MAKERERE UNIVERSITY COLLEGE

Faculty of Agriculture

R.D.R. 53

Food Marketing in the Jinja Area under the Impact of Urbanisation and Industrialisation

By

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Part I - Matoke

1. Food Consumption Patterns of African Unskilled Workers in Jinja

This study is concerned with the impact of urbanisation and industrialisation on the demand for food crops and with the resulting marketing problem.(1) Jinja has been selected as area of investigation because it is Uganda's second largest town with the highest rate of industrialisation in East Africa. The aim is to find out how the demand for food crops has developed under the impact of urbanisation and industrialisation and how the structure and organisation of the food marketing system has adapted.

In order to decide which food crops should be included in this study, we have to examine the food budgets of African workers. Fortunately, there are three budget surveys of unskilled African workers available which have been conducted in Jinja in 1951, 1952 and 1965.

Table I shows the average monthly food consumption per household of a sample of 150 households in Jinja in June, 1965. Column 1 gives the quantities of each product, Column 2 the money value as a percentage of the total value, Column 3 gives the calorie value of each quantity as a percentage of the total calorie value, Column 4 gives the plant protein content of each quantity as % of the total plant protein content and Column 5 the animal protein content as .%. In terms of protein value this meal is with 25.8% by far the most important product, followed by fish with 13.4%, meat with 9.8%, matoke with 8.5% and sugar with 7.3%. In terms of calories the importance of maize meal is even bigger. With 46.5% maize meal alone accounts for nearly half the calorie intake of the low income African population whereas matoke, fish and sugar have only shares of less than 10%. In terms of plant protein the share of maize meal reaches 60.1% with matoke, groundnuts and beans accounting for approximately 10% each.

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(1) E.D.R.P. 113 gives a detailed outline of the project.

* Matoke is the Luganda word for the steamed, mashed bananas which forms the staple food of the people of lake-shore areas of Uganda. The cooking varieties of banana (plantains) are knows as the Matoke varieties.

In terms of animal protein fish has the fantastic share of 78.1% followed by meat with 20.3%.

As this study is part of a team work on the impact of urbanisation and industrialisation on peasant agriculture the marketing of fish has to be neglected. The study concentrates on maize, matoke and meat which in terms of value stand for 49% of the food consumption of African workers in Jinja, in terms of calories for 57% in terms of plant protein content for 71.1% and in terms of animal protein for 20.3%.

In this connection it might be interesting to note that the importance of cassava and sweet potatoes which are normally regarded as main staples is in fact very small indeed. In the budget survey sweet potatoes were included in other vegetables. Both crops have together a share of only 3% in terms of value and 5% in terms of calories.

The marketing of the three main products differs greatly. Maize is channeled through a wide diversified system of primary buyers, transporters, stockists, produce dealers, millers and retail shops. Matoke goes partly through the urban markets and is partly sold on the roads or delivered directly to the consumers houses. Meat is bought by the butchers either living from auctions in Teso, Karamoja or Kenya or as carcasse meat from the K.M.C. As it is not possible to deal in this short paper with all three products in a satisfactory way, the following contemplations will be restricted to matoke only.

2. Matoke - Problems and Hypothesis

The main problem in the marketing of matoke is the rising price. Matoke is the product which suffered the steepest increase in prices over the last years.

Average Monthly Prices for Matoke on Jinja Markets 1962-1967

1962	4.2 cents/lb.
1963	5.4 " "
1964	5.2 " "
1965	10.4 " "
1966	10.6 " "
1967	14.0 " "

Source: Calculated from unpublished quarterly price collections of the Labour Department (1962-1966) and from own monthly price collections (1967).

Table I Quantities, Value, Calorie - and Protein content of Food consumed by Households of Unskilled Workers in Jinja, June 1965.

Product	Quantities (lbs.ozs.)	Value (%)	Calories (%)	Plant Protein (%)	Animal Protein (%)
Maizemeal	69 7	25.8	46.5	60.1	-
Cassava	4 5	1.6	2.9	1.0	-
Rice	1 3	1.3	0.8	0.8	-
Matoke	106 6	8.5	9.5	11.0	-
Bread	3 7	2.8	1.5	2.7	-
Sugar	11 12	7.3	8.9	-	-
Meat	7 3	9.8	2.0	-	20.3
Fresh Fish	30 9	10.0	5.1	-	46.9
Dry Fish	7 0	3.4	3.9	-	31.2
Dry Beans	3 11	2.1	2.5	8.9	-
Groundnuts	2 13	1.7	2.9	10.4	-
Milk (fl.ozs)	0 1	4.1	0.9	-	1.6
Other Vegetables	29 1	8.8	3.0	5.0	-
Cooking Oil (fl.ozs)	0 14	1.8	1.3	-	-
Fats	0 3	0.6	0.3	-	-
Tea & Coffee	0 6	1.3	-	-	-
Salt & Condiments	1 14	1.0	-	-	-
Other Food		2.8)			
Hotel Food		3.2)	8.1	DK	DK
Canteen Food		2.1)			
		100.0	100.1	99.9	100.0

Sources: The Patterns of Income, Expenditure and Consumption of African Unskilled Workers in Jinja, June 1965. Uganda Government, Statistics Branch - Ministry of Planning and Community Development, April 1966 (for Quantities and value). Nicholls, Lucius: Tropical Nutrition and Dietetics, 2nd Edition, London 1945 (for calculating calories and protein content).

It will not be easy to discover all the reasons behind this price increase. As a hypothesis we will assume that in recent years the demand for matoke has been rising considerably, that the rising demand met an inelastic supply that for this reason the areas of supply had to be enlarged and that the rising transport costs are largely responsible for the rising of the matoke price.

To test this hypothesis we will quantify the development of the demand for matoke, describe the structure and organisation of the matoke market and examine trade margins and costs.

