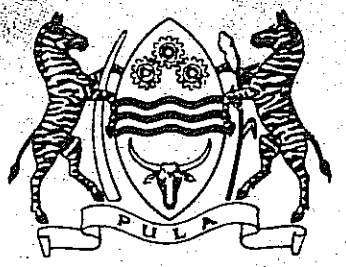

REPUBLIC OF BOTSWANA

The Rural Income Distribution Survey in Botswana 1974/75

PRICE: R6.00

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MINISTRY OF FINANCE AND DEVELOPMENT PLANNING

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C O N T E N T S

APPENDICES

SOME LEADING FACTS

The 1974/75 Rural Income Distribution Survey covered a population of 93 000 rural households. The sample size was just over 1 800 households.

The areas covered were those parts of Botswana which excluded Francistown, Gaborone, Lobatse, Orapa and Selebi-Pikwe.

Results from chapter 7

Crop production in 1974 was valued at over R8 million. This was produced by 66 000 households (over 70% of all rural households). The mean production was worth R126 per year, per crop producing household. The mean income from crops after deducting expenses, was R114 per year.

The total value of livestock production was R60 million. After deduction of running costs, income was R37 million. This income accrued to 76 500 households (over 80% of all rural households). The mean income per livestock owning household was R481 per year.

The total value of income from employment was R19 million. About 52 000 households (56%) had one or more members in employment at some or other time during the year. The mean income from employment was R355 per year, per household with employment income.

About 57 000 households (61%) had income from "manufacturing" i.e. beer brewing, handicrafts, etc. The mean income was R42 per year, per household engaged in manufacturing.

The estimated 9 700 traders had a mean income from trading of R296 per year.

About 84 000 households (90%) derived income in kind from "gathering", primarily from the collection of firewood but also from gathering edible wild plants. The mean income was R47 per year, per household engaged in gathering.

Results from chapter 8

The median income was R630 per household per year. Half the households had incomes less than R630, and half had incomes more than R630.

The poorest 10% of the rural households had incomes less than R233 per year.

Three quarters of the households had incomes below the mean or average income of R1 068 per year.

The richest 10% of the rural households had incomes more than R2 094 per year.

The "Gini coefficient", a measure of how much income is concentrated, was 52%.

Median incomes were calculated separately according to the type of locality of the household. The results were R468 for freehold farm employees; R610 for residents of small villages, lands areas or cattle posts; R887 for residents of one of the eight largest villages; (*) R1 387 for residents of the Barolong Farms; and R7 429 for freehold farmers.

Results from chapter 9

The very poorest households derived about a quarter of their income from "transfers", i.e. free meals, gifts from friends and relatives, money from returning migrant labourers, etc. Gathering was second in importance as a source of income, followed by employment and farming. About 70% of their income was "in kind" and about 30% was cash.

Lower middle income households derived about 40% of their income from employment. Next in importance were farming, transfers and gathering. About 50% of their income was in kind.

Upper middle income households also derived about 40% of their income from employment. Farming accounted for another 40%, of which 34% came from livestock. About 40% of their income was in kind.

The richest households depended on livestock for 63% of their income. Trading contributed a further 22% to their income. About 30% of their income was in kind; this arose because of the large natural increase of their herds of cattle.

