IDS/WP 212

METHODOLOGICAL ISSUES AND SELECTED FINDINGS OF AN ANALYSIS OF THE DISTRIBUTION OF WEALTH AND INCOME IN MEERE DIVISION, EASTERN KENYA

by

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WORKING PAPER NO. 212

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MARCH, 1975

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ABSTRACT

This paper examines some of the methodological difficulties that must be confronted in an attempt to measure the distribution of economic status in an area where households keep no records and where the members of individual households engage in more than one income earning activity. The paper also presents selected measures of the distribution of economic status derived from a survey carried out in Mbere Division in Eastern Kenya in 1973/74. Some possible explanations of the variation in economic status between households are also considered.

METHODOLOGICAL ISSUES AND SELECTED FINDINGS OF AN ANALYSIS OF THE DISTRIBUTION OF WEALTH AND INCOME IN MBERE DIVISION, EASTERN KENYA

There are two types of economic inequality: inequality of economic opportunity, and inequality in the distribution of wealth and income, which we will call economic status. The latter inequality normally generates the former but it need not necessarily do so. In a society where education and health care are provided freely by the state, where the state accepts the responsibility for ensuring minimal acceptable housing standards, income levels and also nutrition standards for children (e.g. through, subsidised school meals), and where access to jobs is based on an assessment of merit there could be equality of economic opportunity coexistant with inequality in the distribution of income and wealth. In practice, however, we find that the economic pressures on poor families are such that their children do not face equality of economic opportunity with those of wealthier families. This is true in so-called advanced economies, and is no less true in Kenya.

Economic inequality is a fact of life which it seems impossible to escape. Such inequality exists between nations, within nations, and within regions of nations. Nurkse in 1953 calculated that the high income countries with 18 per cent of the world's population, received 67 per cent of world income; while the poor countries with 67 per cent of the world's population received 15 per cent of the world's income. (see Table 1). Meade calculated that in 1959 in U.K. the top one per cent of the population received 47 per cent of all personal income from property and 6 per cent of all earned income. The top 5 per cent received 66 per cent and 17 per cent respectively. (see Table 2). In Kenya it has been estimated that 1970 approximately 1.3 per cent of households received incomes of K.£1,000 and over while 14.1 per cent of households received incomes of K.£20 or less (see Table 3).

That these inequalities in the distribution of income are associated with inequalities in the distribution of rights over and access to productive assets is well known. Probably no society past or present, with perhaps the exception of the hunters and gatherers and the small groups referred to below has experienced complete and sustained equality of economic apportunity. No society with the exception of a few small andcarefully bounded communities (e.g. certain monasteries, communes) has experienced sustained equality of

TABLE 1

WORLD INCOME DISTRIBUTION IN 1949

	World Income (percent)	World Population (percent)	Income per Capita
High Income Countries	67	18	915
Middle Income Countries	18	15	310
Low Income Countries	15	67	54

Source: Ragnar Nurkse, Problems of Capital Formation in Underdeveloped Countries Oxford, 1953), p. 63.

TABLE 2

DISTRIBUTION OF PERSONAL INCOMES FROM PROPERTY AND EARNINGS, UNITED KINGDOM, 1959

Percentage of Population	Percentage of Personal Income from Property (p)	Percentage of Personal Incomes from Earnings (q)	Percentage of Total Personal Income q=95%	q=85%	q=75%
Top 1	47	5	8	12	16
" 5	66	17	19	24	29
" 10	73	27	29	34	38

Source: J. E. Meade, Efficiency, Equality and the Ownership of Property . (George Allen & Unwin), p.29.

TABLE 3

HOUSEHOLD INCOME DISTRIBUTION IN KENYA 1968-1970

Economic Group	Approximate No. of Households ('000s)	%	Annual Income per household £
A	30	1.3	1,000 and Over
B	50	2.1	1,600 - 1000
C	220	9.4	200 - 600
D	240	10.3	120 - 200
E	330	14.1	60 - 120
F	1,140	48.7	20 - 60
G	330	14.1	20 and less
	2,340	100.0	

Source: I.L.O., "Employment, Incomes and Equality." Geneva, 1972, p.74.

economic status defined as equal access to scarce goods and services for all.

But while economic inequality appears always to have existed the various causes of inequality and their relative importance have not remained constant. These causes include the uneven distribution of inherited wealth, education, natural entrepreneurial ability, diligence, access to Educational attainment, family composition and a series of other variables whose distribution appears to be due either to chance (such as talent and, sometimes, location) or to their interrelation with economic status itself (such as health and access to health care). In Western industrial society education and inherited economic status are both important contributors to the uneven distribution of current income. On the other hand, amongst peasant communities in pre-Revolution Russia one of the main determinants of variations in per capita income was the family cycle.(1) In peasant communities chance or, more precisely, factors beyond the control of the household, also exercise an important influence on distribution: for example whether a man has many daughters will determine how much bride-price he receives or dowry he must pay; and where knowledge of preventive medicine for livestock is low or non-existant it may be beyond the owner's control whether his herds increase or are wiped out by disease.

Just as the causes of economic inequality vary so do attitudes towards it as illustrated by the following quotations.

> "The cost of greater equality may be great to any economy at a low level of economic development, --- particularly as it is evident that historically the great bursts of economic growth have been associated with ---- big windfall gains; it would therefore seem unwise for a country anxious to enjoy rapid growth to insist too strongly on policies aimed at ensuring economic equality:" (2)

> "The ethical principle that would directly justify the distribution of income in a free market society is, "To each according to what he and the instruments he owns produces."...
>
> Payment in accordance with product is necessary in order that resources be used most effectively, at least under a system depending on voluntary cooperation."(3)

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1. See D. Thorner, B. Kerblay, R.F.K. Smith, (eds). A.V. Chayanot: The Theory of Peasant Economy, Irwin, 1966.

2. Harry Johnson, "Money, Trade and Economic Growth", 2nd edition, Unwin, 1964 p.159; and cited in Bronfenbrenner, op.cit., p.4.

3. M. Friedman, "Capitalism and Freedom", University of Chicago Press, Phoenix Edition, 1963, pp. 161, 2 and 166.

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"It is considered a sign of industry to be selling grain in the markets, for it proves that one has not only cultivated sufficient for the family, but also a surplus for accumulation of wealth."(1)

"I remember one day the old man said to me that he had a cow he was hiding from Nablese because he didn't want Nablese to know, as he always wastes his cows."(2)

"Democracy, if it means anything, means equality; not merely the equality of possessing a vote, but economic and social equality. Capitalism means the very opposite, a few people holding economic power and using it to their own advantage .... there is no equality under this system, and the liberty allowed is only within the limits of capitalist laws meant to preserve capitalism."(3)

"The wage differentials in Tanzania are now out of proportion to any conceivable concept of human equality. A few individuals can command incomes of up to £3,000 a year, while the minimum wage is £60 a year, and many farmers receive less ....

Such differentials in economic levels easily come to be taken for granted as correct; and they lead to social differentiation and attitudes supporting inequality. They encourage the attitude of mind where groups of specialised wage-earners, whose services we need, claim more pay because of the comparative incomes of other specialised groups whose society they aspire to join. It does not seem to happen that anyone compares himself with those at the bottom of the economic level.

It is essential, therefore, that we in Tanzania, as a society, should recognise the need to take special steps to make our present situation a temporary one, and that we should deliberately fight the intensification of that attitude which would eventually nullify our social need for human dignity and equality. We have to work towards a position where each person realises that his rights in society above the basic needs of every human being must come second to the overriding need of human dignity for all; and we have to establish the kind of social organization which reduces personal temptations above that level to a minimum."(4)

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1. Jomo Kenyatta, "Facing Mount Kenya", Heinemann Educational Books, School Edition, Nairobi, 1971, p.37.

2. Labuya Sebei Herdsman, cited in W. Goldschmidt, Kambuya's Cattle, University of California Press, 1969, p. 121.

3. P. Nehru cited in M. Bronfenbrenner "Income Distribution Theory", Aldine-Atherton, 1971, . p.4.

4. Julius Nyerere, Uhuru na Umoja, Oxford University Press, 1966, p.17.

"In a society which has never really been stratified into classes a redistribution of wealth is a normal process; the provision of equality for all is merely translating into modern terms what goes on all the time and perhaps extending it more consciously beyond the confines of the extended family."[1]

"You who are in good positions, you and your wives, today you enjoy many comforts; perhaps a good education, a fine house, good contacts and many missions on which you are delegated which open new horizons to you. But all your wealth forms a hard shell which prevents your seeing the poverty that surrounds you - Take care."[2]

Some have seen economic equality as a luxury which economically poor countries can ill afford. Some have seen equality of income distribution as an impediment to efficient resource allocation. Some view the private accumulation of wealth as a just reward for efficient industry and endeavour.

On the other hand, others hold that economic and social equality are essential to the operation of democracy, that wide economic differentials are destructive of the human dignity of the poor, and that they pose a threat to the political stability of the state. Some have also argued that the permanent stratification of society into groups of varying economic statuses is not common to all societies and is alien to many traditional African societies.

In East Africa the post independence policies pursued by Kenya and Tanzania respectively have been associated with the values reflected in the first and the fifth (and sixth) of these quotations.

While economic inequality need not necessarily contribute to political and social inequality it normally does. The greater the extremes of inequality the greater the latent tension in a society. This appears to be so whether or not a social system formally provides for upward mobility. Where such provisions are meagre or non-existent frustrations of the deprived and suppressed may give way to violence as in Northern Ireland. Where such provisions formally exist it will still be in the short-term interest of the privileged to try to entrench their position so that the opportunity for upward mobility is reduced. Where the economically and politically powerful are one

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1. Dr. Biobaku (Nigeria), paper presented to the Colloquium on Policies of Development and African Approaches to Socialism, Dakar, 1962, mimeo, p.4.