3. The Scope of Supply and Demand

3.1 The Development of the Demand for Matoke

The number of African employees in Jinja and Njeru rose from June 1961 to June 1965 by 17%, their average income in the same time by 53%(1). The author's hypothesis is, that in Jinja the income elasticity of demand for matoke is bigger than 1 upto an income of approximately Sh 700 per month, that means the share of the expenditure for matoke rises with rising income. The data to verify this hypothesis are available but the author did not get the permission to publish them. So we can safely assume that the monetary demand for matoke in Jinja has risen in the four years from 1961 - 1965 by about 80%.

3.2 The Development of the Matoke Supply

Asked for data of the development of the matoke supply from peasant farms in the surroundings of Jinja the author must confess that he could not find any information which would allow for any quantitative statement. However, two observations can be given. Firstly, we can identify by observation a concentration of matoke cultivation within 3 to 12 miles north and west of Jinja. Similar phenomena can be observed near other towns in Uganda - no matter if you drive to Masaka, to Mbarara or to Fort Portal, you will always find a ring of matoke cultivation in the vicinity of the town. This indicates that there has been at least some adjustment to the urban matoke demand and it will be Mr. Brandt's(2) task to find out about the dimensions of this adjustment. Secondly the area of supply has expanded considerably - matoke is nowadays transported to Jinja from distances up to 140 miles. This leads to the conclusion that Jinja's demand

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(1) Calculated from: Reports on the Enumeration of African Employees in Uganda, Uganda Government, 1961-1965.

(2) Mr. H. Brandt is the farm management economist working on agricultural production aspects of urbanisation in the area.

for matoke can no longer be met by the surroundgin cultivation areas alone.

3.3 A Macro-Calculation of the Present Matoke Consumption

A macro-calculation has to build up on the number of African households and the average consumption per household. According to figures from the tax office Jinja and to my calculations the number of African households receiving a regular monetary income in Jinja and Njeru is estimated at 15.000. The 1965 budget survey came to the result, that of the monthly average at 106 lbs 6 oz. of matoke which are consumed by the household of unskilled African workers an average of 38 lbs. 5 oz. is bought leaving 8 lbs. 1 oz. received from own shambas or given by relatives. 98 lbs. and 5 oz. is approximately $3\frac{1}{4}$ bunches. The average monthly income of the households included in the budget survey was Ss 173/-, the average monthly income of all African employees in Jinja was at the same time Ss 230/-(1).

The income elasticity of demand for matoke has been calculated by the author at 1.06. This brings the average monthly matoke purchases of all African households to 132 lbs. 12 oz., which is $4\frac{2}{5}$ bunches. This means that the average African family buys 1 bunch a week and a weekly total of 15.000 bunches is bought by the whole African population. To this we have to add the purchases of Jinja's private and public institutions like schools, canteens, hospital, army, prison and hotels. Investagations into this part of the market are not yet completed - preliminary estimates suggest an approximate 5.000 bunches per week which brings the total weekly purchases of matoke in 1965 to 20.000 bunches. Unfortunately, we don't know how many of Jinja's employees live within Jinja's boundarys and how many live in the suburbs and in the surrounding rural areas. Therefore, the macrocalculation is not able to determine how many of the 20.000 bunches are actually brought into Jinja boundaries.

3.4 A Microcalculation of the Present Matoke Consumption

A microcaculation of the matoke consumption is based on counts We have to distinguish between:

1. Matoke bought within Jinja boundaries
   (a) on Jinja Central Market, the only market for matoke in Jinja.
   (b) not on the market.
2. Matoke bought outside Jinja by people who receive their income from working in Jinja
   (a) on one of the 5 outskirt markets round Jinja
   (b) not on a market.

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(1) Calculated from Reports on the Enumeration of Employees in Uganda, Uganda Government, 1965.

Group 1(a) and 2(a) habe been determined by counts in these markets. Group 1(b) has been determined by roadchecks. Group 2(b) is impossible to count. The market surveys have been conducted since March 1967 for one week in each month. Roadchecks were only made for one week in August and will be repeated in December.

Roadchecks were conducted simultaneously on five roads at Jinja boundaries. Unfortunately we could get police assistance only at the Owen Falls Dam, so that at this point it was possible to stop lorries So the roadchecks give a complete picture only for pedestrains and cyclists. Lorryloads would only be counted at the Dam and had to be estimated at the other check points. Taxis and buses were counted at the taxi park and at the bus park. There we found out that the bunches transported by taxi and buses were nearly all brought to the market where they were counted in the market survey. Market surveys and roadchecks together showed the following patterns:

Table 2 Matoke brought into Jinja boundaries from August 13th to 19th, 1967

Destination	Amount		Bunches per means of transport			
	No. of bunches	in %	On Foot	Bycycle	Lorry	Other
1. For own consumption	655	7.8	27	588	8	21
2. For sale						
(a) at Jinja market	730	8.5	-	342	247	141
(b) on the roads	2.988	35.0	-	2.988	-	-
(c) for private houses	1.153	13.5	-	1.113	20	20
(d) to institutions	1.921	22.5	-	116	1.693	112
3. Unidentified	1.097	12.7	-	13	1.007	77
Total	8.544	100	27	5.171	2.975	371
In %	100	-	0.3	60.5	34.8	4.3

For the outskirt markets the August figures are useless because 3 markets gave incomplete returns. From 11th to 16th September, 1967, 1.626 bunches were handled by the five outskirts markets.

According to this calculation 8,544 bunches passed through Jinja boundaries. Of these 7.8% were for own consumption, 57% for sale to private consumers and 22.5% for sale to institutions.

It has already been mentioned that the results of the macro- and micro-calculations cannot match, because the micro-calculation includes only the amounts which were brought into Jinja's boundaries whereas the macro-calculation includes all households which get their income from Jinja. In addition matoke was relatively scarce in August so that the amounts were smaller than in normal times. Also the estimates for part of the lorryloads might not have been very accurate. Therefore we cannot be sure that the absolute figures are really representative for Jinja's matoke consumption. Nevertheless the relations of the different amounts should enable us to get a rough picture of the marketing structure.