Results from appendix 15

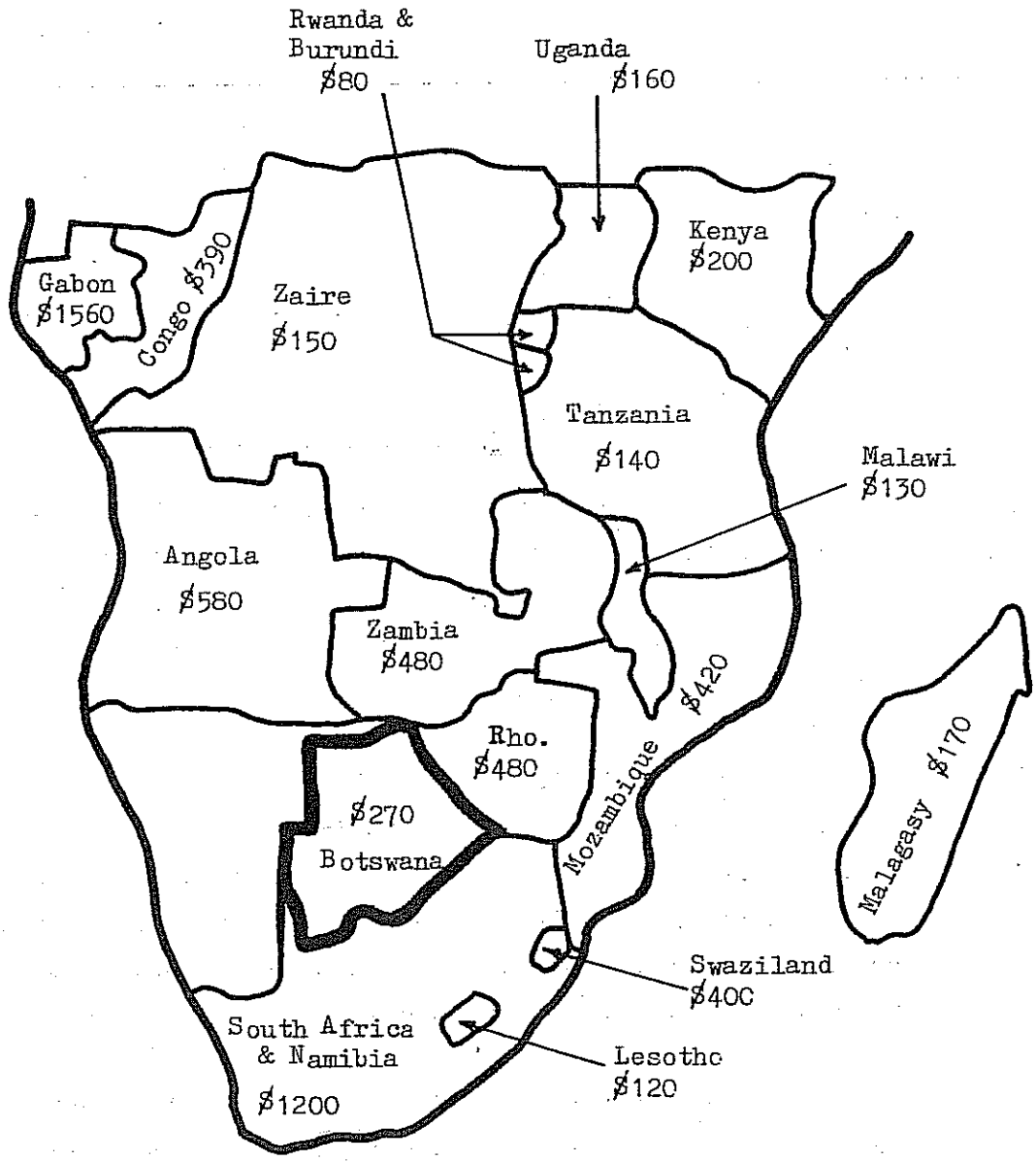
About 45% of the rural households had incomes below the rural poverty datum line.

(*) Maun, Serowe, Palapye, Mahalapye, Mochudi, Molepolole, Ramotswa, Kanye.

AVERAGE ANNUAL INCOME (*)

PER PERSON IN 1974

(in US dollars)



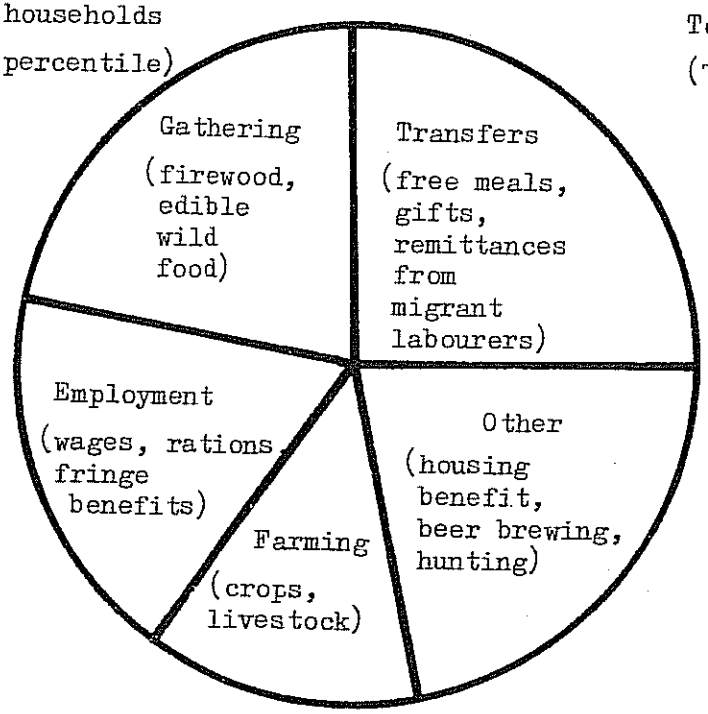
(*) Per capita gross national product at current market prices, rounded to the nearest $10; $116 = R100.

