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**PITTFALLS AND POTENTIAL
IN RETROSPECTIVE
SURVEY DATA FOR THE
HISTORICAL STUDY
OF AFRICAN MIGRATION**

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La recherche menée au Département s'est faite dans quatre directions principales:

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4. Démographie des pays du tiers-monde.

Pitfalls and Potential in Retrospective Survey Data
for the Historical Study of African Migration*

Joel W. Gregory

Introduction

The object of this paper is twofold: first, to summarize methodological difficulties, from a demographic point of view, in using retrospective survey data to study the evolution of African migration in the twentieth century; and second, to examine one such set of data in order to evaluate their analytical potential in light of these methodological problems. Attention will be concentrated on retrospective surveys in which complete residence histories are collected. The debate as to which type of data collection is the most appropriate for the study of African migration is explicitly avoided. In my opinion, the advantages of each method¹ are offset by certain disadvantages. Each method has its usefulness if care is exercised in data collection and analysis.²

Several sorts of historical data are available on African migration in the twentieth century. Early African censuses offer some insight into the phenomenon. More recent censuses provide measures of lifetime migration, which have an inherent historical quality.³ Potentially more interesting perhaps are the data available in colonial archives. For military purposes, for example, the French collected detailed annual data on population in West Africa, compiled by local administrative units.⁴ Early surveys, such as those conducted by Jean Rouch, have also provided numerical estimates of African population movements.⁵

Contemporary surveys which compile complete residence histories also provide information for the period covered by the lifetimes of the respondents (for the 60 years or so prior to the survey). With care, serious demographic analysis of these data can be undertaken. Given the temporal ambiguity, and oftentimes the spatial and numerical inaccuracy, of lifetime migration data in censuses, given the age (and other) distortions in the administrative

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data compiled by the French, and given the unrepresentative and heterogeneous nature of early surveys, the historical material available in contemporary surveys merits serious attention. The information which can be extracted should be viewed as another source of imperfect data, which can make a contribution to our knowledge of the volume and direction of African migration and to the study of its causes and implications.

Methodological problems

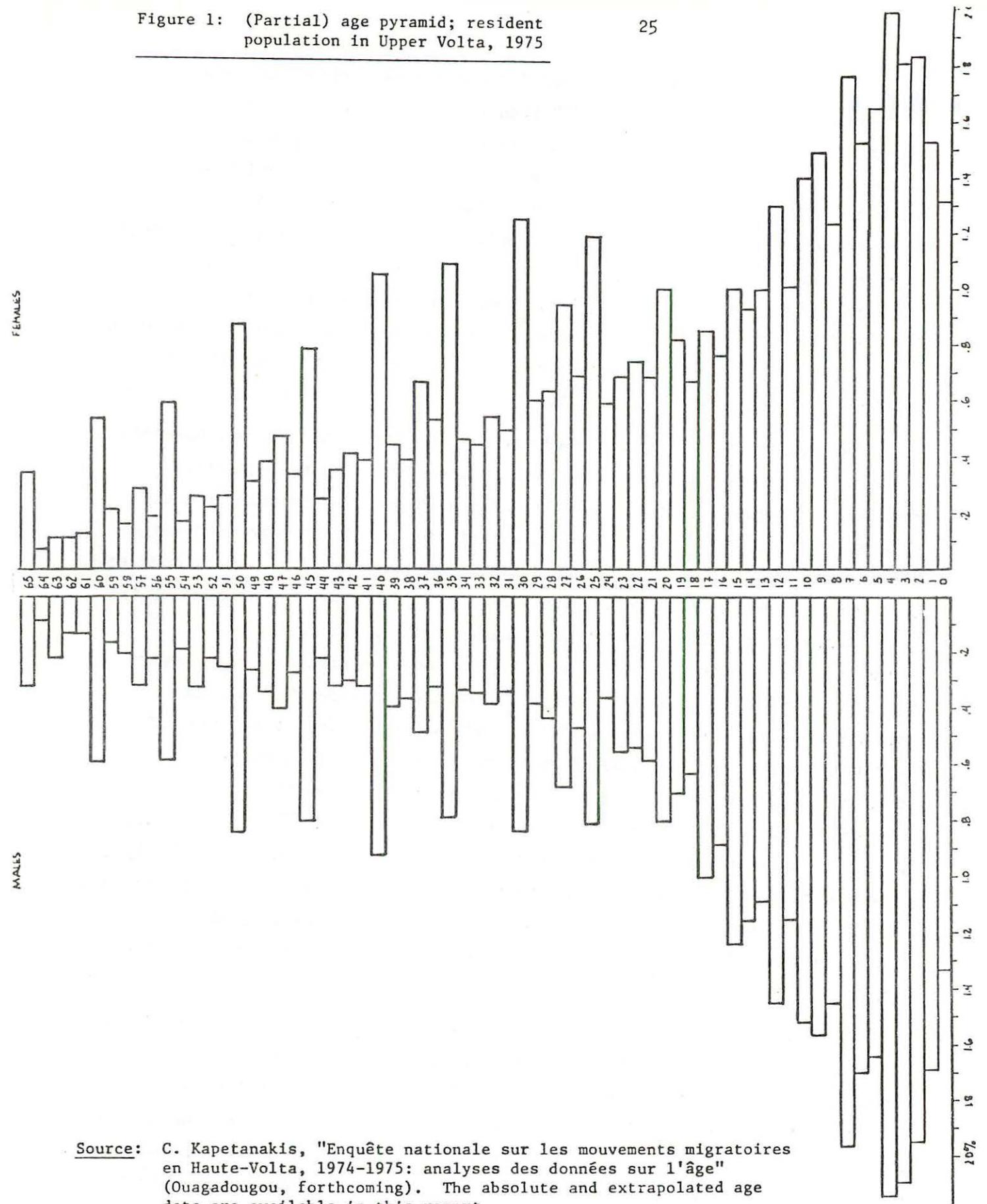
Four types of problem will be analysed: the inaccuracy of recall as it affects age data; the inaccuracy of recall as it affects the dates at which events occurred; the decrease in the population, and the number of moves observed, due to mortality; and the distortion of the population, and the patterns of migration observed, due to migration itself. The decrease in the number of moves recorded due to memory loss is not discussed in this paper. These problems will be studied using data from the Enquête nationale sur les mouvements migratoires en Haute-Volta, 1974-1975 (The National Migration Survey). Information is drawn from a data file on all reported migration during the lifetimes of a representative sample of the resident population of Upper Volta. A stratified sample of some 100,000 individuals was interviewed; approximately 40,000 moves were recorded. These data are extrapolated to a total resident population of 5.5 million, as enumerated in the Voltaic Census of December 1975. Information available includes age and marital status at the time of migration, place of origin and destination, length of stay, and occupations. Unchanging characteristics of each migrant, such as sex, ethnic group, and place of birth, are also recorded. Details on the methodology of the data collection are given elsewhere.⁶

Inaccuracy of recall and age data

The most common error in data on ages, as reported by partially literate populations, is the tendency to round-off to the nearest multiple of 10 and, to a lesser extent, to the intermediate multiples of 5. The attraction of these two terminal digits, both for the respondent and the interviewer, is well-documented in the scientific literature.⁷ As migration is an age-specific phenomenon, accurate information on age is highly pertinent. In a survey where lifetime residency histories are collected, and where internal checks are made, the data on age at the time of migration and on length of stay are directly related to (if not dependent on) the reported age of the respondent at the time of the interview.