4. Structure and Organisation of the Matoke Market.

4.1 Areas of Supply

In order to show the areas from which Jinja gets its matoke it might be suitable to distinguish between 6 zones. Upto 15 road miles round Jinja is the area covered by bicycle traders. As this area is of special importance we will divide it in three zones. Zone 1, 3-7 miles; zone 2, 7-11 miles; zone 3, 11 to 15 miles. All three zones will be sub-divided into the Busoga and the Mengo part. Zone 4 will be the region 15-35 roadmiles round Jinja. This will be sub-divided into the Busoga part, the Mengo-Bugerere part. Zone 5 is Bugisu with a distance of 100-140 roadmiles from Jinja. Zone 6 will contain all the regions which are not included in zones 1-5.

Table 3 shows the areas of supply for the matoke which has been handled through Jinja Central Market from March to October 1967 for one week in each month. Table 4 shows the same for the matoke, which has been counted at the roadchecks on three days from 17th to 19th August, 1967.

4.2. The Distribution in Jinja

Using Table 2 we can pursue the matoke which comes into Jinja boundaries right upto its final destination. It is the most astonishing result of this survey that only 8.5% of the matoke being consumed in Jinja is handled through the market whereas 35% are sold on the roads and 13.5% are delivered directly to private houses. We will later try to find some reasons for this fact. As no saloon cars were stopped the share of matoke that has been brought in for own consumption might be slightly bigger than 7.8%. On the highways are some places where matoke is sold directly to passing motorists. But the amounts involved are relatively small. To the 22.5% which where going to the institutions we might well add the unidentified bunches which were carried by lorry brining the share of the institutions upto 35%.

Table 3 Areas of supply for Matoke Handled through Jinja Central Market from March to October 1967 for one week in each month.

Number of Bunches

Region	Mar 16-22	Apr 17-22	May 15-20	Jun 19-24	Jul 10-15	Aug. 14-19	Sep 11-16	Oct 16-21	Total
1. 3 - 7 miles	283	490	367	333	415	213	168	215	2484
a) Busoga	18	104	36	19	20	48	11	39	295
b) Mengo	265	386	331	314	395	165	157	176	2189
2. 7 -11 miles	207	312	134	149	125	188	101	137	1353
a) Busoga	14	126	87	59	33	13	85	62	479
b) Mengo	193	186	47	90	92	175	16	75	874
3. 11 -15 miles	48	140	22	207	135	250	181	172	1155
a) Busoga	2	-	3	-	-	17	6	20	48
b) Mengo	46	140	19	207	135	233	175	152	1107
4. 15 -35 miles	126	166	299	46	15	-	98	181	931
a) Busoga	29	-	3	6	-	-	10	28	76
b) Kyagwe	13	-	-	13	4	-	21	4	55
c) Bugerere	84	166	296	27	11	-	67	149	800
5.100-140 miles Bugisu	300	-	294	-	-	20	-	-	614
6. All other Areas	-	-	1	6	1	-	-	50	58
Unidentified	41	36	6	43	45	59	51	94	375
TOTAL	1005	1144	1123	784	736	730	599	849	6970

Table 4 Areas of Supply for Matoke counted at Roadchecks on Jinja Boundaries from 17th to 19th August, 1967.

Regions	Total No. of Bunches	Bunches per means of transport		
		Bicycle	Lorry	Other
1. 3 - 7 miles	1825	1280	542	3
a) Busoga	424	424	-	3
b) Mengo	1401	856	542	-
2. 7 - 11 miles	1308	956	333	19
a) Busoga	349	349	-	-
b) Mengo	959	607	333	19
3. 11- 15 miles	356	356	-	-
a) Busoga	214	214	-	-
b) Mengo	142	142	-	-
4. 15- 35 miles	87	84	3	-
a) Busoga	68	68	-	-
b) Kyagwe	19	16	3	-
c) Bugerere	-	-	-	-
5. 100-140 miles	-	-	-	-
Bugisu	-	-	-	-
6. All other areas	17	16	-	1
7. Unidentified	489	155	334	-
TOTAL	4082	2847	1212	23

4.3 The Means of Transport

Table 2 gives us the means of transport per destination. Tables 4 and 5 give the means of transport by supply area.

The most surprising fact is that 60.5% of the matoke that comes into Jinja were transported by bicycle. It was known before that the bicycle was used as a means of transport for matoke as well as for other perishables. Mukawaya (1) mentions that 'the areas nearer Kampala where production is on a very small scale are served by cyclists who roam the villages searching for and collecting anything saleable from eggs to plantains," but he does not really consider them as important for Kampala's matoke supply. He believes that the bicycle traders sell the bulk of their products long before reaching Kampala and would consider it as a very unfortunate day if they had to cycle as far as Kampala to get rid of their plantains. In the big 1957/58 Produce Movement Census in Ghana bicycle loads where not counted at all (2). At the moment it is not possible to say, if the predominance of the bicycle is a special feature of the Jinja matoke trade or if the importance of the bicycle has just somehow escaped the attention of the writers. It might be that the role of the bicycle transport decreases with the size of the urban centre. On the other hand it might as well be that the importance of the bicycle has been so far under-estimated. In the Jinja case less than 5% of the matoke transported by bicycle appeared on the market and if it would not have been for the road checks the other 95% would have actually by-passed our attention.

Nearly all the matoke sold on the roads and directly to private houses and approximately half of the matoke sold at the market is transported by bicycle. The institutions get their matoke mainly by lorry. Other means of transport like bus and taxi play an inferior role and transport on the head - the predominant form of land transport at the beginning of the century, has ceased to be of any importance at all.