Source: 1975 World Bank Atlas

INCOME PROFILES

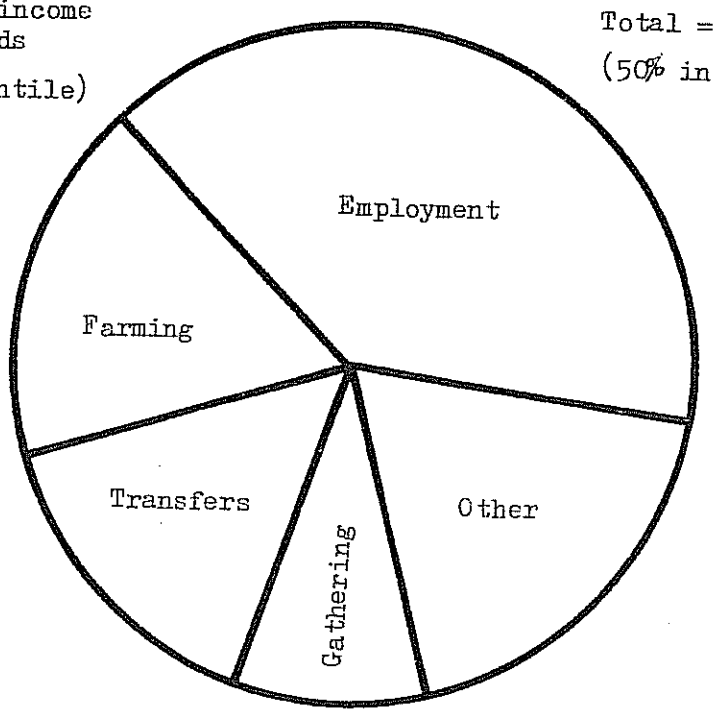
The poorest households
(up to the 10 percentile)

Total = R160
(70% in kind)



Lower middle income households
(15 to 50 percentile)

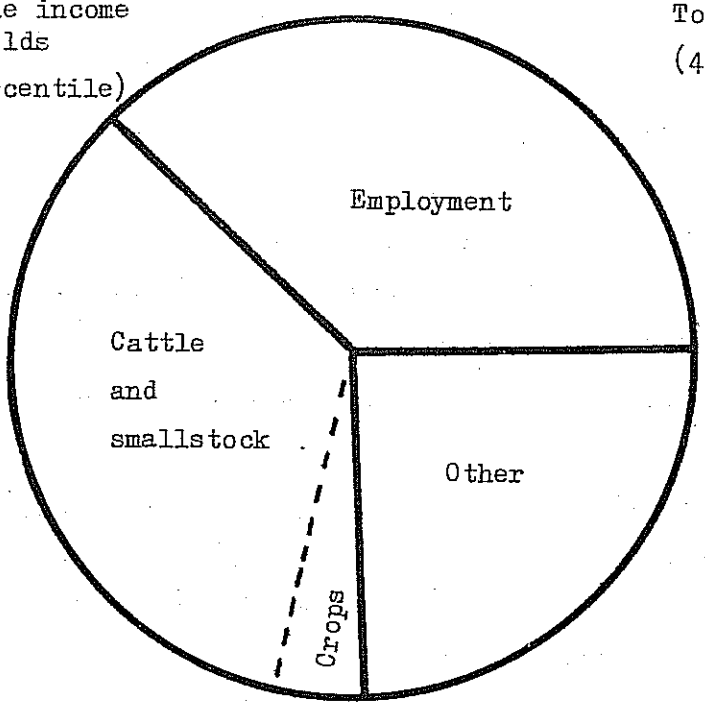
Total = R430
(50% in kind)



INCOME PROFILES (continued)

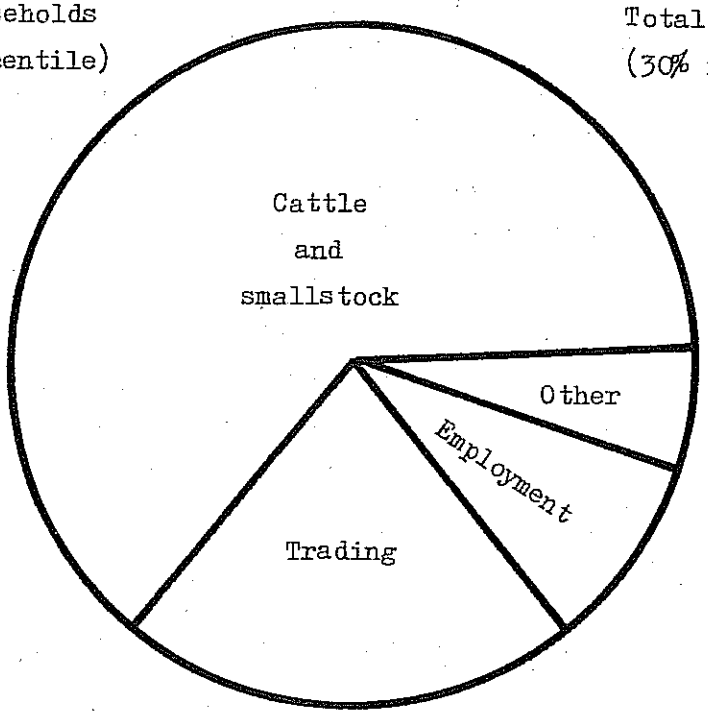
Upper middle income households
(60 to 95 percentile)