Figure 1 shows a partial age pyramid (0 to 65 years of age) for the resident population of Upper Volta in 1975 as reported in the National

Figure 1: (Partial) age pyramid; resident population in Upper Volta, 1975



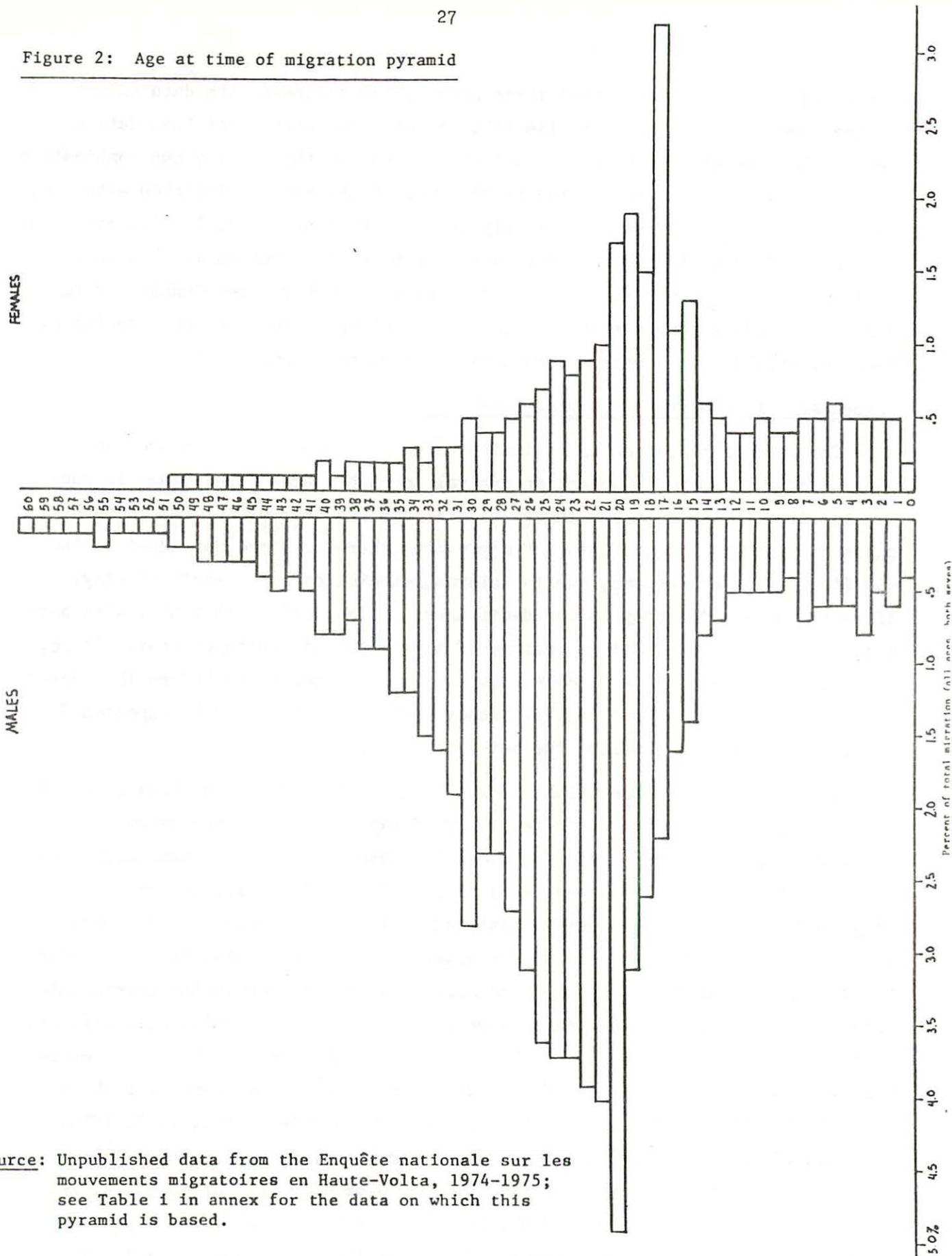
Source: C. Kapetanakis, "Enquête nationale sur les mouvements migratoires en Haute-Volta, 1974-1975: analyses des données sur l'âge" (Ouagadougou, forthcoming). The absolute and extrapolated age data are available in this report.

Migration Survey. The attraction of "0" and "5" as terminal age digits is obvious, slightly more so for "0" than for "5". One simple index for measuring preference for these two digits has been devised by Whipple. In the case of the population of Upper Volta, as represented in Figure 1, the Whipple Index is 186.8 for males and 180.9 for females.⁸ This is a fairly high figure when compared with contemporary Western populations, which often approach a "perfect" figure of 100. It is not exceptionally high, however, for countries where statistics are underdeveloped; values of the Whipple Index often reach 200 or more.⁹ Furthermore, the value for the index in Upper Volta is consistent with the fact that the Voltaic population is mostly unschooled and that formal birth registration is practically non-existent.

The quality of data on reported age at the time of the survey, however, is only part of the methodological problem when analyzing retrospective residence histories. Age at the time of migration is a variable of equal or greater importance. To a certain extent the age at the time of moves is dependent on age at the time of the survey. At the end of the questionnaire, for example, the interviewer was instructed to add the age at the time of the first migration and the length of residence at the first destination in order to estimate the age at the time of the second migration, and likewise for each move and residence. If inconsistencies of more than one year appeared, the respondent was asked to re-adjust the age(s) at the time of migration and/or the length(s) of residence. Figure 2 is a partial age pyramid for age at the time of migration. Only for males at ages 20 and 30 is there any marked preference for ages ending in "0" and "5". For females there is a substantial concentration of moves at age 17. This is probably due to the coincidence of marriage, and migration to the husband's place of residence; 17 is thus either the modal age at which Voltaic women marry, or the age at which they think they marry (or the age at which the interviewers think they marry).

Compared with preferences for ages at the time of the survey (see Figure 1), the concentration of ages at the time of moves is much less pronounced. A modified Whipple Index yields values of 117.3 for male migration and 109.1 for female migration.¹⁰ To a certain extent, this seems to be an unexpected conclusion. Why should ages be less exact at "present" (the time of the survey) and more exact in the past memory of respondents? This apparent anomaly is probably due to the adjustment operation which the interviewer encouraged the respondent to undertake in the case of incoherence between ages and lengths of stay. Taking present age as given, lengths of stay and earlier ages are

Figure 2: Age at time of migration pyramid



Source: Unpublished data from the Enquête nationale sur les mouvements migratoires en Haute-Volta, 1974-1975; see Table 1 in annex for the data on which this pyramid is based.