2. The African Weekly, Brazzaville, cited in Frantz Fanon, The Wretched of the Earth, Francois Maspero, 1961, and Penguin, 1967.

and the same their attempts to entrench their position may be expected to generate the same tension and potential for violence as in the case just referred to. Alternatively, where the holders of high economic and political power are, in appearance at any rate, distinct, the eonomically powerful, the leaders of big business, the private owners of socially important assets, will endeavour to use their economic power in order to manipulate the political system to further their own interests. Where there is no concentrated control of scarce resourses and where political power also is dispersed,

as in many traditional African societies, internal social stability tends to be greater. In such societies the dignity of the common man emphasised by Nyerere in his statements on equality is more readily ensured.

Where economic and technological development are taking place equality of economic opportunity provides a society with a greater range of human potential to be tapped for the benefit of further development. However, the implementation of a commitment to provide equality of opportunity carries resource costs which some, like Harry Johnson in the first of the above quotations, have argued that poor societies can ill afford if they wish to achieve immediate economic growth.

The policy statements of the Kenyan Government over the years 1963-1974 have shown sustained concern for the achievement of economic growth in Kenya and increasing concern for the promotion of policies designed to reduce economic inequality among Kenyan citizens. The 10th Sessional Paper on African Socialism published in 1965 states that Kenya is committed to the achievement of high and growing per capita incomes, equitably distributed. It continues, however,

> "The high priorities placed on political equality, social justice and human dignity mean that these principles will not be compromised in selecting policies designed to alleviate pressing and immediate problems. The most important of these policies is to provide a firm basis for rapid economic growth. Other immediate problems such as Africanization of the economy, education, unemployment, welfare services, and provincial policies must be handled in ways that will not jeopardise growth. The only permanent solution to all of these problems rests on rapid growth. If growth is given up in order to reduce unemployment, a growing population will quickly demonstrate how false that policy is; if Africanization is undertaken at the expenses of growth, our reward will be a falling standard of living; if free primary education is achieved by sacrificing growth, no jobs will be available for the school leavers. Growth, then, is the first concern of planning in Kenya."(1)

1. Republic of Kenya, African Socialism and Its Application to Planning in Kenya, 10th Sessional Paper, 1965, p.18.

Nine years later, we find a shift of emphasis. The 1974 - 1978 Development Plan states

> "In spite of the rapid growth of the economy, in the first ten years of independence, the problems associated with a rapidly growing population - unemployment and income disparities - have become more apparent than they were in 1963."

In this plan, development policy is reported to have shifted towards greater emphasis on employment and income distribution. But discussion of the distribution objective in the plan suggests that the approach to reduction of inequality will still be most cautious and designed to minimise conflict with other objectives. Thus the plan summarises future policies with regard to income distribution as follows:

> "In order to achieve the social objectives of the Plan, measures will be undertaken to minimize income differentials. Firstly, the better-off members of the community will contribute proportionately more to Government revenue through taxation. All will continue to have the opportunity to contribute also through voluntary Harambee projects. Secondly, the focus of the last plan on development of rural areas, where incomes are lower than the national average, will continue. Thirdly, Government's provision of education and health services will be accelerated. Finally, the present plan provides opportunities for everyone to participate actively in the economy and in so doing improve his standard of living. Such improvements are bound to be achieved more quickly by some than by others, however. Equal income for everyone is therefore not the object of this plan. Differences in skill, effort, and initiative need to be recognised and rewarded."[1]

This statement constitutes a reaffirmation of policies introduced prior to 1974. Both the degree of emphasis on these policies and the pattern of government expenditures on points two and three could have a more or less egalitarian effect depending on the total value of expenditure and its distribution between regions and within regions. So that while such a policy summary - following the preceding statement of intent might provoke initial concern as to the likelihood that more of the same cannot be expected to significantly reduce prevalent economic inequalities, whether or not this conclusion is correct can only be determined by a detailed examination of the operation of the policies cited.

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1. Kenya Government, Development Plan 1974 - 1978, Government Printer, 1974, p.3.

If there is to be a greater emphasis on the reduction of economic inequality in Kenya, it is important to understand the nature of the inequalities that currently pervade the economy. Bronfenbrenner in his recent book has identified eight distributional "problem" types which are associated with the distribution of income and wealth. These represent alternative classifications of the distribution of Economic Status. The distribution he lists are functional (as between land, labour and capital) personal, occupational, regional, international, racial, sexual and variable (with respect to inflation which has varying effects on the real incomes of different groups within the economy depending on the extent to which these are fixed in money value).[1]

With the exception of international distribution all these problem types are of potential concern in the Kenyan context. However, an analysis of the functional distribution of incomes stands apart due to the nature of the measures that a functional analysis of distribution is usually understood to suggest to be necessary in free enterprise or mixed economy to make the distribution of income and wealth more egalitarian: the abolition of private ownership of land and capital. By contrast quite specific but less revolutionary remedies may be suggested in response to the other types of analysis.

A large amount of data needed for the analysis of regional, racial, sexual and occupational distribution of incomes in Kenya is provided for the years 1968-71 in two reports of the Central Bureau of Statistics.[2] These reports, however, do not print a breakdown of earnings by occupation, although such information was collected in the relevant surveys. More important, they do not provide any data for the "traditional" and "informal" sectors of the economy.

No complete analysis of income distribution in Kenya can ignore the "traditional" and "informal" sectors of the economy which employ the bulk of Kenya's working population predominantly in the rural areas. However, the resource inputs required for comprehensive data collection as opposed to data collection from the modern sector only are substantial; not least because most people in these sectors do not keep written budget records. Data collection and classification on income distribution in

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1. Bronfenbrenner, op.cit. Chapter 2.

2. Employment and Earnings in the Modern Sector 1968-70 and Employment and Earnings in the Modern Sector 1971, Government Printer, Nairobi.

these sectors is further complicated by the facts that a) a single individual or household may earn income from several different enterprises (not, for example, farming only) and b) adults may be aided in income earning activities by children working part or full-time. In addition the income earners are often distributed over very wide areas, and the interviewing of a truly random sample of often illiterate respondents entails heavy transport costs as well asthe labour time spent in travelling.

It is unlikely that in the foreseable future resources will be made availalbe for a full-scale national study of the distribution of income and wealth in Kenya. In such circumstances it is clear that some interest lies in distributional analyses at a much lower level (i.e. covering a much smaller area). Such is the nature of the study reported here. In the rest of this paper our concern will be with the distribution of income and wealth between households in one of the approximately 150 administrative divisions of rual Kenya,[1] and with the relationship between economic status and certain other socio-economic variables for households in the area.

The division is Mbere in Embu District. The scope of the study is further restricted to Mbere SRDP area and omits one of the division's five locations: Mwea, South of the Thiba River.

2. Methodology

Before presenting the results that were obtained from this study we refer briefly to some of the problems relating to methodology and data collection that the survey confronted.

Let us first state our objectives. With regard to the distribution of income and wealth these were to obtain estimates of annual income and of wealth for a representative group of households or persons in a given area, to determine the socio-economic characteristics of households, of different economic statuses, and to identify the main causes and consequences of variations in economic status.

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1. These administrative divisions are of widely varying populations ranging from 5,000 (Habeswein, Wajir District) to 226,000 (Nyambere, Meru District) in 1969. At this time Mbere's total population was 73,500. The population of Mbere SRDP area at the same time was 64,500. Source: Kenya Population Census, 1969, Volume 1.

Various units of measurement may be used in measuring the "personal" distribution of income and wealth. A per capita approach may be used; alternatively distribution per "adult unit" (which ignores children) or distribution per "adult equivalent" may be measured. However, most contemporary studies use a composite unit of some sort such as the family[1] or the spending unit.[2] In the following discussion we will employ two different units: the household, defined as all related persons living in the same homestead who regularly eat together, and the individual. When working with distribution per head the results are sensitive to changes in family size in different wealth or income groups.[3] It will be interesting to see to what extent varying the basic unit effects the distribution pattern in Mbere.

"Income is conventionally regarded as a flow of returns from human and nonhuman assets alike, while wealth is a stock of nonhuman assets..... and an increment of wealth is a component of income. The distributions of income and wealth differ widely, depending (chiefly) on the importance of "human capital" as an income-earning asset, and on the rate of return obtained as income in different societies."[4]

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1. Defined as all related persons living in the same dwelling unit.

2. All related persons living together who pool their income.

3. Thus, for example, some part of the declining share of the top 5 per cent and 1 per cent of income receivers (in the U.S.) in total income, over the period 1929-46, results from a differential rise in the of children in high-income families relative to low income families. See Bronfenbrenner op.cit. p.36.

cf also: "Another problem is that the term average income per family is not a very meaningful concept as far as farming families are concerned. This is due to the fact that farm incomes are directly related to size of family because:

(i) hand labour is dominant.
(ii) ... on average 85 per cent of the labour input on the family farm is derived from family sources.

Consequently perhaps a more relevant statistic to compare is income per capita.

Institute for Agriculture Research Samaru, Ahmadu Bello University, Nigeria, Farm Income Levels in the Northern States of Nigeria, Samaru Miscellaneous Paper 35.

4. Bronfenbrenner, op.cit., pp. 25 and 26. Bronfenbrenner continues: "Comparing the United States and the United Kingom, for example, the distribution of income, as commonly measured, is more unequal in the United States, while the distribution of income is more equal there." (p.26)

Let us consider whether Bronfenbrenner's statement can be expected to apply to a rural community such as that of Mbere. For if it does not, then the most efficient approach to data collection for a distribution analysis would be to concentrate on the collection of data to measure the distribution of wealth.

In more advanced economies, four important components of personal wealth are land, buildings, antiques and art treasures, and financial assets. In Mbere at the time this study was implemented land was not yet a saleable asset for most households since adjudication had not been completed. Buildings were almost uniformly mud and wattle, and the most significant saleable component of these was the corrugated iron (mabati) roofing which approximately 18 per cent of them possessed. In a few isolated cases, however, individuals might be sole or part owners of stone buildings, usually shops or bars, which might have a resale value. Antiques or art treasures were also virtually non-existant. One important and prized artefact, wood and leather honey-jars, might be put in this category but there can hardly be said to be a market in these jars which are traditionally passed down from father to son. Ownership of financial assets is also very rare. There are only a few who have P.O.S.B. or commercial bank deposits, or shares in commercial enterprises. On the other hand, a component of total wealth which was excluded from our original list but which is important in Mbere is livestock: livestock and consumer durables and "semi-durables" constituted the main assets of most households.