4.4 The Buying Chain

In the trade with perishable food crops the buying chain is generally shorter than it is in the case with unperishable crops. This is because in the marketing of perishable food crops the function processing and storage have mostly not to be performed, the transport distances are

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(1) Mukawaya, A.B., The Marketing of Staple Food Crops in Kampala, In: Bohannan, Paul and Dalton, George (Oublishers): Markets in Africa, Chicago 162, p. 643-666.

(2) See Poleman, T.Thomas: The Food Economics of Urban Middle Africa: The Case of Ghana. Food Research Institute Studies, Vol. II, No. 2, May 1961.

relatively short and the whole system is less centralised.

In the matoke trade we have only three trade functions: collecting, transporting and distributing. Partly these functions are performed by the producers themselves, partly all three functions are performed by one trader, partly up to three traders share in the performance of these functions.

4.4: Direct Sales by the Growers

Table 6 gives an idea of the amounts which where brought to Jinja Central Markets by the growers. The information on this question obtained at the road checks proved to be unreliable because of fears by the traders that they might be asked for licenses if they told us that they were buying matoke.

Growers who bring their own matoke to the market live mostly within an distance of 11 miles to Jinja. There means of transport is the bicycle and to some extent bus and taxi. Altogether they had a share of 19% of the matoke brought into the market. 61% were brought by traders, who had bought directly from growers and 13% were brought by traders, who had bought them from other traders.

4.4(2) The bicycle traders
4.4(3) The lorry traders
4.4(4) The retailers at the market

A detailed description of these three types of traders will not be possible before the interviews will be analysed. The questionnaire used for interviewing the buyers is attached in the Appendices.

4.4(5). The Role of Rural Markets as Assembling Points for Matoke

In the rural areas round Jinja we find a network of market places which have an approximate distance of 5-10 miles from each other. On these places so called auctions take place once a week and attract 50-300 settlers and huge crowds from the rural population. Piece goods, specialy textiles dominate the auctions and the trade in food crops is only a very small side line. Table 7 gives figures of the matoke supply on some auctions in the vicinity of Jinja. Only auctions from which matoke is fairly regularly coming to Jinja were taken into account. With the exception of Kasambira and Kayunga the number of bunches offered at each market was in most cases approximately 100. 42.8% of the bunches were brought to the market directly by growers on the head or on bicycle 57.2% were brought by people who had bought them at the farm level. There means of transport is thebicycle. Trading takes place from early morning to 6 p.m. At certain times you might find no matoke at all, at other times you might find a supply of up to 20 bunches but you will never find the days supply of say 100 bunches at one time. Each bunch that enters the market is charged with 20 cents market fee. Prices are generally higher than at the farm level.

Table 5 Areas of supply and means of Transport for Matoke handled through Jinja Central Market from March to October 1967 for one week in each month.

Region	Total No. of Bunches	Bunches per means of transport				
		Bicycle	Taxi	Bus	Lorry	Other
1. 3 - 7 miles	2484	1720	174	202	353	35
a) Busoga	295	176	62	39	11	7
b) Mengo	2189	1544	112	163	342	28
2. 7 -11 miles	1353	789	157	68	310	29
a) Busoga	479	341	76	56	-	6
b) Mengo	874	448	81	12	310	23
3. 11 -15 miles	1155	265	36	13	839	2
a) Busoga	48	46	-	-	-	2
b) Mengo	1107	219	36	13	839	-
4. 15 -35 miles	931	114	256	140	420	1
a) Busoga	76	6	53	7	19	-
b) Kyagwe	55	16	13	2	24	-
c) Bugerere	800	92	190	131	386	1
5. 100-140 miles Bugisu	614	-	10	-	604	-
6. All other Areas	58	8	23	27	-	-
Unidentified	375	16	93	3	66	197
TOTAL	6970	2912	749	453	2592	264