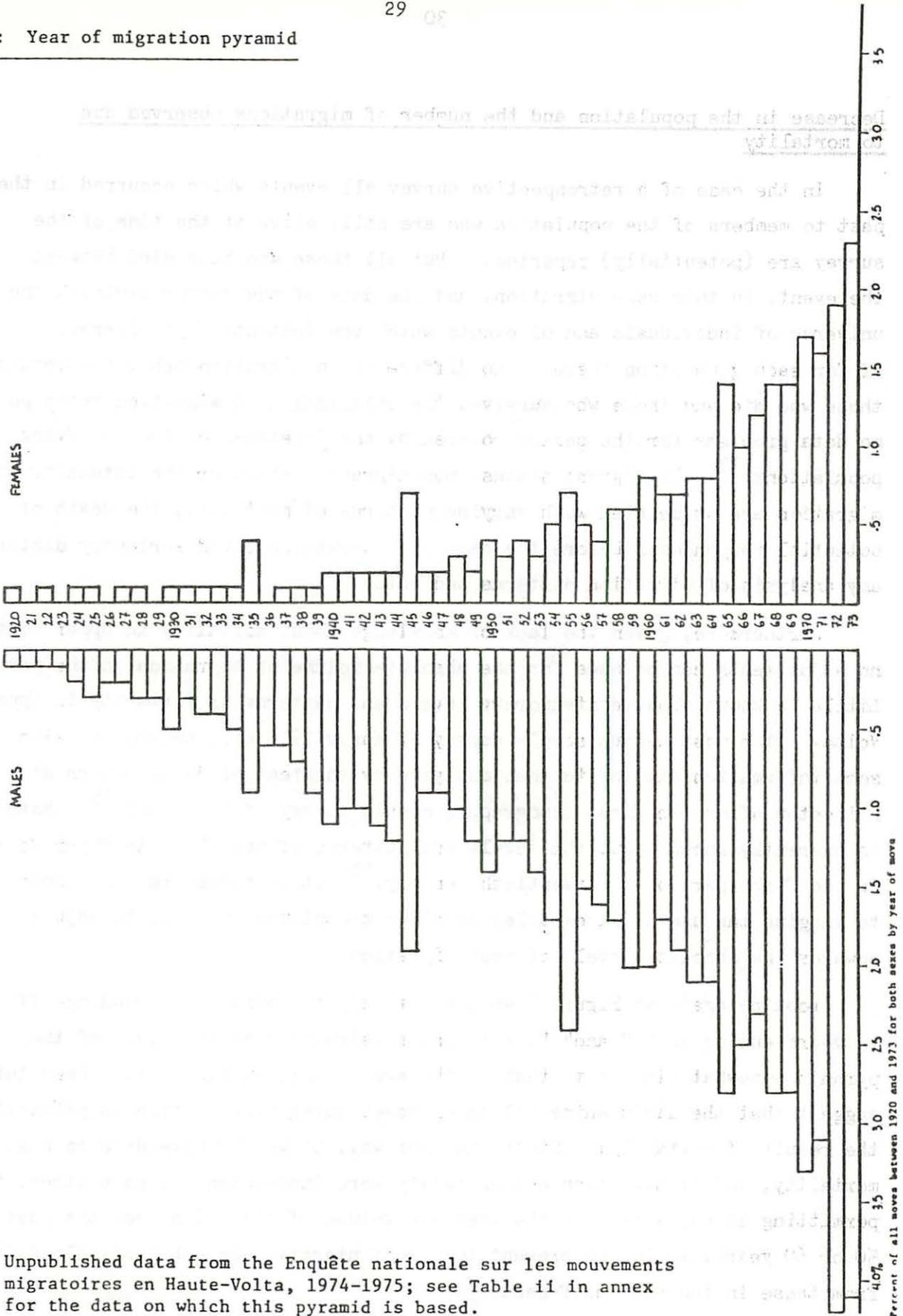
corrected. To the extent that these changes are accurate, the data on age at the time of migration gives the illusion of being more exact than data on age at the time of the survey. In that varying lengths of stay and combinations of lengths of stay, as remembered by the respondent, are interrelated with age, and as many lengths of stay are fairly short (less than 5, 10, 15, 20, etc. years) a more "random" distribution for ages at the time of migration is obtained. This correction at the time of the interview is probably a reasonable way to adjust individual years of age at time of migration. The apparent precision, however, should not be regarded as anything more than approximate.

Inaccuracy of data on the year of migration

The year of migration is estimated using the various data on ages and lengths of residence. The age on arrival in each place of residence is subtracted from the year of the survey to estimate the year of arrival in each place of residence. The dates of migration, therefore, are dependent on the quality of data on age and, due to internal checks, data on length of stay. If people have a tendency to round-off ages, it is possible that they also have a tendency to round-off other measures of time, such as length of stay. If so, a concentration around those dates 10, 20, 30, 40, etc. years before the survey is to be expected. A similar, if lesser concentration, is to be expected 5, 15, 25, 35, etc. years before the date of the survey.

The year of migration pyramid for 1920 to 1973 in Figure 3 shows signs of this sort of concentration. A few words of explanation are necessary. The study was conducted in two stages: in 1974, respondents in 10 towns and cities were interviewed; in 1975, residents of Ouagadougou (the capital and largest city) and of 100+ villages were questioned. As the sample was stratified, and as sampling fractions were much smaller in rural areas than in urban areas, interviews conducted in 1975 are much more heavily weighted in the extrapolated results.¹¹ Therefore, the years in which there is a substantial concentration of moves are those 10, 20, 30 and 40 years before the date of the rural interviews: 1965, 1955, 1945 and 1935. There is a slight preference for those years 5, 15, 25, 35 and 45 years before the rural sample: 1970, 1960, 1950, 1940 and 1930. Certain respondents, in other words, have a tendency to round-off the length of residence to 10, 20, 30 or 40 years, or to 5, 15, 25, 35, or 45 years. If a modified Whipple Index is calculated for the year of migration data,¹² the values obtained are 121.9 for male migration and 133.4 for female migration. The data on year of migration, therefore, are less affected by the tendency to round-off than data on age at the time of interview.

Figure 3: Year of migration pyramid



Source: Unpublished data from the Enquête nationale sur les mouvements migratoires en Haute-Volta, 1974-1975; see Table ii in annex for the data on which this pyramid is based.

Decrease in the population and the number of migrations observed due to mortality

In the case of a retrospective survey all events which occurred in the past to members of the population who are still alive at the time of the survey are (potentially) reported. But all those who have died between the event, in this case migration, and the date of the survey diminish the universe of individuals and of events which are (potentially) observed. If for each generation there is no difference in migration behaviour between those who die and those who survive, the calculation of migration rates poses no data problems for the period covered by the lifetimes of the surviving populations.¹³ If migrant status, non-migrant status, or the intensity of migration are associated with varying patterns of mortality, the death of potential respondents before the date of observation could seriously distort any analysis of migration patterns and rates.¹⁴

Furthermore, given the lack of knowledge about mortality in Upper Volta, no adjustments can be made for the absolute volume of migration in the past. Little is known about contemporary levels and patterns of mortality in Upper Volta. The post-census sample survey of early 1976 will provide us with some information similar to that analysed by the team of demographers at Princeton after the first demographic sample survey of 1960-1961.¹⁵ Nothing is presently known about the levels and patterns of mortality in Upper Volta in the first part of the twentieth century.¹⁶ It is therefore improbable to imagine the use of life-tables or other techniques in order to adjust upwards the absolute levels of past migration.

Looking again at Figure 3 we see not only the effect of rounding-off in years ending in "5" and "0", but also a retraction of the sides of the pyramid somewhat similar to that of the age pyramid in Figure 1. Does this suggest that the diminishing volume of moves going back in time is primarily the result of mortality? Stated another way, if we did have data on past mortality, and if migration and mortality were independent of each other, thus permitting an adjustment in the absolute volume of migration over the past 50 or 60 years, would the present levels of migration be substantially different from those in the past half-century?

Distortion due to migration itself

Migration itself distorts the population and the pattern of migration observed in a retrospective survey. In the case of the National Migration Survey, permanent international emigration (and some of the recent temporary

international emigration) distort the size and perhaps the characteristics of the sample universe. The sample population of individuals and the sample population of moves is not representative of all migrants and all moves of the past 50 or 60 years, but only of all moves made by internal migrants, or by international migrants who have returned to Upper Volta. The implications of this distortion are far-reaching, and cannot be measured at present. If an international migration survey in West Africa were undertaken, a fairly reasonable estimate of the effect of permanent emigration from Upper Volta could be made.¹⁷

The more that emigration from Upper Volta is permanent, the greater is the distortion of the sample universe of individuals and of moves; the more that it is temporary, the less the distortion. An approximate idea of the permanency of Voltaic emigration during the five years before the National Migration Survey - 1969 to 1973 - can be formulated. Heads of all households were asked to report on all international emigrants from their households since January 1969 who were still absent at the time of the survey. Going back in time, as can be seen in Table 1, there is a substantial decrease in the number of non-returning emigrants. This decrease is due, in part, to the temporary nature of a great deal of Voltaic emigration. After a year

Table 1 International emigrants from Upper Volta, 1969 to 1973, reported by heads of households as still being absent at the time of the survey; extrapolated data.

Year	Urban origins	Rural origins	Total
1973	2,036	71,709	73,115
1972	1,437	53,711	55,148
1971	1,183	33,345	34,528
1970	713	23,768	24,481
1969	250	4,547	4,797
	5,619	186,450	192,069

Source: André Lavoie, "Dossier volume et direction", Enquête nationale sur les mouvements migratoires en Haute-Volta, 1974-1975 (unpublished data).

or two or more, a substantial percentage of emigrants return to Upper Volta. In the past, in fact, temporary emigration seems to have been the predominant form of international migration from Upper Volta.¹⁸ If in the long run the vast majority of emigrants return to Upper Volta, then work on the historically more distant periods - before 1960 for example - is feasible. These data

cannot be too strictly interpreted, however, as the decrease could also result from two other factors. First, some of the decrease in the number of emigrants is undoubtedly the result of memory loss: the longer an individual is gone, the greater is the possibility that the household head "forgets" him or her. Second, some of the "decrease" could actually be an increase in the number of emigrants in more recent years.