Examination of the distribution of livestock between households in the case-study and random sample surveys revealed that this is not directly correlated with the distribution of current income, which itself is influenced by educational attainment. Hence we may expect to the distributions of income and total wealth in Mbere to differ.

We will suggest below that the distribution of recent purchases of consumer durables and semi-durables (excluding livestock) does appear to be associated with the distribution of current income experienced in the recent past. However, while three proxies of income suggest themselves: household expenditure on education, household expenditure on certain specified durables and semi-durables, and household nutritional status, none is a completely satisfactory proxy for the distribution of income.

In this study the direct estimates of income which were obtained all derive from purposefully selected case study households. Obtaining input-output data for the main productive activities engaged in in Mbere entailed collection of daily records from case study households over a twelve

month period. Crop prices in local markets very widely both inter and intra-seasonally. For purposes of valuing farm output crop prices were collected at fortnightly intervals from three local markets also over a twelve-month period.

The ideal method of estimating the distribution of wealth in Mbere would be to complete comprehensive business (including farm) and household inventories for a representative sample of households. To collect such data by a one interview per household survey does, however, presuppose that the interviewee is prepared to place considerable trust in the interviewer.[1]

In view of this, two methods of data collection were employed. Comprehensive inventories were recorded for 40 case-study households, and selective inventories plus data on livestock ownership for a random sample of 205 households who were only interviewed once.[2] The items included in the selective inventories were chosen to reflect the additional purchases of durable or semi-durable goods that households appeared from the case-study data to make as they acquired additional purchasing power. The list of items used is presented in Table 4, which also shows the number of households which were recorded as owning each item.

For the single interview survey it may be asked whether the total value of items on the selective inventory, plus livestock owned by the sampled households accurately reflects the distribution of all household assets. We have a check on this in the form of the comprehensive inventories prepared for the case-study households. Table 5 shows two inventory distributions for these households. Column (i) gives the distribution of all household goods excluding clothing, but including livestock and poultry and farm equipment. Column (ii) shows the distribution of livestock plus those household assets included in the selective inventory.

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1. Since fairly obvious possible uses of the data include assessment of eligibility to pay some new or existing tax or harambee contribution.

2. This survey was carried out during the period late September 1973 - early February 1974.

TABLE 4

SELECTIVE HOUSEHOLD INVENTORY

ITEM	No. of Households in random Sample Survey, owning each item
Blanket(s)	167
Mutungi(s) *	132
Sheet(s)	98
Door(s)	92
Chair(s)	87
Bed(s)A **	81
Torch(es)	74
Table(s)	61
Bed(s)B ***	59
Towel(s)	57
Hurrican Lamp (s)	43
Mbati Roofing (Corrugated Iron)	38
Bicycle	31
Wooden Case(s)	30
Coir Mattress(s)	27
Suit-case(s)	22
Wrist watch	22
Radio	19
Sponge Mattress(s)	17
Thermos Flask(s)	11
Watering Can(s)	10
European type fork(s)	10
Metal Bucket(s)	8
European Type Spade(s)	6
Water Tank(s)	5
Clock	4
Plastic Bucket	1
Pressure Lamp	0

* Tin "barrel" used for carrying and storing water

** Beds with wooden frames and rope or rubber stretched across.

*** Spring beds

TABLE 5

Distribution of Wealth Among 40 case-study Households, Based on (i) Total Wealth, and (ii) a Sample of Assets

Proportion of Wealth Holders	Percentage of Total Wealth Held	
	(i) All Assets	(ii) Items on Selective Inventory Plus Livestock
1st decile	.006	.001
2nd decile	.008	.003
3rd decile	.020	.011
4th decile	.037	.026
5th decile	.051	.046
6th decile	.060	.060
7th decile	.090	.095
8th decile	.129	.151
9th decile	.218	.213
10th decile	.379	.393

Column

Inspection of the two columns shows that/(ii) underestimates the share of the lowest two deciles combined by one per-cent and of the next two deciles by one per cent each. There are other minor differences further down the columns but the patterns revealed in the two cases are very similar. Provided the main differences between the two are borne in mind use of the selective inventory plus livestock to identify the pattern of distribution of wealth appears justified.

The distribution of economic status is a function of the distribution of income and wealth. Wealth provides income, prestige and security. Given these types of benefits we must determine whether it is possible to devise a composite index of economic status. If all wealth provided only a stream of benefits that could be readily valued there would be no problem. But security and prestige cannot be readily valued. Furthermore, most wealth of Mbere households does not consist of productive assets as usually defined but of household assets which yield a stream of non-marketable services. While these could be valued on a simple depreciation basis, dividing purchase price by average life, given the variability of the life of many of these items between households this would not be very satisfactory.

Also, the preparation of a composite index of economic status would of course only be feasible if earned income as well as unearned income could be valued for the relevant households. Since the total annual (or even monthly) earned income of Mbere households could not be estimated at a single interview, this in itself rendered impossible the estimation of the distribution of a composite index of economic status for a random sample of households, unless a completely accurate proxy for income could be found.

The random sample survey generated several partial inidcators of economic status. These were:-

a) A wealth index consisting of the selective inventory plus the value of livestock.

b) The value of acquisitions of components of the selective inventory over one or more years immediately preceding the survey to be used as an indicator of income over the selected period.

c) Proportion of children of the household who are in school as an indicator of the distribution of current income.

d) Food consumption per capita per household over a twenty-four hour period immediately preceding the interview, as an indicator of the distribution of current income.

The first of these has already been discussed. Let us consider the others.

The monthly household expenditure of the case-study households in Mbere was summarised in an earlier paper.[1] Inspection of Table 21 in that paper shows that most household expenditure was devoted to the purchase of basic essentials, purchase of foodstuffs comprising the bulk of these outlays. Purchases of items recorded in the household inventory are, with the exception of blankets, purchases of good which are not basic essentials and which it is possible to live without (even blankets can be made to last for relatively long periods if necessary). Thus for most households purchases of the items in the selective inventory are made "at the margin" as and when surplus resources are available, As such they may be regarded as reasonable reflectors of different income levels. Onee purchased, these goods have varying lives, a fact which is illustrated by the date presented in Table 6. Here we see that the data suggest that some items, e.g. mitungis[2] (which quite easily get holes in them) and towels, have much shorter lives than others, e.g. wooden furniture. All these items, however, normally last over a year and since purchases are sometimes concentrated in a limited period, the analysis of purchases made over a relatively short period such as the previous twelve months might lead to some distortion in the representation of income distribution.

However, while purchases of items on the selective inventory over, say, a two year period might be expected to reflect income levels over the same period we must specify one important proviso, which is that such an analysis may be expected to underestimate the income shares of the poorest and wealthiest groups: the poorest because none of the purchases made by the very poorest households are reflected in the selective inventory even though they have a positive real income, and the wealthiest because some of the potentially most costly outlays of this group (e.g. consumer durables such as cars, record players, tape recorders) were also excluded from the analysis.

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1. D. Hunt "Resource Use in a Medium Potential Area" I.D.S. Working Paper No. 180, mimeo, 1974
2. Cylindrical Portable metal Water containers.

Table 6

Proportion of Items in the Selective Household Inventory Purchased in the Period 1970 - 1973

1	2	3	4	5	6	7	8	9
Items	Total Number Purchased	D.K. when bought	Number specified as bought in 1970 or later	4 as % 2	Number bought in 1972 or later	6 as % 2	Total Number Home-made	Number made in 1970 or later
Blankets	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a
Mutungis	155	12	132	85.2	105	67.7	-	-
Sheets	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-	-
Doors	179	64	56	31.3	27	15.1	100	34
Chairs	270	35	106	39.3	54	20.0	10	6
Beds(all types)	146	50	41	28.1	20	13.7	52	13
Touches	94	13	59	62.8	37	39.4	-	-
Tables	84	12	21	38.1	18	21.4	7	5
Towels	98	15	78	79.6	65	66.3	-	-
Hurricane L.	56	14	25	44.6	13	23.2	-	-
Mbati	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	n.a	n.a.
Bicycle	32	3	15	46.9	5	15.6	-	-
wooden Boxes	59	21	14	23.7	5	8.5	-	-
Mattresses (all types excluding skins &mats	44	2	18	40.9	12	27.3	-	-
Suit-cases	27	3	17	63.0	12	44.4	-	-
Wrist-watch	23		17	73.9	9	39.1	-	-
Radio	23	3	12	52.2	8	34.8	-	-
Termos Flask	15		12	80.0	5	33.3	-	-
Watering can(s)	12	1	7	58.3	5	41.7	-	-
European piks	12	3	2	16.7	2	16.7	-	-
Metal bucket	7	1	2	28.6	2	28.6	-	-
European spades	5		2	40.0	2	40.0	-	-
Water tank	7		4	57.1	4	57.1	-	-
Clock	5		3	60.0	2	40.0	-	-
Pressur Lamp	1		1	100	0	0	-	-
Plastic Bucket	2		2	100	2	100	-	-
Cart	1		1	100	1	100	-	-

In addition, as a direct representation of income, acquisitions of items on the selective inventory also have the further weaknesses that :

(i) people have varying attitudes to the accumulation of "modern sector" goods;

(ii) Some of the items are received as gifts, not purchased: how should such gifts be classified?

Point (ii) requires elaboration. It is debatable whether items on the inventory which have been received as gifts should be counted as income for the year in question, being valued at their full value when received. Strictly the annual income derived from a durable good is its use-value over the year in question, while its value when new reflects a stream of future use-values to the consumer. On the other hand, it would be impossible to predict with full accuracy the future life of various items for individual families on the basis of the information obtained in the random sample survey. This might only have been done if a question concerning the estimated life of recently acquired items had been included in the questionnaire. If gifts were always irregularly received it would be appropriate to leave them out, but for some old people gifts from children may constitute a quite regular and significant accrual to their economic welfare. Therefore it was decided to make the best estimate possible of the life of each item on the inventory (in years), and by dividing the new value by the number of years of estimated life to arrive at an estimate of the marginal annual use value of items received as of gifts.