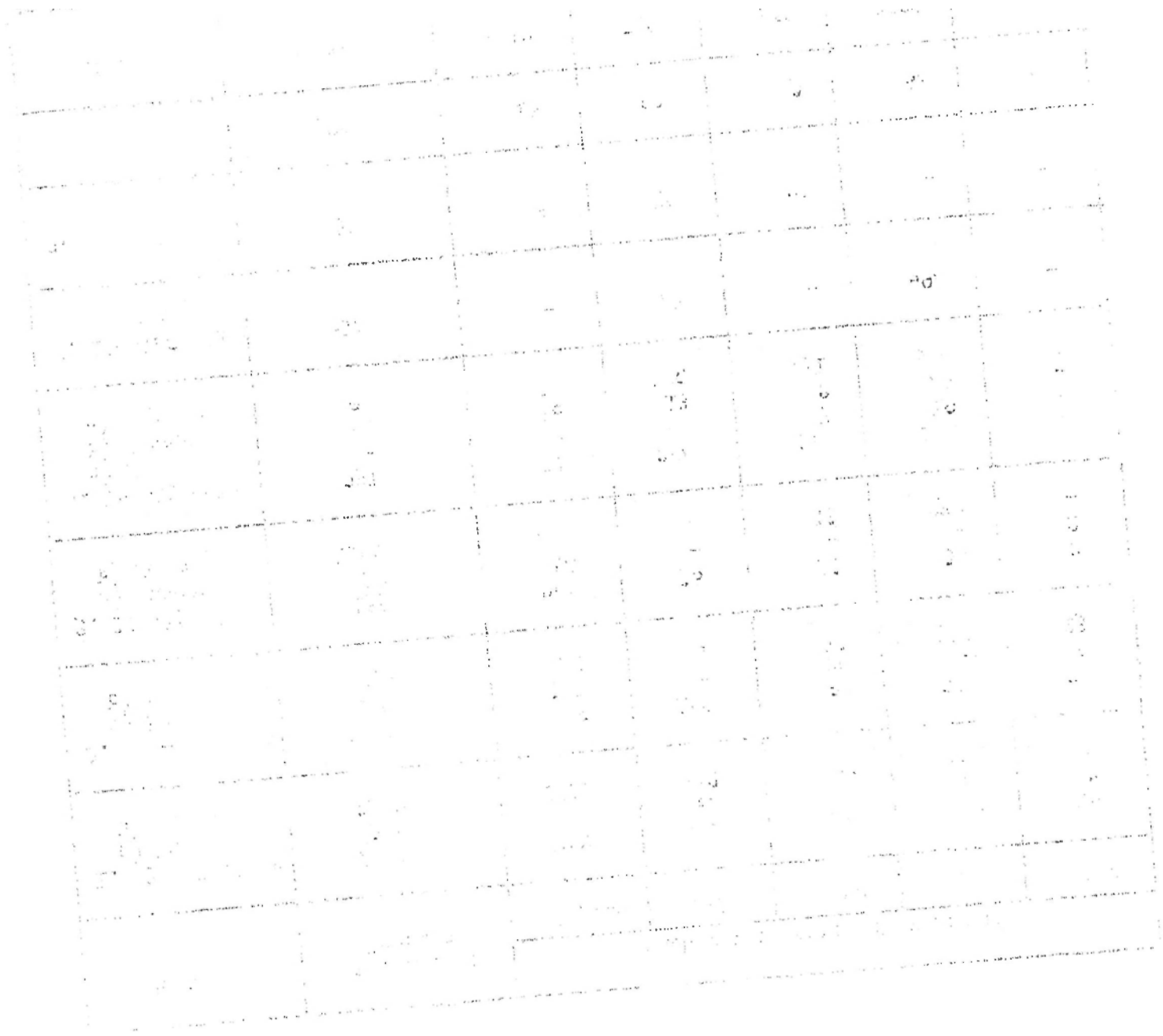


Table 6 Matoke Handled through Jinja Central Market from March to October 1967, analysed by Area of Supply and Form of Marketing.

Region	Total No. of Bunches	Bunches brought to market by			
		Growers	1. Buyer	2. Buyer	D.K.
I. 3 - 7 miles	2484	583	1662	68	171
a) Busoga	295	90	134	20	51
b) Mengo	2189	493	1528	48	120
2. 7 -11 miles	1353	402	748	71	132
a) Busoga	479	153	268	35	23
b) Mengo	874	249	480	36	109
3. 11 -15 miles	1155	83	640	432	-
a) Busoga	48	5	43	-	-
b) Mengo	1107	78	597	432	-
4.15 -35 miles	931	122	697	93	19
a) Busoga	76	6	42	28	-
b) Kyagwe	55	13	29	13	-
c) Bugerere	800	103	626	52	19
5.100-140 miles Bugisu	614	-	404	210	-
6. All other Areas	58	25	33	-	-
Unidentified	375	95	73	16	191
TOTAL	6970	1310	4257	890	513

Table 3

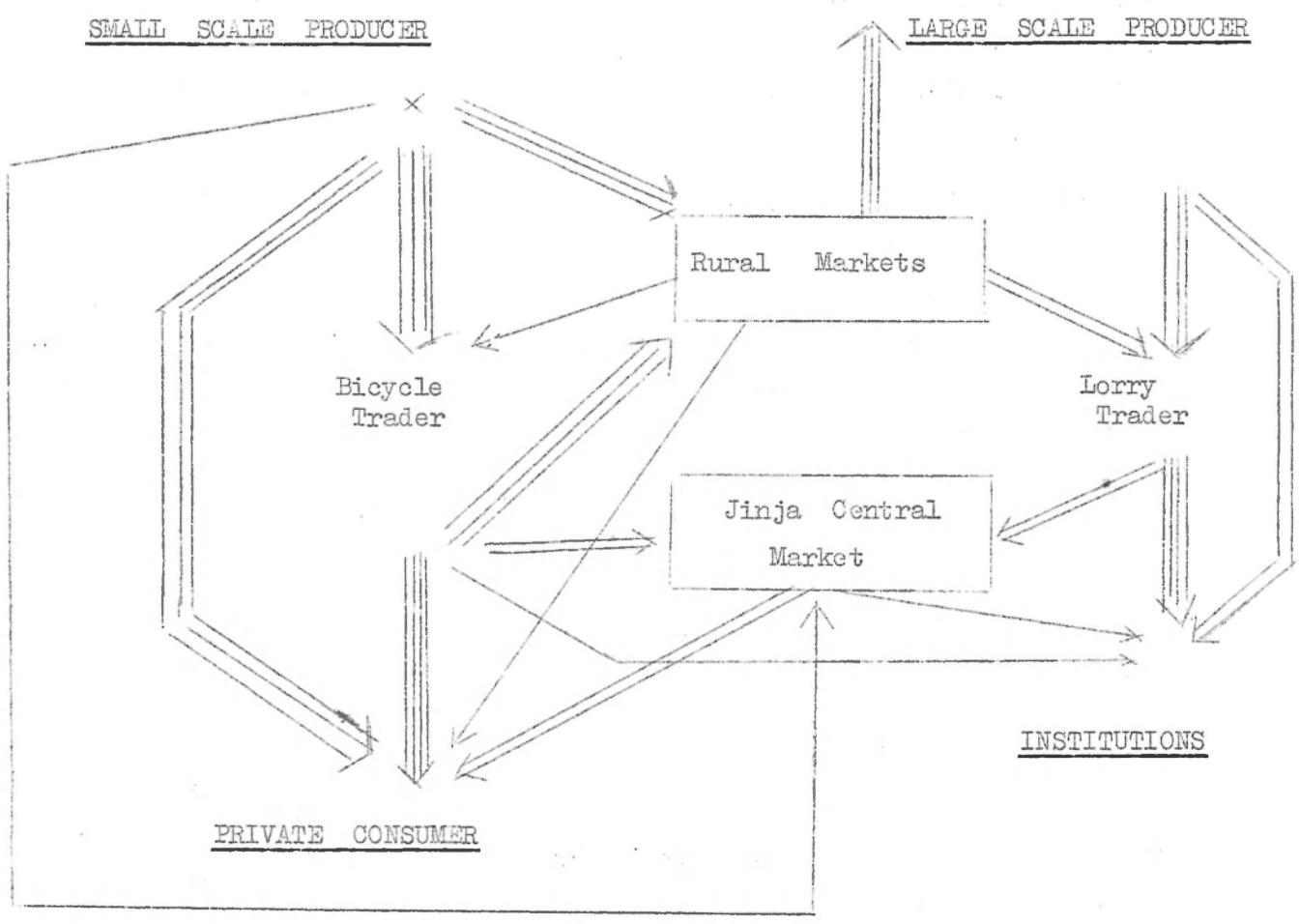
Matoke Trade in 13 Rural Markets in the Vicinity of Jinja