Summary of methodological problems

In Table 2, I have summarized the methodological pitfalls discussed. Some of the problems are avoided or dealt with fairly easily. Certainly the data on age and on date of move can be aggregated by groups and periods to avoid undue temporal precision. Until now, the measurement of migration has always been based on the assumption that mortality and migration are independent phenomena; if this hypothesis is not true, all retrospective survey data on migration (and all census data) are suspect. The most important problem is the extent of permanent international emigration and its effect on the measure of the volume and direction of migration; quite frankly, no reliable quantitative study of this phenomenon as it affects Voltaic migration, has been undertaken.

Analytical potential

The purpose of the discussion of these methodological problems has been to suggest ways in which these data could be analysed if certain precautions are taken.

One example: relative importance of migration streams by period

As an example of one type of historical analysis that can be undertaken I have compared the relative importance of migration streams by period. In order to simplify this initial analysis, moves by both sexes and at all ages are grouped together. A four by four migration matrix for each of four periods is used to study the decreasing or the increasing importance of each of 15 relevant migration streams. These data are summarized in Table iii in the annex and in Figures 4 and 5. The four periods chosen respect important dates in the history of twentieth century Voltaic migration. The date dividing the first period from the second, 1932, is the year in which the territory of Upper Volta was temporarily suppressed by the French and divided among the three neighbouring territories of Ivory Coast, French Sudan, and Niger. Ivory Coast received the South, the West, and the Central Mossi plateau; the labour force of these areas was thus reserved for plantations in the Ivory Coast. The Sudan received the region around

Table 2

Summary of methodological pitfalls in the use of retrospective survey data for the historical study of migration

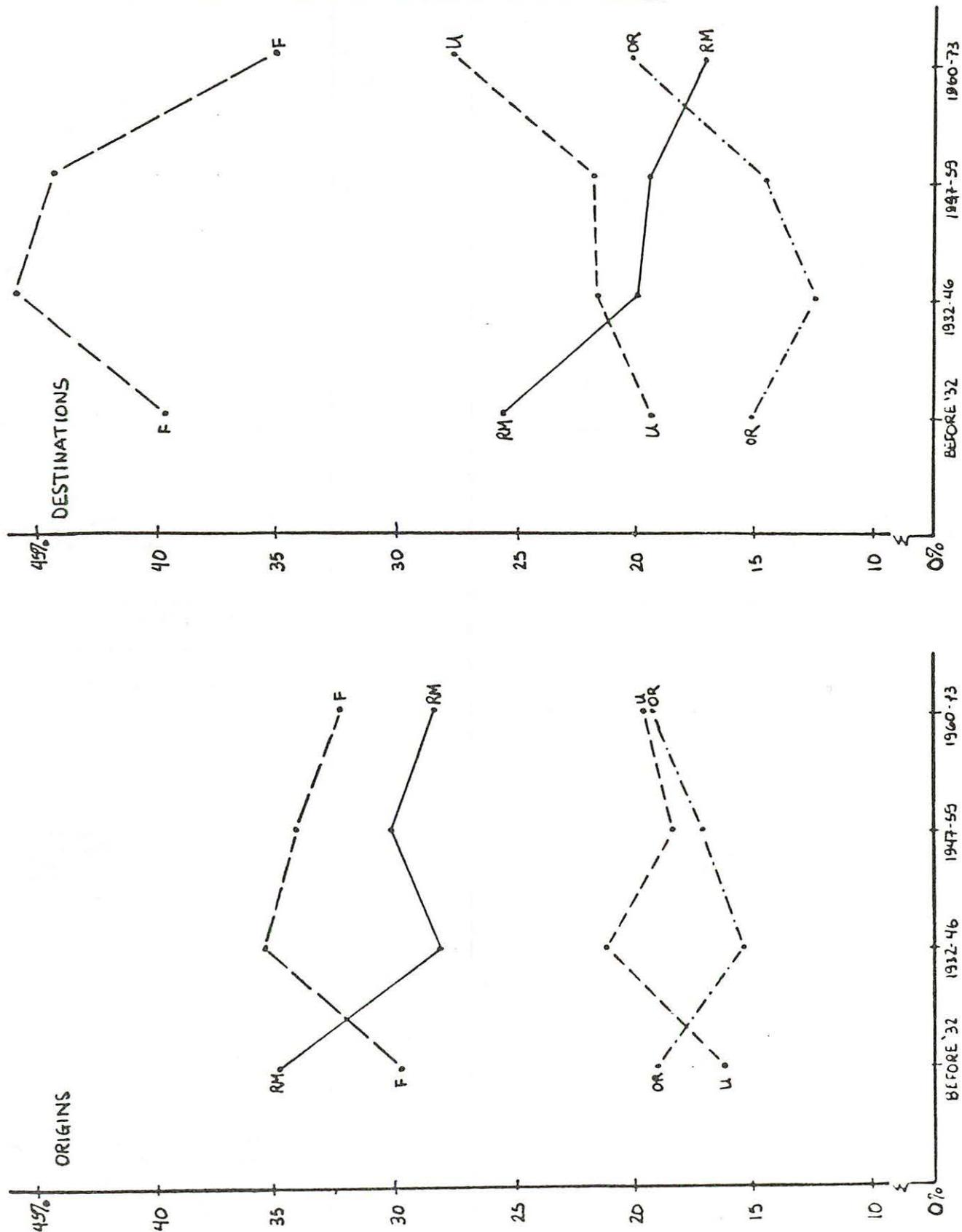
Type of problem	Extent of problem	Effects	Ways to deal with problem
<u>Inaccurate age recall.</u>			
<u>Age at time of survey.</u>	Substantial rounding off.	Impossible to work with unadjusted single years of age.	Use of floating means. Use of 5, 10, or 15-year age groups.
<u>Age at time of move.</u>	Some rounding-off.	Difficult to work with single years of age.	Use of floating means. Use of 5, 10, or 15-year age groups.
<u>Inaccurate recall of date of move.</u>	Some rounding-off.	Difficult to work with single years of move.	Use of floating means. Grouping of years into periods.
<u>Deterioration of sample universe through mortality.</u>	Unknown.	None on migration rates if mortality and migration are independent; otherwise...? Substantial underestimate of absolute volume of migration going back in time.	If phenomena are independent, direct calculation of rates. Comparison of relative volume of migration streams, by period.
<u>Distortion of sample universe through permanent international emigration.</u>	Difficult to observe; some indication that effect is not too substantial in that permanent emigration is not too important.	Far-reaching if permanent emigration is important; distortion of volume and patterns of international migration streams (and to certain extent, internal streams).	Study of data from Ivory Coast, Ghana, and Upper Volta to better estimate potential effect.

Quahigouya, the Yatenga, which is the most densely populated part of the Mossi kingdom; these populations were to provide the labour force for the intensification of irrigated agriculture in the "delta" region of the Niger valley in what is now central Mali. Niger received the sparsely populated eastern part of Upper Volta. The second dividing date is 1946, the year in which Upper Volta was recreated as a separate colony, and in which forced labour was officially abolished. The third date is 1960, the year of Voltaic independence.

What conclusions can be drawn from these preliminary data? The relative importance of rural Mossi origins seems to have declined slightly over time, while the relative importance of urban origins seems to have increased (see Figure 4). Both urban destinations and other rural destinations have become more important over time, while the relative importance of rural Mossi and foreign destinations have declined. This may indicate an increased capacity of Voltaic cities and the rich agricultural land of western Upper Volta to compete with foreign destinations for out-migrants from Mossi villages. In terms of migration streams (see Figure 5), the flow of migrants from Mossi villages to foreign destinations, particularly the Ivory Coast, continues to be the single most important migration stream: from 12 to 18 per cent of all recorded Voltaic migration. The counterstream of return migration from foreign origins to rural Mossi destinations is also very important: between 9 and 12 per cent of all recorded moves. Several other important streams exist. Migration from Voltaic cities to foreign destinations is substantial; this may possibly be part of a step-wise migration chain: rural-urban-foreign or urban-urban-foreign. Migration from foreign origins to Voltaic cities is on the increase; this may also be part of a step-wise migration pattern: rural-foreign-urban.