Total = R1 670
(40% in kind)



The richest households
(99 to 99,7 percentile)

Total = R9 140
(30% in kind)



APPENDIX 23

Subsistence hunting as a source of income for Bushmen at /ai/ai in northwestern Ngamiland

Edwin N. Wilmsen

University of Michigan

Bushmen at the remote villages in northwestern Ngamiland hunt to provide food for themselves, their immediate families, and other persons who are related to them in varying degrees of kinship. These people have entered the Botswana national cash economy to a limited extent; among other things, they sometimes buy domestic animals, as well as meat from these, to the extent that their very limited cash resources permit. Meat obtained from wild animals, however, is never sold but is distributed to those who share in the kill. Gifts are expected in return and are eventually received through the general exchange of goods and services that is characteristic of Bushman daily life, but there is no specification that some particular thing is tendered in payment for another. Thus, no cash income of any kind is realized from the edible portions of wildlife.

Hunting does, however, contribute substantially to the Bushman economy in three important ways. First, meat is provided for household consumption. Records have been kept by the author of all animals killed in the /ai/ai area from September 1973 to November 1975; the equivalent monetary value of the meat obtained can be calculated. Second, raw materials in the form of skins and sinew are obtained from which goods (clothing and containers) are made for household use and for sale. Records of sales of these items were kept, and accurate estimates of income from this source were made. Third, short-term surpluses of meat were sometimes created which were disposed of in exchange for longer-term returns. These returns are diffuse, often almost invisible to an outside observer, and no monetary value can be placed on them. This will be briefly discussed at the end of this report.

Essentially all hunting by Bushmen in northwestern Ngamiland is still done by primitive traditional methods. Bushmen do not own guns or steel traps. In some parts of the district, Bushmen sometimes are lent guns for short periods but little benefit comes of this practice because the game meat obtained belongs to the owner of the gun. Snares are by far the most effective means of killing animals; more than half of all animals and 90% of all birds are taken by snares. The remaining mammals are clubbed, speared, run down, or shot with bow and arrow; the remaining 10% of the birds are taken from nests or from water holes where they have drowned.

A specific sample of annual hunting income has been taken among the Bushmen at /ai/ai, one of the most remote of present day communities. Modern vehicles can reach this area with some difficulty; nevertheless, fewer than a dozen outsiders visit /ai/ai each year. The village consists of 5 Herero households and 57 Bushman households.

The area is probably as free of disturbance to wildlife as can be found in stock raising sections of Botswana. The annual harvest of wild animals reflects this fact. During the twelve-month period beginning with December 1974 and extending through November 1975, 159 mammals, 825 birds, and 186 tortoises were captured by the residents of this community. The most commonly killed mammalian species were steenbuck (Raphicerus campestris) and springhare (Pedetes capensis); these are both small species yielding 5,5 kg and 1,5 kg of meat, respectively. But larger ungulates up to the size of buffalo (Syncero caffer), yielding about 244 kg of meat, were taken; there were 19 such animals in the species inventory. A marked seasonal cycle of meat production is apparent with the peak in May-June when totals of 885 kg and 825 kg, respectively, were recorded by the community. The low occurred during November-January when a low figure of 58 kg was recorded for one month. The total weight of all meat (less hide, bone, and offal) produced by /ai/ai hunters during this period was 4 075,75 kg. The monetary value of this meat was R2 690,00 at current market prices in Ngamiland. Thus, the average increment added to individual adult real income from this source was approximately R26 (about R17 per capita if all children are taken into account). Another way of assessing the value of this meat production, is to consider the amount of food provided for each person. On the average, each person at /ai/ai received 32,61 kg of meat for the year; his daily allotment was at a high of about 225 grams in May and June and reached a low of about 30 grams in November-January.

Animal skins and sinews provided raw materials from which personal clothing, handbags, and hunting/gathering containers were made. The value to each adult can be estimated at about R3. In addition, R380 was received for articles made from skins which were sold to outsiders. Slightly fewer than half the adults were active in these sales; hence, each participating person received between R7 and R8 from this source.

The third source of income from hunting, that derived from reciprocal exchange, cannot be accounted for in similar terms. In the course of their daily rounds, individuals routinely and frequently join households not their own for meals or are given gifts by others. While everyone clearly understands that these transactions are part of the web of exchange within which meat has been distributed, it is not possible to place a value on them because of the informal and irregular manner in which they are carried out. But, clearly, food thus received would otherwise have to be gathered by the

recipient, and, hence, forms part of his income. The best that can be said is that, in this respect, most accounts appear to balance over the long run between the various households that give gifts to each other.