Having decided to treat gifts in this way, the question then arises whether other acquisitions, particularly those purchased by absent household heads, should not be treated similarly. This however, does not seem appropriate for items purchased out of current income.

An examination of the total incomes of fourteen case study households and of purchases of items on the selective inventory by the same households during the period January 1972 - September 1973 revealed a somewhat similar distribution of values in the two cases, although with a greater spread in the case of inventory purchases.. The data reproduced in Table 7. It can be seen through comparing columns 3 and 6 in this table that the purchases give a more uneven distribution

than total income.

However, while the distributions are somewhat similar the rankings of the households are very different. Thus, while the number of households on which the conclusion is based is very small, purchases of durables and semi-durables over (approximately) two years do not appear to accurately reflect income in the second year for individual households. Nonetheless they do appear to reflect, though with some exaggeration of the spread, the distribution of those incomes between households. Moreover it is probable that over a two year period income distribution would be more widely spread than over one. For while some households would experience off-setting changes or retain their share of the preceding year some of those at both ends of the distribution might be expected to experience changes which would accentuate their preceding position. Consideration was given to an analysis of the distribution of purchases over a single calendar year (1972), but this produced some unrepresentative zeros(which was not surprising in view of the degree of durability of the items on the inventory).

In view of the foregoing it was decided that an analysis of the value of purchases of items on the selective inventory over the years 1971 and 1972 should be made for the random sample survey. However, since we do not have the relevant two year income data with which to test our assumption we cannot claim that this represents an accurate reflection of income over the preceding two years. The data represent simply another index of distributive inequality.

C. Expenditure on school fees as an indication of current income was used by Heyer and Ascroft in their analysis of the 1968 Kenya Farm Survey. They, however, considered the amount of school fees paid in the previous year, both for the farmer's own children and for others,[1] whereas in the present survey, the latter category of expenditure was not covered. This means that it would be possible for a high income household in which there were few or no children of school age to score very low on such an income index even though that household head was financing the education of other children. We therefore rejected the use of such an indicator of the distribution of income for this study. Instead it was decided concentrate upon the proportion of children of primary school age who were in school for different households. This of course will only provide an indicator of the distribution of welfare as between households having children of school age.

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1. J. Heyer and J. Ascroft, "The Adoption of Modern Practices on Farms in Kenya: Preliminary Results of a 1968 Survey of Farms Across Kenya." IDS/WP 212

Table 7

Distribtuion of Income and of Selective Inventory Purchases 1972/73 for 14 Case-Study Households

1	2	3	4	5	6
	Total Income October 1972 - September 1973			Selective Inventory Purchases January 1972 - September 1973	
Household	Value Shs	% share of total	Hpusehold	Value Shs	% share of total
A (31)*	522	1.98	B	20	1.11
B (4)	531	2.01	I	24	1.33
C (9)	679	2.57	K	36	2.00
D (32)	736	2.79		37	2.06
E (22)	846	3.21	G	48	2.67
F (21)	1155	4.38	L	51	2.83
G (1)	1262	4.78	H	55	3.06
H (2)	1351	5.12	D	74	4.11
I (30)	1437	5.44	E	91	5.06
J (28)	1955	7.41	F	143	7.95
K (3)	2488	9.43	J	194	10.78
L (6)	3473	13.16	M	248	13.79
M (38)	4500	17.05	A	296	16.45
N (5)	5463	20.70	N	488	26.01
Total	26396	100.00	Total	1819	100.00

* Number in brackets gives code-number for individual households.

D. Our third possible indicator of the distribution of current income is the distribution of nutritional status. We shall indeed attempt to use a nutrition index as a reflector of income distribution. In addition we will also examine the relationship between nutritional status and income ranking based on purchases of items on the selective inventory. Thus we will use nutritional status in two ways: as an indicator of distribution and to measure one of the key consequences of rural poverty: inadequate nutrition. Here we are concerned with the first of these two uses, and since this entails certain methodological problems let us examine these.

Our first problem is that nutritional status is determined by the extent to which an individual enjoys an adequate balanced diet. This in turn is a function of the quantity and composition of the food consumed. Some foods are rich in calories, others in protein, others in Vitamin A, and so on, and it is important that all the essential components be present in the overall diet. Thus proteins are needed for growth and repair of the body, carbohydrates and fats and oils give warmth and energy and minerals and Vitamins provide protection from diseases and metabolic disorders. The identifiable components of food which fall into these three categories include clcalories, vegetable and animal protein, calcium, iron, vitamin A, thiamine, riboflavine, niacin and vitamin C. The content of all of these in the diet of those households in the random sample survey who had measurable food available was obtained for the preceding twenty-four hours. This was done by weighing all foodstuffs consumed including sugar diluted in tea or coffee. Using conversion tables the different foodstuffs were then converted into their different nutritional components.

Since in any given household it is possible to find that a diet which is adequate in some respects is inadequate in others a single index of the nutritional status of each household had to be devised. This was done as follows. Nutrition tables broken down by age and sex were used to identify the daily requirements of each household member for the various items (protein, calories, etc.) listed above. The total requirements were added up and related to the total household availability. For each item a household could score a maximum of 1 if it had sufficient or more than the specified requirement of the item, and a minimum of zero if it had none. The scores for each item for a given household were then added up and the average overall score was computed.

In the measurement process we encountered two difficulties. First, those households not having food to be weighed may be expected to include a disproportinately high number of poor households. Secondly, for circumstances beyond the control of the writer the random sample survey continued for a period longer than that originally planned. It in fact lasted from September 1973 to early February 1974. As a result some diets were weighed after the short rains harvest had begun to come in.[1]

Let us now turn to consider the survey results. We turn first to the distribution of wealth in Mbere.

Table 8 presents the Lorenz curve data for the distribution of wealth in Mbere based on the results of the random sample survey. Column 2 gives the results on household basis for the distribution of items on the selected inventory plus livestock. Column 3 presents the distribution of household assets in Mbere excluding livestock again on a household basis. In all cases itemsin the inventories were valued at their current estimated resale value and not their price when new.

We see that the distribution of economic status in Mbere, when measured by ownership of livestock and household assets, is markedly skewed. There are a few relatively wealthy households and many who are relatively poor. Put more precisely 33% of households own resources above the mean, 66.0% below it. The distribution of items on the selective inventory and the distribution of livestock taken alone are both more skewed than the distribution of the combined total of these assets, showing that some households are rich in livestock but poor in consumer durables and semi-durables, and vice-versa. Table 9 presents the same data on a per capita basis. A comparison of Table 8 and 9 shows that when the distribution of wealth in the population is analysed on a per capita basis the poorest deciles receive a slightly larger share and the richest deciles (the top 20 or 30 per cent) a slightly smaller share than when it is analysed on a household basis. In other words, there is a slight tendency for rich households to be larger than poor households and this has a slight equalizing effect on the per capita distribution of wealth.

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1. Some allowance for this was made by the exclusion of all green vegetables consumed after November 1st. Thus the data focus upon conditions which prevail during the greater part of the year when green vegetables are not readily available.

Table 8

Distribution of Wealth in Mbere (by Household)

Wealth represented by:-

1 Households grouped by deciles	2 (i) items on the selective inventory plus livestock %	3 (ii) items on the selective inventory only %	4 (iii) livestock only %
1st decile	0.00	0.11	0.00
2nd decile	0.33	0.42	0.00
3rd decile	0.91	0.78	0.00
4th decile	1.88	1.31	0.77
5th decile	3.96	1.87	2.27
6th decile	6.71	3.23	5.29
7th decile	9.61	5.12	8.12
8th decile	12.99	8.72	12.87
9th decile	20.38	21.68	21.48
10th decile	43.17	56.73	49.21
% of households with assets below the mean	66.00	77.83	70.25

Table 9
Distribution of wealth in Mbere(Per Capita)

Population grouped by deciles	Wealth represented by:- (i) items on the selective inventory plus livestock %	(ii) items on the selective inventory only %	(iii) livestock only %
1st decile	0.13	0.22	0.00
2nd decile	0.52	0.65	0.00
3rd decile	1.15	0.97	0.25
4th decile	2.49	1.58	1.72
5th decile	5.65	2.46	3.68
6th decile	6.48	3.72	6.03
7th decile	9.65	5.41	8.23
8th decile	11.74	10.90	11.59
9th decile	18.79	21.88	20.03
10th decile	43.39	52.23	48.55

Aggregate indices of the distribution of wealth or income tell us little of the actual economic circumstances of individual households.

For Mbere households what constitutes material wealth and poverty? Let us consider first the nature of the material possessions of a poor household. Giconjo Kithii is an old man. A long time ago his second wife left him and went to live in Kikuyu, her motherland, with her two children Wanjohi and Wangeci. Giconjo lives with his daughter Mbura whose mother is already dead. Mbura is unmarried and lives at home with Giconjo when she is without full-time work. It is on his daughter Mbura that Giconjo is dependant for any cash income. During the period of the survey Giconjo was living on his own because his daughter had obtained a job as a maid in Siakago. Giconjo's material possessions at this time consisted of one goat and the items listed in Table 10, the approximate total value of which was shs. 85/=.

Giconjo is poor not only in terms of the assets which he possesses but in terms of current income. At the outset of the case study period in September 1972 Giconjo's food store was empty following the failue of the preceding harvest. For food, Giconjo was dependant on his daughter, who at that time had a job working for Shs. 60/- a month at the Divisional Headquarters and on neighbours. Since he also had three miraa trees in his shamba it is possible that he was also selling some miraa leaves to help make ends meet.[1] The following quotations from the daily records that were kept for Giconjo during this period give some indication of the nature of his difficulties.

