavily on the existence of an efficiently trained, experienced and permanent cadre of 13 resident Akamba male field staff who are on the payroll of Medical Research Centre. Given their educational qualifications, training in various fields of research, and long experience in field work, only 4 days were used to train them, combined with piloting of the original questionnaire, which received minimal alterations.

The interviews were conducted in Kikamba and supervision was done by the investigator with the aid of a heavy-duty motor-cycle. The interviews normally started early in the morning and, on average, each fieldworker could complete between 8 and 12 questionnaires in a single day. If a respondent was absent from a household, the fieldworkers could take note of it and revisit the household three times in separate days and, if not found, it was only then

that the case could be entered as either an absence, present but not seen, or an emigrant, with the exceptions of reported deaths, refusals, and any other reason, as already highlighted above.

Each day's "collection" was thoroughly scrutinized by the investigator in the presence of the respective fieldworker for any mistakes made or inconsistencies therein and, if discovered, the fieldworker could then be asked to go back to the respondent the following morning for corrections. Such cases were normally minimal. Otherwise, the rest of the properly filled-in questionnaires, were collected and coded later in the day by the investigator; in other words, field data collection and coding, went on simultaneously, until the end of the survey.

A set of supplementary information on out-migration from the study area, was obtained from the JPM demographic surveillance sheets. The purpose of this exercise, was to obtain information necessary for balancing migration streams into and out of the study area as will be discussed in Chapter IV. Although this data was affected by numerous errors and limitations, it was, nevertheless, possible to secure information on age at departure and place of destination.

The JPM demographic surveillance sheets (see

Appendix IV), numbers 14, 15, 16, 17 and 18, were screened to extract cases of women who had been absent from the study area for a duration of about one year preceding the survey. The eligibility requirements for this group of females, were as follows:-

- they were registered as members of the study area population between November 1973 and February 1977;
- they were recorded absent from sheet number 14 to sheet number 18, (February 1977 and January 1978);
- they were actually absent from the area at the time the survey was in progress; and,
- they were born before or in 1963, therefore age 15 or older by 1978.

The work of screening the sheets, was done in Nairobi and a total of 643 cases, were recorded. This group forms the stream of out-migrants from the study area.

In summary, the success of this survey, relied extensively on the confidence the population enjoys from the project, (JPM). In this amicable atmosphere, it was not, for instance, necessary to recruit female fieldworkers to conduct the interviews which, exclusively, aimed at obtaining information from the females in the population.

3.7 Methods of Analysis:

For statistical testing of significance, a 0.95% confidence level, was used in this thesis. The analysis evolved around comparison of fertility between the migration categories controlling for the intervening demographic, socio-economic and other factors. Fertility, defined as the average number of children ever born to a respondent, was the dependent variable while the independent variables included, current age of the female respondent, marital status, type of marital union, age at first marriage, the respondent's educational attainment, (if married, the husband's), the respondent's labour force status, (if married, the husband's), duration of husband-wife physical separation and knowledge and practice of modern contraception.

Given the nature of the information collected for this study, and in order to allow for comparison between this study and those which have already been undertaken and reviewed in the literature, cross-tabulation was deemed as the most appropriate statistical method for analysis. In most parts of the data analysis, migration and fertility was cross-tabulated with selected demographic, social and economic background characteristics of the respondent. To determine the influence of these same factors on the relationship between migration

and fertility, *per se*, standardization technique was employed.

Finally, the Chi Square test (X^2) was used, where necessary, to test the differences in fertility frequencies between the various categories of migration and their background variables.

4. MIGRATION PATTERNS

4.1 Introductory Remarks:

Knowledge about the movement of a population, is fundamental for the understanding of social change, economic development and political organization. It is an important element in the history of a nation and an essential component in the planning for its future (Claeson and Egero, 1973). Because of its importance, migration still remains a topic of much theorization and extensive research particularly in the field of behavioural science. In view of the escalating population growth in the developing countries, it is anticipated that migration, as a key component in population dynamics, will no longer be accorded the theoretical outlook it has received for decades, but will be studied alongside with other integrated components of population change. Bogue (1969) echoes the same theme when he observes that, "some of the most acute social problems of the world today are associated with migration. If the problem of human fertility were not so crucial at the present time, it is almost certain that human migration and plight of migrants, (especially in the developing nations), would be listed as a top priority problem for research and action"

(p. 752). Indeed, migration accounts for a disproportional share of the differential growth rate of urban and rural areas in the developing world and in these places, where urban and rural fertility are still very similar, migration accounts for almost all of the differentials.

It has already been mentioned in Chapter I that in many of the developed countries, the achievement of the low levels of fertility, seem to have occurred simultaneously with the maintenance of high levels of migration (Goldstein, 1976).

Within this general context, one may indeed ask whether migration has possibly already played a key role within the developed countries in the homogenization of fertility values and behaviour, and whether in the decades to come, migration may also act as an agent of fertility change in the developing countries.

Several factors, therefore, need to be clarified before undertaking a study of the influence of migration on fertility in any given environment. In the first place, the historical, cultural and socio-economic background within which the migration occurs, needs to be delineated. Secondly, efforts are needed to distinguish those who have moved within the rural areas from those who have returned to the rural areas from urban settings, and especially those who

have not moved at all. In other words, from the available statistics, there should be a possibility of separating migrants from the non-migrants on the basis of their former residence background.

Given that in the developing nations, a huge reservoir of population is building up in rural areas, the above mentioned classification should prove useful for evaluating past and present migrations as well as for improving our ability to predict future population movements, particularly at a time when such movements takes on increased importance as a factor of population growth and decline (Goldstein, 1976). Nevertheless, this line of argument is not pursued in this undertaking.

Overall, the importance attached in this Chapter to the study of migration and fertility, are two-fold: first, it will assist in the classification of the study population, thus providing a distinction between the migrants, on the one hand, and non-migrants, on the other. This is a fundamental first-step process essential in the study of migration in relation to fertility. Secondly, the Chapter will also provide some important clues with respect to the patterns and extent of mobility into and out of the study area. Of particular relevance in this context is the migration history which will, later in the subsequent Chapters, be related to fertility

in order to determine to what extent a migration history influences fertility.

4.2 Migration Status:

An attempt will be made to use more than one migrant-non-migrant definition in order to gauge the effect of different classifications upon fertility differentials. In this respect, one should keep in mind that just as place-of-birth and place of residence at a fixed date, result in different groups of migrants, they also result in different persons being classified as non-migrants, and the "standard" of comparison therefore differs as well (Zarate and Zarate, 1975). On the other hand, place of residence at a fixed date, for instance, cannot be said to be more or less appropriate than any other measure of migration unless we are sure of the nature of the phenomenon they are intended to measure (Ibid., p. 151).

In the Comprehensive Questionnaire (see Appendix IV), data was gathered from which migration patterns could be studied. Table 4.1 shows the age distribution of the female study population by place-of-birth and place-of-last-residence statistics.

To begin with, the place-of-birth data alone, indicates that 68.4% of the entire study population, were born and were living in the study area at the

TABLE 4.1: AGE DISTRIBUTION OF THE FEMALE STUDY POPULATION BY PLACE-OF-BIRTH AND PLACE-OF-LAST-RESIDENCE STATISTICS.

PLACE OF BIRTH STATISTICS AND CURRENT AGE ¹	PLACE-OF-LAST-RESIDENCE STATISTICS		TOTAL ENUMERATED POPULATION
	STUDY AREA [*]	ELSEWHERE ²	
STUDY AREA			
15 - 24	28.7 (420)	4.0 (58)	32.7 (478)
25 - 34	7.0 (102)	5.8 (85)	12.8 (187)
35 - 44	6.2 (90)	4.0 (58)	10.1 (148)
45 - 54	4.9 (72)	2.1 (31)	7.0 (103)
55 - 64	2.1 (31)	1.4 (21)	3.6 (52)
65+	1.5 (22)	0.7 (10)	2.2 (32)
Totals	50.4 (737)	18.0 (263)	68.4 (1,000)
ELSE WHERE²			
15 - 24	1.8 (26)	3.9 (57)	5.7 (83)
25 - 34	1.0 (14)	6.7 (98)	7.7 (112)
35 - 44	0.2 (3)	4.2 (61)	4.4 (64)
45 - 54	0.3 (5)	4.8 (70)	5.1 (75)
55 - 64	0.2 (3)	2.9 (43)	3.1 (46)
65+	1.2 (18)	4.4 (65)	5.7 (83)
Totals	4.7 (69)	26.9 (394)	31.6 (463)
TOTALS	55.1 (806)	44.9 (657)	100.0 (1,463)

¹ Age as of 1978.

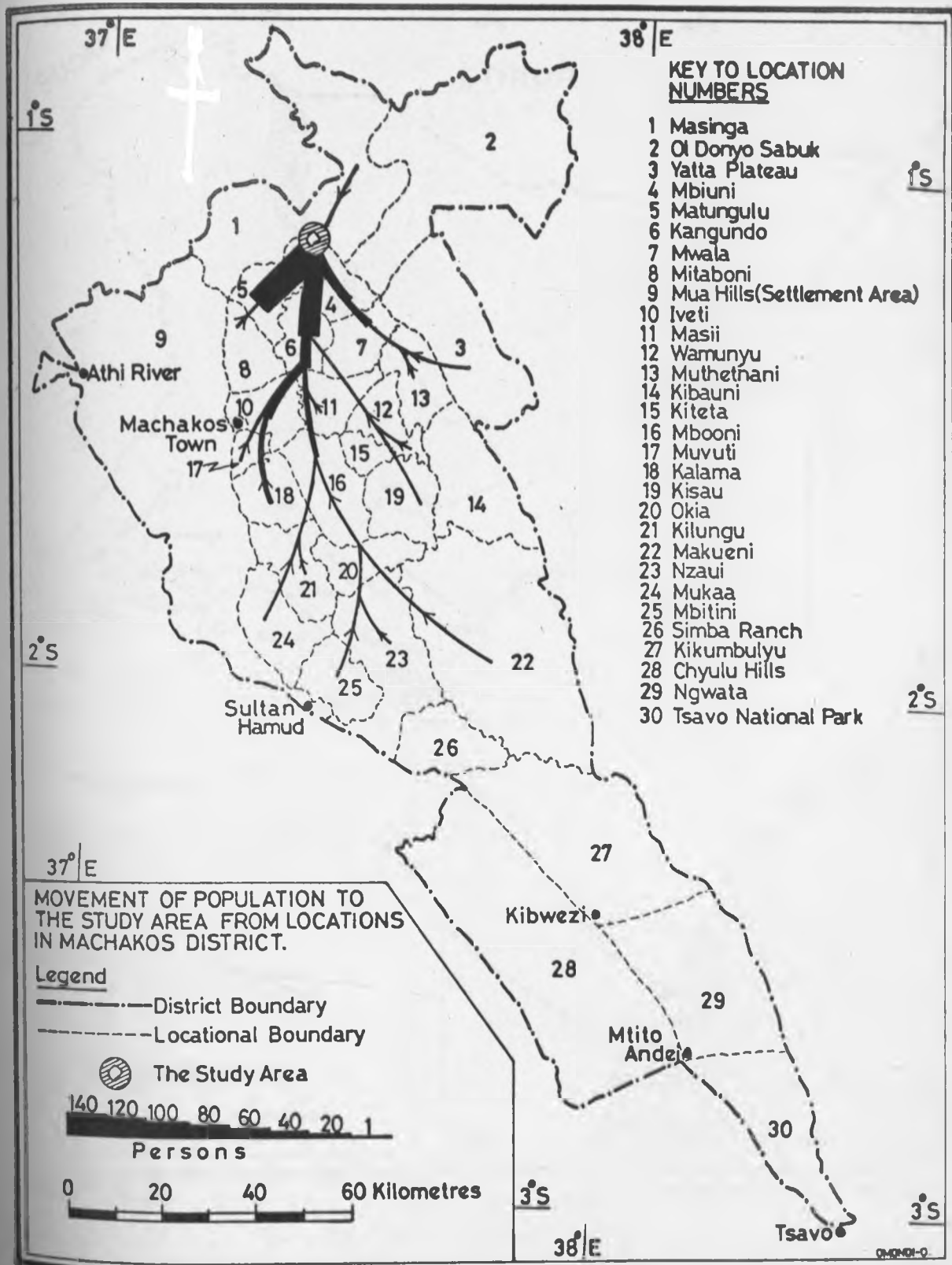
² Elsewhere is defined as any birth place and place of last residence outside the study area.

* Born or arrived in the study area under age 15 and has never lived outside the area for more than 6 months after age 15.

Note: Within brackets (), number of cases observed.

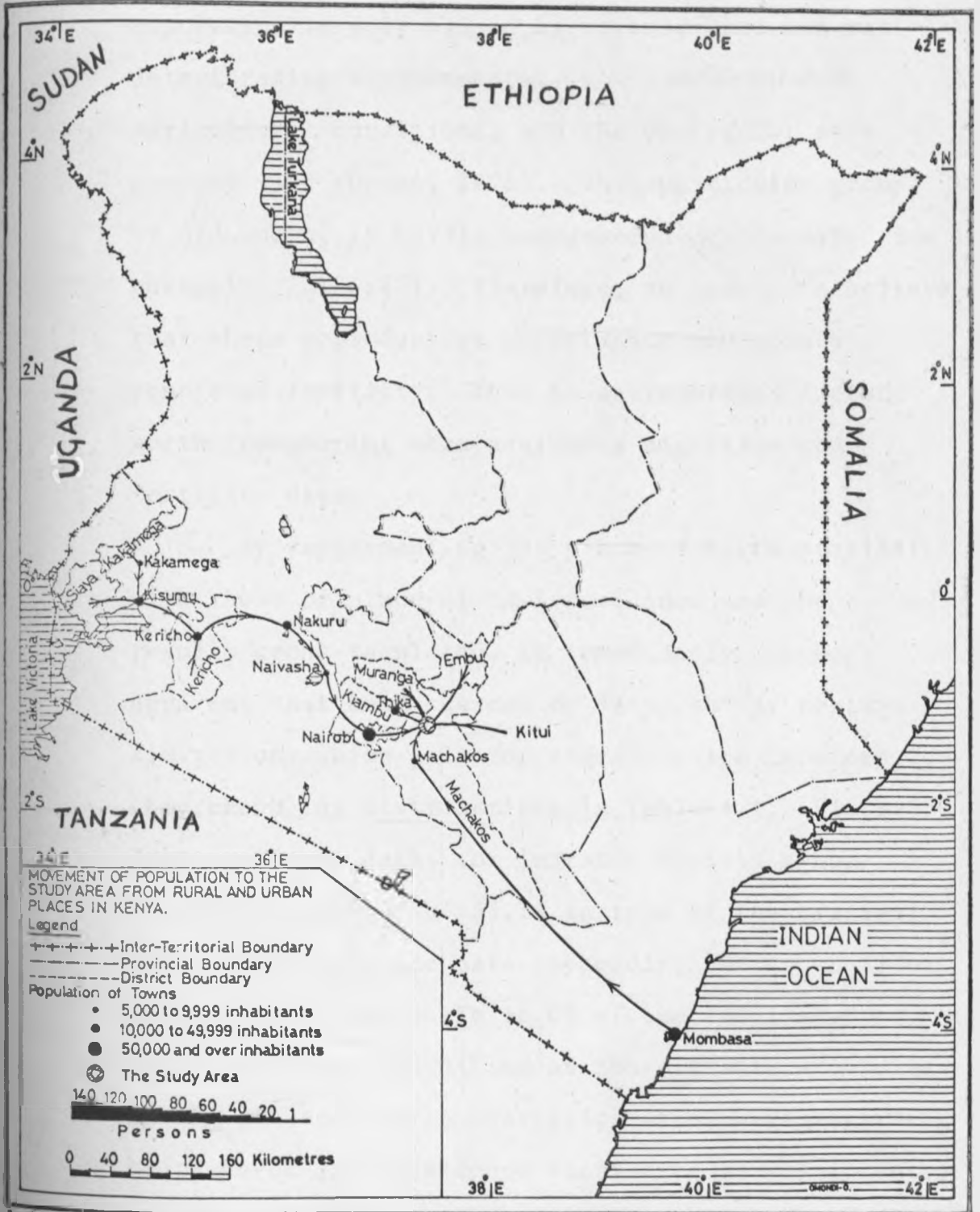
time of enumeration. A further 28.5% of the population, were born in various locations of Machakos district, outside the study area. More than fifty per cent of the Machakos born females in the study area, originated from the neighbouring locations, notably, Matungulu, featuring prominently, followed in descending order by Kangundo, Mbiuni and Yatta Plateau (see Appendix I Table I.1 and Map 4.1). Another thirty per cent were born in the distant locations of Mbooni, Kalama, Mwala, Iveti and Kilungu. The contribution of the intermediate locations, was negligible. The contribution of the rest of Kenya's districts and urban areas to the study population totals, was minimal with only 3.4% recorded as living in the area and born elsewhere (see Map 4.2). Due to the small number of cases, the tabulation of the female study population by specific areas of birth outside Machakos district, is not presented.

Perhaps the most striking feature that deserves comment in relation to birth place statistics is that the majority of the old women at age 65 and above in the study population, migrated from Mbooni, Kalama, Iveti and, to a lesser extent, Mwala locations of Machakos district. Their mean ages were 56, 57, 59 and 51 respectively (Appendix I Table I.1). These places, in the history of the region, were known to be areas with the greatest outward movements of



MAP 4.1.

Source : Survey of Kenya



MAP 4.2.

Source : Survey of Kenya

population largely caused by adverse land-man ratio, deteriorating environmental, unfavourable agricultural conditions, and the desire for more grazing land (Owako, 1971). This particular group of old women, is hardly homogeneous due to selective mortality. There is, therefore, no reason to believe that their reproductive performance represents completed fertility. This is an important factor worth remembering when analysing migration and fertility data.

By supplementing the place-of-birth statistics with those of place-of-last-residence and the results cross-tabulated, it immediately becomes apparent that both sources of data, suffer certain limitations which call for clarification in order to comprehend the distributions in Table 4.1. Place-of-last-residence data, for instance depicts a non-migrant population of 55.1% instead of the original 68.4% by birth place data. Secondly, the table also illustrates that, while 18.0% of the total study population were classified as non-migrants according to the place-of-birth statistics, they were regarded by place-of-last-residence statistics as in-migrants. On the other hand, it should also be pointed out that 4.7% of the respondents grouped by place-of-birth statistics as in-migrants, were regarded as non-migrants according to place-of-last-residence

statistics. This is explained by the fact that these 69 respondents moved to the study area at childhood ages, (that is, under 15 years of age), and since their arrival to the area for the first time, they have not lived outside the study area for six or more months. As had already been pointed out in Chapter I, movements which were made during childhood as a result of those made by adults, were not, in the context of this thesis, to be regarded as migrations as they would be justifiably immemorial and unaccountable. This group is, hereafter, classified as non-migrants.