To close this brief summary of Bushman hunting, a few words about the future are appropriate. Bushmen have been turning to animal husbandry and agriculture in ever increasing numbers. It is exceedinly likely that, during the next decade, hunting will receive continuingly lessening emphasis; income from this source, in cash and calories, will almost surely diminish. The consequences are stark for a group of people who already experience a quarter-year period of want. Unless government and private development planning takes account of these probabilities, the only results can be out-migration for a few who can find work elsewhere, and disorganization, dissatisfaction, and a dispirited life for those who remain. Although pressures are already building up, the community is now strong and healthy; it would be both wise and humane to attempt to keep it so.

APPENDIX 28

A SELECTION OF ECONOMICALLY IMPORTANT WILD PLANTS

A28.1 Introduction

There are a very large number of species of wild plants which have economic uses. The most important of these are the edible plants. The first list below contains a selection of some of the more commonly occurring species. This list is by no means exhaustive.

Local names are given where these are known. Usually the plants have several such names, but in most instances we have not tried to make a complete list. The bulk of the local names are Tswana names, others come from one or other of the many Bushman languages.

A28.2 Edible plants

English description	Local name(s)	Latin name(s)
Edible green leaves, "wild spinach"	Thepe	Amaranthus thumbergii
	Rothwe	Gynandropsis gynandra
	Leshwe	Pergularia extensa
	//gwi	Talinum arnotii
	Moratletla	Maerua schinzii
Wild beans, including pounded dried seeds	Morama, tsi	Tylosema (Bauhinia) esculenta
	/idwa	Bauhinia macrantha
	Tsaudi	Guibortia coleosperma
Roots and tubers	Morama, tsi and /idwa,	as above
	Tshuge	Babiana hypogenea
	/iri	Vigna denteri
	/ga, mOahi	Coccinia rehmanii
	Nagwa	Hydnora sp.
	Ng/alise	Ornithogalum amboense
	Ng//ohwa	Dipcadi longifolium
	/oba	Scilla sp.
	Dadaba	Caralluma knobelii
Orchid.	G≠awu	Eulophia spp.
Water lily rhizome	Tswii	Nymphaea caerulea
Water storage plants (seeds also used)	Bi	Raphionacme burkei
	N!oru, Kgana	Ipomoea verbascoidea
	Kgopane	Aloe zebrina
	Mokapana, Ga	Citrullus naudinianus
	Leketane)	(Citrullus lanatus
	Tsama)	(Citrullus vulgaris
	Monyaku	Cucumis metuliferus
Bullrush	Tsita	Typha latifolia

(*) Based on information supplied by A.C. Campbell, National Museum and Art Gallery: L. Grivetti, University of California at Davis; and P.A. Smith, Division of Agricultural Research, Ministry of Agriculture.

English description	Local name(s)	Latin name(s)
Papyrus	Koma	Cyperus papyrus
Wild nuts	Mongongo	Ricinodendron rautanenii
	Morula	Sclerocarya caffra
Wild berries	Mopipi	Boscia foetida
	Motlopi	Boscia albitrunca
	Mogau (Mai)	Dichapetalum cymosum
	Mogwana	Grewia bicolor
	Moretlwa	Grewia flava
	Mokgompatha	Grewia flavescens
	Motsotsojane	Grewia occidentalis
	Mokamanawa	Grewia falcistipula
	Motsotsojane (//gani)	Grewia retinervis
	Motoo	Grewia schinzii
	?	Grewia avellana
	?	Grewia villosa
	Monyelenyele, !i	Ochna pulchra
	Mmolahatshe	Parinari capensis
	Mokutshumo	Diospyros mespiliformis
	Motsintsila	Berchemia discolor
	Mokgale	Ziziphus mucronata
	Mmilo	Vangueria infausta
Wild fruits	Mogorogorwana, Mohoruhoru, G/uwa	Strychnos cocculoides
	Morotologa wa kgomo	Ximenia caffra
	Morotologa	Ximenia americana
	Mabola	Panirani mabola
	/o/oku	Corallocarpus bainesii
	Morula	Sclerocarya caffra
	Mochabana	Ficus pyg-maea
	Mochaba	Ficus sycamorus
	Mogamane	Dialium engleranum
	Segowa	Syzygium guineense
	Mowana (baobab)	Adansonia digitata
Wild dates	Tsaro	Phoenix reclinata
Rind of palm nut	Mokolane	Hyphaena ventricosa
Mushroom	Mabowa	?
Truffles	Legopo	Terfezia sp.
Bush tea	Mokata	Comleretum transvaalense
	Longana	Artemisia afra
Flavouring in khadi		Grewia spp.
Palm wine	Mokolane	Hyphaena ventricosa
Edible gum	Mooka	Acacia karroo
	Moshu	Acacia arabica