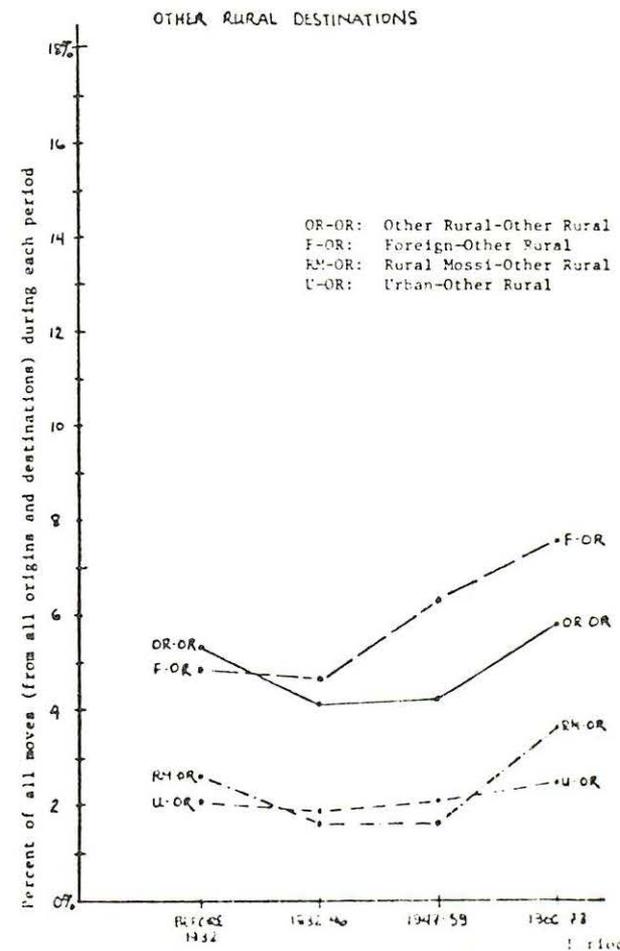
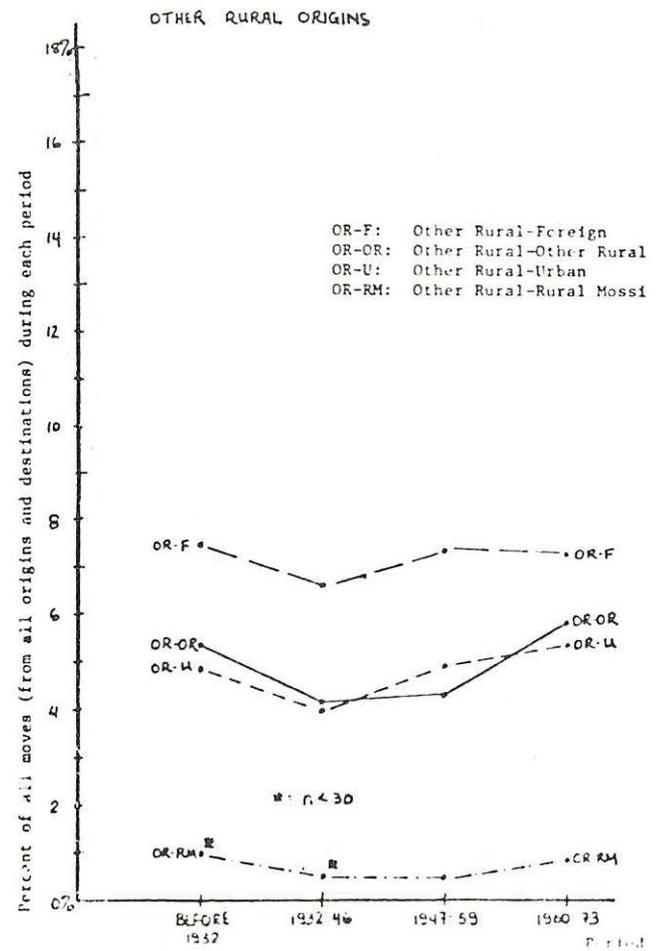
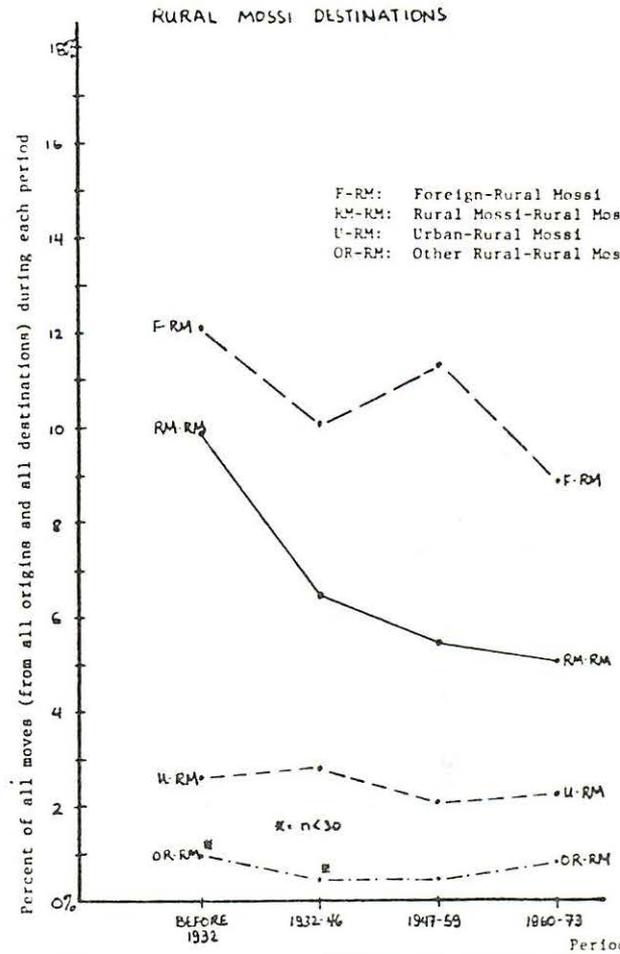
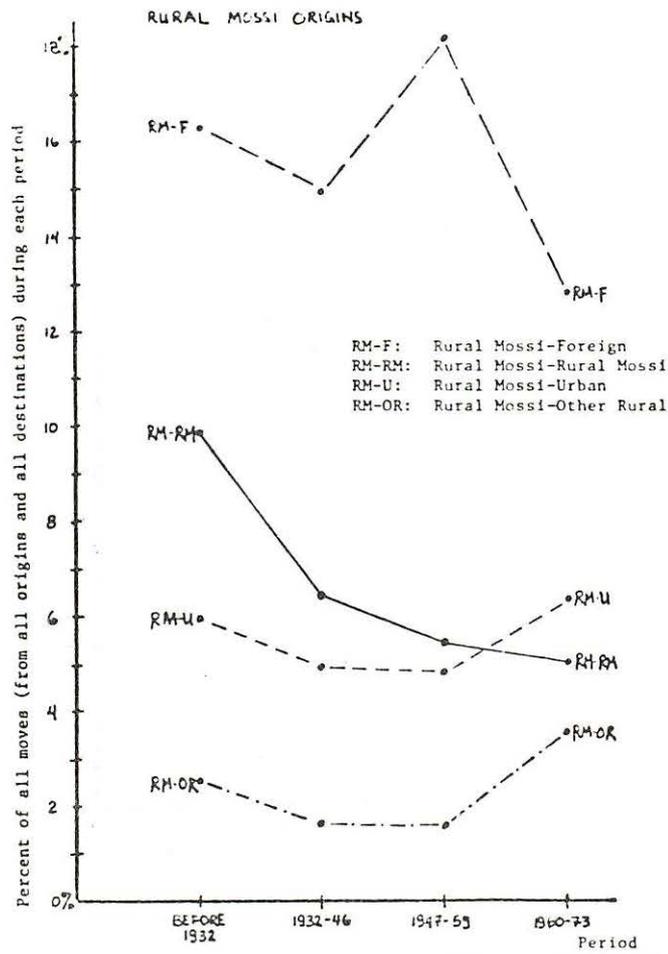
At least two methodological problems need to be remembered in interpreting these results. First, the moderate preference for years ending in "5" and "0" as reported dates of moves has been fairly well circumvented by the choice of periods. Only one period, 1960-1973, begins or ends with a date ending in "0"; no boundary year for any of the four periods begins or ends in "5", the digit with the greatest concentration. The final period, however, might be changed to 1958-1973, using the date of self-government as the historical dividing line between periods. In addition, or alternatively, floating means (for the surrounding five years) could be calculated for each year before the data are aggregated by periods. Secondly, and more important, the effect of temporary emigration during the