To this end, what we have cross-tabulated and examined in terms of migration statistics from two sources of data, conform to the stated objectives of the study and furnishes information that is easily manipulable from the view point of determining migration statuses of the female study population. The data also generates satisfactory solutions to the classification scheme as provided in Table 4.2. Considerably more space would be required to discuss all the conditions, procedures and steps undertaken to arrive at the grouped female population in the table, but for the purposes of this Chapter, the main conclusion to be derived therefrom, is already clear. In brief, the two sources of data serve the main object of classifying the enumerated female study

TABLE 4.2: CLASSIFICATION OF THE FEMALE STUDY POPULATION BY MIGRATION STATUS AND CURRENT AGE.

CURRENT AGE*	M I G R A T I O N S T A T U S			TOTAL ENUMERATED FEMALE STUDY POPULATION	
	NON - MIGRANTS	RURAL IN - MIGRANTS	URBAN IN - MIGRANTS		
15 - 19	91.1 (327)	5.0 (18)	3.9 (14)	100.0	359
20 - 24	58.6 (119)	25.6 (52)	15.8 (32)	100.0	203
25 - 29	40.4 (72)	38.8 (69)	20.8 (37)	100.0	178
30 - 34	36.7 (44)	42.5 (51)	20.8 (25)	100.0	120
35 - 39	41.1 (51)	38.7 (48)	20.2 (25)	100.0	124
40 - 44	47.7 (42)	36.4 (32)	15.9 (14)	100.0	88
45 - 49	36.0 (36)	52.0 (52)	12.0 (12)	100.0	100
50 - 54	52.6 (41)	41.0 (32)	6.4 (5)	100.0	78
55 - 59	37.7 (20)	56.6 (30)	6.7 (3)	100.0	53
60 - 64	31.1 (14)	64.5 (29)	4.4 (2)	100.0	45
65+	34.8 (40)	64.3 (74)	0.9 (1)	100.0	115
TOTALS	55.1 (806)	33.3 (487)	11.6 (170)	100.0	1,463

* Age as of 1978.

Note: Within brackets (), number of cases observed.

population into three groups, namely, the non-migrants (55.1%), rural in-migrants (33.3%) and urban in-migrants (11.6%) as defined by birth place data, cross-tabulated with place-of-last-residence statistics.

However, whereas the data presented in Table 4.2 display relatively well defined migration statuses, the defects inherent in such migration statistics, gathered from a study of this kind, are formidable and should not escape unnoticed (Bogue, 1969; United Nations, 1970; Claeson and Egero, 1973; Shryock and Siegel, 1973; Zachariah, 1974). Within the limits of such statistics, however, it is still difficult to guarantee, precisely, the accuracy of data provided in answer to questions on events that occurred several years back. Some outstanding features remain imprinted at the back of a respondent's mind, but details seem to become confused and reflect only the most recent fascinating tales of the last migration. Related to this is the possibility of a bias being introduced into the place-of-last-residence statistics, which, unfortunately, lacked an element of time reference to a specific past date. It could be suspected that the situation would have been quite different if the place of residence at a fixed date, were taken into account instead of only an open question subject to choice,

on the place of last residence, on the basis of the assumption that the population moves in stages at given specified time periods.

The problems associated with the data collection and field administration exercise, should, as well, not be ignored as they may also bring about systematic errors in the data. It may not be feasible, all the same, to include all items necessary for a thorough study of migration. In this thesis, therefore, there is a desire to examine some selected aspects of the migration process in the study area which may influence age distribution and fertility of the female population under study.

4.3 Migration Patterns:

It should be emphasized here that, only after the requisite elements necessary for a comprehensive portrait of the migration process are isolated and interrelated, will we be in a position to locate the juncture of migration and social, demographic and economic processes (Goldscheider, 1971). In this connection, before any attempt is made on a detailed analysis of migration and fertility, it is essential to know something about the pattern of mobility in the region of study. This is vital when relating

migration history to fertility levels, for such a profile may force the demographic characteristics of the female study population to take on certain pre-defined patterns worth identifying, isolating and examining (see Appendices II and III).

First, we need to know much more about the magnitude of the opposing streams of movements from the study area, the extent of circulatory movements, and the selective character and impact these movements have on fertility at places of origin and destination. Only when all streams are taken into account, can we speak of a migration pattern in the "general" sense. Table 4.3 depicts the classified absentee female study population by place-of-destination and current age. The rural and urban out-migration streams from the study area will be examined alongside the in-migration streams in an attempt to explore the possibilities of selectivity in fecundity and age.

An examination of the supplementary data on place-of-birth in relation to place-of-destination statistics for the absentee female study population, (not shown)*, indicate that the pattern of out-migration from the study area does not, considerably, differ from that of in-migration. Most of the

* Not shown because of the small number of cases involved.

TABLE 4.3: CLASSIFICATION OF THE ABSENTEE FEMALE STUDY POPULATION BY PLACE-OF-DESTINATION AND CURRENT AGE.

CURRENT AGE ¹	PLACE - OF - DESTINATION				TOTAL ENUMERATED ABSENTEES	
	RURAL AREAS ²		URBAN AREAS ³			
15 - 19	76.0	(73)	24.0	(23)	100.0	(96)
20 - 24	68.7	(114)	31.3	(52)	100.0	(166)
25 - 29	67.0	(126)	33.0	(62)	100.0	(188)
30 - 34	55.8	(43)	44.2	(34)	100.0	(77)
35 - 39	72.5	(29)	27.5	(11)	100.0	(40)
40 - 44	*	(14)	*	(10)	*	(24)
45 - 49	*	(17)	*	(4)	*	(21)
50 - 54	*	(10)	*	(2)	*	(12)
55 - 59	*	(3)	*	-	*	(3)
60 - 64	*	(6)	*	-	*	(6)
65+	*	(10)	*	-	*	(10)
TOTALS	69.2	(445)	30.8	(198)	100.0	(643)

*Relative numbers have been omitted because of the small number of cases in the cells.

¹Age as of 1978.

²Rural Areas defined as nuclei with less than 2,000 and scattered population.

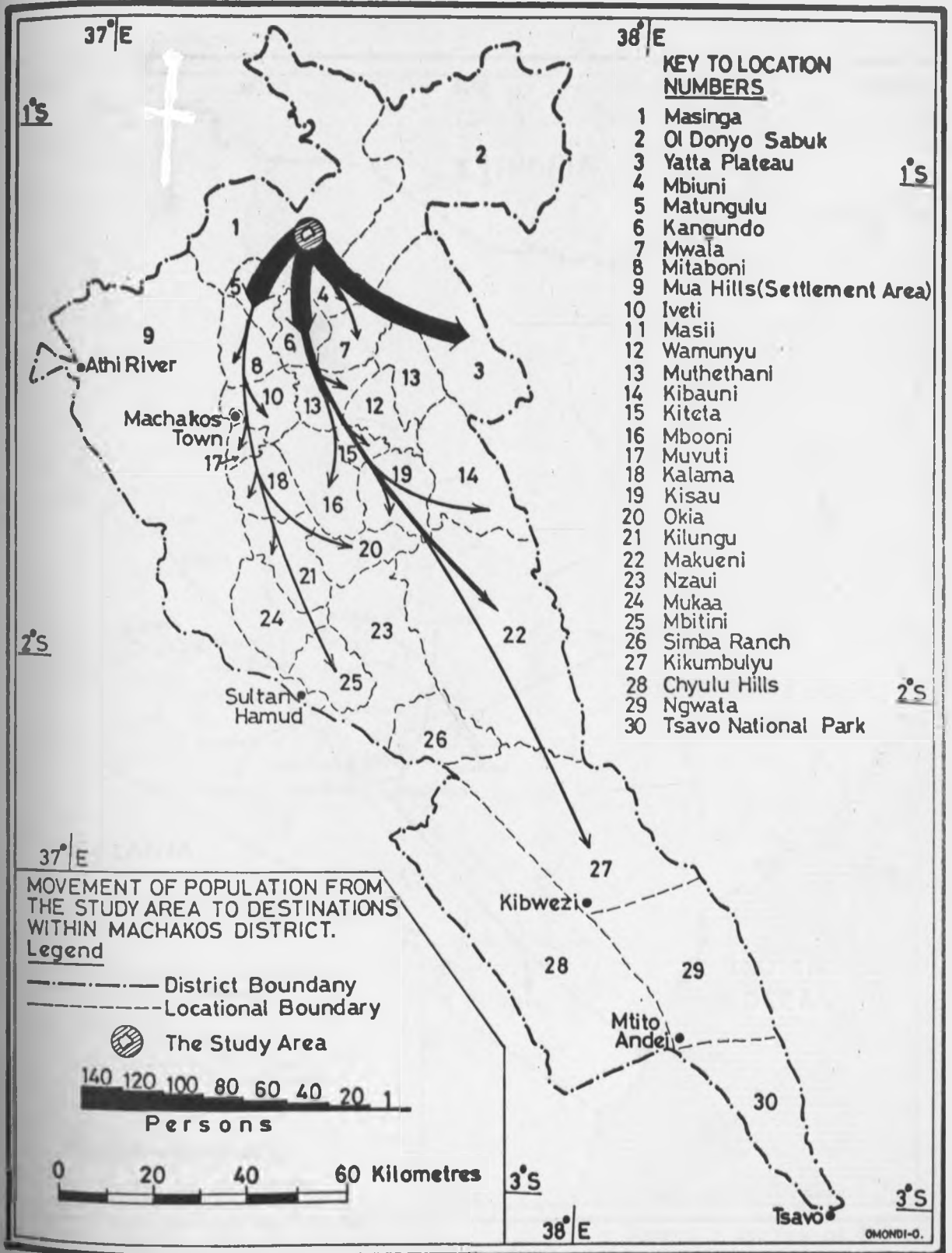
³Urban Areas defined as nuclei with 2,000 or more inhabitants.

Note: Within brackets (), number of cases observed.

A hyphen (-) denotes no case observed.

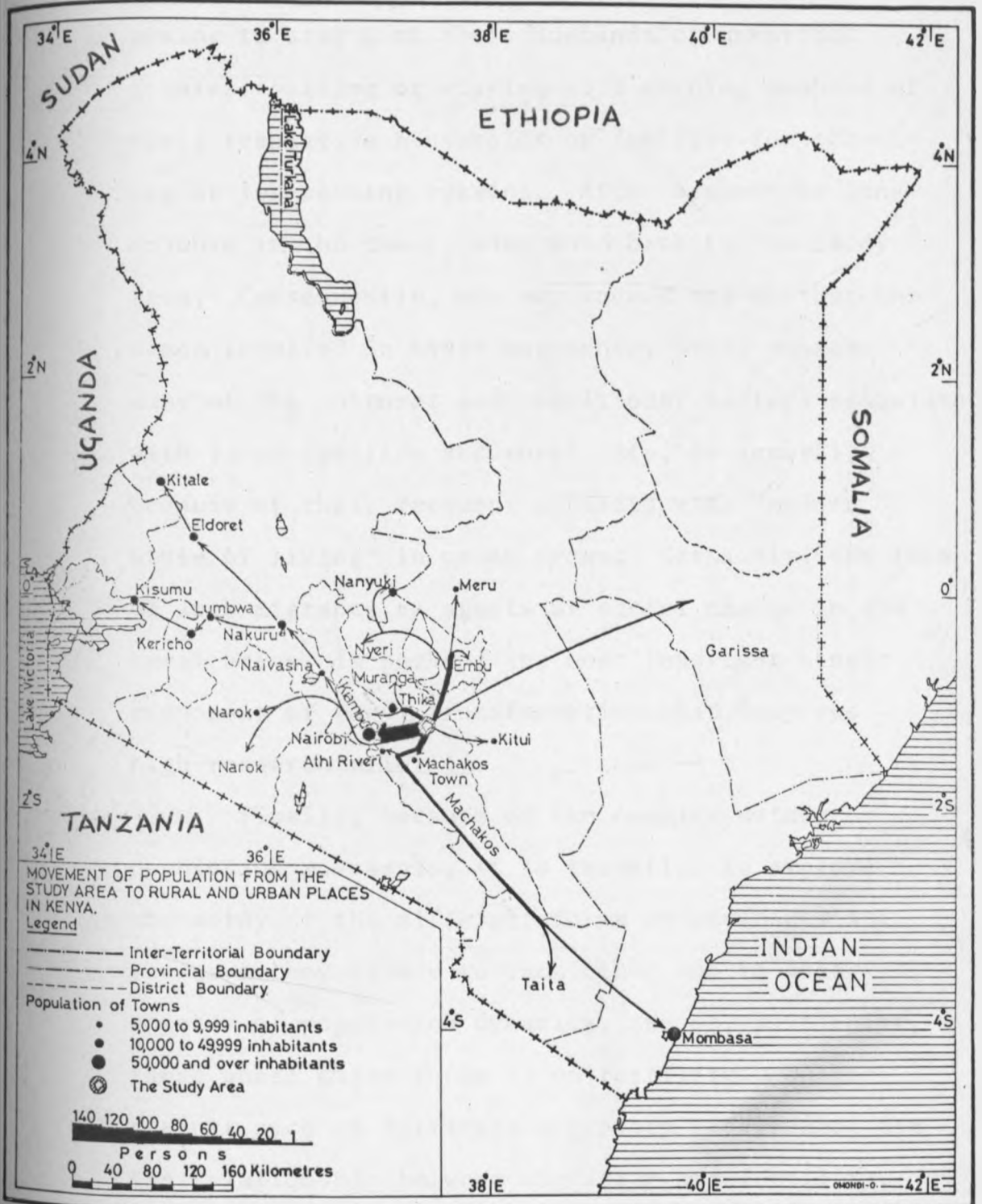
out-migrants born in the study area, drifted towards the neighbouring locations of Yatta Plateau, Matungulu, Kangundo and Mbiuni, in descending order. The data also displays an overwhelming majority of the Machakos district-born out-migrants moving back to their locations of birth in the district from the study area with the above mentioned locations featuring prominently (see Map 4.3). In other words, the tremendous effect of return migration becomes immediately apparent for the out-migrants born outside the study area. This is indicative of the predominance of localized short-distance inter-locational movements characterizing much of the population exchange as would be expected, and largely attributable to marriage and family-related reasons. Otherwise, Nairobi, Mombasa and, to a lesser extent, Thika, attracted a reasonably large proportion of out-migrants, particularly those born in the study area (see Map 4.4).

The urban oriented out-migration trend, introduces a second important point that deserves mention. The in-and out-migration statistics, point to a considerable volume of circulatory movements, that is, migrations back and forth between the study area and urban places, sometimes referred to as sequential or satellite migration.



MAP 4.3.

Source : Survey of Kenya



MAP 4.4.

Source : Survey of Kenya

The circulatory movements occur as a result of wives moving to stay with their husbands or unmarried females visiting or staying with earning members of their respective households or families for schooling or job-seeking reasons. After a short or long sojourn in the towns, they move back to the study area. Consequently, one may indeed ask whether the women involved in these movements, still possess many of the cultural and traditional beliefs associated with large families and rural life, in general, because of their frequent contacts with "modern style of living" in urban areas. Certainly, the role of such migrants as agents of social change in the rural areas, is perhaps the most important single component of rural transformation that deserves high research priority.

Finally, because of the complex nature of population movements, it is essential to explore the array of the different forms of movements and the ways they relate to each other and to other aspects of population dynamics, and in, particular, those whose major focus is on fertility. Only against such an intricate migratory background, can the relationship between migration and fertility, be gauged adequately.

4.4 Summary:

Although the Chapter was purely descriptive in nature, it nevertheless, indicated the existence of a number of important observations which could be summarized in the following terms: firstly, whereas the migration statistics used in this study, were beset with numerous limitations, they managed to generate sufficient information for classifying the female study population into three migration groups, namely, the non-migrants, rural in-migrants and urban in-migrants as defined by birth place data cross-tabulated with place-of-last-residence statistics. It is from these three groups that reference will be made in studying the influence of migration, *per se*, on fertility in Chapter V.

Secondly, by tracing the migration patterns in the area of study, it was found that localized short-distance inter-locational movements involving relatively young women, were predominant and characterized much of the population exchange. These movements were largely attributed to marriage and family-related reasons. On the other hand, whereas much of the historical migrations in the region have ceased, evidence of these past movements were reflected in the migration data. This was confirmed by the existence of a large proportion of medium and old

aged women, (constituting the majority of the rural in-migrants in the study), who originated from the distant locations of Machakos district. These locations, in the history of the region, were known to have suffered greatest out-migration. The data also pointed to a considerable volume of circulatory movements between the study area and urban places. The role of such migrants as agents of social change, underscores the potentials such interchanges may play in the homogenization of fertility values and behaviour traits in the rural places these migrants move to.

Finally, the Chapter has also indicated the existence of variations in the age structure and distribution of women in the reproductive ages by migration status. Such age differentials by migration status, (see Appendix II), are particularly relevant in terms of the exposure to childbearing which, in itself, is a factor of crucial importance to the main argument of the next Chapter.

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CHAPTER V

MIGRATION AND FERTILITY

CHAPTER V

MIGRATION AND FERTILITY

5. MIGRATION AND FERTILITY

5.1 Introductory Remarks:

To date, there exists a formidable bibliography of African migration studies, which, essentially, are centred on the theories of how and why people move, the push and pull hypotheses and the determinants and socio-economic consequences of manpower exchange between the less and the more prosperous and developing areas (Radel and Radel, 1971). Along side this impressive collection, is a rapidly growing body of literature on how African urban population and urbanization has been stimulated by the accelerating influx of population from rural to the urban areas, which are largely the economic growth points in Africa (Ibid., pp. 142-146). Despite all this effort, strictly demographic studies on migration and fertility, are still limited and the mixed evidence these few portray on the relation between migration and fertility in Africa, argues for a continued and intensified research on this topic especially when new sets of data become available.

Already this opportunity has availed itself for the United States and Canada, Puerto Rico, Chile, Mexico, Brazil, India, Thailand, the Philippines and a few other countries where several studies have

been conducted to examine aspects of the relationship of residence background and fertility, with emphasis being placed on the influence of the area of origin. Implicit in these studies, has been the assertion that the rural population migrating to urban places, "carry-over" with them the high fertility values and behaviour characteristic of their places of origin. With prolonged residence in an urban milieu, the rural migrants gradually assimilate the "urban way of living" which, among other things, changes their normative valuation of reproduction and the ability to plan their family sizes effectively. These in turn, are eventually reflected in the modification of the rural migrant fertility behaviour towards a closer approximation of the patterns which prevail among the urban-born population (Martine, 1975). On the assumption that this is true, then one may indeed ask whether in the decades ahead, migration may also act as an agent of fertility change in the developing countries, as migrants from urban places would bring with them to the rural areas knowledge, attitude, and personal behaviour associated with lower fertility as part of other urban values and behaviour traits (Goldstein, 1973; Zarate and Zarate, 1975; Goldstein, 1976).