A28.3 Other uses of plants

English description	Local name(s)	Latin name(s)
Reeds for fencing	Matlhaka	Phragmites communis
Wooden bowls, stools, etc.	Mopororo Mokutshumo Moporota Morukuru Morula, Motlopi	Lonchocarpus capassa Diospyros mespiliformis Kigelia africana Spirostachys africana (See above)
Charcoal	Motswiri Mupondo	Combretum imberbe Erythrophleum africanum
Twine	Motyibakgomo Mutondo Mokokobuyu Mositanokana	Hibiscus spp. Isoberlinia globiflora Sterculia tomentosa Asclepias fruticosa
Beads	Mopiti Muwande	Abrus percatorius Afzelia quanzensis
Pillow stuffing	Togotsau	Aerva leucrura
Tannin	Monomani Mositane	Pseudocassine transvaalense Elephantorrhiza elephantina
Soap	Motshwarakgane	Albizzia versicolor
Fish poison	Mokosho Motsibi ?	Acacia albida Croton megalobotrys Euphorbia tirucalli
Pottery glazing	Mogonone	Terminalia sericea
Snuff	Kgopane Kgopo	Aloe lutescens Aloe marlothii
Bird lime for catching small birds	Mongoma ?	Diplorhyncus augustitolia Loranthus sp.
Medicinal, etc.		
Peaceful sleep	?	Disperma sp.
Dressing for wounds	?	Boophane disticha
Skin cancer	?	Dicoma capensis
Stomach trouble	?	Oxalis lawsonii
Sore eyes	?	Sesamum triphllum
Sedative	?	Stachys spathulata
Malaria	Morula	Sclerocarya caffra
High temperature	Nkakarane	Harpargophytum procumbens
Snake bite	Loatswa	Euphorbia sp.
Common cold	Semomonane	Leonotis micropylla
Insects		
Caterpillars	Phane Nato	Gonimbrasia belina Cirina forda
"Flying ants"	Kokobele	Hodotermes mossambicus
Locust	Tsie	Nomodacris septemfasciata

Appendix 29

DISTRIBUTION OF INCOME vs NUMBER OF CATTLE OWNED(*)

A29.1 Introduction

The data on the number of cattle owned by the household may be compared with the statistical distribution of gross available income for the households with a given number of cattle.

This set of results has been made possible by a special feature of the sample survey design, namely that the sampling fraction among upper income households increased steadily as the income level of the households increased. Thus, although the number of households in the population decreased very rapidly as the number of cattle increased, the appropriate number of households in the sample decreased slowly enough that it was still possible to estimate the distribution of income among the few households owning many cattle.

Estimation of percentiles was carried out by fitting straight lines by eye to plotted points on lognormal probability paper.