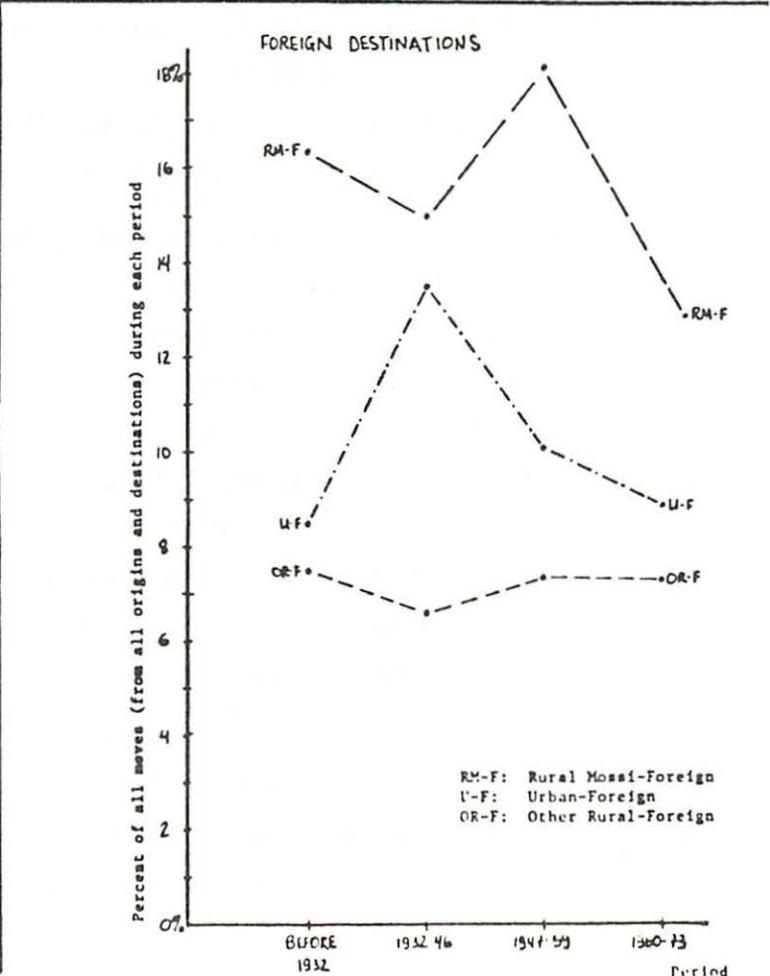
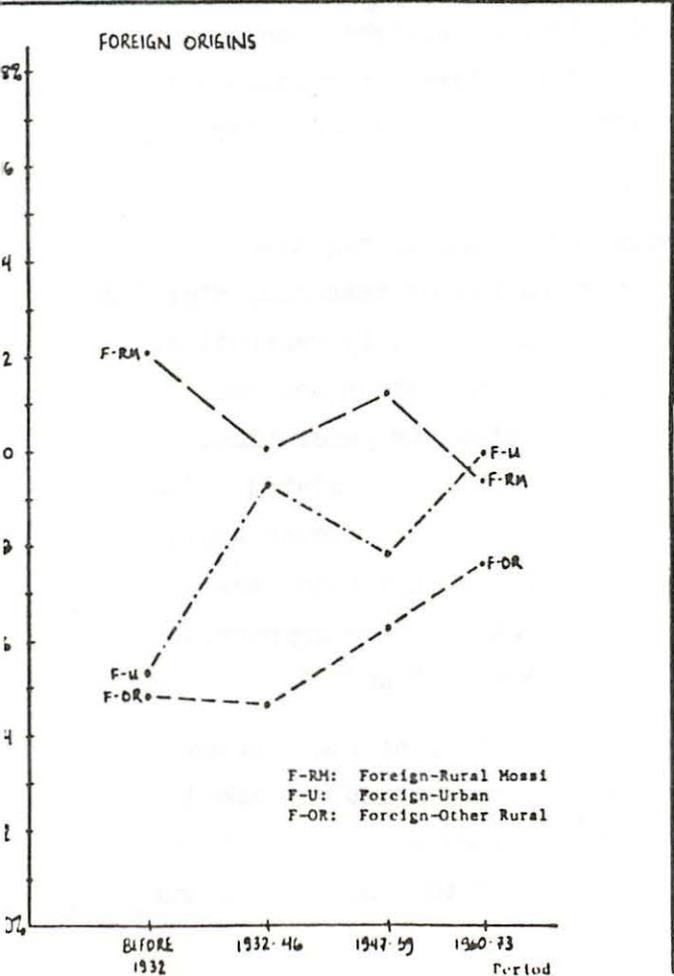
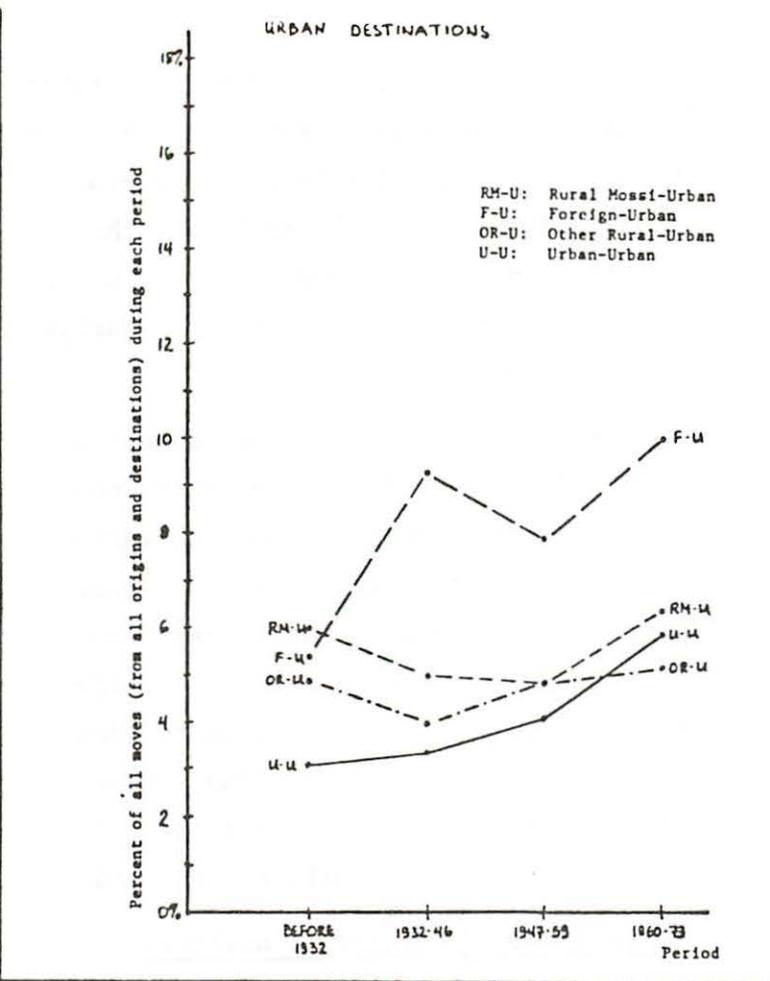
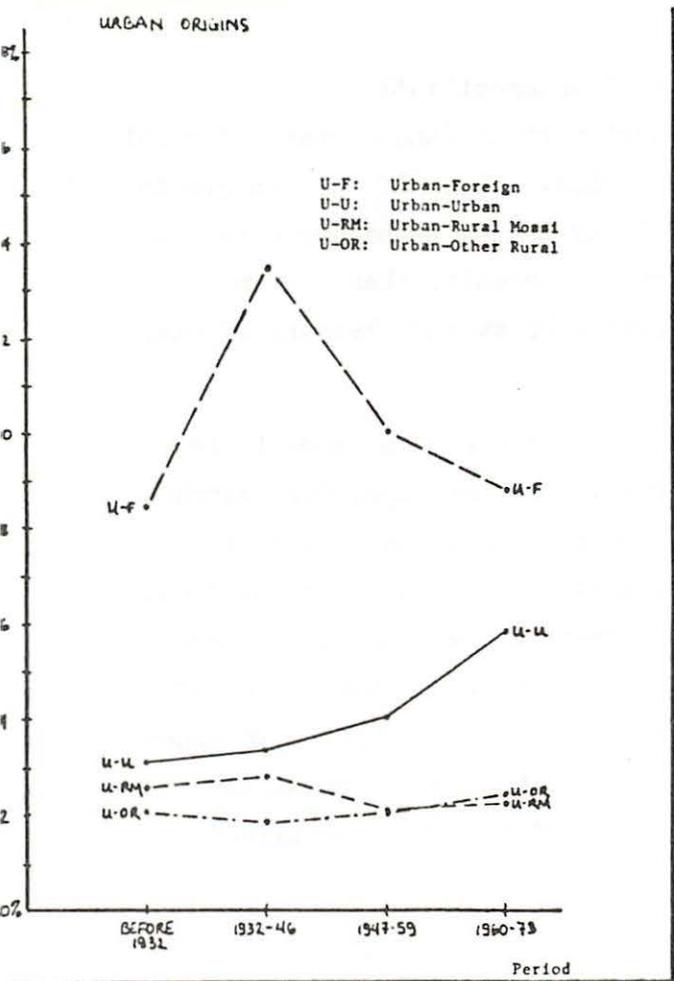
Figure 4: Origins and destinations of Voltaic migrations; by period of migration