This Chapter attempts to deal with two questions:

Do the in-migrants have dissimilar fertility behaviour from their non-migrant counterparts in the study area? Secondly, do the in-migrant women of urban origin have lower fertility than both the non-migrants in the study area and the in-migrants of rural origin?

The fertility of women in the study area, is herein analysed with emphasis placed on the influence of the place of last residence.

5.2 Migration and Fertility:

In this Chapter, the fertility levels of in-migrant and non-migrant women in the study area, are examined basing migration status on place of last residence. Two hypotheses on migration and fertility, are tested. For the analysis of fertility by migration status, both current and retrospective data are used. The current fertility analysis was based on the number of births occurring to the women during the twelve months preceding the survey, that is, between April 1977 and March 1978. In the retrospective fertility analysis, the cumulative or the average number of children ever born to each women by current age, (as of 1978), was considered.

The first hypothesis states that, "in-migrant women, tend to have lower fertility than their non-migrant counterparts in the study area". Both

current and retrospective fertility data, were used for testing this hypothesis. Computations carried out on women who had borne their last child during the 12-months preceding the survey, (that is between 1st April 1977 and 31st March 1978), indicated that while the non-migrants had a total fertility of 8.2, (defined as the average number of children born alive to a woman who lives to the end of her reproductive life, that is, to age 50), the in-migrants displayed a slightly lower rate of 7.9. These differences were not statistically significant. Tabulations of age-specific fertility rates by age and migration status, are not presented due to some appreciable errors discussed in Appendix III.

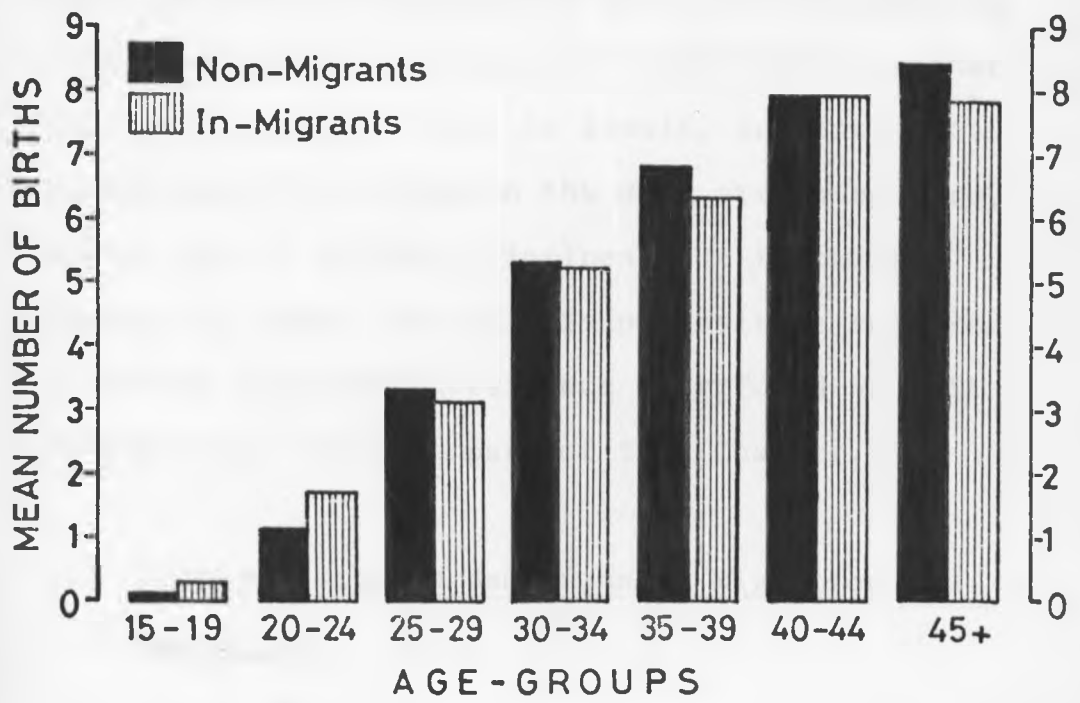
The pattern of the average number of children ever born per woman by age, essentially shows minor differences and, to a large extent, similarities between the different migration categories (Table 5.1 and Figure 5.1). These differences are, somewhat, erratic and inconsistent although the rise in the average births per woman with age, is quite satisfactory. The only striking exception found, however, is the much lower non-migrant fertility among the relatively younger women. Details regarding the distribution of women in the study population by the number of children ever born and migration status, are shown in Appendix I Table I.2.

TABLE 5.1: AVERAGE NUMBER OF CHILDREN EVER BORN PER WOMAN
BY MIGRATION STATUS AND CURRENT AGE.

AGE OF THE WOMAN	NON - M I G R A N T S		I N - M I G R A N T S	
	NUMBER OF WOMEN	AVERAGE NUMBER OF CHILDREN EVER BORN	NUMBER OF WOMEN	AVERAGE NUMBER OF CHILDREN EVER BORN
15 - 19	327	0.08	32	0.28
20 - 24	119	1.06	84	1.65
25 - 29	72	3.29	106	3.08
30 - 34	44	5.27	76	5.24
35 - 39	51	6.82	73	6.32
40 - 44	42	7.86	46	7.91
45 +	151	8.41	240	7.75
ALL AGES	806	3.19	657	5.41
AGE STANDARDIZED AVERAGES*		4.30		4.18

*Standardized with respect to age by using the age distribution of all the enumerated female study population as standard.

FIGURE 5.1: MEAN NUMBER OF BIRTHS PER WOMAN BY HER AGE AND MIGRATION STATUS.



Since the age composition of the women varies by migration status, some control of age must be introduced. With age-standardized for the total enumerated female study population, the average fertility of the non-migrants exceeds that of the in-migrants by 0.12 children, but this difference remains small and statistically insignificant. Certainly, the main features are clear. The results of the comparisons are quite close at all ages and fail to support the postulated hypothesis that in-migrants tend to have lower fertility than the non-migrants. This, in itself, suggests tentatively that, according to the data presented here, migration *per se* has no influence on fertility. Perhaps an exact test of this proposition requires a control for former residence background as will be attempted in the next part of this Chapter.

5.3 Former Residence Background*, Migration and Fertility:

This study is extended to examine aspects of the interrelationships of former residence background, migration and fertility, with emphasis

* Synonymous with Place-of-Last-Residence.

being placed on the influence of area of origin. The study further raises a question : Does former residence background influence fertility in the study area? This question, in general, presupposes that fertility of the urban in-migrants in the study area, is influenced, to a greater extent, by the urban pattern of childbearing and that fertility of both the rural in-migrants and the non-migrants, by the rural pattern of childbearing. But this line of argument entails the availability of information on the degree of contact and exposure to rural or urban milieu without which, it would not be feasible to test the assumption accurately.

It is stipulated in the second hypothesis that, "the in-migrants of urban origin, have lower fertility than both the non-migrants in the study area and the in-migrants of rural origin". Data for testing this hypothesis, are presented in Table 5.2 and Figure 5.2 which show the average number of children ever born per woman by former residence background and current age. Table 5.2 like the previous one, (Table 5.1) essentially, portrays an incoherent pattern of differentials in fertility between the three migration groups. Secondly, the differences are relatively marginal and statistically insignificant. Even with standardization for age, the overall pattern remains unchanged. This point

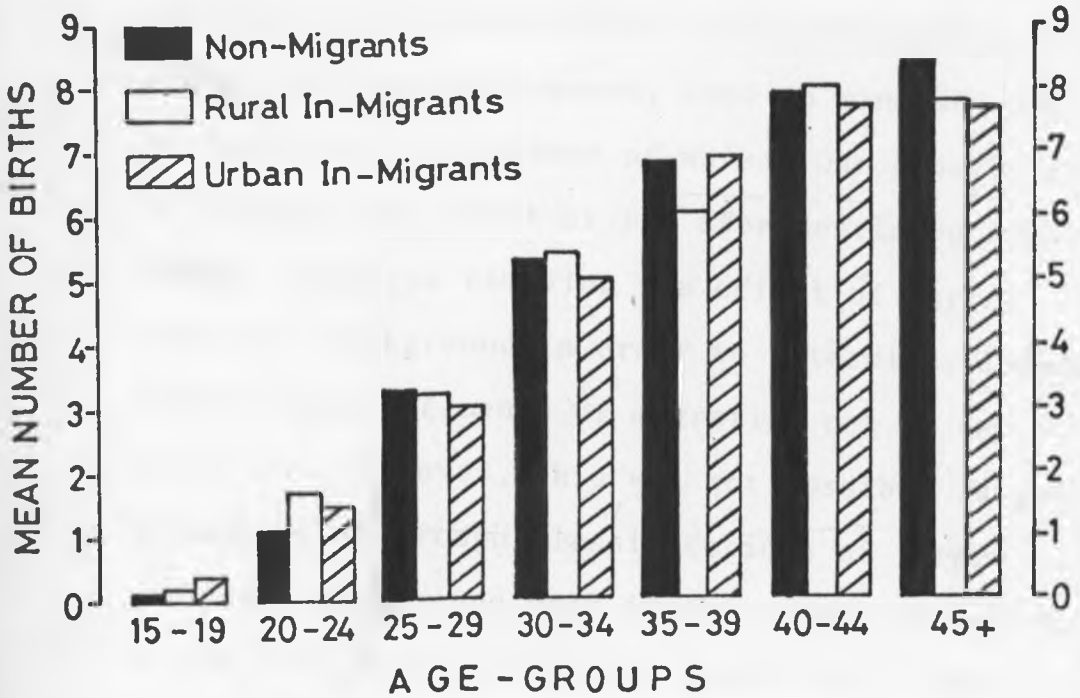
TABLE 5.2: AVERAGE NUMBER OF CHILDREN EVER BORN PER WOMAN BY FORMER RESIDENCE BACKGROUND* AND CURRENT AGE.

AGE OF THE WOMAN	NON - M I G R A N T S		RURAL IN - M I G R A N T S		URBAN IN - M I G R A N T S	
	NUMBER OF WOMEN	AVERAGE NUMBER OF CHILDREN EVER BORN	NUMBER OF WOMEN	AVERAGE NUMBER OF CHILDREN EVER BORN	NUMBER OF WOMEN	AVERAGE NUMBER OF CHILDREN EVER BORN
15 - 19	327	0.08	18	0.17	14	0.43
20 - 24	119	1.06	52	1.73	32	1.53
25 - 29	72	3.29	69	3.16	37	2.95
30 - 34	44	5.27	51	5.35	25	5.00
35 - 39	51	6.82	48	6.02	25	6.88
40 - 44	42	7.86	32	8.00	14	7.71
45+	151	8.41	217	7.75	23	7.74
ALL AGES	806	3.19	487	5.77	170	4.39
AGE STANDARDIZED AVERAGES*		4.30		4.17		4.20

*Synonymous with place of last residence

*Standardized with respect to age by using the age distribution of all the enumerated female study population as standard.

FIGURE 5.2: MEAN NUMBER OF BIRTHS PER WOMAN BY HER AGE AND FORMER RESIDENCE BACKGROUND*



*Synonymous with place of last residence

is further reflected in the total fertility rates which were found to be 8.2 for non-migrants, and 7.8 for both the rural and the urban in-migrants.

Overall, according to the data presented here, former residence background, therefore, fails to point to any substantial differences in fertility levels between the in-migrant and the non-migrant segments of the population. Various possible reasons of this phenomenon, come to mind and can be explained in a number of ways: One possibility is that an exact test of the aforementioned hypothesis, required removing the effect of former residence background in order to determine, independently, the influence of migration *per se* on fertility. However, this was not possible largely because of the rough classifications of former residence background used in this study as defined in the 1969 Kenya population census which were already 9 years old at the time of this study.

Secondly, the data used, could not permit determination of the time when migration actually occurred, thus, making it difficult to ascertain whether children were born before or after a particular type of a movement.

Thirdly, the Akamba are an ethnically homogeneous entity who, like most other ethnic groups in Africa, enjoyed substantial cultural

affiliation and cemented ancestral connections with their own villages in the rural areas, reflected in their frequent 'home' visits due to traditional and family obligations. In their displacements, therefore, the Akamba of the study area, as elsewhere in Machakos district, usually appear as a compact unit preserving their culture and traditions, particularly, as regards marriage and procreation. Their determination to return to their homeland after a short or long sojourn elsewhere, generally confirms the cultural matrix that bind the society to give it identity wherever they may be found. There are, therefore, reasons, if not possibilities, to believe that the common culture and tradition enjoyed by the Akamba, presumably, tended to iron-out whatever social and economic, as well as, demographic differences there, were between the in-migrant and the non-migrant population in the study area.

Finally, we may assume that the in-migrants of urban origin to the study area, were a selected group of people who probably did not or could not stay long enough in urban places to acquire or absorb the knowledge, attitude and personal behaviour associated with lower fertility as part of other urban values and behaviour traits. In other words, their stay in urban places, did not have any

influence on their fertility possibly because of their failure to adjust to the urban way of life or simply due to urban frustration. This argument, therefore, suggests that the successful migrants in urban places, may tend to stay on longer.

Nonetheless, it may still be argued that failure to control for the variables affecting the relationship between migration and fertility, (such as demographic, social and economic variables), may have had the effect of obscuring the nature of the association between migration and fertility. This explains the presentation of Chapter VI.

5.4 Summary and Discussion:

Considerable research has been conducted on the association between migration and fertility in various parts of the world. Whereas some of these studies have found no fertility differentials between the in-migrants and the non-migrants (Kiser, 1938; Goldberg, 1960), others have reported higher fertility among the in-migrants women of rural origin drifting to urban places (Goldberg, 1959; Freedman and Slesinger, 1961; Hutchinson, 1961; Duncan, 1965; Iutaka, Boch and Varnes, 1971; Ritchey and Stokes, 1972; Goldstein, 1973; Rele and Kanitkar, 1974; Iutaka, Bloomer and Berardo, 1976). Another group of studies on this aspect of

migration and fertility, has registered a shift in the order of the findings contrary to the evidence above. Here, it has been observed that migration tended to depress fertility throughout the childbearing period (Kiser, 1963; Myers and Morris, 1966; Kiser, Grabill and Campbell, 1968; Long, 1970; Macisco, Bouvier and Weller, 1970; Macisco, Weller and Bouvier, 1971; Hendershot, 1971b). Finally, there are two studies which concluded that younger in-migrant women, exhibited lower fertility than the non-migrants in the same age-groups (Macisco, Bouvier and Renzi, 1969; Martine, 1973).

Basically, one thing is common with all these studies ; their findings are diverse. This situation reflects, among other things, differences in the operationalization of the key concepts of migration and fertility, variations in methodological and analytical approach, peculiarities of the samples studied and, lastly, dissimilarities in the social, cultural and historical context in which the events were observed. To make matters even more complicated, these studies were conducted in countries at, markedly, dissimilar stages of development.

Although this study focuses on a small area which, eventually, restricts its value for purposes of generalization, it, nevertheless, shows the

existence of a number of important observations mentioned here and there throughout the Chapter. These observations seem to be of such general interest that we may conclude by reiterating them as follows:

1) The current fertility data were found to be erroneous and this was attributable to migration selectivity, over-and under-representation of women of certain parities, age-mis-statement and, (to some extent), age-shifting and, most probable, the small number of cases in the study. These irregularities, tended to distort the pattern of the computed age-specific fertility rates and the resultant shape of the fertility distribution curve (the curve was bi-modal). Various elaborate adjustment techniques applied on the data, produced unsatisfactory results. By and large, the computed total fertility rates, were plausible and concurred pretty much with the *de facto* total fertility rate of the area which was 7.8 between 1975 and 1978 (Van Ginneken and Omondi, 1979, p. 15).

2) Two hypotheses were tested and, taking into consideration the nature and extent of errors in the basic data, it was found that the current levels of fertility in the study area, were quite high for both the in-migrants and the non-migrants (7.9 and 8.2 respectively), and pretty much close

to the rate of 7.8 in Van Ginneken and Omondi (1979), p. 15. This observation is also in agreement with the findings of Omjnde (1975b), CBS, Kenya (1976a), Kenya (1977), Kenya(1979) and Henin, Mott and Mott (1979) on Kenya's total fertility rate.

3) The evidence from this study, further, demonstrated clearly that, whereas the differences in the average parity by migration status as well as former residence background, were marginal and statistically insignificant, they tended to become considerably erratic when inspecting the age-specific rates. However, the main point derived from the age-standardized mean number of live births, was that, there were no differences in fertility between the migration categories.

Taken together, the relationship between migration and fertility in this study, is, undoubtedly, much more complex than what has been attempted here. A thorough assessment of this relationship, requires considerably much better data providing more information on the basic demographic determinants of fertility, socio-economic and other peculiar characteristics of the population which may act as intervening variables in determining the

precise nature of this relationship. Such data are presented and analysed in Chapter VI.

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CHAPTER VI

MIGRATION AND FERTILITY DIFFERENTIALS

6. MIGRATION AND FERTILITY DIFFERENTIALS

6.1 Introductory Remarks:

In the previous Chapter, (Chapter V), it was found that there were no differences in fertility by migration status as well as by type of former residence background when the influence of age was eliminated. Various possible explanations of this occurrence, were offered and need not be repeated here. This Chapter attempts to explore the possible influence of several demographic, social and economic factors on the relationship between migration and fertility. These factors are divided into three categories. The factors comprising the first category are marital status; type of marital union; and age at first marriage. The second category consists of the educational attainment of the women, and if married, their husband's; and the women's participation in the monetary labour force and if married, the husband's work history. The last category consists of husband-wife physical separation caused by migration; and knowledge and practice of modern contraception.

6.2 Marriage, Migration and Fertility:

In Africa, the classification and definitions

of marital statuses, vary from one society to another, both in their degree of permanence and in their relationship to law, religion and custom (Danfa, 1975). Secondly, it is also worth while to note that in Africa, among other things, interest in marriage is, to a considerable degree, subordinate to interest in progeny. Radcliff-Brown (1950), for instance, asserts that an African marries in order to have children. This is certainly true of the Akamba society whose customs and tradition put a high premium on marriage, and above all, marriage for the sake of having children (Kabwegyere, 1977).

In this thesis, the women in the study area were conveniently classified into three marital statuses which were defined in Chapter I to enable a detailed analysis of the differentials in marital fertility by migration status and current age, to be undertaken.