A29.2 Results

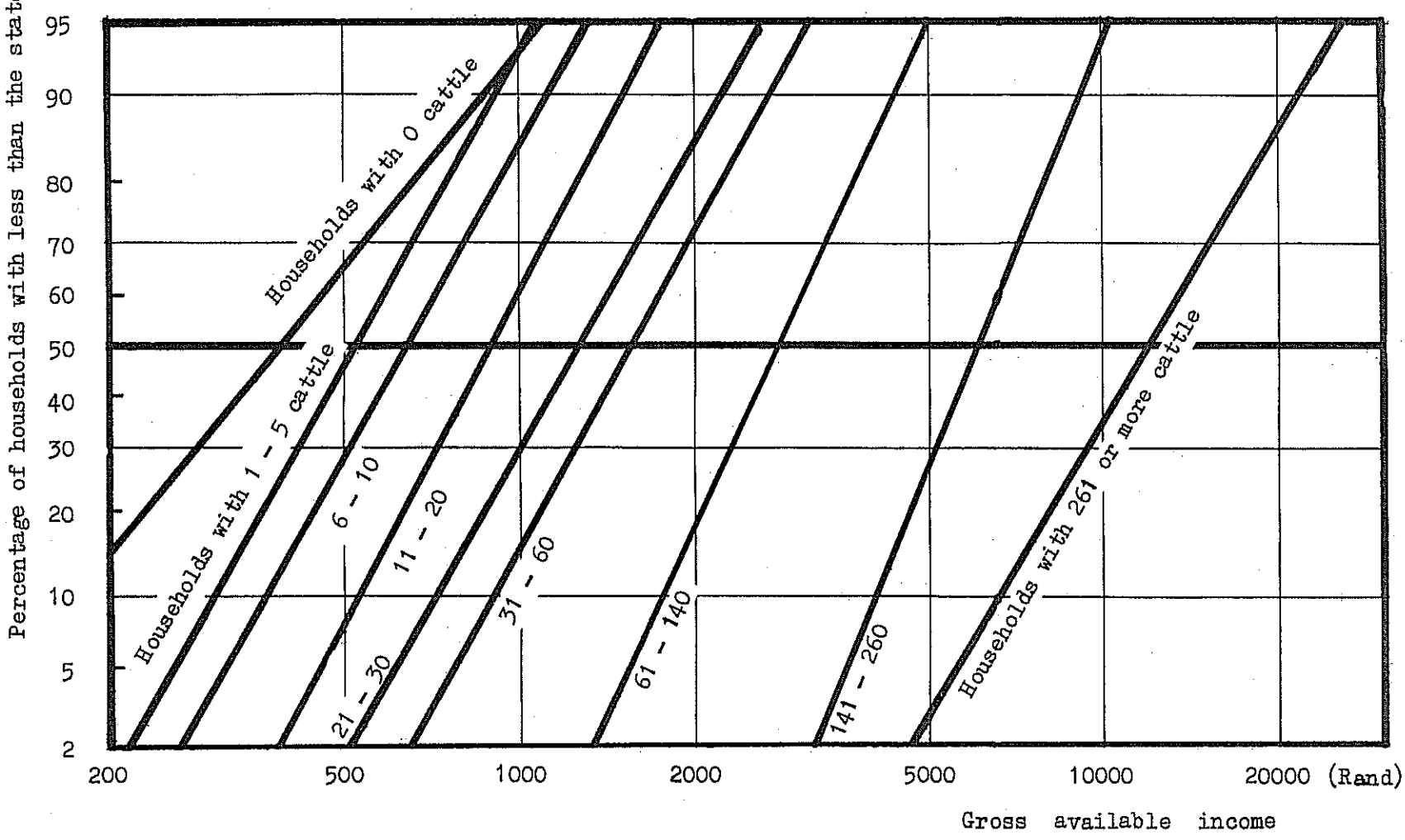
The table below shows how the 10 percentile, the 50 percentile (the median) and the 90 percentile of the households' gross available income increase, as the number of cattle owned by the household increases.

No. of Cattle	No. of HHs in the		Sampling fraction	Percentiles of income		
	Sample	Population		10	50	90
0	1 111	43 600	2,5%	173	394	870
1-5	126	9 920	1,3%	297	520	910
6-10	99	8 420	1,2%	366	640	1 110
11-20	148	13 000	1,1%	520	890	1 500
21-30	88	6 560	1,3%	710	1 260	2 230
31-60	92	6 840	1,3%	900	1 560	2 680
61-140	88	3 150	2,8%	1 750	2 780	4 420
141-260	49	850	5,8%	4 070	6 060	9 190
261+	70	630	11,1%	6 650	12 030	21 500
Total	1 871	92 960	2,0%			

The results are displayed on the accompanying graph.

(*) This Appendix contains data which were originally not available when the rest of the report first went to press. Their inclusion in the report has been made possible through the kind co-operation of the Government Printer, who stopped the press.

DISTRIBUTION OF ANNUAL INCOME AMONG GROUPS OF HOUSEHOLDS HAVING THE SAME NUMBER OF CATTLE



A29.3 Discussion

Various points emerge from the results. Firstly, there is a general tendency for household income to increase as the number of cattle increases, as was to be expected.

A29.3.1 Relationship between median income and cattle

Secondly, the median income bears an interesting relationship to the number of cattle, as shown in the second graph. The graph is close to being a straight line, with an intercept of R400 p.a. when the household has zero cattle. This suggests as a formula that the annual income of a typical household may be estimated as the sum of four components:

(i) Approximately R400 p.a. as a minimum income from all other sources, whether or not the household owned any cattle, plus

(ii) Approximately R24 p.a. (from all sources) per beast including calves, plus

(iii) A further R9 p.a. per head of cattle in excess of the first 100 cattle, plus

(iv) A further R18 p.a. per head of cattle in excess of the first 200 cattle.

It should be emphasised that the above is merely a formula for estimating median income. It does not imply that a farmer literally makes an income of R24 per cow per year from cattle farming. It only suggests that an average farmer makes Rx per cow per year from cattle farming plus R(24-x) per cow per year from all other sources of income, where x is unknown.

A29.3.2 Relationship between 10 percentile and cattle

Similarly, the incomes of the poorest 10 percent of the households have an upper limit which may be estimated as the sum of three components:

(i) Approximately R200 p.a. as a minimum income, plus

(ii) Approximately R16 p.a. per beast, plus

(iii) A further R6 p.a. per head of cattle in excess of the first 100 cattle.

Again, this is only a rough formula for estimating purposes.