Name of Market	Distance to Jinja Roadmiles	Date	No. of bunches sold			No. of bunches brought to		Transport to Jinja				
			Total	By Growers	By Traders	Jinja	Kampala	Bic.	Bus	Taxi	Lorry	Other
Busoga Side												
1. Budondo	8	12.9.67	121	70	51	49	-	10	8	19	12	-
2. Mubui	10	15.9.67	101	41	60	23	-	9	8	-	-	6
3. Lubanyi	16	26.10.67	44	31	13	10	-	2	-	8	-	-
4. Buwenge	16	11.9.67	123	57	66	28	-	-	-	-	18	10
5. Lambala	20	14.9.67	99	69	30	30	-	-	6	24	-	-
6. Kasambira	26	7.10.67	565	-	-	298	-	-	12	-	286	-
Mengo Side												
7. Sunga	10	18.9.67	85	37	48	52	20	7	6	16	15	8
8. Buwala	13	7.10.67	114	34	80	30	23	-	-	-	6	24
9. Kyindi	15	6.10.67	97	56	41	26	29	-	5	-	21	-
10. Kigaya	18	2.10.67	66	24	42	29	-	-	7	22	-	-
11. Kangalymira	21	7.10.67	89	63	26	19	11	-	-	-	19	-
12. Kayunga	33	14.10.67	193	38	155	25	44	-	-	-	25	-
13. Ntenjeru	35	25.10.67	129	19	110	21	20			21		
Total			1,826	539	723	640		28	52	110	402	48
%			1,261= 100	42.8	57.2							
%			1,826= 100			35 100						
%								4.4	8.1	17.2	62.8	7.5

An average of 35% of the matoke sold on these markets went to Jinja from the two bigger markets it was transported by lorries, which were specially hired for that purpose. From the othe markets transport was done by small pick-ups, buses or taxi, whatever was available. It is interesting to note that very few bunches were transported from the markets to Jinja by bicycle. The remaining 65% were taken to other towns or remained for local consumption. The attraction of the Kampala market is already felt on Sunga auction which is only 10 miles from Jinja.

45 Marketing Channels

Graph 1 gives a rough idea of the channels through which matoke is flowing from the producer to the consumer. A single line indicates that the flow is less than 300 bunches per week, a double line indicates an amount of 300 - 1000 bunches a triple line 1000-3000 bunches and four lines more than 3000 bunches



Summarising we may say that the private consumer is mainly supplied with matoke grown by small scale producers within an area of 15 road miles round Jinja. Most of this matoke is handled by bicycle traders, a good deal is directly supplied by the growers and relatively few is going through Jinja Central Market. Jinja's institutions are mainly getting matoke which is grown on larger scale and to a small extent matoke from small scale producers which is channeled through a rural market. Some of this matoke is supplied directly by the growers but most is handled by lorry traders.

45 Competition

Intensity of competition is generally affected by three factors: the number of sellers and buyers on each market, the degree to which the matoke is open to new competitors and the transparency of the market.

451) Number of Competitors and Liberty of Entrance

As each farmer is visited by few buyers only he faces a monopolistic or oligopolistic competition. But the range upto which the monopolist or oligopolist is able to exploit his position is limited by the fact, that monopolistic gains will attract new competitors. The buying trade is open because, at least up to recently, no licensing and no other restriction limited the number of buyers. For bicycle traders the initial capital is a bicycle and Sh 30/- for buying and for repairs. The lorry trader needs a working capital of Sh 300/ to 500/-. No special knowledge is required. The bicycle trade however demands some physical strength and is socially not very high valued, which is limiting the number of potential bicycle traders. Traders how live in the same village seem to enjoy preferences compared to foreigners. Mr. Brandt will undertake to find out how strong these preferences in fact are.

On the bicycle trader - consumer level the bicycle - market retailer level and the market retailer - consumer level will have atomistic structures on both sides with the exception that a number of households is regularly supplied by one and the same trader. This gives him a monopolistic position which in fact because of the very high potential competition does not have much effect.

On the lorry trader - private institutions level a sort of option fixing dominates, that is the institutions publish prices at which they are ready bo buy c rtain amounts and it is up to the traders to decide if they want to accept the offer or not. Public institutions prefer to give formal tenders.

462) Transparency of the Market

A lack of market transparency seems to be the main obstacle to competition. In the matoke trade scales are used only at the institutions which pay according to weight. Everywhere else the price is calculated by inspection only. It the amounts are bigger the parbuers bargin for an average price per bunch, if it is for few bunches only they will bargin for each single bunch. Approximately half of the market turnover is sold in small heaps for Sh -/50, -/70, 1/- or 1/20 in which case the prices are fixed but the amounts differ.

The market transparency if further diminished by the fact that prices are never indicated and that except at the institutions and in the retail trade in samm heaps fixed prices do not even exist. So the price depends to a large extent on the bargaining ability of the parbuers.