Source: See Table iii

Figure 5: Relative importance of Voltaic migration streams, by periods





last period, 1960-1973, may cause a substantial underestimation of the relative importance of foreign origins and destinations (and perhaps of rural Mossi origins and destinations) during this period. Even if most emigrants eventually return to Upper Volta, the probability that a temporary emigrant who left in the past few years has not returned is greater than for an identical emigrant who left in an earlier period, if average lengths of stay are approximately equal.

Furthermore, a much more detailed analysis of these data needs to be undertaken before firm conclusions can be drawn. Sex and age, for example, need to be introduced as control variables. Certain streams need to be broken down into smaller parts: origins and destinations in Ivory Coast can be separately identified, as can those to and from the two largest cities, Ouagoudougou and Bobo-Dioulasso. Migration rates, using the population of sending and receiving areas in the denominator, need to be computed in order to study the importance of the streams relative to the population at the origin and destination. The transition probabilities in more detailed matrices could eventually be analysed.

Other types of historical analysis

This initial analysis is inspired primarily by our research team's present preoccupation with the measurement of various migration streams for the five-year period before the survey, 1969-1973. At least three other areas of study are equally interesting.

First of all, the measure of the historical evolution of migration through the study of matrices and streams is only one way of measuring migration. An equally rich area of measurement is longitudinal analysis, by generation, of migration. Given that both the age at the time of migration and the date of migration are known, age-specific migration rates, by generation, for the surviving resident population of Upper Volta can be calculated. Due to the limited number of observations, ten or fifteen year age groups would probably be more appropriate than five-year age groups. Unorthodox age groups (such as 8 to 17, 18 to 27, 28 to 37, etc.) might be more appropriate in order to avoid age groups bounded by digits ending in "0" and "5".

A second area of historical investigation is the study of the motives for and the causes of migration. For each move, the respondent was asked why he or she migrated. In addition, approximately 5,000 longer interviews were conducted with non-migrants and migrants concerning the motives for and

the causes of migration. These longer questionnaires explore a series of hypotheses about the social, economic and political institutions which condition the need and the decision to migrate (or not to migrate). These data are backed up by an historical and socio-economic study of each of the villages and cities in the sample.

Finally, another type of historical analysis is the study of individual residence patterns. Both spatial and temporal variables can be used to describe the migratory paths which individuals follow in their lifetimes. These data can be examined by generation in order to see if changes over time in lifetime residency patterns are occurring.

Conclusion

The study of the history of African migration is a subject which far surpasses the field of demography. The accurate measure of the volume, direction and rate of migration has been largely left to - and ignored by - demographers. A coherent analysis of the historical causes and effects of the phenomenon is still lacking. Most studies have been highly disciplinary in nature, and a-historical. The few historical studies which have been undertaken are anti-quantitative,¹⁹ and a-theoretical.²⁰ Lacking numbers, history, and theory there is nowhere to go but forward. In such a situation, a multi-disciplinary, retrospective migration survey, with lots of quantitative and qualitative information provides the basis for our research team's analysis. The historical bias of our theoretical approach is becoming more and more apparent to us. While our starting point is a critical methodological analysis, we hope to avoid the paralysis and the pitfalls of imperfect data. We plan to make critical methods and ambitious goals compatible.

Annex - Table i

Age at time of migration, by sex; extrapolated data

Age	Males	Females	Age	Males	Females	Age	Males	Females
0	6,791	4,629	20	91,287	31,179	40	14,462	2,811
1	10,550	8,576	21	74,801	19,441	41	8,965	1,258
2	9,692	9,133	22	71,623	17,061	42	7,382	1,970
3	10,960	8,688	23	68,655	14,362	43	8,470	1,769
4	11,397	9,262	24	68,160	16,038	44	7,487	1,332
5	11,646	10,734	25	67,449	12,914	45	5,702	1,420
6	10,513	8,958	26	57,239	10,275	46	4,643	1,069
7	12,218	9,557	27	50,730	9,043	47	4,773	1,557
8	8,271	7,864	28	42,840	6,826	48	5,079	1,700
9	8,679	7,475	29	41,790	8,116	49	4,227	1,301
10	9,680	8,420	30	51,023	8,460	50	3,569	997
11	8,348	7,449	31	35,047	5,069	51	2,206	656*
12	9,119	7,496	32	30,391	4,752	52	1,869	878*
13	12,765	9,229	33	27,055	3,843	53	2,365	414*
14	15,179	10,350	34	22,831	5,000	54	1,321	790*
15	26,249	23,615	35	22,552	4,196	55	2,893	151*
16	29,600	19,967	36	16,026	3,377	56	1,350*	324*
17	41,411	60,184	37	17,041	2,920	57	1,270*	230*
18	49,100	28,139	38	13,793	3,525	58	2,044*	574*
19	57,659	34,415	39	15,543	2,182	59	2,114	152*
						60	1,576*	598*
						...		
						Total	1,345,674	508,154
						(n)	(26,788)	(15,084)
						*n < 30		

Source: Enquête nationale sur les mouvements migratoires en Haute-Volta, 1974-1975 (unpublished data).

Annex - Table ii

Year of move, by sex, 1920-1973; extrapolated data

Year	Males	Females	Year	Males	Females	Year	Males	Females
.....								
1920	2,183*	957*	1940	18,614	3,643	1960	33,275	14,085
1921	1,260*	139*	1941	17,239	3,005	1961	28,409	12,128
1922	1,688*	1,049*	1942	16,414	3,875	1962	32,290	12,419
1923	1,513*	488*	1943	18,060	3,366	1963	34,829	13,312
1924	3,252	971*	1944	20,335	3,816	1964	34,779	13,880
1925	5,600	2,128	1945	32,336	11,145	1965	46,796	23,053
1926	2,999	737*	1946	15,582	3,320	1966	42,205	16,502
1927	3,559	1,313*	1947	15,100	3,700	1967	38,245	19,496
1928	4,626	1,082	1948	16,993	5,366	1968	47,243	22,633
1929	5,174	691*	1949	19,481	3,902	1969	46,223	23,770
1930	8,963	2,358	1950	23,312	6,839	1970	54,811	27,976
1931	4,383	1,270*	1951	19,785	4,383	1971	51,393	26,683
1932	7,340	1,584	1952	19,821	6,317	1972	69,065	31,411
1933	6,747	991*	1953	23,405	5,279	1973	68,902	37,443
1934	7,990	2,309	1954	27,509	8,288			
1935	14,564	5,838	1955	39,140	12,308			
1936	9,199	819	1956	24,484	7,496	Total	1,212,069	449,406
1937	9,531	1,923	1957	27,077	7,341	(n)	(24,428)	(13,627)
1938	11,672	1,794	1958	28,898	10,572			
1939	14,619	2,454	1959	33,154	9,689	*n < 30		

Source: Enquête nationale sur les mouvements migratoires en Haute-Volta, 1974-75 (unpublished data).