A29.3.3 Relationship between 90 percentile and cattle

Similarly, the incomes of the richest 10 percent of the households have a lower limit which may be estimated as the sum of four components:

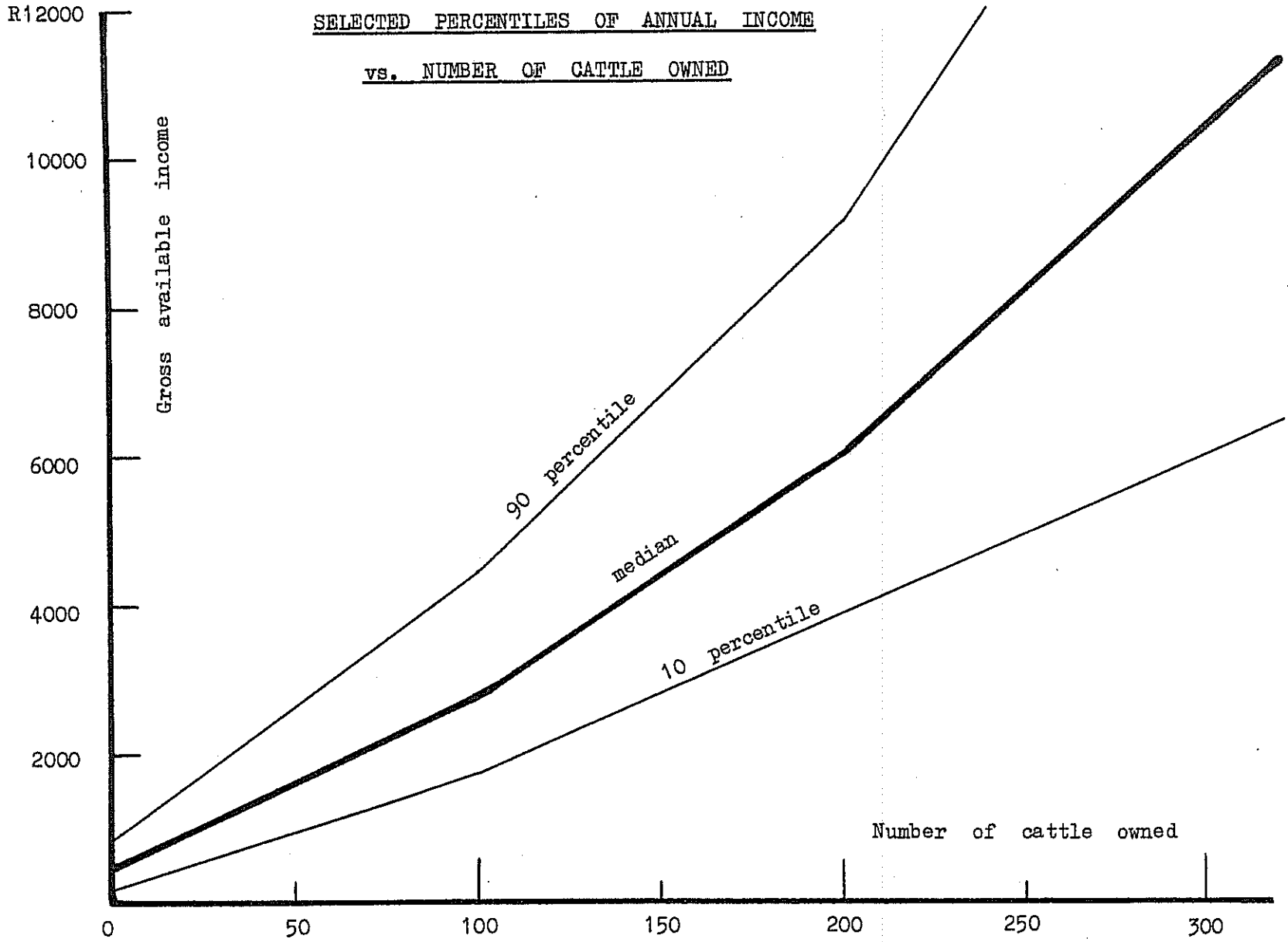
(i) About R900 p.a. as a minimum income, plus

(ii) About R35 p.a. per beast, plus

(iii) A further R12 p.a. per head of cattle in excess of the first 100 cattle, plus

(iv) A further R50 per head of cattle in excess of the first 200 cattle.

The very large additional income in the formula for households which own more than 200 cattle is due to a peculiarity of the way cattle were counted in the survey. Cattle were only counted as belonging to the household if a member of the household owned the cattle in his or her own name, or in a partnership. cattle owned by farming companies and farming trusts were not counted as being "owned" by the shareholders or beneficiaries.


SELECTED PERCENTILES OF ANNUAL INCOME
vs. NUMBER OF CATTLE OWNED
R12000
10000
8000
6000
4000
2000
Gross available income
90 percentile
median
10 percentile
Number of cattle owned
0
50
100
150
200
250
300