September 27th, 1972

Giconjo went to Siakago in the morning to take medicine in the dispensary. He returned home at noon passing through the canteen trying to borrow maize flour for credit but he was denied. He went straight to his farm and started burning rubbish heaps in his farm. He went to fetch water at about 1 p.m. At about 4 p.m. he went to look for a home where he could be given food because he had not taken lunch. There was no home —— and so he went to sleep being hungry.

October 9th

Giconjo today was looking if he could get someone to give him food. He was out of cash and he struggled here and there but he couldn't get any. After his struggle he came to sleep. He did not do any work due to hunger.

1. Miraa leaves are chewed by some men in Mbere as a form of stimulant.

TABLE 1C

TOTAL MATERIAL POSSESSIONS OF A SINGLE PERSON MBERE HOUSEHOLD CLASSIFIED AS POOR BY MBERE STANDARDS

ITEM	APPROXIMATE RESALE VALUE Shillings
Clothes, very poor condition	4.00
One small mud and wattle store and sleeping hut	NIL
1 water gourd	1.50
1 tin bucket	NIL
13 Aluminium alloy cooking pots	12.00
1 small storage tin	.50
Grinding stones	5.00
Mortar and pestle	5.00
3 metal bowls	1.50
3 metal basins	9.00
Plates	5.00
3 cups	.50
1 glass jar	1.00
1 kettle	NIL
2 tea strainers	NIL
5 spoons	1.50
3 knives	.50
1 wooden spoon	.10
½ calabashes	1.50
Gourds	2.00
Honey jars	15.00
3 blankets	10.00
Storage baskets	3.50
Storage boxes	4.00
Total	84.10

October 12th

When Giconjo woke he went to chase the squirrels from sunrise to nine o'clock. Today he had no food to eat not even a cent had he in his pocket. So he set out to look for one who could give him something to eat. He got some little flour with which he prepared some porridge at one o'clock.

October 28th

Giconjo woke up and went at Susana's to borrow some money. He missed and so he returned to Cagini's and missed again. At 12.00 noon he went to the garden to scare but he felt that he was very hungry. So he slept for three hours and then he went home at 5 p.m.

October 30th

Giconjo woke up and went to Mote's canteen (shop) to borrow some flour but he did not get any. So he slept. At 4 p.m. he went home but he did not get anything to eat and so he slept hungry.

November 2nd

Giconjo after waking went to the garden (farm) and he started planting millet at about 11 o'clock. Because he had nothing Giconjo went out to see if there was anybody who could give him food. He did not get any. He came and slept up to four o'clock. He went home and when he got there he soon left for Mateo's where he was given some little maize and beans. He went home to sleep.

November 3rd.

Giconjo after waking started planting some maize seeds at about 10 a.m. He planted a piece of about 10 metres. After that he felt very hungry and he went to Thura to fetch water. After that he collected firewood and began preparing some porridge- and he had been given that flour by the wife of Cagini. He then began scaring from about four o'clock until dusk.

November 4th

Giconjo went to Susana's to borrow some food and he was given one calabash of maize and some beans (1 bowl). He went to his farm and put

the food stuff he was given on the fire to cook while he continued to plant millet and that millet he had borrowed. At about 3 p.m. the food was ready and he went to eat.....

Let us now turn to consider the nature of the material possessions of a wealthy Mbere household.

Gabriel Mugai's was the wealthiest of the case-study households. His household in Mbere consists of his wife, his mother and five children, the oldest aged about fourteen. Mugai himself works in Nairobi. The composition of his household possessions may be regarded as representative of the wealthiest two per cent of Mbere households judged in terms excluding livestock or the wealthiest ten percent if we include livestock. Mugai's family live in a large rectangular house having several rooms. The house is constructed of plastered mud-and-wattle and has a corrugated iron roof. In the past Mugai ran a van, but this is now completely broken down and valueless. The household's single most valuable possession is a radiogram bought for Shs. 1,200/- in 1972. The items on Mugai's household inventory are far too many for it to be useful to list all of them. They include, however, in addition to an ample supply of crockery and cooking utensils, modern furniture in the form of a cupboard, three tables, eight chairs, six spring beds, two other beds, eight mattresses, pillows, towels, twelve sheets, twelve blankets and two hurricane lamps. They also include children's toys in the form of four rubber balls - an unusual luxury for the children of the household. The total value of Mugai's household possessions amounted in 1973 to Shs. 5,635. In addition he owned livestock worth Shs. 3,084/-.

Just as Kithii is poor both in terms of wealth and current income so Mugai is rich in both respects. Whereas Kithii had had no education Mugai had been educated up to Secondary 3. He completed his education in 1958 and in 1959 he obtained his first job. This was as a messenger at a wage of Shs. 85/- per month with Nairobi City Council. In 1964 he was promoted to a clerical job, and as a clerk he earned Shs. 455/- per month. In 1965 he became a clerical officer and his salary rose to Shs. 620/- per month. Finally, in 1971 he was promoted to Senior Clerical Officer at an increased salary of Shs. 820/- per month. For Kithii with no education such job opportunities were completely closed. Nontheless Kithii also had had when he was younger a job as a policeman in Nairobi at a wage of Shs. 90/- per month. He left this job in 1952 at the start

of the emergency. At this time he returned to his farm in Mbere where he has lived ever since.

Whereas Githii now lives permanently on his farm, Mugai lives in Nairobi and visits Mbere when on leave. Mugai, however, transfers quite substantial sums of money to his household in Mbere, to finance purchases of food and clothes, payment of school fees and expenditure on the farm. It was estimated that Mugai transfers to Mbere approximately Shs. 2000/- per annum. These transfers enable the household members to enjoy an unusually high standard of living compared with the majority of their neighbours, and to cultivate an unusually large farm. They enable Mugai's wife to emply at least one farm-worker on a monthly basis (at a salary of Shs. 50/- per month) and sometimes a second farm-worker and maid as well. In addition the household spends unusually high sums on the hire of casual labour.

Let us now turn to consider possible indicators of the distribution of income in Mbere. The first indicator we consider is purchases of items on the selective inventory in 1971 and 1972. Table 11 summarises the distribution between households of the total value of purchases of items on the selective inventory made during this period.

The greater degree of skew manifested in this Table than in the earlier Tables describing the distribution of wealth is compatible with the less extreme skew manifested in the latter given that many household incomes in Mbere fluctuate from year to year. Especially in the case of off-farm income earned by absent household heads what may be a good year for some may be a bad year for others. Over time this would have some levelling effect upon the distribution of household assets.

Table 12 summarises the distribution of nutritional status amongst the 152 households in the random sample survey who made food equivalent to/that consumed over the preceding 24 hours available for weighing. The content of this table requires some explantion. Column 2 presents the mean nutritional status of each decile of the population, from the worst nourished to the best nourished using the composite index of nutritional status which was outlined on page 22. . (This measure will be referred to henceforward as the constrained index of nutritional status). When the index had been calculated for each decile, the ten indices were summed and then the percentage share of each [illegible] in this

Table 11

Distibution Between Households of the Value of Purchases of Items in the Selective Inventory Made in 1971 and 1972

Distribution of Households by Decile	% of Total Value of Purchases
1st Decile	0
2nd Decile	0
3rd Decile	0.51
4th Decile	1.35
5th Decile	1.91
6th Decile	2.26
7th Decile	4.10
8th Decile	6.54
9th Decile	15.56
10th Decile	67.78

total was calculated. These percentage shares are presented in Column 3 which indicates the degree of inequality in nutritional status between households. Column 4 was computed on the same principles as Column 2 except that in this case where a household consumed more than the required amount of a given component of the diet, say protein, this was expressed as a true percentage of the amount required. Thus in this case the percentage would exceed 100. (It will be recalled that in computing the constrained index of nutritional status employed in Column 2 a household which consumed an amount greater than or equal to the required amount of any specified component of the diet received a score of one, and not more than one (or 100 percent)for that component.) The index employed in Column 4 will be referred to hereafter as the unconstrained index of nutritional status. Column 5 was calculated from Column 4 in the same way that Column 3 was derived from Column 2, and presents an indication of the skew in food consumption which takes account of the fact that some households consumed more than the minimum required amounts of some of the necessary components of their diet. Since this column more fully reflects variations in the total quantity of food consumed per capita in different households it is in some ways a more accurate reflector of variations in economic status.

Food consumption is the most basic item of consumption for any household. Since food is essential to survival the income elasticity of demand for food is low relative to that for many other goods. It is therefore not surprising to find that the degree of skew in the distribution of food consumption is much less than in the purchase of consumer durables and semi-durables. What should be noted rather- is the degree of skew that exists. Column 3 shows that even when using our constrained index of nutritional status we find that the best nourished households were almost four times as well nourished as these who were least well nourished.

When we turn to examine the educational status of children of shcool age in Mbere households we find that amongst the random sample survey households there were 322 children falling in the age-range 6 years to 13 years of whom 164 or 51 percent were in school. The proportion of children in this age range who were in school varied between households (see Table 13). Of 137 households with children in this age range 50 or 37 per cent had no children in school, while 40 or 29 per cent had all children in this age range in school. 44.5 per cent of households had less than half their children in this age-range in school.

Table 12

DISTRIBUTION OF NUTPITIONAL STATUS AMONGST MBERE HOUSEHOLDS

1 Decile	2 Mean percentage of household requirements consumed (1st or "constrained" index)	3 Lorenz Distribution (1st Index)	4 Mean percentage of household requirments consumed (2nd "Unconstrained" index)	5 Lorenz Distribution (2nd index)
1st	23.7	3.7	23.7	2.4
2nd	41.8	6.6	44.3	4.4
3rd	52.1	8.2	56.6	5.7
4th	60.2	9.4	71.5	7.2
5th	65.6	10.3	85.9	8.6
6th	70.9	11.1	99.8	10.0
7th	75.0	11.8	114.9	11.5
8th	77.8	12.2	133.6	13.4
9th	81.6	12.8	154.5	15.5
10th	88.8	13.9	214.6	21.5
		100.0		100.2[1]

[1] Total does not equal 100.0 due to rounding.