6.2.1 Marital Status, Migration and Fertility:

We shall first consider the possible influence of marital status on the relationship between migration and fertility. It is posited in the third hypothesis that, "lower marriage probabilities and higher probabilities of divorce, separation and

and widowhood among the in-migrants, compared with the non-migrants in the 15 to 29 age category, should lead to relatively lower fertility among the in-migrants". An adequate test of this proposition, requires separate examinations in the order of the relationship between marital status and migration, marital status and fertility and lastly, marital status, migration and fertility.

Table 6.2.1.1 brings out the distinction between marital status and migration. We can see that the presently-not-married and the presently-married women, are the most mobile (61% and 56% respectively). This could partly be due to their relatively high median ages and partly by the circumstances surrounding their marital statuses.

Having observed the relationship between marital status and migration, it is worth while to investigate the relationship between marital status and fertility. This is presented in Table 6.2.1.2, which shows a positive association between marital status and the number of children ever born. Such a relationship is best explained by the degree of the risks involved in conception which are obviously higher for the presently-not-married than for the never-married women, but much higher for the presently-married than for either of the two statuses.

Table 6.2.1.1 : Percentage distribution of women under age 30 by marital status and migration status

Marital Status	Migration Status			Median Age
	Non-Migrants	In-Migrants	Total	
Never-Married	88	12	100 (444)	18
Presently-Not-Married	39	61	100 (38)	24
Presently-Married	44	56	100 (259)	25
Median Age	20	24		

(Figures in brackets indicate the number of women)

Table 6.2.1.2 : Average number of children ever born per woman by her current age and marital status

Current Age	Marital Status		
	Never-Married	Presently-Not-Married	Presently-Married
15-19	0.07	0.80	0.67
20-24	0.36	1.60	1.87
25-29	1.93 (444)	2.28 (38)	3.37 (259)
Age-standardized*	0.59	1.36	1.64

* Age distribution of all women under 30 years of age, was used as standard.
(Figures in brackets indicate the number of women)

In other words, it is marital status which is influencing fertility. This is in conformity with the views held by Radcliff-Brown (1950) and Kabwegyere (1977) presented at the preamble of this Chapter.

However, we are more interested in investigating the influence of marital status on the possible relationship between migration and fertility. This is done in Table 6.2.1.3, in which age-standardized mean number of live births between the two migration categories, are provided. This table hardly shows any significant differences in fertility between the migration categories within marital statuses.

Table 6.2.1.3 : Age-standardized* mean number of live births per woman by her marital status and migration status

Marital Status	Migration Status	
	Non-Migrants	In-Migrants
Never-Married	0.51	0.84
Presently-Not-Married	1.35	1.37
Presently-Married	1.66	1.62
Total	1.06	1.32

* Age distribution of all woman under age 30, was used as standard.

This finding, therefore, suggests that migration *per se*, has no major effect on fertility once the influence of marital status has been controlled for. Finally, none of these observations provide a clear confirmation to the advanced hypothesis.

6.2.2 Type of Marital Union, Migration and Fertility:

The next question we ask ourselves is, does the type of marital union have an influence on the relationship between migration and fertility? This is to be investigated by testing the fourth hypothesis which states that, "presently-married women in monogamous union, are more mobile and have less children than do their counterparts in polygynous union at similar ages". Table 6.2.2.1 examines the relationship between type of marital union and migration. We notice from this table that both categories of women married to monogamous and polygynous husbands, have virtually the same percentage of migrants although the latter group are slightly more mobile. It is also seen that between the types of marital union, the polygynously married women are, on average, 8 years older than their monogamously married counterparts. This age difference explains why the polygynously married women are slightly more mobile. Regrettably, there is little trace of literature

Table 6.2.2.1 : Percentage distribution of the women
by type of marital union and migration
status

Type of Marital Union	Migration Status			Median Age
	Non-Migrants	In-Migrants	Total	
Monogamous	44	56	100 (643)	36
Polygynous	37	63	100 (179)	44
Median Age	37	38		

(Figures in brackets indicate the number of women)

which examines the relationship between migration and types of marital union for comparison purposes. However, the difference in the median ages between the migration categories is marginal. These observations do not fit well with the first part of the hypothesis advanced above.

A further breakdown of the data is made in Table 6.2.2.2, in which the relationship between type of marital union and fertility, is portrayed. This table shows that there is little difference between the fertility of polygynously married and monogamously married women.

Table 6.2.2.2 : Average number of children ever born per woman by her current age and type of marital union

Current Age	Type of Marital Union	
	Monogamous	Polygynous
15-24	1.79	1.43
25-34	4.19	4.20
35-44	7.24	7.06
45+	8.47 (643)	7.90 (179)
Age-standardized*	5.96	5.69

* Age distribution of all the ever-married women, was used as standard. (Figures in brackets indicate the number of women)

Similarly, on examining the relationship between type of marital union, migration and fertility (Table 6.2.2.3), the results indicate that women married in polygynous households and those married in monogamous ones, had little differences in their average parities. Perhaps the deficiency of the data, may have helped 'explain' this occurrence because polygyny in Africa has been found to lower fertility (Henin, 1969, pp. 184-185;

De Jonge and Sterkenberg, 1973, pp. 248-249; Henin, Mott and Mott, 1979, pp. 16-22). Finally, the hypothesis as stated earlier, must be rejected.

Table 6.2.2.3 : Age-standardized* mean number of live births per woman by her type of marital union and migration status

Type of Marital Union	Migration Status		
	Non-Migrants	In-Migrants	Total
Monogamous	6.11	5.84	5.93
Polygynous	6.09	5.44	5.65
Total	6.03	5.71	5.84

* Age distribution of all the ever-married women, was used as standard.

6.2.3 Age at First Marriage, Migration and Fertility:

The last factor to be investigated in this section, relates to the possible influence of age at first marriage on the relationship between migration and fertility. The purpose is to test the fifth hypothesis which reads as follows, "fertility is lowest for the in-migrants of urban

origin and highest for the in-migrants of rural origin and the non-migrants in the study area, standardized for age at first marriage and current age". The group of women to be examined here, consists of both the presently-married and the presently-not-married or the ever-married women, in general.

Table 6.2.3.1 : Percentage distribution of the women by age at first marriage and migration status

Age at First Marriage	Migration Status				Total
	Non-Migrants	Rural In-Migrants	Urban In-Migrants	All In-Migrants	
≤ 17	48	41	11	52	100 (333)
18-19	41	46	13	59	100 (266)
20-21	41	43	16	59	100 (212)
≥ 22	30	54	16	70	100 (201)
All Ages	41	46	14	59	101 (1,012)
Mean Age at First Marriage (Figures in brackets indicate the number of women)	18.68	19.51	19.87	19.59	19.22

According to the data presented in Table 6.2.3.1 relating age at first marriage to fertility, we can notice that, it is the most mobile women, (the in-migrants in general), that married later. Although among the in-migrants themselves, the mean age at first marriage was 19.87 for the urban in-migrants and 19.51 for the rural in-migrants, it was, actually, the latter group that were more mobile, and this was certainly true of, virtually, all the age categories at first marriage.

An examination of the relationship between age at first marriage and fertility, portrayed in Table 6.2.3.2, reveals that fertility is negatively associated with the age at which a woman contracted her first marriage. An essentially similar inverse relationship emerges when we consider the age-standardized mean number of live births. However, the difference in fertility between women married before age 18 and those married at age 22 and above, is, surprisingly, 1.32 children only, yet the difference in married life between the two extremes, is 5 years. Naturally, an earlier age at first marriage, is, under normal circumstances, associated with high fertility particularly in a society where early age at first marriage is universal. This implies that within 5 years of married life, one would expect a fertility difference between the two extreme groups

Table 6.2.3.2 : Average number of children ever born per woman by her current age and age at first marriage

Current Age	Age at First Marriage			
	<17	18-19	20-21	>22
15-24	1.91	1.66	1.57	1.29
25-34	4.86	4.59	3.77	3.05
35-44	7.60	7.51	6.54	6.36
45+	8.34	7.75	8.66	7.09
	(333)	(266)	(212)	(201)
Age-standardized*	6.38	6.03	5.93	5.06

* Age distribution of all the ever-married women, was used as standard.
(Figures in brackets indicate the number of women)

to be 2.50 children. There are, at least, two possible explanations for this phenomenon. Firstly, with the kind of sexual liberalism that exist within the Akamba Society, (see Kabwegyere, 1977, pp. 202-203), pre-marital pregnancies, should not be ruled out altogether. It is, therefore, a common occurrence that a young Akamba girl gets married already with one or two or even more children born out of wedlock. This, in itself, suggests that the later married women, do not necessarily have

babies much later than their earlier married counterparts.

A second possibility would be that, postponement of marriage, may tend to raise fertility in so far as it improves the health of the women throughout their reproductive period. Thus, there would be a tendency among the married later to compensate for the loss of the earlier reproductive time by an increased fertility during the subsequent period of marriage. Obviously, these are all subjects for further intensive research. Future demographic studies in the study area on marital fertility, are recommended in this direction.

However, with respect to the relationship between age at first marriage, migration and fertility, one noticeable conclusion based on the age-standardized data presented in Table 6.2.3.3, is inescapable. This conclusion pertains to the fact that the immigrants, in general, exhibited, slightly, lower fertility in each category of age at first marriage compared with the non-migrants although the differences remained small and statistically not significant. Thus, it is clear that later marriage, alone, does not account for lower fertility by migration status (see the age-standardized totals).

Table 6.2.3.3 : Age-standardized* mean number of live births per woman by her age at first marriage and migration status

Age at First Marriage	Migration Status			
	Non-Migrants	Rural In-Migrants	Urban In-Migrants	All In-Migrants
≤17	6.45	6.26	6.52	6.32
18-19	6.18	5.98	6.18	5.98
20-21	5.98	5.82	5.47	5.81
>22	5.16	4.97	5.02	4.98
Total	6.08	5.76	5.81	5.78

* Age distribution of all the ever-married women, was used as standard.

Finally, these data do not lend support to hypothesis 5 which states that fertility is lowest for the in-migrants of urban origin and highest for the in-migrants of rural origin and the non-migrants in the study area, standardized for age at first marriage and current age.

6.3 Socio-Economic Status, Migration and Fertility:

Education and labour force participation, are some of the most important socio-economic variables

to be taken into account when considering the fertility of a population. In this section, the main focus will be on how these factors influence the relationship between migration and fertility.

6.3.1 Education, Migration and Fertility:

This section focuses on the possible influence of a respondent's educational level on the association between migration and fertility. It is stipulated in the sixth hypothesis that, "urban in-migrants have lower fertility than their rural in-migrant and non-migrant counterparts at similar age-groups because of their higher levels of education". In order to test this proposition adequately, we have to ask ourselves, are the urban in-migrant better educated than their rural in-migrant and non-migrant counterparts? Table 6.3.1.1 is addressed to this question. This table confirms that the urban in-migrants have the highest proportion of women with primary and above education followed by the non-migrants. On the whole, this trend fits well with the first part of hypothesis 6.

The data also affords examination of the relationship between education and fertility. This is done in Table 6.3.1.2, in which it is seen that education has no clear relationship with fertility.

Table 6.3.1.1 : Percentage distribution of all the women by migration status and educational attainment

Migration Status	Educational Attainment		Total
	No Education	Primary and above Education	
Non-Migrants	25	75	100 (806)
Rural In-Migrants	52	48	100 (487)
Urban In-Migrants	14	86	100 (170)
All In-Migrants	42	58	100 (657)

(Figures in brackets indicate the number of women)

Table 6.3.1.2 : Average number of children ever born per woman by her current age and educational attainment

Current Age	Educational Attainment	
	No Education	Primary and above Education
15-24	1.33	0.53
25-34	4.34	3.93
35-44	7.30	6.70
45+	7.99	8.03
	(478)	(985)
Age-standardized*	4.55	4.09

* Age distribution of all women, was used as standard.
(Figures in brackets indicate the number of women)

Even with age standardization for age distribution of all women in the study, the average fertility of the educated women only exceed that of the uneducated by 0.46 children. This difference, moreover, is not statistically significant. Evidence from Kenya and other African countries, show that women with a few years of schooling, (roughly 1 to 4 years of education), have higher fertility than women with no education. Beyond 5 or 6 years of education, fertility tends to decline (see Egero and Henin, 1973b, p. 198; Henin, 1974, Table 7.10, p. 116; CBS, Kenya, 1976b, p. 8; Kenya, 1977, pp. 28-38; Kenya, 1979, pp. 34-43; Henin, Mott and Mott, 1979, pp. 12-13). There are reasons, however, to believe that the inclusion of women with 5 to 8 years of schooling and the small number of secondary school women in the category 'Primary and above Education', may strengthen the conclusion from this study that there was practically no difference in fertility between women with primary and above education and women with no education.

Table 6.3.1.3, further, demonstrates that, even after controlling for education and age, there appears to be little variation in fertility between the migration categories. These data, therefore, do not lend support to hypothesis 6 that urban in-migrants have lower fertility than their rural in-

Table 6.3.1.3 : Age-standardized* mean number of live births per woman by her educational attainment and migration status

Educational Attainment	Migration Status			
	Non-Migrants	Rural In-Migrants	Urban In-Migrants	All In-Migrants
No Education	4.63	4.57	4.11	4.28
Primary and above Education	4.21	4.40	3.98	4.27

* Age-distribution of all women, was used as standard.

migrant and non-migrant counterparts at similar age-groups because of their higher levels of education.

The study is protracted to examine the influence of the wife's and husband's educational levels on the relationship between migration and fertility. The purpose is to test the seventh hypothesis which reads as follows: "the educational attainment of the wife, is more strongly related to the number of children ever born, than does the husband's level of education. This is much more pronounced among the urban in-migrants with lower fertility, than for the rural in-migrants and the non-migrants at similar age-groups". Table 6.3.1.4,

Table 6.3.1.4 : Percentage distribution of married couples by educational attainments of wives and husbands and wife's migration status

Educa- tional Attain- ment	Wife's Migration Status					
	Non-Migrants		Rural In-Migrants		Urban In-Migrants	
	Wife	Husband	Wife	Husband	Wife	Husband
No Educa- tion	43	27	49	28	17	6
Primary and above Education	57	73	51	72	83	94
Total	100 (350)	100 (350)	100 (356)	100 (356)	100 (116)	100 (116)

Figures in brackets indicate the number of respondents (wives and husbands).

shows the educational attainments of wives and husbands by wife's migration status. The urban in-migrant wives and husbands, exhibited the highest proportion with primary and above level of education. This reflects the selective out-migration of the better educated wives and their husbands to the urban places from the study area. Surprisingly, the rural in-migrant and non-migrant wives and husbands, portrayed virtually equal levels of education. The reasons for this near equality, are not immediately

clear but could be attributed to the common nature of their rural background.

This investigation is incomplete unless an attempt is made to compare and contrast the relationship between the wife's education and her fertility, on the one hand, and the husband's education and the wife's fertility, on the other. These are examined in Table 6.3.1.5. Apart from little variation

Table 6.3.1.5 : Average number of children ever born per woman by her current age and educational attainment and that of her husband

Wife's Current Age	Wife's Education		Husband's Education	
	No Education	Primary Education	No Education	Primary Education
15-24	1.83	1.77	2.33	1.78
25-34	4.31	4.18	3.94	4.35
35-44	7.39	7.04	6.80	7.27
45+	8.24 (345)	8.38 (477)	8.13 (201)	8.50 (621)
Age-stand-ardized*	6.00	5.91	5.78	6.06

* Wive's age distribution, was used as standard. (Figures in brackets indicate the number of respondents).

between the wife's educational attainment and her fertility, there are indications that the better educated husbands, (roughly primary education), may tend to have slightly more children than do their uneducated counterparts for virtually each age-group. This finding is in conformity with the evidence already cited on higher fertility among persons with primary education than those with no education.

The last step to testing the seventh hypothesis, is to examine the relationship between wife's and husband's educational attainment, migration status and fertility. This is attempted in Table 6.3.1.6, which shows the average number of children ever born per woman standardized for age and education. This table hardly shows any differences in fertility between the migration categories even after controlling for age and education. Secondly, by comparing fertility of the educated with the uneducated wives and husbands, the latter group, displayed slightly lower fertility for the rural and urban in-migrant couples.

In short, the data presented here, do not support the seventh hypothesis.

Table 6.3.1.6 : Age-standardized* mean number of live births per woman by her migration status and educational attainment and that of her husband

	Wife's Migration Status					
	Non-Migrants		Rural In-Migrants		Urban In-Migrants	
	No Education	Primary Education	No Education	Primary Education	No Education	Primary Education
Wife	6.25	6.08	5.83	5.87	5.10	5.63
Husband	6.35	6.12	5.84	6.03	4.46	5.76

* Age-distribution of the wives, was used as standard.

6.3.2 Labour Force Participation, Migration and Fertility:

This section will attempt to investigate the possible influence of labour force participation on the relationship between migration and fertility. There are two hypotheses to be tested and the first one, (hypothesis 8), reads that "high labour force participation rates, contribute more to lower fertility among the in-migrants of urban origin (where abundant job opportunities exist), than for those of rural origin and the non-migrants in the study area". It had been mentioned earlier in Chapter I that information pertaining to the number of years a woman actively participated in the monetary labour force, were collected and classified into two categories, for reasons which were provided. In this regard, our attention is now turned to exploring the relationship between labour force participation and migration status for whatever light it may throw in demonstrating that the urban in-migrants have a higher participation rate than both the rural in-migrants and the non-migrants. This explains the presentation of Table 6.3.2.1.

This table indicates that only 15.9% of the women in this study, were involved in cash employment at the time of interview. This rate is, probably,

Table 6.3.2.1 : Female participation rates* and migration status

Migration Status					
Non-Migrants	Rural	In-Migrants	Urban	In-Migrants	Total
8.2		23.0		32.4	15.9
(806)		(487)		(170)	(1,463)
$* \text{ Participation Rate} = \frac{\text{Total number of economically active women}}{\text{Total number of women}} \times 100$					
(Figures in brackets indicate the number of women)					

an underestimation of the economically active female population in the study. It will be recalled from Chapter III that the survey was hampered by systematic omission of the females who were present in the study area, but could not be traced for interview largely because they were actively involved in coffee picking for a salary in the nearby extensive coffee farms managed by local co-operative societies. However, it is not the intension of this thesis to over-emphasize such limitations.

What is particularly relevant from the point of view of the hypothesis advanced above, is the fact that, as Table 6.3.2.1 shows, the urban in-migrants, indeed, displayed the highest rate of participation which was about four times higher than

the non-migrant rate. This is not surprising as urban areas are normally associated with job or employment opportunities.