There are economists who believe that for native people the degree of transparency on these markets is by no means smaller than it is for us on European markets where prices per pound are indicated for all commodities. They think that the price relations on African markets are irritating for Europeans but that for African there are no difficulties to find the most favourable offer. This hypothesis becomes doubtful when we compare the following price series, which have been recorded from actual retail purchases on Jinja Central Market on October 21st, 1967 between 2 p.m. and 4 p.m.

Table 8 Weights and Prices of Matoke Sold in Heaps on Jinja Central Market on October 21st 1967, between 2 p.m. and 4 p.m.

No.	Weight of Heaps (2 lbs.)	Price of Heap (Ss)	Price/lb. (cents)	No.	Weight of Heap (2 lbs.)	Price of Heap (Ss)	Price/lb. (cents)
1	8½	1/10	12.9	11	6	-/80	13.3
2	4½	-/50	11.1	12	4½	-/50	11.1
3	5½	-/80	15.5	13	5	-/70	14.0
4	3¼	-/50	14.4	14	4½	-/50	11.1
5	4¼	-/60	14.1	15	4¾	-/50	10.5
6	4½	-/60	13.3	16	7	-/50	7.1
7	4½	-/60	13.3	17	7	-/50	7.1
8	6	1/20	20.0	18	4¼	-/70	16.5
9	8¾	1/20	12.6	19	4¼	-/70	16.5
10.	5½	1/-	18.6	20	3¼	-/50	15.0

Average price/lb. 13.2 cents.

Table 9 Weights and Prices of Matoke Sold in Bunches on Jinja Central Market on October 21st, 1967 between 2 p.m. and 4 p.m.

No.	Weight of bunch (lbs.)	Price of Punch (Ss)	Price/lb.	No.	Weight of Punch (lbs.)	Price of Punch (Ss)	Price/lb. (cents
1	41	5/50	13.7	6	20	4/-	20.0
2	17	1/80	10.6	7	25	4/50	18.0
3	42	4/20	10.0	8	24	3/50	14.7
4	42	5/-	11.9	9	37	4/50	12.2
5	24	2/-	8.3	10	37	3/70	10.0

Average price/lb. 12.2 cents.

On the producer - buyer level the situation is similar. The prices paid to the producers differ considerably. Unfortunately it is not possible to weight bunches when they are bought on the farms nor is it possible to control if the traders give true prices. The following price series gives for 10 bicycle traders the number of bunches and the price they claimed to have paid when they bought in Bugolo, a mutalla 7 miles off Jinja on the Mengo side.

Table 10 Number of Matoke Bunches and Prices Paid to Bicycle Traders to Growers in Bugolo, 16th - 21st October 1967

No.	No. of bunches	Price Paid (Ss)	Average price per bunch (Ss)	No.	No. of bunches	Price Paid (Ss)	Average price per bunch (Ss)
1	3	5/-	1/67	11	6	18/-	3/-
2	3	15/-	5/-	12	3	5/-	1/67
3	6	24/-	4/-	13	5	14/-	2/80
4	2	6/-	3/-	14	8	20/-	2/50
5	4	10/-	2/50	15	5	17/-	3/40
6	3	15/-	5/-	16	5	10/-	2/-
7	3	8/-	2/67	17	4	14/-	3/50
8	4	11/-	2/75	18	1	3/-	3/-
9	3	4/50	1/50	19	5	19/-	3/80
10	14	27/-	2/07	20	4	12/-	3/-

Average price per bunch Ss 2185
Average price per lb. cents 9.5

Price variations may be partly due to variations in quality, which is affected by "country of origin, size of each individual fruit and the degree of ripeness" (1), but as far as the author could find out the

(1) Quoted from Mukawaya, c.c.o.

influence of these factors is very limited. In fact with the exception of institutions it is not possible to find a sort of ruling price on any level of the matoke market which is a clear indication for imperfect competition.

5. Margins and Costs

Having given a brief survey of the structure and organisation of the matoke market we will now try to get an idea of margins and costs. In the matoke trade we have to distinguish collecting costs, transport costs and distribution costs.

51. Transport Costs

The rise in transport costs as result of the extension of the area of supply is according to our hypothesis the main reason for the rise in matoke prices. We have seen from table 2, 4 and 5 that matoke is transported to Jinja in different ways. Bicycles and lorries are the most important means of transport, taxis, buses and private cars are of less importance. In lorry transport we have to distinguish between lorries owned by the traders, lorries hired for the purpose of transporting matoke and lorries which have been stopped at the roadside and asked for a lift Further we have to take into account the size of the car and if it is run to capacity.

We will try to calculate the transport costs for two main ways in which matoke is transported, for the bicycle transport and the transport by hired lorry, where we have to distinguish between small lorries (up to two tons) and medium lorries (up to 5 tons).

511. Costs of Bicycle Transport

Assuming that the value as new of a bicycle is Sh 450/- and the average service life is 15 years the depreciation per working day will be 10 cents. To find out the running costs 44 bicycle traders have been asked. which repairs they had and which spare parts they bought in the last two weeks and what they had paid for this. An average of Sh 11/48 came out that is 96 cents per working day, or an average of 25 miles per day 3.8 cents per mile. To determine the labour costs we have to use the wage of a comparable occupation. Farm labourer might be an alternative, but as the bicycle trade required more physical strength and more intellectual abilities than farm work, the wage has to be put slightly higher so that 50 cents per hour might be justified. 20 time checks over a four miles distance on three different roads were taken. Times differed with the topography of the region but not with the t pe of road. An average of 12 minutes per mile for a loaded bicycle was measured. Attempts to check times of traders travelling home with unloaded bicycle proved so far unsuccessful because they used short cuts and avoided checking in various ways. The author estimates the average time for travelling with on unloaded bicycle is 8 minutes. The average time needed to load and unload a bicycle which is

a very sophisticated business is estimated at 40 minutes. The average number of bunches per bicycle counted from 195 bicycle traders entering Jinja boundaries is 5, 4 bunches or 158 lbs. The actual loading capacity seems to be unlimited. We counted bicycles packed with as much as 12 bunches which had been ridden on bumpy tracks and pushed up steep hills.