Table 13

PROPORTION OF MBERE CHILDREN AGED 6-13 WHO WERE IN SCHOOL IN 1973 AND 1974

1 Proportion of Children aged 6-13 in School	2 Number of Households	3 Column 2 as a percentage of all households with children aged 6-13	4 Average Number of Children aged 6-13 in Household
0.00	50	36.50	1.76
0.25	3	2.19	4.33
0.33	8	5.84	3.00
0.50	19	13.87	2.63
0.67	11	8.03	3.00
0.75	5	3.65	4.00
0.80	1	0.73	5.00
1.00	40	29.21	2.18
Total	137	100.01[1]	Average = 2.33

[1] Total does not add up to 100.00 due to rounding.

So far we have seen that all our indices of economic welfare suggest a skew in the distribution of economic welfare between households. We now turn to consider to what extent variations in the different welfare indices between households are correlated.

In the case of purchases of items on the selective inventory, the relationship between the value of purchases made in 1971 and 1972 and the total value of items owned is positive. For the thirty-seven households who made no purchases the mean value of all items owned on the selective inventory was Shs. 117/-. For the nine households who made most purchases the corresponding value was Shs. 1408/-; and for the next nine it was Shs. 535/-. Mean per capita wealth for the households making no purchases was Shs. 24/- whereas for the eighteen households who made most purchases it was Sh. 338. For the one hundred and forty six households who made purchases and for whom the relevant data was available the rank correlation coefficient for purchases made in 1971 and 1972 and total ownership of items on the selective inventory showed a strong correlation between the two.(1)

The relationship between wealth and nutritional status is also positive, although not consistently so. This is illustrated by the data in Table 14 which give the mean per capita wealth index including livestock for the ten deciles of the population grouped according to the constrained and unconstrained nutritional status indices. The rank correlation coefficient for the constrained nutrition index and per capita wealth (including livestock) is 0.1536 which for N = 151 is significant at the 0.05 level. However, while the rank correlation coefficient indicates a positive association between the two variables, Column 2 of Table 1 shows that the association is not entirely consistent. Although Column 3 of Table 14 suggests a stronger association between per capita wealth and the unconstrained nutrition index than Column 2, in fact the rank correlation coefficient in this case is not significant at the 0.05 level.

Table 15 presents four different indicators of the mean wealth of households which have different proportions of children of primary school age in school. The indicators are of per capita wealth excluding and including livestock and of household wealth excluding and including livestock. In relating per capita wealth to the proportion of children in school we hypothesise that the proportion of children in school is associated with resources available per head in the household. In relating total household wealth to the proportion of children in school

Table 14

MEAN PER CAPITA WEALTH INCLUDING LIVESTOCK OF HOUSEHOLDS RANKED ACCORDING TO NUTRITIONAL STATUS (SHILLINGS)

1 Households ranked by: Nutritional Status	2 Constrained Nutrition index	3 Unconstrained Nutrition index
1st decile	155.6	158.17
2nd decile	234.2	184.54
3rd decile	281.1	264.61
4th decile	164.0	207.25
5th decile	147.1	246.49
6th decile	190.3	120.76
7th decile	322.3	251.51
8th decile	399.2	271.79
9th decile	282.2	277.37
10th decile	484.2	658.35

we hypothesise that the proportion of the children in school is associated with the aggregate resources of the household and not per capita resources. This second hypothesis implies that a higher priority is attached to education than does the first.

In considering the relationship between different proportions of children in school and wealth including and excluding livestock, we are hypothesising in the first case that households may be prepared to liquidate livestock holdings in order to finance school fees and in the second case that they are generally not prepared to do this.

An examination of Columns 6 and 8 of Table 15 reveals that households with either no children in school or only a small proportion of children in school (and also a relatively low absolute number of children in school) are substantially poorer in terms of their per capita and total possession of items on the selective inventory than those households who have a larger proportion, and a larger absolute number, of children in school. Examination of Column 7 shows that this distinction does not apply in the case of per capita livestock holdings, nor does it apply with any consistency in the case of tatal livestock holdings. This result suggests that Mbere households do not generally regard livestock holdings as a source of finance for school fees. Rather the large stock owners are often traditionalists who attach greater importance to possession of stock than to goods purchased in the modern sector, and who do not attach a high priority to the formal education of their children.

The distinctions between the mean per capita possession of items on the selective inventory of households with no children in school and those with 50 per cent and 100 percent are significant at the 0.0132 level or below. The distinction between those with no children in school and those with from 67 per cent to 80 percent is significant at the 0.1357 level.[1] On the other hand, the distinction between those with no children in school and those with between 20 percent and 33 per cent is significant at less than the 0.0006 level (one sided-test), and less than 0.0012 (Two sided test). The facts that in this case those households with children in school are poorer than those without, and that the latter group have almost twice as many children of primary school age suggests that there is a minority of poor households who are

1. All one-sided tests.

TABLE 15 Proportion of Mbere Children Aged 6 - 13 Who Were in School in 1973 and 1974 Related to Wealth of Household

1 Proportion of Children aged 6-13 in School	2 Average Number of children in School	3 Number of Households	4 Clumn 2 as a percentage of households with children aged 6-13	5 Average number of children aged 6-13 in household	6 Mean per capita wealth of households: items on selective inventory only	7 Mean per capita wealth of households: items on selective inventory plus livestock	8 Mean household wealth: items on selective inventory only	9 Mean household wealth: items on selective inventory plus livestock
0.00	0	50	36.50	1.76	31.96 (v^2=2904.6)	245.76	186.84 (v^2=90895.3)	1321.52
0.2		1	0.73	5.00				
0.25	1	2	1.46	4.00				
0.33		8 11	5.84 8.03	3.00 3.36	6.21* (v^2= 14.93)	339.78	78.64 (v^2=8084.93)	881.10
0.50	1.32	19	13.87	2.63	82.51 (v^2=18155.3)	147.83	446.17 (v^2=372518.2)	944.02
0.67		11	8.03	3.00				
0.75	2.41	5 17	3.65 12.40	4.00 3.41	52.20 (v^2=4750.0)	236.05	432.41 (v^2=299013.5)	2003.03
0.80		1	0.73	5.00				
1.00	2.18	1 40	29.20	2.18	89.03 (v^2=23944.2)	259.33	556.99 (v^2=892235.3)	1552.80
	Total	137	100.01	Average=2.33				

* 10 observations only.

prepared to make a high sacrifice in order to put at least one child in school, and that those households who do this tend to have a relatively large number of children.

We have attempted to describe the distribution of economic status in Mbere. It is clear that this distribution is markedly skewed. Moreover, a household which is relatively rich or poor in terms of one of our four indices of economic welfare tends also to be relatively rich or poor in terms of others. Let us now turn to examine more carefully some possible reasons for the existence of this skew.

The literature on income distribution given minimal attention to the analysis of distribution in peasant communities. Pen and Bronfenbrenner in their recent books both ignore this area entirely.[1] In order to find an explanatory model which might fit Mbere we must turn to the Russian economist Chayanov who worked on this problem in the early decades of the twentieth century. Chayanov was concerned not merely to explain rural income distribution but to develop a comprehensive model of peasant household resource allocation. Here, however, we are concerned with his explanation of peasant farm income distribution. Chayanov held that a wide range of variables combine to determine per capita income levels in peasant farm families. Of these he gave most emphasis to the ratio of productive to non-productive members in the farm household.

The life and per capita income cycle of the farm family may be divided into five stages:-

1. early adulthood: low income per capita
2. marriage higher income per capita
3. birth of children lower income per capita
4. children mature higher income per capita
5. children leave home
   old age of parents - Lower income per capita.

Chayanov's their assumes (i) economies of scale in production and consumption, which explain the increase in per capita income from state 1 to 2 (ii) no hiring of labour which might be used alter the natural producer: dependant ratio.

---

1. See J. Pen, Income Distribution, London, Allen Lane, 1971. and M. Bronfenbrenner, Income Distribution Theory, Chicago, Aldine-Atherton, 1971.

Chayanov identified his model as one of "demographic differentiation", in contrast with the Marxian concept of class differentiation amonst the peasantry.

Let us look at Chayanov's model and his explanation of income distribution more fully.

Chayanov defined the scope of his analysis of the peasant economy as "An organizational analysis of peasant family economic activity - a family that does not hire outside labour, has a certain area of land available to it, has its own means of production, and is sometimes obliged to expend some of its labor force on non-agricultural crafts and trades."[1]

He claimed that peasant economic life is usually based upon a non-wage family economic unit: "We know that most peasant farms in Russia, China, India and most non-European and even many European states are unacquainted with the categories of wage labor and wages."[2]

> "On the family farm, the family, equipped with means of production, uses its labor power to cultivate the soil and receives as the result of a year's work a certain amount of goods. A single glance at the inner structure of the family labor unit is enough to realize that it is impossible without the category of wages to impose on this structure net profit, rent, and interest on capital as real economic categories in the capitalist meaning of the word."
>
> "Indeed, the peasant or artisan running his own business without paid labor receives as the result of a year's work an amount of produce which after being exchanged on the market, forms the gross product of his economic unit. From this gross product we must deduct a sum for material expenditure required during the course of the year, we are then left with the increase in the value of material goods which the family has acquired by its work during the year, or, to put it differently, their labor product. This family labor product is the only possible category of income for a peasant or artisan family unit, for there is no way of decomposing it anlytically or objectively. Since there is no social phenomenon of wages, the social phenomenon of profit is also absent. Thus it is impossible to apply the capitalist profit calculation ....[3]

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1. A.K. Chayanov, "Peasant Farm Organization" in The Theory of Peasant Economy, edited by D. Thorner, B. Kerblay and R. Smith, American Economic Association, Irwin, Homewood, Illinois, 1966, p.51.

2. A.K. Chayanov, "On the Theory of Non-Capitalist Systems", in D. Thorner et.al., eds., op. cit., p.1.

3. Op.cit., p.5.

"The amount of labour product is mainly determined by the size and composition of the working family, the number of its members capable of work, then by the productivity of the labor unit and... by the degree of self-exploitation through which the working members effect a certain quantity of labour units in the course of the year."