The next question we ask ourselves, do the economically active women have fewer number of children? This question leads us to examine the association between labour force participation and fertility presented in Table 6.3.2.2. This table hardly shows any relationship between participation and the number of children ever born. In other

Table 6.3.2.2 : Average number of children ever born per woman by her current age and labour force status

Current Age	Labour Force Status	
	Never Participated	Participated
15-24	0.49	1.32
25-34	4.20	3.49
35-44	7.22	6.65
45+	8.09	7.57
	(1,230)	(233)
Age-standardized*	4.22	4.17

* Age-distribution of all the women, was used as standard.
(Figures in brackets indicate the number of women)

words, the employment of women, has no influence on fertility.

Similarly, the standardization in Table 6.3.2.3, clearly, shows that the urban in-migrants had, virtually, the same fertility compared with their rural in-migrants and non-migrant counterparts after controlling for labour force participation.

Table 6.3.2.3 : Age-standardized* mean number of live births per woman by her labour force status and migration status

Labour Force Status	Migration Status		
	Non-Migrants	Rural In-Migrants	Urban In-Migrants
Never Participated	4.26	4.43	4.47
Participated	4.16	4.22	3.95

* Age-distribution of all women, was used as standard.

By and large, the contention that high labour force participation rates, contribute more to lower fertility among the in-migrants of urban origin than those of rural origin and the non-migrants in the study area, has gained no empirical support from this study.

The second part of this section, seeks to investigate the influence of the wife's and husband's involvement in cash employment on the relationship between migration and fertility. It is proposed in the ninth hypothesis that, "standardizing for current age, the wife's labour force participation, is more strongly related to the number of children ever born, than does the husband's work history. This is much more pronounced among the in-migrants of urban origin with lower fertility, than for the rural in-migrants and the non-migrants in the study area".

It is useful to compare the participation rates between the wives and the husbands. This is done in Table 6.3.2.4, in which it is observed that

Table 6.3.2.4 : Wife and husband participation rates* and migration status

	Wife's Migration Status			Total
	Non-Migrants	Rural In-Migrants	Urban In-Migrants	
Wife	13.1	23.0	27.6	19.5
Husband	73.1	78.1	84.6	77.5
	(350)	(356)	(116)	(822)

$$* \text{ Participation Rate} = \frac{\text{Total Number of Economically Active Population}}{\text{Total Population}} \times 100$$

(Figures in brackets indicate the number of women)

the urban in-migrant wives and husbands, registered the highest participation rates. Secondly, the husband's rates were more than three times higher than the wife's rates. This difference was even greater among the non-migrant husbands and wives.

The study, further, explores the association between the wife's participation and her fertility, on the one hand, and the husband's participation and the wife's fertility, on the other, as shown in Table 6.3.2.5. The evidence emerging from this table, points to the fact that, neither the wife's nor the husband's labour force status was significantly related to the number of children ever born.

Table 6.3.2.5 : Average number of children ever born per woman by her current age and labour force status and that of her husband

Wife's Current Age	Wife's Labour Force Status		Husband's Labour Force Status	
	Never Participated	Participated	Never Participated	Participated
15-24	1.55	1.40	1.56	1.44
25-34	4.09	3.70	3.86	4.02
35-44	7.23	6.59	7.05	7.09
45+	8.37	7.81	8.43	8.23
	(662)	(160)	(178)	(644)
Age-standardized*	5.98	5.50	5.88	5.86

* Wife's age distribution, was used as standard. (Figures in brackets indicate the number of respondents).

Reverting to the association between the wife's and husband's economic activity, migration status and fertility, (Table 6.3.2.6), we notice that there is little variation in fertility between the migration categories even when the effects of age and economic activity are eliminated. However,

Table 6.3.2.6 : Age-standardized* mean number of live births per woman by her migration status and labour force status and that of her husband

	Wife's Migration Status					
	Non-Migrants		Rural In-Migrants		Urban In-Migrants	
	Never Part.	Part.	Never Part.	Part.	Never Part.	Part.
Wife	6.15	5.67	5.81	5.44	5.88	5.05
Husband	6.23	6.02	5.88	5.76	0.98	5.69

* Age-distribution of the wives, was used as standard.

Note: Never Part. denotes Never Participated and Part. denotes Participated.

the exceptionally low age-standardized mean parity of 0.98 among the urban in-migrant husbands who are not in cash employment, is explained by the insufficient number of cases in the cell. Overall, the conclusion still holds that, neither the wife's

nor the husband's involvement in cash employment, particularly in urban places, depressed fertility.

6.4 Migration and Fertility as determined by Other Factors:

This last section of the Chapter will mainly be devoted to investigating two relevant variables and whatever light they may throw on the possible relationship between migration and fertility. These variables are the husband-wife physical separation during parts of the year, and knowledge and practice of modern contraception.

6.4.1 Husband-Wife Physical Separation, Migration and Fertility:

In examining the effect of husband's absence on the wife's fertility, it is postulated in the tenth hypothesis that "physical separation of married couples during, both, the initial stages of marriage and the most fertile ages of a woman, lowers marital fertility during that period". In this analysis, attention is confined to the presently-married women between the most fecund ages 15 to 34 years, married once only who have been in marriage for a duration of nine years or less. The data in Table 6.4.1, are addressed to this tonic.

TABLE 6.4.1: AVERAGE NUMBER OF CHILDREN EVER BORN PER PRESENTLY-MARRIED WOMAN AND MARRIED ONCE ONLY BY MIGRATION STATUS AND HUSBAND'S PRESENCE AT HOME BY CURRENT AGE.

Age Group	NON-MIGRANTS				IN-MIGRANTS			
	Husband Usually Away From Home		Husband Always Present at Home		Husband Usually Away From Home		Husband Always Present at Home	
	Number of Women	Average Parity	Number of Women	Average Parity	Number of Women	Average Parity	Number of Women	Average Parity
15-24	24	1.50	21	1.67	16	1.44	19	1.42
25-34	22	3.18	29	3.41	38	3.18	46	3.02

* Only the women with a duration of nine years or less in marriage, were examined.

An inspection of the data presented in this table, indicate that the differences in fertility between the women whose husband's are usually away from home and the women whose husband's are normally present at home, are narrow. This finding suggests that the absence of the husband, does not appear to depress fertility.

Nevertheless, the observation above is perhaps far from being conclusive because of some methodological limitations which may "explain" this occurrence. It is regrettable, in the first instance, that information pertaining to the husband's absence, were not adequately monitored. Perhaps it could have been useful to record the duration of the husband's absence rather than the number of visits made. Secondly, the absence-presence pattern of the husband prior to this survey, were never collected. Such information, juxtaposed with dates of marriage, would have, further, contributed towards a better understanding of the effect of the husband's absence on the wife's fertility. Lastly, it would be argued that constant absence of the husband from home, may naturally imply low coital frequency and, therefore, lesser chances of conceiving. This habit, unfortunately, cannot be proven with the existing data. Data on sexual relationship were never collected. One other point worthy of note is that husbands who

were away for long periods, were often visited by their wives for one reason or another and as long as their stay were short-lived, that is, not exceeding six months, such movements were not defined as "migrations", (see Chapter I for the definition of Migration).

On the whole, it seems reasonable to conclude, on the basis of the data presented here, that the husband-wife physical separation, as a measure in this study, is of little importance in explaining the aetiology of fertility by migration status.

6.4.2 Knowledge and Practice of Modern Contraception, Migration and Fertility:

The second factor to be investigated in this section, is the possible influence of the knowledge and practice of modern contraception on the relationship between migration and fertility. In our investigations, attention will be focused on the fecund women aged 15 to 44 years, irrespective of marital status. To begin with, it is postulated in the eleventh and the very last of the hypothesis to be tested in this thesis, that, "urban in-migrant women, may have less children because they practice more modern birth control methods than do their rural in-migrant and non-migrant counterparts, controlling for educational levels, labour force participation or

current age". Since we have examined the effects of education and labour force participation on the relationship between migration and fertility, this section will mainly investigate the possible interrelationship between knowledge and practice of modern contraception, migration status and fertility.

We first turn to the analysis of the relationship between knowledge and practice of modern contraception and migration status, demonstrated in Table 6.4.2.1. This table indicates limited practice of modern contraception by the women in the study population (6%) although the level of awareness by which fertility could be "controlled" with modern technology, was quite high (62%). There were noticeable differences by migration status. The level of awareness, was particularly high among the rural in-migrants (71%) followed closely by the urban in-migrants (68%). In terms of actual usage of contraception, the respondents of this survey were, largely, non-practisers. Only 3% and 7% of the non-migrant and rural in-migrant women, respectively, admitted that they ever used or were currently using a modern method. The urban in-migrants, on the other hand, registered a much higher percentage of 18%. This suggests that the urban in-migrants are a "selected out" and more "modern" group and, for that reason,

Table 6.4.2.1 : Percentage distribution of all the women aged 15 to 44 years by migration status and knowledge and practice of modern contraception

Migration Status	Knowledge and Practice of Modern Contraception			Total
	Not Heard of	Heard of but Never Practiced	Ever or Currently Practicing	
Non-Migrants	40	57	3	100 (651)
Rural In-Migrants	22	71	7	100 (269)
Urban In-Migrants	14	68	18	100 (146)
Total	32	62	6	100 (1,066)

(Figures in brackets indicate the number of women)

more aware of family planning methods.

In order to gain a further insight into the influence of modern contraceptive practices in "controlling" fertility, this analysis is protracted to examine the relationship between knowledge and practice of modern contraception and fertility, compared in the three panels of Table 6.4.2.2.

Table 6.4.2.2 : Average number of children ever born per woman by her current age and knowledge and practice of modern contraception

Current Age	Knowledge and Practice of Modern Contraception		
	Not Heard of	Heard of but Never Practiced	Ever or Currently Practicing
15-24	0.16	0.61	0.85
25-34	2.98	4.16	4.00
35-44	7.02	6.92	7.05
	(336)	(663)	(67)
Age-standardized*	2.45	3.00	3.10

* Age-distribution of all women aged 15 to 44 years, was used as standard.
(Figures in brackets indicate the number of women)

From this table, it becomes apparent that there is a slight but positive relationship between knowledge and practice of modern contraception and the number of children ever born after controlling for age distribution of all the women aged 15 to 44 years.

Turning to the examination of the interrelationship between knowledge and practice of modern contraception, migration status and fertility, (Table 6.4.2.3),

Table 6.4.2.3 : Age-standardized* mean number of live births per woman by her knowledge and practice of modern contraception and migration status

Knowledge and Practice of Modern Contraception	Migration Status		
	Non-Migrants	Rural In-Migrants	Urban In-Migrants
Not Heard of	2.65	2.51	2.23
Heard of but Never Practiced	2.79	3.28	3.06
Ever or Currently Practicing	3.27	3.56	2.90

* Age-distribution of all women aged 15 to 44 years, was used as standard.

it is not surprising that there is practically no differences in the average parities between the migration categories. Perhaps of great interest and also noticed in Table 6.4.2.2, is the fact that the desire to employ modern contraception increases with the number of children ever born. In other words, contraception is bound to be practiced in households with large numbers of children.

6.5 Discussion and Summary:

These data have demonstrated that there were little or no variations in fertility by migration status even after controlling for age and the intervening factors. However, some of the conclusions reached, must remain tentative and be interpreted with great caution. By and large, the following key findings have been observed in this Chapter:-

The first major finding, pertains to the influence of marriage on the relationship between migration and fertility. It was found that there were hardly any differences in fertility between the migration categories after controlling for age and marital status. This suggested that migration, *per se*, had no major effect on fertility. With regard to type of marital union, we noticed that the polygynously married women, had virtually the same number of children ever born, as their monogamously married counterparts. In a sense, there was no evidence of the depressant effect of polygyny on fertility by migration status. Alongside this finding, were indications that, whereas age at first marriage was inversely related to fertility, there were little variations in fertility between the migration categories.

The second major finding, relates to the effects of socio-economic status on the association between migration and fertility. No relationships between education and fertility, on the one hand, and labour force status and fertility, on the other, were established. In addition to these observations, migration was found to have no influence on fertility after standardizing for age, education and labour force status. Particularly noteworthy was the fact that, the urban in-migrants exhibited virtually the same fertility compared with their rural in-migrant and non-migrant counterparts, despite their higher proportions with primary and above levels of education and labour force participation rates. At the same time, it is likely that the urban in-migrants, formed a select group of women. Urban places, in particular, tend to attract individuals with, certain characteristics such as high levels of education, which consequently, lead to job-seeking and subsequent employment. Overall, these observations are in conflict with those registered in earlier studies by Carleton, (1965); Duncan, (1965); Rele and Kanitkar, (1974); and Iutaka, Bloomer and Berardo (1976); who found that the low urban migrant fertility, was attributable to their high levels of education and labour force participation rates. However, in the case of related studies by Macisco,

Bouvier and Renzi (1969) and Macisco, Bouvier and Weller (1970), the low fertility found among the migrants in comparison with the non-migrants in San Juan, Puerto Rico, could not, wholly, be attributable to differences in educational attainment and occupational characteristics.

The third and last major finding, results from the examination of the influence of other determining factors on the relationship between migration and fertility. In particular, the absence of a husband for long or short intervals, had no effect on the wife's fertility. Largely due to methodological limitations, husband-wife physical separation as a measure in this study, was of little importance in explaining the aetiology of fertility by migration status. This finding is contrary to the results of a study conducted by Vasaria (1971) in India where it was found that husband-wife physical separation, helped explain low fertility in the period immediately following the husband's migration. With regard to knowledge and practice of modern contraception, the survey results indicated limited use of modern contraception by the women in the study, although the level of awareness by which fertility could be "controlled" with modern technology, was quite high. It was particularly noteworthy that practice of modern contraception,

was higher for the urban in-migrants, than for both the rural in-migrants and the non-migrants in the study area although actual difference in fertility between the migration categories, were non-existent.

Finally, it can be concluded from the data presented in this Chapter that, migration and fertility were, in the context of this study, definitely, not related even when other controls were introduced. This confirms the results of Chapter V in which it was argued that migration had no appreciable effect on fertility.

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SUMMARY AND CONCLUSIONS

The purpose of this investigation was to determine the effect of the concentration of the solution on the rate of reaction. The results show that the rate of reaction increases with the concentration of the solution. The rate of reaction is directly proportional to the concentration of the solution. The rate of reaction is also affected by the temperature of the solution. The rate of reaction increases with the temperature of the solution. The rate of reaction is also affected by the surface area of the reactants. The rate of reaction increases with the surface area of the reactants.

CHAPTER VII

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7. SUMMARY AND CONCLUSIONS

The question of the relationship of migration to fertility, has been an important one in recent demographic literature (see Zarate and Zarate, 1975; Myers and Macisco, 1975), although there seems to be no unequivocal answer to this relationship. Nearly all recent studies on this topic, suggest that research contradictions may be more apparent than real and that they may be due to methodological and analytical variations in addition to, or instead of, differences in migration and fertility *per se* (Zarate and Zarate, 1975). In the present Chapter, we will review the main findings of this study and at the same time, make specific suggestions and recommendations on possible avenues for further inquiry.

Medical Research Centre (where the author was a junior research fellow) has, since November 1973, been operating a medical field project in north-western Machakos district, known as the "Joint Project Machakos" (JPM). Details regarding the objectives and design of the various studies in JPM, have been described elsewhere by Muller et.al. 1977. Concomitant with the various studies in this area, this study was undertaken with several

theoretical assumptions and objectives in mind (see Chapter III). The major purpose of this study was to look at the relationship between migration status and fertility on the one hand, and to examine the influence of several selected demographic and socio-economic factors on the relationship between migration and fertility, on the other. Besides this analytical treatment, an equally important objective was to examine the role of urban in-migrants as agents of social change.

A one-in-three systematic sample was taken from a universe of 7,238 females, and based on this technique, a total of 2,681 (37.0%) females aged 15 years and above, were chosen for interview with 1,463 (54.6% of the sample) actually interviewed. Thus, the possibility of a bias being introduced into the results because of differential exclusions, needs to be borne in mind when interpreting the survey results. Moreover, the 1,463 respondents in this study, do not, in any meaningful statistical sense, represent an adequate sample of north-western Machakos district as a whole. Thus, inferences from this sample to any larger geographic domain, must be made cautiously. Nevertheless, it is at least comforting that the results fit into a coherent picture.

Migration status was determined by asking the respondents direct questions on birth place and place of last residence. These questions, cross-tabulated, served the main purpose of classifying the enumerated population into three groups, namely, the non-migrants, rural in-migrants and urban in-migrants.

Furthermore, supplementary data on out-migration from the study area, were extracted from the JPM demographic surveillance sheets. These two sources of data from where migration status was determined, are not without defects and other limitations which are adequately documented in some of the recent literature (Bogue, 1969; United Nations, 1970; Claeson and Egero, 1973; Shryock and Siegel, 1973; Zachariah, 1974; Zachariah, 1977).

Fertility, on the other hand, was defined simply as the average number of children ever born to a respondent. It must be noted that this measure of fertility can be affected by errors in reporting and by failure to report.

We shall now review the findings as presented in this study bearing in mind the problems of interpretation considered above. It was found that localized short-distance inter-locational movements, attributable to marriage and family-related reasons,

were predominant and characterized much of the population exchange. These movements involved relatively young women. There were also evidence of past movements reflected in the migration statistics. This was confirmed by the existence of a sizeable proportion of medium and old aged women (constituting the majority of the rural in-migrants) who originated from the distant locations of Machakos district. These locations, in the history of the region, were known to have suffered greatest out-migration. Finally, the in- and out-migration statistics, pointed to a considerable volume of circulatory movements back and forth between the study area and urban places. The role of such migrants as agents of social change, underscores the potentials such interchanges may play in the homogenization of fertility values and behaviour traits in the rural places these migrants move to.

Aside from this descriptive treatment, this study also investigated the influence of migration on fertility. For the analysis of fertility by migration status, both current and retrospective or life-time approaches were used. However, the current fertility data were found to be erroneous and this was attributable to migration selectivity, over-and under-representation of

women of certain parities, age-mis-statement and, (to some extent), age-shifting and, most probably, the small number of cases in the study. These irregularities tended to distort the pattern of the computed age-specific fertility rates and the resultant shape of the fertility distribution curve (the curve was bi-modal). Various elaborate adjustment techniques applied on the data, produced unsatisfactory results. By and large, the computed total fertility rates, were plausible and concurred pretty much with the *de facto* total fertility rate of the area which was 7.8 between 1975 and 1978 (Van Ginneken and Omondi, 1979, p. 15).