Annex - Table iii

Voltaic migration streams in the 20th century, by periods; extrapolated dataBefore 1932

Origin \ Destination	Urban	Rural Mossi	Other Rural	Foreign	Total
Urban ¹	2,886	2,409	1,982	8,015	15,292
Rural Mossi ²	5,626	9,331	2,419	15,327	32,703
Other Rural ²	4,642	926**	5,068	7,090	17,726
Foreign	5,121	11,437	4,666	6,854*	28,078
Total	18,275	24,103	14,135	37,286	93,799

n = 1,514

1932-1946

Origin \ Destination	Urban	Mossi	Other Rural	Foreign	Total
Urban	8,734	7,356	4,858	34,939	55,787
Rural Mossi	12,956	16,887	4,526	39,079	73,448
Other Rural	10,343	1,399**	10,847	17,161	39,750
Foreign	24,285	26,557	12,248	28,645*	91,735
Total	56,318	52,199	32,479	119,724	260,720

n = 4,299

1947-1959

Origin \ Destination	Urban	Rural Mossi	Other Rural	Foreign	Total
Urban	16,546	8,725	8,325	40,255	73,851
Rural Mossi	19,618	21,850	6,935	73,262	121,665
Other Rural	19,410	1,939	17,242	29,191	67,782
Foreign	31,434	45,250	25,468	34,128*	136,280
Total	87,008	77,764	57,970	176,836	399,578

n = 8,804

1960-73

Origin \ Destination	Urban	Rural Mossi	Other Rural	Foreign	Total
Urban	52,990	21,085	22,641	80,223	176,939
Rural Mossi	57,922	46,186	38,453	116,340	258,901
Other Rural	48,928	6,962	52,482	65,585	173,957
Foreign	89,983	80,584	68,655	53,509	292,531
Total	249,823	154,817	182,231	315,457	902,328

n = 22,950

* Incomplete; migration between 2 foreign points by current residents of Upper Volta.

**n < 30.

1 Urban = Banfora, Bobo-Dioulasso, Dédougou, Dori, Fada N'Gourma, Gaoua, Kaya, Koudougou, Koupéla, Ouagadougou and Ouahigouy

2 Rural = The rest of Upper Volta; Rural Mossi is the population of central part of Upper Volta minus the five cities in this region; other rural is the rest of Upper Volta minus the other six cities.

Source: Enquête nationale sur les mouvements migratoires en Haute Volta, 1974-75 (unpublished data).

Footnotes

1. Direct census questions on place of birth and place of previous residence, multiple-round surveys and retrospective surveys; and indirect census methods in the case of those African countries which possess two successive censuses of reliable quality.
2. I have presented this point of view elsewhere: "Implications of Different Types of Data Collection for the Study of Migration", Actes de Chaire Quételet, 1976 (Louvain, forthcoming).
3. Lifetime migration refers to tables where place of birth is cross-tabulated with place of residence. A recent use of such data is the study by I. Masser and W.T.S. Gould, Inter-Regional Migration in Tropical Africa (London: Institute of British Geographers, 1975).
4. A colleague in Montréal is presently working with these data in his research on the military history of French West Africa from 1850 to independence. One of his recent publications is: Myorm J. Echenberg, "Paying the Blood Tax: Military Conscription in French West Africa 1914-1929", Canadian Journal Of African Studies, IX (No.2, 1975), 171-192.
5. Jean Rouch, Migrations au Ghana, (Paris: Société des Africanists, 1965).
6. Victor Piché, Joel Gregory and Sidiki Coulibaly, Enquête nationale sur les mouvements migratoires en Haute-Volta, 1974-75: méthodologie (Ouagadougou: Centre Voltaïque de la Recherche Scientifique and Institut National de la Statistique et de la Démographie, 1975). Sidiki Coulibaly, Joel Gregory and Victor Piché, "Enquête sur les mouvements migratoires en Haute-Volta: Hypothèses et collecte", Population et Famille, (No.1, 1975), 55-65.
7. Etienne Van de Walle, "Characteristics of African Demographic Data", in The Demography of Tropical Africa, William Brass, et al., editors (Princeton: Princeton University Press, 1968), pp.13-52.
8. C. Kapetanakis, Enquête nationale sur les mouvements migratoires en Haute-Volta, 1974-1975: analyses des données sur l'âge (Ouagadougou, forthcoming).
9. The Whipple Index is calculated by summing the number of persons ages 25, 30, 35, 40, 45, 50, 55, and 60, multiplying by 5, and dividing by the total of all people ages 23 to 62. This index will be close to unity (usually expressed as 100) if there is no preference for ages which are multiples of 5; the larger the index, the greater the attraction. Simply stated, if there is no preference for "0" and "5", the sum of these ages should be one-fifth the sum of all ages. The population under 20 and over 65 is excluded due to the dramatic effects which mortality can have on the age structure of the population at these ages. United Nations, Manuals on Methods of Estimating Population, Manual II: Methods of Appraisal of Quality of Basic Data for Population Estimates (New York, 1955), pp.40-41.
10. Calculated by summing all ages from 5 to 60 which end in "0" or "5", multiplying by 5, and dividing by the sum of all ages from 3 to 62. This index is not sensitive to the concentration of female ages at 17;

the Myers' index would provide a more appropriate measure of this attraction. United Nations, op.cit.

11. In the two rural strata, the sample fractions are 1/133 and 1/79; in the urban areas, the sample fractions vary from 1/3 to 1/15.
12. Calculated by summing all years from 1925 to 1970 ending in "5" and "0", multiplying by 5, and dividing by the sum of all years from 1923 to 1972.
13. Beyond 55 years (before 1925) the number of moves observed annually by sex is less than 30, making results highly susceptible to statistical insignificance.
14. At least two books on morbidity and migration in Africa are well-known: R. Mansell Prothero, Migrants and Malaria in Africa (London: Longmans, Green and Co., 1965) and Robert F. Stock, Cholera in Africa (London: International African Institute, 1976). The precise relation, if any, between mortality and migration remains unmeasured.
15. William Brass, "The Demography of French-Speaking Territories..." in The Demography of Tropical Africa, op.cit., pp.342-439
16. Current research under way using parish registers in Southwest Upper Volta and in the Koupéla region east of Ouagadougou may provide some data on historical mortality; this research is being conducted by O.R.S.T.O.M.
17. I.B.R.D. and O.E.C.D. are currently studying the possibility of such a survey. A first step would be a detailed analysis of the 1975 census results in Ivory Coast, a re-analysis of the 1970 Ghana census, and a synthesis of the three major Voltaic sources on migration: the 1976 post-census sample survey, the "enquête renouvelée" in Mossi country done by O.R.S.T.O.M. in 1973, and the National Migration Survey.
18. Gregory A. Finnegan, Population Movement, Labor Migration, and Social Structure in a Mossi Village (Waltham, Massachusetts: unpublished Ph.D. thesis in anthropology, Brandeis University, 1976), pp.65-111.
19. With the important exception of Philip Curtin's study, The Atlantic Slave Trade, A Census (Madison: The University of Wisconsin Press, 1969).
20. With the possible exception of Samir Amin's recent essay, "Introduction" in Modern Migrations in Western Africa, edited by Samir Amin (London: Oxford University Press, 1974), pp.3-64.

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