"...the degree of self-exploitation is determined by a peculiar equilibrium between family demand satisfaction and the drudgery of labor itself."

"Each new ruble of the growing family labor product can be regarded from two angles: first, from its significance for consumption, for the satiation of family needs, second, from the point of view of the drudgery that earned it. It is obvious that with the increase in produce obtained by hard work the subjective valuation of each newly gained ruble's significane for consumption decreases, but the drudgery of working for it, which will demand an ever greater amount of self-exploitation, will increase. As long as the equilibrium is not reached between the two elements being evaluated (i.e. the drudgery of the work is subjectively estimated as lower than the significance of the needs for whose satisfaction the labor is endured), the family, working without paid labor, has every cause to continue its economic activity. As soon as this equilibrium point is reached, however, continuing to work becomes pointless, as any further labour expenditure becomes harder for the peasant or artisan to endure than is foregoing its economic effects.

"...this moment of equilibrium is very changeable. It is reached as follows: on the one hand, through the actual specific conditions of the unit's production, its market situation, and through the unit's location in relation to markets (these determine the degree of drudgery), on the other hand, by family size and composition and the urgency of its demands, which determine the consumption evaluation. Thus, for example, each increase in labor productivity results in gain of the same quantity of products with less labor. This allows the economic unit to increase its output and to satisfy family demands in full. On the other hand, the significance of each ruble of gross income for consumption is increased in a household burdened with members incapable of work. This makes for increased self-exploitation of family labor power, so that the family's standard of living, threatened by increased demand, can be kept up in some way.

"Starting with the nature of the basic consideration described above, the family labor farm has to make use of the market situation and natural conditions in a way that enables it to provide an internal equilibrium for the family, together with the highest possible standard of well-being. This is achieved by introducing into the farm's organizational plan such labor investment as promised the highest possible labor payment per labor unit."[1]

"...the intensity of cultivation and its organizational forms depend to a very great extent on the amount of land for use, the size of the labor family, and on the extent of its demand, ie.e. on internal factors (family size and composition and its relation in proportion to the amount of cultivated soil). Thus, population density and forms of land utilization become extremely important s social factors which fundamentally determine the economic system.

Another less important, yet essential, social factor is the traditional standard of living, laid down by custom and habit, which determines the extent of consumption claims, and, thus the exertion of labor power." [1]

> ...Since, on the family farm which has no resourse to hired labour, the labour force pool, its composition and the degree of labor activity are entirely determined by family composition and size, we must accept family makeup as one of the chief factors in peasant farm organization.
>
> "...It is absolutely essential, therefore, to study the labour family as fully as possible, and to establish elements in its composition, on which basis it develops its economic activity, before we touch any question about the labor farm.
>
> "...We will find variations in family size. In many agricultural districts of Slavonic countries, you may frequently encounter living together several married couples of two or even three generations, united in a single complex partriarchal family, On the other hand, in many industrialised districts we see every young member of the family striving before manhood to branch off from the paternal home...
>
> "Nevertheless, however varied the everyday features of the family, its basis remains the purely biological concept of the married couple, (the married trio or quarter in countries with polygamous family structure), living together with their descendants and the aged representatives of the older generation. This biological nature of the family determines to a great extent the limits of its size and, chiefly, the laws of its composition.[2]

While he emphasised the importance of producer:dependant ratios as a determinant of peasant household per capita incomes Chayanov also identified a series of other variables that contribute to variations in household income. "He took account of size of holdings, qualities of soil, crops grown, livestock, manure, location, market prices, land prices, interest rates on capital loans, feasibility of particular crafts and trades, availability of alternative work, and relative density of population."[3]

Most of these variables, however, such as population density, crops grown, land prices, market prices, availability of alternative work, are ones which one would expect to show greater variance between rather than within regions, although they may also show some variability within a given region.

---

1. A. K. Chayanov, op. cit., p. 12.

2. A.K. Chayanov, "Peasant Farm Organization", in D. Thorner, B. Kerblay, and R. Smith eds., A.K. Chayanov: The Theory of Peasant Economy, American Economic Association, Irwin, Homewood, Illinois, 1966, pp. 53 and 54.

3. D. Thorner, "Chayanov's Concept of Peasant Economy" in A.K. Chayanov, The Theory of Peasant Economy, op.cit., p. xvii.

In order to determine whether variations in family composition wholly or partly explain in equalities in the districtuon of income and wealth in the mbere context we will first examine the relationship between per capita wealth and the age of household heads, and then between wealth and the producer-dependancy ratic of the household. In what follows producers will again be defined as all household members falling in the age-range 16-59 inclusive and all household members falling outside this age range are defined as dependants.

We consider the between per capita wealth and the age of household head first on the assumption that the attainment by a household head of a certain age range generally approximates to a particular stage that his household has reached in the family cycle. This assumption is borne out by data obtained in the 205 household random sample survey. This data indicates a cyclical pattern in household producer: dependant ratios and is summarised in Table 16.

The pattern reflected in this table is as follows. When household heads are in their twenties they are either single or recently married and have few children. Where the husband's mother is living in the household she is usually still young enough to be productive. As the household head moves into his thirties there is an increase in the number of children in the household and at the same time his mother moves towards old age and is more likely to be classified as a dependant. As the household head moves into his forties the older children reach an age at which they are classed as productive. As the household head moves into his fifties the older children move away from home but the younger children have also grown up: the household has fewer dependants.

As the household head moves into his sixties he himself becomes classed as a dependant, but his wife or wives are likely to be younger than he, and still classed as productive. As the household head moves into his seventies, however, his wife or wives are also more likely to be classed as dependants.

This process may also be summarised diagramatically as in Diagram 1. The left hand section of this diagram bears a close resemblance to the trend which Chayanov himself observed in Russia. This is reproduced in Diagram 2. In this diagram the producer: dependant ratio is inverted. Chayanov does not include the final decades of the aging household, possibly because he assumed that old people would always be cared for by younger relatives. In Mbere we did not find that this was

DIAGRAM 1.

Mean Ratios of producers to Dependants in Mbere Households
Classified by Age of Household head

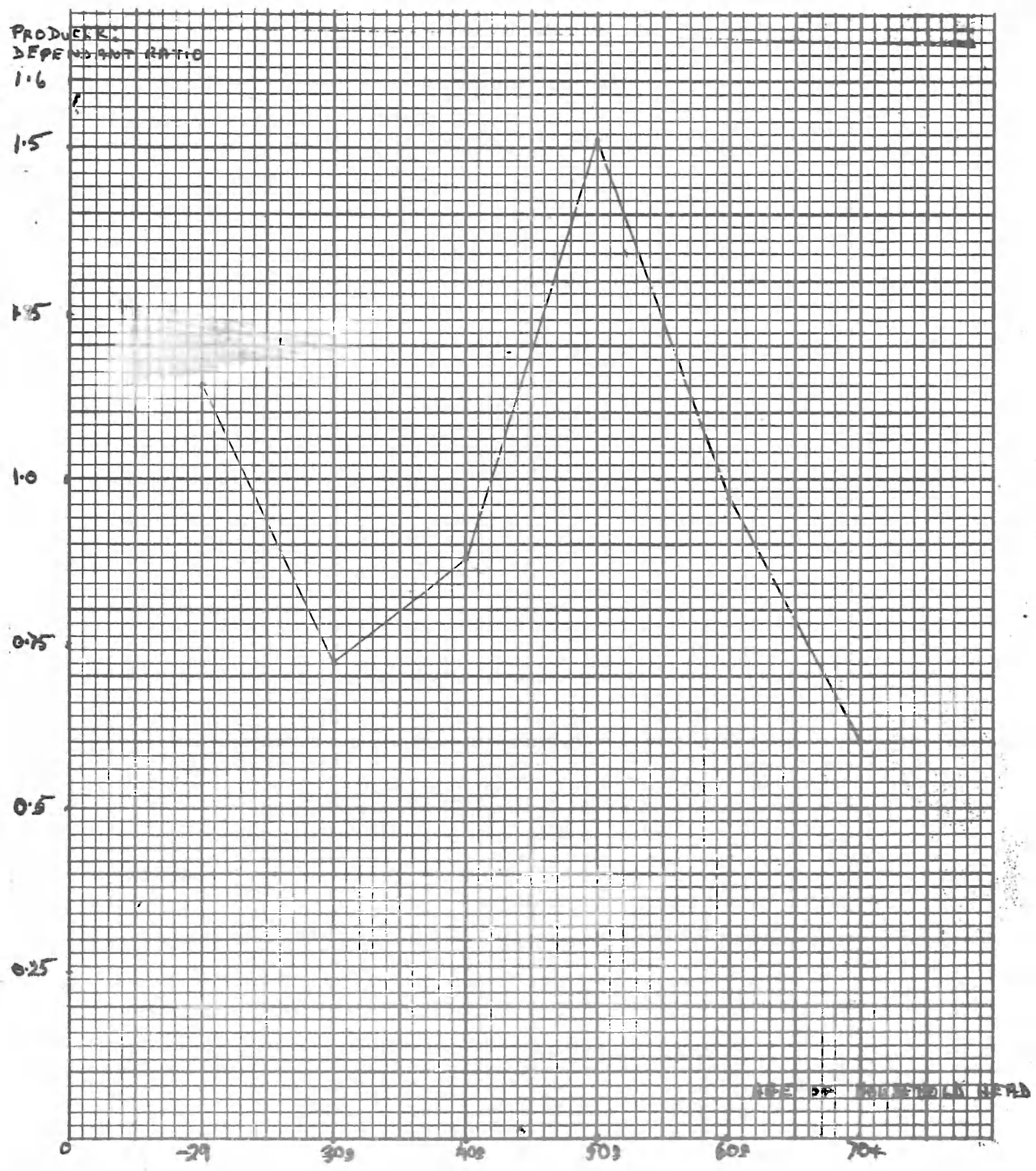
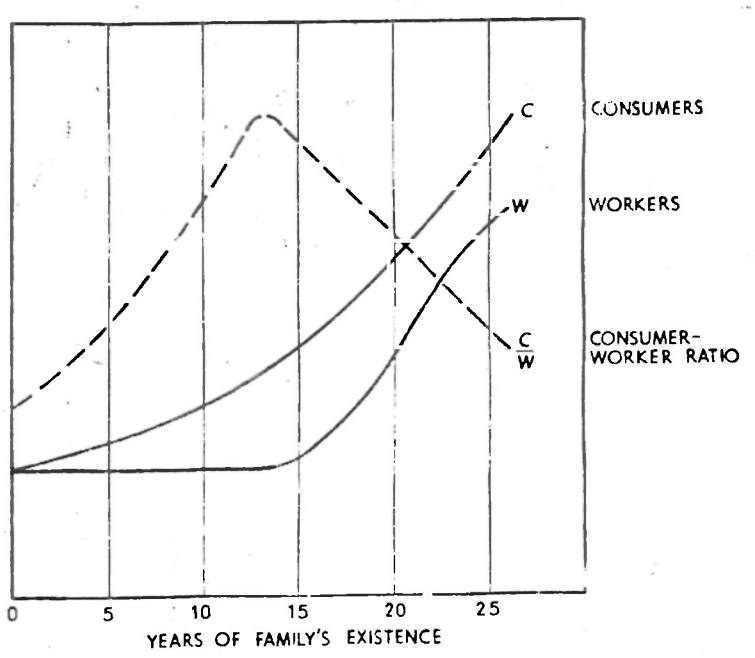