The analysis, further, indicated that there was little variation in fertility between the migration categories. The age-standardized mean fertility of the non-migrants was 4.30, while the rural and urban in-migrants had 4.17 and 4.20 children respectively. Furthermore, while the non-migrants had a total fertility rate of 8.2, both the rural and urban in-migrants had a rate of 7.8. The reasons for the closeness of fertility between the migration categories, were explained in a number of ways: firstly, an adequate examination of the influence of migration on fertility, required controlling for the size of former residence background in order to determine, independently, the

effects of migration *per se* on fertility. However, this was not possible largely because of the rough classifications of former residence background used in this study as defined in the 1969 Kenya population census which were already 9 years old at the time of this survey. Secondly, the data used, could not permit determination of the time when migration actually occurred, thus, making it difficult to ascertain whether children were born before or after a particular type of a movement. Thirdly, there are possibilities that the common culture and tradition enjoyed by the Akamba, presumably, tended to iron-out whatever social and economic, as well as demographic differences there were between the in-migrant and the non-migrant population in the study area. Finally, the in-migrants of urban origin to the study area, were probably a select group of women who did not or could not stay long enough in the urban places to acquire or absorb the knowledge, attitude and personal behaviour associated with lower fertility as part of other urban values and behaviour traits. In other words, their stay in the urban places did not have an influence on their fertility possibly because of their failure to adjust to the urban way of life or simply due to urban frustration. This argument, therefore, suggests that the successful migrants in

the urban places, may tend to stay on much longer. Nonetheless, it was argued that the failure to control for the variables affecting the relationship between migration and fertility (such as, demographic, social and economic variables), may have had the effect of obscuring the nature of this relationship.

An attempt was, therefore, made to examine the influence of several selected demographic and socio-economic factors on the possible relationship between migration and fertility. This relationship proved to be even more complex than previously thought. In the light of this evidence, several interesting features, emerged from the analysis. To begin with, it was found that there were hardly any differences in fertility between the migration categories after controlling for age and marital status. This suggested that migration, *per se*, had no influence on fertility; rather, it was marital status influencing fertility and migration status. Kabwegyere (1977), for instance, writes that "among the Akamba, marriage that did not produce a child, was incomplete. Because of this concern with having children, Akamba society made sure that a person tried as much as possible to achieve reproduction" (p. 192). We also noticed that polygy-

nously married women, had virtually the same number of children ever born as their monogamously married counterparts. Alongside this observation, were indications that, whereas age at first marriage, was inversely related to fertility, the in-migrants who married later, had about the same number of children as their non-migrant counterparts who married early. Migration, therefore, delayed marriage but not the start of childbearing.

Secondly, the data amply demonstrated that migration and fertility were definitely not related even when controls for age, education and labour force status were introduced. Particularly noteworthy was the fact that fertility of the urban in-migrants, (exhibiting high educational levels, participation in cash employment and practice of modern contraception), was practically the same with those of their rural in-migrant and non-migrant counterparts. These percentage differentials, in all likelihood, also suggest that selectivity with regard to education and participation in the labour force, was in operation. A woman with relatively good education, is not only, more likely to be drawn into the monetary sector of the labour force in the urban places where job opportunities exist, but may also migrate to the towns to obtain specialized training or higher education and then

remain on. On the other hand, higher education and participation in cash employment, exposes a woman to new values and behaviour traits associated with, among other things, how fertility could be "controlled" by using modern technology offered freely in family planning clinics in towns.

The role of urban in-migrants as agents of social change, was mentioned in the preamble of this Chapter. One of the objectives of this survey was to study the "carry over" of low fertility norms and other "urban values" by the urban in-migrants to the study area. Demographers have noted for some time that fertility levels are lower in the urban than in the rural areas. This appears to be true of countries in the western hemisphere as well as for more industrialized countries of Europe. There has been no evidence of rural-urban fertility differentials in the developing countries until recently. In the high fertility societies, (particularly those in the third world), it may be envisaged that when the transition from agrarian to urban society commences, fertility in urban places will begin to fall as "urban values" will begin to develop. Iutaka et.al. (1976) advances this hypothesis by asserting that, in cities where fertility appears to be declining, it is expected that the value differences between the rural and the urban born, will increase.

After a society has come through the transitional stage and has reached a fairly stable state of low fertility, it is, then, expected that the differences between rural and "urban values" will again decrease. At this point, however, it is the "urban values" which will set the standards for the entire society; rural people will become more like their urban counterparts. Thus, if the migrants began to absorb the fertility value system existing in the urban areas of destination, it would be possible to speculate that, eventually, the overall birth rate for a region will decline as has happened in other areas of the world. In other words, migration may well have a strong impact on isolated villages which the migrants leave and to which a number of them return.

If we look at the Kenyan situation, we can see evidence of the hypothesized relationship in recent studies which have indicated that urban completed fertility, was systematically lower than rural fertility in every province of the country (Ominde, 1972; Ominde, 1975a; CBS, Kenya, 1976a; Muinde, 1977a; Muinde, 1977b; Henin, Mott and Mott, 1979; Kenya, 1979). But there is, as yet, no evidence, at either macro-or micro-levels, that migration has had an appreciable effect on the country-wide fertility pattern.

In this study, attention was drawn to the existence of circulatory movements, that is, movements back and forth between the study area and urban places. Such movements underscore the links migration may build between the urban places and the study area to which the migrants move. The women who constituted this stream, were defined as the urban in-migrants. Computation carried out on the fertility data collected and briefly discussed earlier in this Chapter, indicated that the urban in-migrants exhibited virtually the same fertility compared with their rural in-migrant and non-migrant counterparts in the study area. But whether migration from the urban places to the study area, was selective of the women who could not stay long enough in the towns to absorb the "urban values", or those who had failed completely to adjust to the life style in the towns or those simply frustrated, calls for much more thought and intensive investigation using more samples. Future demographic studies on fertility differentials between rural and urban places, are recommended in this direction. It is also recommended that other ethnic groups should be studied particularly as comparative data would render such analyses more fruitful.

Equally important from these observations is the fact that, the whole process of classifying

the study population into three migration categories, (non-migrants, rural in-migrants and urban in-migrants), may have been more artificial than real. Moreover, in most societies at a similar stage of development as Kenya's, it may be difficult to draw a precise dividing line between the rural and the urban areas. The urban-rural links between the study area and the neighbouring urban places (Nairobi, Thika and Machakos), are intimate. It may be argued that due to this proximity, the study area may possess more of the urban characteristics than rural. Conversely, places like Nairobi, Thika or Machakos, may be more rural oriented than urban. One obvious fact, common in Africa, is that urban places in the continent, are "settled" with people who have lively connections with their ancestral homes in the rural areas. In this respect, we cannot speak of a true urbanite in Kenya or Africa in general. It may, for instance, be difficult to prove that people think differently in the urban than in the rural environments and *vice versa* although for certain we know they behave differently.

Clearly, as these rather preliminary results have shown, the relationship between migration, as such, and fertility, is, undoubtedly, much more complex than what has been investigated here. Throughout the analysis, we were comparing mean

fertility between the migration categories; taken together, what we have determined here is that fertility of both the in-migrants and the non-migrants, is generally consistent with what we know of its measurement, peculiarities of the sample studied, and the social, cultural and historical fabrics in which it is observed. Finally, the only conclusion warranted on the basis of the data reviewed in this study, is that the available evidence does not support any of the hypotheses tested and that the whole subject, perhaps, requires further attention and more intensive investigation along recommendations suggested herein as follows:

- 1) There is need for much more detailed migration data than those collected for this study. The use of more than one migration definition, allows one to gauge the effect of different classifications upon fertility. For instance, in addition to the more common methods of measuring migration (such as, place of birth and place of last residence statistics), there is need to include other questions, such as, the length of residence in an area and place of residence at a fixed date. As should be expected, the basis of the classification, is not the same for these different questions, and, consequently, measures of migration derived from these various questions are, quantitatively and even

conceptually, different. With this in mind, it is envisaged that cross-tabulations of one type of migration data (for instance, birth place data) with other types (for instance, duration of residence data or data on place of residence at a fixed prior date) by age, may provide much more useful information that would make it possible to classify migrants and non-migrants into meaningful types. This approach would, of course, require a larger sample than I had available for this study.

2) Knowledge of the migrant's previous experience prior to arrival in the place of enumeration, is also essential. This would permit analysis of the complete migration history of individuals (that is, the number and nature of previous moves), of many of the relevant characteristics before and after migration, of the social and psychological aspects of population movements, whether husbands, wives and other relatives move together or separately, (or household level analysis), other communities in which individuals may have resided and duration of sojourn there, and age at arrival in an area.

3) Information on the time when a movement took place in relation to childbearing, should be adequately monitored. We should be in a position to determine whether a child or children were born before or after a particular type of a move.

4) More intensive analysis of the motives of circulatory movements and the factors associated with re-migration and return migration and the impact which such movements may have, both on the migrants, and on the place of origin and destination, are certainly called for.

5) We have also noted that rural-urban and urban-rural migration, may serve as a catalyst needed to speed up modernization and economic development in the less developed parts of a country. It is, therefore, imperative that the role of such migrants as agents of social change in the rural areas, should be accorded high research priority.

6) Finally, any thorough explanation of the relationship of migration to fertility, must come to grip with the differences presented by areas or regions at different stages of economic development and/or demographic transition. On the other hand, we should also be able to make sense out of studies conducted in countries at diverse stages of development.

The foregoing recommendations, taken together with those made earlier in this Chapter, lead us to conclude that, it is just not enough to classify a population by migration status without taking into account their historical, cultural and socio-economic background. These background factors, to

a large extent, may determine the behaviour of the migrants and the non-migrants alike, wherever they may be found. It is these same background factors which, apart from influencing their fertility, may ultimately contribute, collectively, to a cumulative understanding of the complex relationship between migration and fertility.

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APPENDIX I

TABLES

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APPENDIX TABLE I.1 : AGE DISTRIBUTION OF THE FEMALE STUDY POPULATION BY LOCATION OF BIRTH IN MACHAKOS DISTRICT.*

CURRENT AGE	LOCATION OF BIRTH IN MACHAKOS DISTRICT							TOTAL
	Iveti	Kalama	Kangundo	Matungulu	Mbiuni	Mbooni	Mwala	
15 - 19	-	-	1	9	4	-	-	15
20 - 24	1	1	7	17	6	1	1	34
25 - 29	3	1	7	20	7	4	2	44
30 - 34	-	2	7	18	3	-	1	31
35 - 39	1	1	5	13	6	2	1	29
40 - 44	-	1	4	12	2	2	1	22
45 - 49	4	4	7	15	4	3	3	39
50 - 54	-	1	2	7	6	2	6	24
55 - 59	-	1	2	6	1	3	2	17
60 - 64	2	3	1	8	-	4	3	21
65+	11	12	6	4	7	25	6	71
TOTAL	22	27	49	131	46	46	26	347
MEAN AGE	56	57	40	38	40	59	51	45

*Locations with less than 20 cases are excluded.

Note: A hyphen (-) denotes no case observed.

APPENDIX TABLE 1.2: PERCENTAGE DISTRIBUTION OF WOMEN BY NUMBER OF CHILDREN EVER BORN BY CURRENT AGE AND MIGRATION STATUS.

AGE OF THE WOMAN	MIGRATION STATUS*	NUMBER OF CHILDREN EVER BORN					TOTAL	TOTAL NUMBER OF WOMEN
		0	1-3	4-6	7-9	10+		
15-19	NM	92.7	7.3	—	—	—	100.0	327
	AM	78.1	21.9	—	—	—	100.0	32
	RM	88.9	11.1	—	—	—	100.0	18
	UM	64.3	35.7	—	—	—	100.0	14
20-24	NM	38.7	58.0	3.3	—	—	100.0	119
	AM	8.3	86.9	4.8	—	—	100.0	84
	RM	3.8	92.4	3.8	—	—	100.0	52
	UM	15.6	78.1	6.3	—	—	100.0	32
25-29	NM	2.8	55.6	40.2	1.4	—	100.0	72
	AM	5.7	55.7	37.7	0.9	—	100.0	106
	RM	5.8	52.2	42.0	—	—	100.0	69
	UM	5.4	62.2	29.7	2.7	—	100.0	37
30-34	NM	—	18.2	56.8	25.0	—	100.0	44
	AM	2.6	17.1	55.3	23.7	1.3	100.0	76
	RM	2.0	17.6	54.9	23.5	2.0	100.0	51
	UM	4.0	16.0	56.0	24.0	—	100.0	25
35-39	NM	2.0	7.8	31.4	47.0	11.8	100.0	51
	AM	1.4	11.0	34.2	46.0	6.8	100.0	73
	RM	2.1	14.6	33.3	43.7	6.3	100.0	48
	UM	—	4.0	36.0	52.0	8.0	100.0	25
40-44	NM	—	7.1	19.1	47.6	26.2	100.0	42
	AM	—	2.2	23.9	52.2	21.7	100.0	46
	RM	—	3.1	21.9	50.0	25.0	100.0	32
	UM	—	—	28.6	57.1	14.3	100.0	14
45+	NM	3.3	5.3	15.9	37.1	38.4	100.0	151
	AM	2.1	9.6	18.3	41.7	28.3	100.0	240
	RM	2.3	10.1	17.5	40.6	29.5	100.0	217
	UM	—	4.3	26.1	52.2	17.4	100.0	23
ALL AGES	NM	44.2	19.4	13.2	13.9	9.3	100.0	806
	AM	7.0	28.0	25.3	26.9	12.8	100.0	657
	RM	6.0	25.7	24.6	28.1	15.6	100.0	487
	UM	10.0	34.7	27.1	23.5	4.7	100.0	170

* MN denotes Non-migrants, AM denotes All In-migrants, RM denotes Rural In-migrants, and UM denotes Urban In-migrants.

Note: A hyphen (-) denotes no case observed.

EVALUATION OF AGE DATA AND AGE DISTRIBUTION

The first step in the evaluation of age data is to determine the reliability of the data. This is done by comparing the data with other data from the same area and time period. If the data are found to be reliable, the next step is to determine the age distribution. This is done by plotting the data on a graph and drawing a curve through the points. The curve represents the age distribution of the population at that time and place.

APPENDIX II

EVALUATION OF AGE DATA AND AGE DISTRIBUTION

The first step in the evaluation of age data is to determine the reliability of the data. This is done by comparing the data with other data from the same area and time period. If the data are found to be reliable, the next step is to determine the age distribution. This is done by plotting the data on a graph and drawing a curve through the points. The curve represents the age distribution of the population at that time and place.

1. HALL, W. H. (1971). Methods of Demography. London: George Allen and Unwin.

Evaluation of Age Data and Age Distribution

Tests of the accuracy of age statistics are necessary not only because such data are of major importance for population estimates and demographic analysis, but also because errors in these statistics are often indicative of deficiencies in the head count of the population, or in the records of the vital events. Statistics classified by age groups may be affected both by errors in the reporting of age, and by variations in the completeness of enumeration, or of recording of vital events, for the different age groups.¹

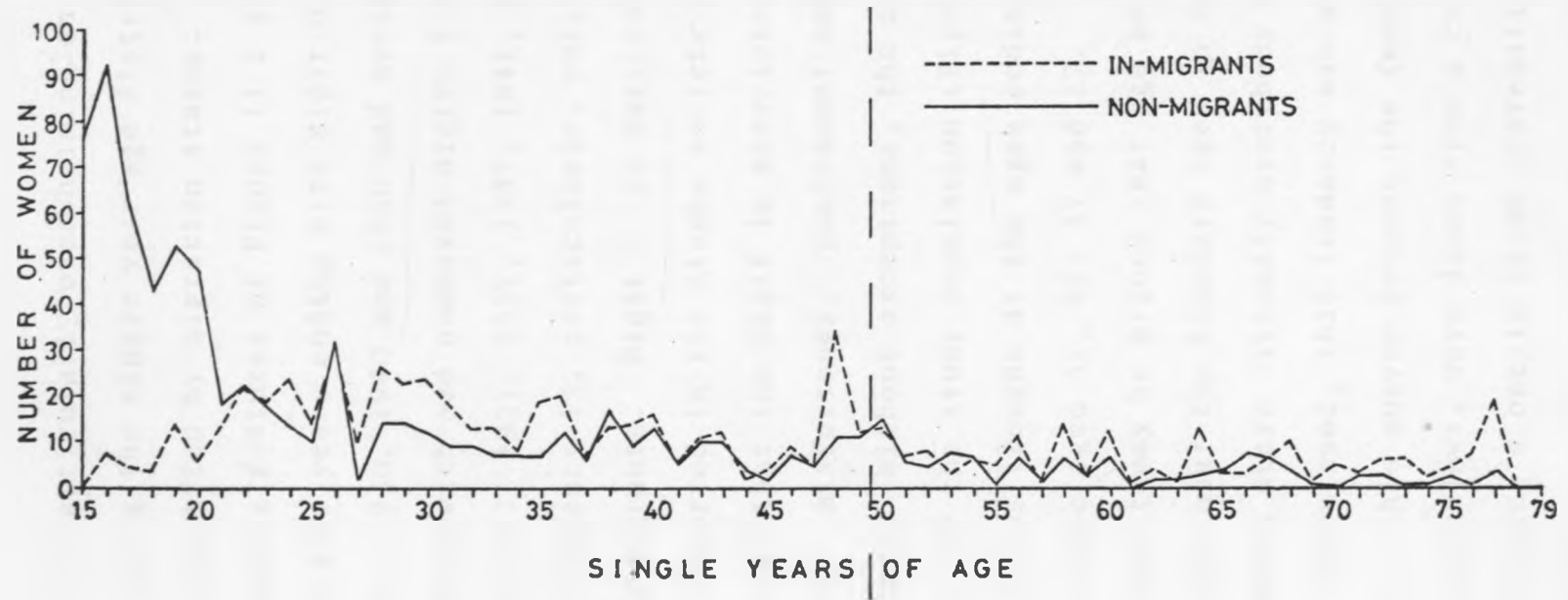
In this study, data on age was secured by asking a respondent a direct question on her year-of-birth contrary to most African inquiries. It was felt that, since most of the respondents were semi-illiterate, probing into their dates and months of birth, would be inappropriate since most of them would not recall their ages accurately. In most African societies, a year of birth is easily remembered as the birth could have occurred during a certain historical event known to the population. Despite this approach, which in most parts relied, wholly,

¹ Farrag, A.M. (1977), "Evaluation of Demographic Data (Evaluation I)," unpublished lecture notes for the General Diploma Course, United Nations-Arab Republic of Egypt, *Cairo Demographic Centre*, p. 18.

on a calendar of local historical events, (see Appendix IV), analysis of the number of females reported at single years of age and portrayed graphically in Figure II.1, indicated the existence of, not only digital preference, but also preference of certain events in the local historical calendar. These could be attributable to:

- i) the enumerator attempting to relate an incident or some previous event in the respondent's experience to some local historical event known to the same respondent;
- ii) deliberate falsification of the year of birth by the respondent either upwards or downwards; and finally,
- iii) the popularity of an event which the respondent, consciously or unconsciously, tried to link with her year of birth : for instance, among the popular and most important events in the local historical calendar were, the declaration of the state of emergency in Kenya - 1952; arrest of General Dedan Kimathi, a freedom fighter - 1956; the end of Mau Mau rebellion - 1959; and towards Kenya's independence - 1961 to 1963. This type of preference

FIGURE II.1: SINGLE-YEAR AGE DISTRIBUTION OF THE IN-MIGRANT AND NON-MIGRANT WOMEN IN THE STUDY



was particularly overwhelming on scrutinizing the single year age distribution classified by migration status.