Diagram 2



Source: Chayanov op.cit. p. 59

Table 16

Mean Producer: Dependant Ratios for Different Age Ranges of Mbere Household Heads

Age Range of Household Heads	Number of Observations	Mean Producer: Dependant Ratio
< 30	41	1.14
30 - 39	51	0.72
40 - 49	49	0.88
50 - 59	27	1.51
60 - 69	19	0.97
70 +	16	0.60

invariably the case. Even where young relatives lived close by and were ready to help out, elderly couples often continued to preserve as a separate household, eating separately and retaining their own farms.

It is clear that there is a cyclical pattern in household producer: dependant ratios which is associated with the age of the household head. We next consider whether this cycle is associated with a comparable cyclical pattern in the per capita wealth of households. Inspection of Tables 17 and 18 suggests that this is not the case. Table 17 relates household wealth to the age of household heads and to their education. The Table shows that on average households with heads in their thirties are wealthier than those with heads in any other age range, and that the group with the second highest mean wealth is that with household heads in their twenties. The group with household heads in their fifties have the second lowest mean wealth although they have the highest mean producer: dependant ratio.

Table 17, suggests that there may be a cyclical variation in household wealth but not one that bears any relationship to changes in household producer: dependant ratios. The pattern which is suggested by the figures in Column 9 is of highest income earning activity and wealth accumulation by households with heads in their twenties and thirties. Closer examination of the Table however leads one to conclude that this apparent pattern is largely attributable to the more frequent access to formal education and higher levels of educational attainment amongst household heads in this age range. This is borne out by columns 10 and 11. Examination of column 3 reveals that when we consider only those households in which the household head has had no education, peak household wealth is achieved when the household head is in his thirties.

The job histories of these same household heads indicates that their peak monthly earnings were usually achieved when they were in their twenties and thirties.

The distinction between the mean wealth of household heads in their thirties and forties who have received no education is significant at the 0.085 level.

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The dominant feature of the data presented in Table 17 is not, however, the apparent cyclical pattern of wealth status , which varies depending on whether or not one takes account of variations in access to education at different age levels, but the important influence of educational attainment itself upon earnings and wealth. This is indicated most clearly in the bottom row of Table 17 but the rows above also indicate the same pattern.

The difference between the mean wealth of households where the head has received no education and where he has received adult literacy training or education in the range primary 1-4 is not high enough or consistent enough for one to conclude that education up to this level is the dominant determinant of variations in household economic status. However the difference between the mean wealth of households where the head has no education and where he has received education in the range primary 5 - 8 is significant at the 0.0021 level.

Turning to Table 18, which relates the per capita wealth of households (as opposed to aggregate household wealth) to household producer: dependant ratios and to the educational attainment of household heads, a similar pattern emerges. Column 9 reveals that only for households with a producer: dependant ratio of 0.4311 or less is there a marked reduction in per capita wealth, whereas for households with P:D ratios ranging from 0.5:1 to 3:0 there is little variation in per capita wealth, and what change there is tends to be counter to changes in the P:D ratio. On the other hand, the Table reveals a marked tendency for variations in per capita wealth to be associated with variations in the educational status of the household head.

Another factor which may influence household income and wealth remains to be examined. This is variations in agricultural potential within Mbere. This factor was also included in Chayanov's model.

At the time that the survey reported here was undertaken land was not privately owned in Mbere except in the densely populated coffee producing area of the extreme north-west. Outside this area the non-availability of land was not usually a constraint to farm-size. Soil conditions in the district varied, soils being generally shallow and stony in the east which for this reason and due to the poorer reliability of the rains has the lowest agricultural potential of the area. In much

Table 18

MEAN PER CAPITA WEALTH (ITEMS ON SELECTIVE INVENTORY ONLY) RELATED TO HOUSEHOLD PRODUCER: DEPENDANT RATIOS AND TO EDUCATION OF HOUSEHOLD HEAD

1 Household producer: dependant ratio	2 No. of Obser-vations	3 Nil	4 Ad:Lit	5 P1-4	6 P5-End	7 P1-4+ Tech.Tr.	8 Sec:1-4	9 Overall Mean
Ratio Dependant Only	10	86.5 8.65 (10)	-	-	-	-	-	8.65
0.14:1 – 0.43:1	40	1211.255 52.66 (23)	56.19 11.24 (5)	162.8 32.56 (5)	411.16 82.23 (6)	[illegible].6	100.6 (1)	1941.85 48.53
0.5:1	28	647.55 43.17 (15)	39.8 19.90 (2)	361.5 60.25 (6)	508.65 169.55 (3)		462.68 231.34 (12)	68.14
0.6:1 – 0.88:1	47	537.25 28.28 (19)	202.81 33.80 (6)	679.48 56.62 (12)	1762.73 195.86 (9)		24.75 (1)	70.81
1:1	28	176.85 11.79 (15)	293.1 97.7 (3)(4)	63.67 21.22 (3)	441.04 110.26 (4)	197.5 (1)	650.25 (1)	65.08
1.2:1 – 2.5:1	27	689.63 49.26 (14)	23.3 (1)(2)	247.43 123.72 (2)	499.66 83.28 (6)(7)		79.76 (1)(2)	1539.78 64.16
3:1,4:1 5:1, 1:0. 2:0,3:0	21	117.98 10.73 (11)	191.0 63.67 (3)	124.77 (1)	36.5 18.25 (2)			63.41
Average		3467.02 32.4 (107)	806.2 40.31 (20)(22)	1639.65 54.66 (30)	1897.01 121.99 (30)(31)	197.5 (1)	398.04 219.67 (5)(6)	

of Mbere however, soils vary within very small areas, and the implications of these variations for agricultural production are not all fully understood. The potential of the soils is of course also strongly associated with the number of seasons for which they have been cultivated. Ability to open new land was constrained by the availability of labour for clearing. For these reasons no atttempt was made classify the quality of the soils operated by individual farm households. However, certain broad distinctions between different parts of Mbere were noted. An analysis of the mean values of the selective household inventories and of livestock holdings in different parts of Mbere suggests that this does not now have as much influence on the distribution of wealth as might perhaps be expected. An examination of the Mbere population map[1] shows that with the exception of part of the area between Siakago and Embu, population densities in Mbere generally reflect agricultural potential. For this reason the 205 household survey was sampled on a two-stage stratified basis. At the first stage fifteen high density and fifteen low density enumeration areas from the 1969 census were selected. A comparison of the mean wealth of the sample populations in the high and low density areas reveals a quite close similarity. The mean value of ownership of items on the selective inventory was Shs. 307/- in the high density areas and Shs. 323/- in the low density areas. When the value of livestock holdings was included the mean values were Shs. 1,272/- in the high density areas and Shs. 1,240/- in the low density areas. The area of highest agricultural potential in Mbere is in the extreme north-west, where coffee can be grown. Here the mean value of ownership of items on the selective inventory was Shs. 329/-. Interestingly, however, when livestock were included the total only rose to Shs. 801/-, revealing smaller average livestock holdings here due to the much higher population density.[2]

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1. Reproduced in D. Hunt, Resource Use in a Medium Potential Area: the Mbere Rural Economy, I.D.S. Working Paper No. 180, 1974.

2. In general, livestock holdings tend to be higher in the eastern half of Mbere. In the western half of the area mean holdings of items on the selective inventory were Shs. 367/- whereas in the east they were only Shs. 287/-. When the value of livestock holdings were added to these totals they became Shs. 1242/- and Shs. 1240/- respectively. Thus the larger livestock holdings in the east offset the lower level of acquisition of manufactured goods.

Conclusion

In this paper I have attempted to outline some of the methodological difficulties associated with the measurement of the distribution of economic status in a rural area where no records are kept and where individual households engage in more than one income earning activity. I have also presented certain measures of the distribution of economic status which have been derived from a single interview random sample survey. The picture that emerges from the survey is of a notably unequal distribution of economic status in the area. The main cause of this inequality appears to be variations in the formal educational attainments of household heads. The second most important factor appears to be the recent off-farm work experiences of household heads having less than five years of formal education. Experience of relatively high paying off-farm work for these household heads appears to occur usually when they are in their twenties and thirties.

Contrary to Chayanov's findings in Russian peasant economies, the ratio of producers to dependants in individual households is not associated in any consistent way with the distribution of the per capita wealth of households. (However it is the case that households composed solely of old people are substantially poorer than any other group in that they own fewer household assets and usually own no livestock.)