Other outstanding features of Figure II.1 are, the preference of years ending with digit 0, for example, 1920, 1930, 1940 and 1950 and avoidance of years ending with odd numbered digits 1 and 7, as shown for 1917, 1921, 1931, 1937, 1941, 1951 and 1957. This tendency is, particularly, outstanding among the in-migrants. Digit 7, in particular, is often under-reported in the Akamba society because of their belief that the digit is associated with evil practices, misfortunes, punishment and is used as a curse. Without exceptions, the curve of the age data for the study population (Figure II.1), shows conspicuous troughs at the ages ending in digit 7 for those aged 57, 47, 37 and 27.

Whereas it may be argued that age hearing commonly occurs near the boundary ages in community oriented surveys where virtually everybody would like to be interviewed, this tendency was not experienced in this survey because the females earmarked for interviews, were drawn from a computer print-out by using a one-in-three systematic sample selection technique. This print-out listed all the females in the study area aged 15 years and above as on February 1978. The chances of the females reporting

themselves younger or older than their actual ages in order to be interviewed, were, therefore, obliterated altogether.

However, it must be added here that the various methods of measuring digital preference, such as Whipple's Index, Myer's Blended Method, United Nations Secretariat Method and others,^{2,3,4,5} were of little value as they failed to indicate the existence of age mis-statement in the data possibly due to the small number of cases per single age in the study. Moreover, it has also been found that in many African surveys and censuses, age mis-statement is not simply confined to digital preference, but that more massive and deep-seated distortions

² Farrag, A.M. (1977), *ibid.*, pp. 21-25.

³ Shryock, H.S. Jr. and J.S. Siegel (1973), *The Methods and Materials of Demography*, Vol. I, Second Printing (Rev.), U.S. Bureau of the Census, Department of Commerce and Agriculture, U.S. Government Printing Office, Washington, D.C., pp. 205-209.

⁴ Lingner, J.W. (1974), "A Handbook for Population Analysis, Part A : Basic Methods and Measures", *Laboratories for Population Statistics, An Occasional Publication*, pp. 50-55.

⁵ United Nations (1955), "Methods of Appraisal of Quality of Basic Data for Population Estimates", *Manual on Methods of Estimating Population, Manual II, ST/SOA/Series A/Population Studies No. 23*, United Nations, New York, pp. 40-43.

of the age distribution, may be discerned.^{6,7}

Analysis of age distribution of the female study population, also forms part of the demographic profile that we need to consider here as these age structures were to be used in the cross-tabulation of the data on migration and fertility, on the one hand, and migration-fertility with demographic, socio-economic and other factors, on the other. The details of the percentage age distribution of the female study population in relation to the 1978 study area's mid-year *de facto* female population, are presented in Table II.1 and similarly illustrated graphically in Figure II.2 by five-year age groups. The three most outstanding features emanating from the comparison of the age distributions, are summarized as follows: first, the young females in the 15 to 19 age-bracket among the total enumerated female study population, and in particular, the non-migrant category, were substantially over-represented. This is explained by the fact that in their formative years, they were less susceptible to migration

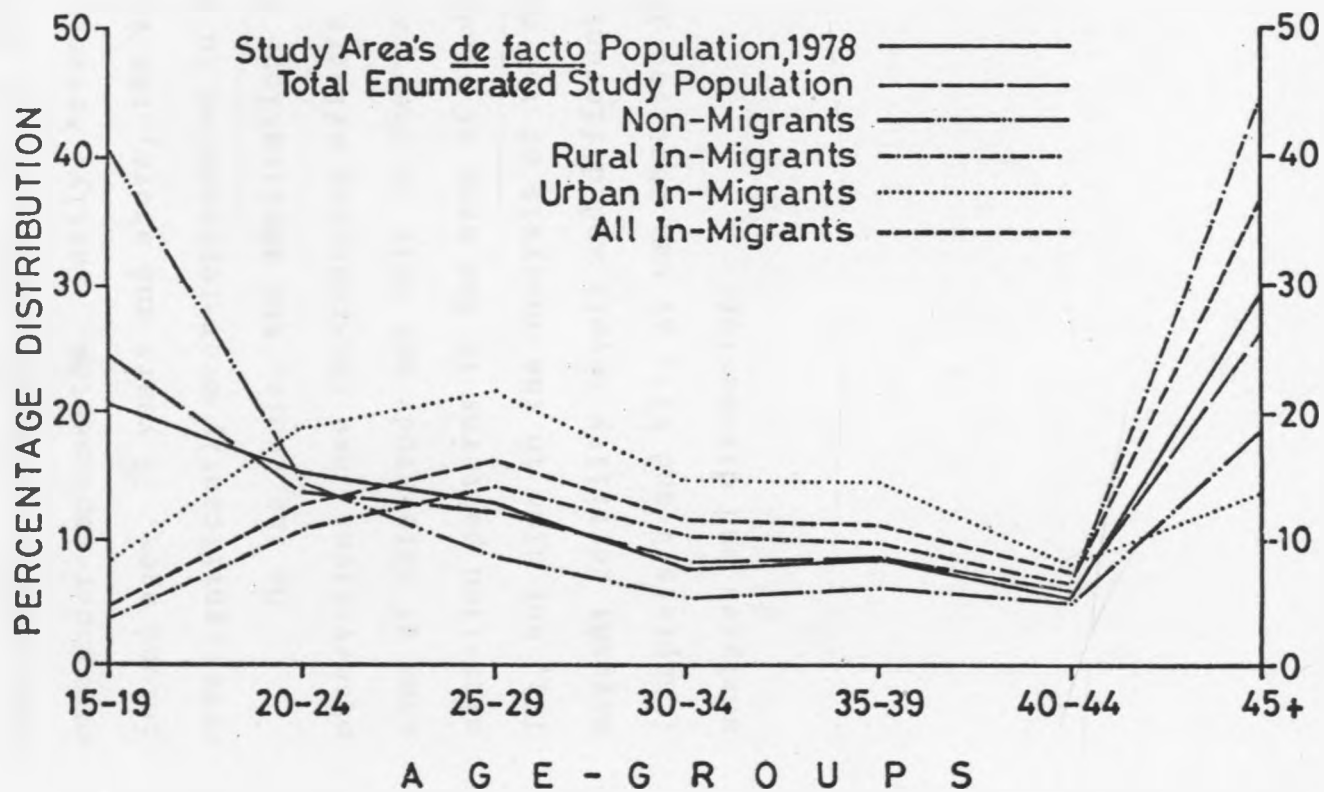
⁶ Egero, B. and R.A. Henin (1973a), "Distribution by Sex and Age", in B. Egero and R.A. Henin, (Eds.), *The Population of Tanzania : An Analysis of the 1967 Population Census*, Census Vol. 6, BRALUP and Bureau of Statistics, Dar-es-Salaam, p. 204.

⁷ Botswana, Republic of (1971), *Report of the Population Census of 1971*, p. 118.

TABLE II.1: PERCENTAGE AGE DISTRIBUTION OF THE FEMALE STUDY POPULATION IN RELATION TO THE STUDY AREA'S MID-YEAR DE FACTO FEMALE POPULATION, 1978.

Age Group	Study Area's Mid-Year <u>De facto</u> Female Population, 1978	Total Enumerated Study Population	Non-Migrants	Rural In-Migrants	Urban In-Migrants	All In-Migrants
15 - 19	20.8	24.5	40.6	3.7	8.2	4.9
20 - 24	15.2	13.9	14.8	10.6	18.8	12.8
25 - 29	13.0	12.2	8.9	14.2	21.8	16.1
30 - 34	7.6	8.2	5.5	10.5	14.7	11.6
35 - 39	8.5	8.5	6.3	9.9	14.7	11.1
40 - 44	5.4	6.0	5.2	6.6	8.2	7.0
45+	29.5	26.7	18.7	44.5	13.6	36.5
Percentage Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	5,932	1,463	806	487	170	657

FIGURE II.2: PERCENTAGE AGE DISTRIBUTION OF THE FEMALE STUDY POPULATION IN RELATION TO THE STUDY AREA'S MID-YEAR DE FACTO FEMALE POPULATION, 1978.



and were, therefore, more likely to be found at home for interview. Secondly, in the 20 to 24 age-bracket, we notice that all the categories were under-represented. Lastly, between the most fecund ages, 25 years and above, the in-migrants were significantly over-represented in the study.

On the whole, the implications of these observations, had far-reaching effects for the outcome of this study not only in the description of migration patterns in the area of study, (Chapter IV), but also in the analysis of the migrant-non-migrant fertility levels and differentials, (Chapters V and VI), as was observed in the preceding analyses and discussions.

Fertility Data and Indices of Fertility:

Details regarding fertility, were recorded in Part 3 of the Comprehensive Questionnaire used for this study (see Appendix IV) which provided two different sources of information from which fertility indices were derived:

i) data on "current" fertility, were obtained from a question on the month and year of the responding woman's last live birth. This source enabled the calculation of age specific fertility and total fertility rates; and

ii) data on "life-time" or "retrospective" fertility, were obtained from a question on the total number of children ever born alive to each responding woman. This source furnished information leading to the average number of children ever born per woman by her age and, in the case of women who had passed reproductive age, the average size of completed families.

A priori reasoning as well as experience from Africa and elsewhere, has frequently indicated that none of these sources can be regarded as absolutely error-free or trustworthy as reports from women of past births, have often been subjected to serious biases. In this section, an attempt is made to discuss methods of analysing such fertility data

from the above mentioned sources in order to obtain plausible estimates of the levels of fertility by migration status. The two types of measures derived from the information recorded, that is births in the last twelve months and the number of children everborn to each woman by age, were utilized to detect and allow for errors in the data because of the logical relationship between them. Although erroneous data must be corrected in order to obtain reasonable estimates, Brass (1971)¹ (1975)² maintains that such corrections should be kept to a minimum.

1. Current Fertility:

The information on current fertility, was obtained, not through the usual approach of asking women if they had had a birth in the previous year preceding the survey, but from a question devoid of time reference, "when did you last give birth?" which normally yields reliable data on fertility in

¹ Brass, W. (1971), "Disciplining Demographic Data", in *Proceedings of the International Population Conference, London, 1969*, Vol. I, International Union for the Scientific Study of Population, Liege, pp. 183-203.

² Brass, W. (1975), "Methods of Estimating Fertility and Mortality from Limited and Defective Data", *Laboratories for Population Statistics, An Occasional Publication*, pp. 3-10.

the past year but with a small systematic error when compared with other types of errors from the same source. Since the bulk of the responding women were actually interviewed in April and early May 1978, it was found appropriate to choose the period stretching from 1st April 1977 to 31st March 1978 as the 12 months reference period preceding the survey for purposes of calculation, without incurring a significant bias in the number of births.

At the analysis stage, however, it was found that the calculated age-specific fertility rates by age and migration status, revealed appreciable errors which were evenly spread between the in-migrants and the non-migrants. The principal causes of the errors, were attributed to various factors which could be summarized as migration selectivity, over-and under-representation of women of certain parities in the study, age-mis-statement*, and to a certain extent, age-shifting*. Finally, and

* The enumerators merely copied down the female respondent's dates of birth from the existing Joint Project Machakos record cards (or buff-cards as normally referred to) kept in the field offices in the area and used in the fortnightly house-to-house surveillance exercise. It is, however, known that during the initial days of the project, (or the baseline period, November 1973), birth dates, in most instances, were estimated from a respondent's appearance, memories of events from a local historical calendar, status in the family or household, and so on. Further evidence of this phenomenon, is apparent from the distribution of all the study area's population by age and sex.

perhaps most probable, was the small number of cases in the study. We must, therefore, be cautious about any inferences based on these data because of the possible exaggeration of the actual fertility levels in the area. Moreover, these irregularities tended to distort the pattern of fertility rates by age and the resultant shape of the fertility distribution curve which appeared rather irregular and bimodal. Incidentally, the total fertility rates computed from such defective data (not presented here), look plausible and concurred pretty much with what is known of the fertility level in the study area (see Van Ginneken and Ominidi, 1979, p. 15).³

Accordingly, the current and retrospective fertility rates were compared with an aim of adjusting the current rates by deriving Parity/Average Cumulative Fertility (P/F) ratios as suggested by Brass (1968)⁴ and shown in Table III.1. The results were far from satisfactory. Apart from the surprisingly high and erratic levels of P/F ratios, the sudden jumps from cohort to cohort, were found unacceptable, reflecting appreciable errors particularly at younger ages. This tendency

³ Van Ginneken, J. and Omondi-Odhiambo (1979), "Technical Report on Analysis of Demographic Data of Joint Project Machakos", Medical Research Centre, Nairobi.

⁴ Brass, W. et.al. (1968), *The Demography of Tropical Africa*, Princeton University Press, Princeton, New Jersey, pp. 88-142.

APPENDIX TABLE III.1: COMPARISON OF CUMULATED CURRENT FERTILITY (F) AND AVERAGE PARITY(P).

AGE GROUP OF WOMEN	NON - MIGRANTS			ALL IN - MIGRANTS			RURAL IN - MIGRANTS			URBAN IN - MIGRANTS		
	F	P	P/F	F	P	P/F	F	P	P/F	F	P	P/F
15 - 19	0.08	0.08	1.00	0.19	0.28	1.47	0.09	0.17	1.89	0.37	0.43	1.16
20 - 24	0.96	1.06	1.10	1.22	1.65	1.35	1.03	1.73	1.68	1.44	1.53	1.06
25 - 29	2.47	3.29	1.33	2.83	3.08	1.09	2.75	3.16	1.15	2.87	2.95	1.03
30 - 34	4.45	5.27	1.18	4.23	5.24	1.24	4.30	5.35	1.24	3.96	5.00	1.26
35 - 39	6.35	6.82	1.07	5.49	6.32	1.15	5.59	6.02	1.08	5.18	6.88	1.33
40 - 44	7.51	7.86	1.05	7.02	7.91	1.13	6.89	8.00	1.16	6.97	7.71	1.11
45 - 49	8.12	8.47	1.04	7.88	8.14	1.03	7.68	8.25	1.07	7.83	7.67	0.98

made the interpretation of the ratios problematical. Ordinarily, it could be taken that the level of fertility implied by the retrospective reports of the children ever born, was higher than that indicated by the current rates. Assuming that this argument is valid, then the computed total fertility rates would even be much higher than what has been produced. This technique was, therefore, found unsuitable.

Various other demographic techniques suggested by the United Nations (1956)⁵, Carrier and Farrag (1959)⁶, Brass (1971)⁷, Carrier and Hobcraft (1971)⁸ and Shryock and Siegel (1973)⁹, were adapted for the

⁵ United Nations (1956), "Methods of Population Projections by Sex and Age", Manual on Methods of Estimating Population, Manual III, ST/SOA/Series A/Population Studies No. 25, United Nations, New York, pp. 6-20.

⁶ Carrier, N.H. and A.M. Farrag (1959), "The Reduction of Errors in Census Populations for Statistically Underdeveloped Countries", *Population Studies*, Vol. 12, No. 3, pp. 240-285.

⁷ Brass, W. (1971), *op.cit.*, pp. 183-203.

⁸ Carrier, N.H. and J. Hobcraft (1971), *Demographic Estimation for Developing Societies : A Manual of Techniques for the Detection and Reduction of Errors in Demographic Data*, Population Investigation Committee, London School of Economics, London, pp. 13-21.

⁹ Shryock, S.H. Jr. and J.S. Siegel (1973), *The Methods and Materials of Demography*, Vol. I, Second Printing (Rev.), U.S. Bureau of Commerce and Agriculture, U.S. Government Printing Office, Washington, D.C., pp. 201-251.

sake of adjusting the study population's five-year age distribution without altering the distribution of the number of births in the previous year per cohort. The net effect of the adjustments were also disappointing as the calculations indicated suspiciously high fertility rates, implying that the techniques were unsatisfactory. Further, a method suggested by Van de Walle (1968)¹⁰, could not be employed on the data in this study since it assumes that the real age distribution can properly be described by a stable age distribution that can be fitted to the recorded population, and that differences between the stable population and the recorded one, are due, exclusively, to transfers of women from one age-group to the next, as a result of error in the estimation of ages. However, the requirements of this method were beyond the scope of the recorded study population data because of the small number of cases. For this reason, the idea of choosing an appropriate stable population for comparison purposes as required, was avoided altogether. Lastly, an attempt to graduate the age-

¹⁰ Van de Walle, E. (1968), "Note on the Effect of Age Misstatement", in W. Brass, et.al., (Eds.), *The Demography of Tropical Africa*, op.cit., pp. 143-150.

specific fertility rates by polynomial functions as suggested by Brass (1960)¹¹, proved unsatisfactory as the irregularities in the fertility distribution curves, persisted.

At this stage, it was realized that, first, the type of data collected on current fertility, was not fully suitable for the application of elaborate demographic techniques to obtain better fertility estimates. Secondly, these techniques proved to have little or no effect on reducing the irregularities persistent in the fertility distribution curves. Faced with this situation, the best and only compromise left was to accept the recorded data as it was and use the derived total fertility rates by migration status as the comparative indices for the current levels of fertility as was demonstrated in Chapter V.

As a word of caution, this situation shows the dangers of relying too heavily on data which is based on such small numbers as those available in this analysis and require the results to be interpreted with great care.

¹¹ Brass, W. (1960), "The Graduation of Fertility Distributions by Polynomial Functions", *Population Studies*, Vol. 14, No. 2, pp. 148-162.

2. Life-time or Retrospective Fertility:

The information on the number of children ever born, was obtained from a question, "how many children have you ever given birth to including those who were born alive and died later?", which furnished data on both the extent of childlessness in the study population as well as the distribution of mothers by the number of children ever born. An attempt will be made here to check the reliability of these data.

The irregularities in the current fertility data referred to earlier, could be assumed to exist in the retrospective fertility data as well. Nevertheless, over-representation of women without children, was found to be the most outstanding feature here as it appears to have deflated the average number of children ever born at younger age-groups particularly among the non-migrant category. This is supported by the close relationship between the average number of children per mother, average number of children per woman and the proportions of childless women* in the study population. Further evidence to this point is apparent from the proportion of women

*Average Number of Children per Mother = $\frac{\text{Average Number of Children per Woman}}{1.0 - \text{Proportion of Women Childless}}$

in the study reported as mothers by migration status and current age depicted in Table III.2.

Various procedures have been devised which permit estimation of the average number of children ever born to the women at the end of the reproduction period sometimes referred to as completed family size. A method has been developed by Coale and Demeny^{12,13} who base their calculations on the younger group of women for whom information is believed to be more reliable and most recent in their minds. When the procedure (P_3^2/P_2) was applied on the data in this study, the results were unsatisfactory. Other methods suggested by Brass (1960)¹⁴ and Van de Walle (1968)¹⁵, were also tried out but could, similarly, not yield satisfactory estimates and were, therefore, not used.

Thus, in view of these considerations, it was decided that estimates of the general level of

¹² Brass, W. (1975), *op.cit.*, pp. 11-17.

¹³ United Nations (1967), "Methods of Estimating Basic Demographic Measures from Incomplete Data", Manual on Methods of Estimating Population, Manual IV, *ST/SOA/Series A/Population Studies No. 42*, United Nations, New York, pp. 31-34.

¹⁴ Brass, W. (1960), *op.cit.*, pp. 148-162.

¹⁵ Van de Walle, E. (1968), *op.cit.*, pp. 143-150.

APPENDIX TABLE III.2 : PERCENTAGE OF THE FEMALE STUDY POPULATION WHO ARE MOTHERS
BY MIGRATION STATUS AND CURRENT AGE.

AGE GROUP	<u>NON -MIGRANTS</u>	<u>ALL IN-MIGRANTS</u>	<u>RURAL IN-MIGRANTS</u>	<u>URBAN IN-MIGRANTS</u>
15 - 19	7.3	21.9	11.1	35.7
20 - 24	61.3	91.7	98.0	84.4
25 - 29	97.2	94.3	94.2	94.6
30 - 34	100.0	97.4	98.0	96.0
35 - 39	98.0	98.6	97.9	100.0
40 - 44	100.0	100.0	91.4	100.0
45 - 49	96.7	97.9	97.7	100.0

fertility from the retrospective fertility data, would be based primarily on two indices, namely, the reported completed family size of women aged 45 years and above and the age-standardized mean number of live births*. Normally, when the retrospective data, (in the former case), are calculated for women who have completed childbearing, that is, women aged 45 or 50 years and above, they should provide a measure of the total fertility rate. Apparently, it was found that the reported completed family sizes of women aged 45 years and above by migration status, were very close to the computed total fertility rates calculated from the current fertility data, and as such, justified the use of this measure.

* Standardized with respect to age by using the age distribution of all the enumerated female study population as standard.

APPENDIX IV

COMPREHENSIVE QUESTIONNAIRE, DEMOGRAPHIC
SURVEILLANCE SHEET AND CALENDAR OF LOCAL EVENTS

UNIVERSITY OF NAIROBI
Department of Geography
MEDICAL RESEARCH CENTRE, NAIROBI
Department of the Royal Tropical Institute - Amsterdam
JOINT PROJECT MACHAKOS STUDY AREA-MIGRATION
AND FERTILITY STUDY, 1978
QUESTIONNAIRE

(ENGLISH)

PART 1 : THE WOMAN'S IDENTIFICATION

1. Household and Personal Number
- The Woman's Name _____ Date of Interview _____
-

PART 2 : THE WOMAN'S MARITAL STATUS

2. Date of Birth : Year → (GO TO Q.3)
3. Religion : Catholic Protestant Others
- (GO TO Q.4)
4. Have you ever been married? Yes No → (SKIP TO PART 3)
- (GO TO Q.5)
5. Are you currently married? Yes No → (GO TO Q.14)
- (GO TO Q.6)
6. Has you husband another wife? Yes No
- (READ QUESTION BELOW)

12. Is this your first marriage? Yes No → (GO TO Q.14)
(GO TO Q.13)

13. Date of current marriage → (SKIP TO PART 3)

14. When were you first married? → (GO TO Q.15)

15. How many times have you been married?

Number of times → (GO TO Q.16)

16. How many times have you been divorced?

Number of times divorced → (GO TO PART 3)

PART 3 : THE WOMAN'S CHILDREN

17. How many children have you ever given birth to including those who were born alive and died later?

None Total Number of Children → (GO TO Q.18)
(SKIP TO PART 4)

18. Of these children, how many were born while you were living in the Study Area?

(A BIRTH IN THE STUDY AREA MEANS THE WOMAN HAD ALREADY BEEN REGISTERED AS A MEMBER OF THE STUDY POPULATION AND ALL BIRTHS THAT MAY HAVE OCCURRED WHILE IN THE AREA OR OUTSIDE ARE REGARDED AS BIRTHS IN THE AREA)

Children Born in the Study Area → (GO TO Q.19)

19. When did you last give birth?

Month Year

(GO TO PART 4)

PART 4 : THE WOMAN'S SOCIO-ECONOMIC STATUS

20. What is your highest level of education?

None

Standard 1 to 3

Standard 4 to 8

Form 1 to 4

Above Form 4

(READ QUESTION BELOW)

"Now apart from housekeeping, some women work on a farm, in a business enterprise, a factory, an office, for someone else or for themselves, for a monthly salary or a daily wage ('Kibaruwa'). I would like to ask you some questions about your work experience".

21. Have you ever been in salaried gainful employment before?

Yes No → (SKIP TO PART 5)

(GO TO Q.22)

22. How many years did you or have you worked?

Complete years

(GO TO PART 5)

PART 5 : THE WOMAN'S KNOWLEDGE AND PRACTICE OF FAMILY PLANNING

23. Have you ever heard of family planning or child spacing or use of contraceptives or birth control methods before?

Yes No → (SKIP TO PART 6)
 (GO TO Q.24)

24. Have you just heard of it or do you know how it is practiced?

Knows Does not know → (SKIP TO PART 6)
 (GO TO Q.25)

25. Have you ever used any of the methods before?

Yes No → (SKIP TO PART 6)
 (GO TO Q.26)

26. Are you currently using any of the methods?

Yes No
 (GO TO PART 6)

PART 6 : THE WOMAN'S MIGRATION HISTORY

27. Where were you born?

Place of Birth:

Location _____ (If in Machakos District)

Elsewhere : District _____ Town _____

Study Area Outside Kenya _____
 _____ (State the Country)

IF BORN IN THE STUDY AREA, GO TO Q.28

IF BORN OUTSIDE STUDY AREA, GO TO Q.31

28. Were you still living here after the age of 15 years?

Yes No → (GO TO Q. 29)
↓
(GO TO Q.30)

29. Where were you living before you finally came back to this household after the age of 15 years?

Location _____ (If in Machakos district)

Elsewhere : District _____ Town _____

Outside Kenya (State the Country) _____

(GO TO Q.33)

30. Have you ever lived away from this area for more than half-a-year ever since you were 15 years or after?

Yes No → (THANK YOU FOR YOUR CO-OPERATION)
↓
(GO TO Q.34)

31. How old were you when you first came to live in this area?

Under 15 Years Old Over 15 Years Old
↓ ↓
(GO BACK TO Q.30) (GO TO Q.32)

32. Where were you living before you came to stay in this area?

Place of Last Residence :

Location _____ (If in Machakos district)

Elsewhere : District _____ Town _____

Outside Kenya (State the Country) _____

(GO TO Q.33)

33. After your arrival here for the first time, have you lived outside this area for more than half-a-year?

Yes No → (THANK YOU FOR YOUR CO-OPERATION)
↓
(GO TO Q.34)

34. How many times have you lived outside this area for at least more than half-a-year?

Number of Times → (GO TO Q.35)

35. How many years have you lived outside this area after the age of 15 years?

Completed Years → (GO TO Q.36)

36. Out of these years, how many did you spend in an Urban Area (Town)?

Completed Years → (THANK YOU FOR YOUR CO-OPERATION)

INTERVIEWER'S COMMENTS

Name of Fieldworker _____

Supervisor's Signature _____ Date _____

Date Coded _____ Coder's Name _____

Checked On : Date _____ Signature _____

Nairobi, 10th March 1978.

UNIVERSITY OF NAIROBI

Department of Geography

MEDICAL RESEARCH CENTRE, NAIROBI

Department of the Royal Tropical Institute - Amsterdam

JOINT PROJECT MACHAKOS STUDY AREA-MIGRATION

AND FERTILITY STUDY, 1978

QUESTIONNAIRE

(KIKAMBA)

PART 1 : THE WOMAN'S IDENTIFICATION

1. Household and Personal Number

The Woman's Name _____ Date of Interview _____

PART 2 : THE WOMAN'S MARITAL STATUS

2. Date of Birth : Year → (GO to Q.3)

3. Wiwa ndini Catholic Protestant Others
yava?

(GO TO Q.4)

4. We waatwawa? Yes No → (GO TO PART 3)

(GO TO Q.5)

5. Nayuyu wimutwae? Yes No → (GO TO Q.14)

(GO TO Q.6)

6. Wi mwiuu? Yes No

(READ QUESTION BELOW)

Muemeu ethayu? Yes No → (GO TO Q.14)
(GO TO Q.7)

7. Munomuno muemeu ekalaa kuu musyi kwaku?
Yes No → (GO TO Q.8)
(GO TO Q.9)

8. Okaa musyi mavinda meana?

Kaingi kwa mwei

Imwe kwa mwei

Imwe kwa mwaka

Ndokaa musyi ona imwe

(GO TO Q.9)

9. Ndini yake in yiva?

Catholic Protestant Others

(GO TO Q.10)

10. Asomete akavika va?

Ndaasoma

Standard 1 to 3

Standard 4 to 8

Form 1 to 4

Above Form 4

(GO TO Q.11)

11. Ethiiitwe aithukuma kana aitethya wia wake
aikwataa musaala myaka yiana kuma autwaa?

Ndaathukuma Myaka yiana

(GO TO Q.12)

12. Yii niyo itwana yaku ya mbee?

Yes No → (GO TO Q.14)

↓
(TO GO Q.13)

13. Watwaiwe indii?: Mwaka → (SKIP TO PART 3)

14. Itwawa yaku yambee yai indii?

Mwaka → (GO TO Q.15)

15. Utwaitwe mavinda meana?

Mawinda → (GO TO Q.16)

16. Uthaanitye kuma utwaeni mavinda meana?

Mavinda → (GO TO PART 3)

PART 3 : THE WOMAN'S CHILDREN

17. Syanaila waasyaa syonthe nisiana ovamwe na ila
syeeitiwe?

Vaii Syana Syonthe → (GO TO Q.18)

↓
(SKIP TO PART 4)

18. Kati wa syana ithi ni siana ila usyaie kivaloni kii?

Syana ila usyaie vaa → (GO TO Q.19)

19. Isyaa yaku ya mwiso yai indii?

Mwei Mwaka

(GO TO PART 4)

PART 4 : THE WOMAN'S SOCIO-ECONOMIC STATUS

20. We usomete ukavika va?

Ndyaasoma

Standard 1 to 3

Standard 4 to 8

Form 1 to 4

Above Form 4

(READ THE QUESTION BELOW)

"Yu eka wia wa nyumba, iveti imwe, nithukumaa miundani, wia wa vaita, kambunini, ovisini, kwa mundu ungi kana mawia moo ene kwa kuivwa musaala wa mwei kana kivalua. Ningwenda ukukulya mokulyo iulu wa wia ula wisi?"

21. Waandikwa wia wa mwei kana wia waku mwene?

Yes No → (SKIP TO PART 5)

↓
(GO TO Q.22)

22. Wathukumie kana uthukumite myaka yiana?

Myaka → (GO TO PART 5)

PART 5 : THE WOMAN'S KNOWLEDGE AND PRACTICE OF FAMILY PLANNING

23. Waaiwa' uvoo iulu wa muvango wa kusyaa (Family Planning) ta kutaanisa kwa syana, kana kutumia

ndawa vau mbeeni?

Yes No → (SKIP TO PART 6)
↓
(GO TO Q.24)

24. Ukिताa kwiw'a kana nuwisi? :

Ninisi Ndiwisi → (SKIP TO PART 6)
↓
(GO TO Q.25)

25. Waatumia nzia imwe yasyo mbeeni? :

Yes No → (SKIP TO PART 6)
↓
(GO TO Q.26)

26. Na yuyu niwithiwa uitumia nzia imwe yasyo?

Yes No
↓ ↓
(GO TO PART 6)

PART 6 : THE WOMAN'S MIGRATION HISTORY

27. Wasyaiwe va?

Place of Birth :

Location _____ (If in Machakos District)

Elsewhere : District _____ Town _____

Study Area Outside Kenya _____
(State the Country)

(IF BORN IN THE STUDY AREA, GO TO Q.28)

(IF BORN OUTSIDE THE STUDY AREA, GO TO Q.31)

28. Niwithiitwe uyikala kivaloni kii kwambiliilya
wiwa ukuu wa myaka 15?

Yes No → (GO TO Q.29)
 ↓
 (GO TO Q.30)

29. Wekalaa va ivindani yu, wai na myaka 15 utanamba kusyoka kivaloni kii?

Place of Last Residence :

Location _____ (If in Machakos District)

Elsewhere : District _____ Town _____

Outside Kenya (State the Country) _____

(GO TO Q.33)

30. Kuma wavikya myaka 15, waauma kivaloni kii ukathi kwikala kundu kungi ta vandu va mbee wa nyusu mwaka?

Yes No → (NIMUVEA NA NDAIA)
 ↓
 (GO TO Q.34)

31. Mbee wa utanoka kivaloni kii, waina ukuu mwau?

Under 15 Years Old Over 15 Years Old

(GO BACK TO Q.30)

(GO TO Q.32)

32. Mbee wa utanoka kivaloni kii, watuaa va?

Place of Last Residence:

Location _____ (If in Machakos District)

Elsewhere : District _____ Town _____

Outside Kenya (State the Country) _____

(GO TO Q.33)

33. Itina wa wooka kivaloni kii ya mbee, waaikala nza wakyoo vandu va nyusu mwaka?

Yes No → (NIMUVEA NA NDAIA)
 ↓
 (GO TO Q.34)

34. Ni mavinda meana wikalite nza wa kivalo kii vandu va nyusu mwaka?

Number of Times

(GO TO Q.35)

35. Ni myaka yiana wikalite nza ya kivaloni kii itina wa ukuu wa myaka 15?

Myaka → (GO TO Q.36)

36. Kati wa myaka isu niyiana wikalite Tauni (Town or an Urban Area)?

Myaka → (NIMUVEA NA NDAIA)

CALENDAR OF LOCAL EVENTS

1. Ngovo (famine of hides and skins).....1840 - 1843
2. Kiasa (famine).....1845 - 1850
3. Ngwambu (famine).....1858 - 1861
4. Mutulungo (famine).....1865
5. Ngeetele (famine).....1870
6. Ndata (famine of a star).....1878 - 1882
7. Kyumbe (a dance).....1884 - 1886
8. Kitombo (a dance).....1894 - 1898
9. Muvunga (famine of rice).....1897 - 1901
10. Yua ya Munyili (famine of livestock
dysentery).....1898 - 1899
11. Ngoma (a dance).....1898 - 1899
12. Mission Muisuni (founding of a
mission at Muisuni).....1898 - 1900
13. Mutambo-Konza (railway construction
at Konza).....1899
14. Ilovi yiyatukiwa (first construction
of Nairobi).....1900 - 1904
15. Kyesa (a dance).....1906 - 1908
16. Ivinda ya Chief Nthekeha (the reign
of Chief Nthekeha) Andu mambee kuma
Mua (first immigration to Mua Hills)...1909 - 1910
17. Ndata ila yaumie (rising of a star
from the East).....1910
18. Timamu (a report on the counting of
natives by the administrative officers) 1911
19. Kuka kwa kilovia (introduction of
Rupee as a currency).....1912
20. Yua ya malakwe (famine of beans).....1913 - 1914

21. Kau wa Mathyaka (first world war fought with bows and arrows).....1914 - 1918
22. Muimu wa Mavui (outbreak of lung disease-coughing).....1918
23. Sukulu ya Lazima (forced or compulsory schooling).....1916 - 1919
24. Kilolo (a dance).....1920 - 1921
25. Kuka kwa silingi (introduction of a Shilling as a currency).....1922 - 1923
26. Ndeke ya mbee (sighting of the first aeroplane).....1924 - 1925?
27. Yila kwatukie (eclipse of the sun)....Jan 1926
28. Mithingitho (an earth quake).....Jan 1928
29. Ngie syaya liu (locust invasion).....1928 - 1929
30. Nzalukangie (famine full of blinks due to high expectation of food).....1929 - 1930
31. Momboleo (floods).....1930 - 1931
32. Uku atwika chief (the year Uku was installed as chief).....1938
33. Muindi Mbingu (the reign of Muindi-Mbingu).....1938 - 1940
34. Kau wa Italia (The second world war - war with Italians in Ethiopia).....1940 - 1944
35. Mbulung'a (beans brought from the Kikuyu during famine).....1942
36. Nthung'u (outbreak of smallpox).....1943
37. Munyoloko upesi (famine of cassava).....1943
38. Yua ya Uimbi (famine of millet).....1943 - 1944
39. Kuakwa Itheka-Kakumi (first land adjudication).....1945 - 1946
40. Kaawa wambee (introduction of coffee trees in Machakos).....1947 - 1948

41. Yua ya Makonge (famine of sisal).....1949
42. Silanga syambee (construction of the first water dams).....1949 - 195
43. Ivinda ya King'esi (the reign of King'esi).....1950 - 195
44. Kanzeti ila ya Ngei (circulation of Paul Ngei's gazette).....1951
45. Mbua ya Kanzi (the rains that destroyed crops and the situation saved by an Asian businessman Kanzi who was supplying foodstuff).....1951 - 195
46. Mau Mau iyambilia (the start of Mau Mau rebellion).....1952
47. Ikoani ya Kapenguria (the trial of freedom fighters at Kapenguria).....1953
48. General Kimathi aikwatwa (arrest of General Kimathi).....1956
49. Andu mambee Leg'coo (first African to the Legislative Council).....1957
50. Mau Mau uthela (end of Mau Mau rebellion).....1959 - 196
51. Kenyatta, Ngei mailekwa (release of Mzee Kenyatta and Paul Ngei).....1960 - 196
52. Yua ya ndeke (famine of aeroplane-which supplied food).....1961 - 196
53. Uhuru (towards Kenya's independence)...1961 - 196
54. Yua ya Atta (famine of Atta - distribution of reddish wheat flour)...1965 - 196
55. Mboya sathwa (the assassination of Thomas Joseph Mboya).....1969