Having gathered all this information we are able to make a rough calculation of the transport costs.

Table 11 Costs of Bicycle Transport

Bicycle transport Costs	Distance to Jinja 7 roadmiles	11 roadmiles	15 roadmiles
Cost not varying with distance			
Depreciation	10 cents	10 cents	10 cents
Time for loading and unloading	34 "	34 "	34 "
Costs varying with distance			
Running Costs	43 "	84 "	114 "
Travelling time	146 "	183	250 "
Total Costs	2/03 Ss	3/11 Ss	4/08 Ss
Cost per lb.	1.28 cents	1.96 cents	2.58 cents
Cost per lb./mile	0.182 "	0.178 "	0.172 "
Cost per tn/mile	3/66 Ss	3/56 Ss	3/44 Ss

512. Costs of Lorry Transport

When transport is done with hired lorries transport costs are identical with the rates charged by transport plus costs for the traders time spent in transporting and returning to his location. As competition in transport is fairly keen, the transport rates should be in close connection to the real costs.

We will calculate the costs for lorry transport for 4 distances separately for lorries upto 2 tons loaded with an average of 80 bunches and lorries upto 5 tons carrying capacity loaded with an average of 200 bunches. The time of the trader shall be valued at Ss 1/- per hour. The lorries may travel on an average speed of 30 miles per hour. Loading and unloading may take 1 hour for the small lorry and 2 hours for the medium lorry. The transport charges were asked from transporters.

Table 12 Cost of Lorry Transport

Cost for a lorry up to 2 tons	7 miles	15 miles	35 miles	110 miles
Cost of transport	25/-	35/-	60/-	140/-
Time for loading and unloading	1/-	1/-	1/-	1/-
Time for travelling	-/50	1/-	2/33	6/66
Total costs	26/50	37/-	63/33	147/66
Costs per lb.	1.10 cents	1.54 cts.	2.66 cts.	6.24 cts.
Costs lb/mile	0.157 "	0.103 "	0.076 "	0.057 "
Costs ton/mile	3/14 Ss	2/06 Ss	1/52 Ss	1/14 Ss
Cost for a 2-5 ton lorry				
Charge of transport	40/- Ss	60/- Ss	90/- Ss	230/- Ss
Time spent for loanding & unloading	2/-	2/-	2/-	2/-
Time spent for travelling	-/50	1/-	2/33	6/66
Total costs	42/50	63/-	94/33	238/66
Cost per lb.	0.71 cts	1.05 cts	1.55 cts	3.98 cts
Costs lb./mile	0.101 "	0.7 cts	0.044 cts	0.036 "
Cost ton/mile	2/02 Ss	1/40 Ss	-/88 "	-/72

52 Assembling Costs

Whenever a trader does not find a concentrated supply he has to spend time and money to find supplies, to visit them to collect their products. In the matoke trade we are facing an extremely scattered supply. Nearly every farmer has a matoke garden. But few consider matoke as cash crops, most farmers plant matoke for their own consumption and only when there is a more or less accidental surplus or when he is in urgent need of cash he will be prepared to sell matoke. Therefore, they are mostly not offering more than two or three bunches at a time. The farmers who produce matoke on a commercial scale offer in lots of 20-100 bunches. Then there are the rural markets with approximately 100 bunches offered per day but as this is spread over the whole day the highest concentration of supply might be 20 bunches and this is burdened with 20 cents market fee per bunch. The scattered supply of 2-3 bunches is collected by bicycle traders. The interview of 87 traders showed that an average of 2 farmers has to be visited before a bicycle load is complete. As there average load is5.4 bunches, the average supply of the farmers is 2.7 bunches. For collecting, the bicycle traders claim to need an average of $1\frac{3}{4}$ hours and travel 5 miles. So there costs are:

Running costs of bicycle	19 cents
Working time at 50 cents/hour	87 cents
Tot l collecting costs	Ss 1.06
Collecting costs per lb.	0.67 cents

The lorry traders will normally employ 3 boys whose duty it is to find out sellers, to harvest the bunches and to carry them to the next track where the lorry can collect them. These boys earn together Ss 10/-. When they succeed in collecting 60 bunches per day, the collecting costs are 0.55 cents per lb. If they manage to collect 200 bunches in the same time the costs will be only 0.17 cents per lb. Additional costs will arise if the collecting points are spread over a wider area and the lorry has to travel from one place to the other to pick the bunches up. This shows that collecting costs depend very much on the concentration of supply.

53. Distribution Costs

Whenever a trader does not find a concentrated demand he has to spend time and money to find customers, to visit them to deliver his products. A concentrated demand can be found at the institutions and at the market. At these places it is possible to get rid of the product in a relatively short time.

If the matoke is sold on the roads or brought to private houses the selling will take time because there will be long bargaining for every single bunch and the unloading of one bunch and fixing the rest of the load again is very time consuming. An average of $1\frac{1}{2}$ hours

might be needed to sell a bicycle load on the roads or at private houses, which means 0.47 cents per lb.

The matoke brought to the market is usually sold to a market retailer who will sell them either per bunch or per heap. In any case a market fee of 20 cents per bunch or 0.67 cents per lb. is charged. A seller of whole bunches sells an average of 20 bunches per day. If we value his work at the Jinja minimum wage of Sh 6/- a day which he would earn as an unskilled worker the labour costs are 1 cent per lb. A female trader in small heaps of matoke sells an average of 6 bunches per day. Her labour might be valued at Sh 3/- so the costs will be 1.66 cents per lb. In addition we have to take into account that with the cutting of the bunches into smaller portions an average 3 lbs. of waste have to be thrown away. At a buying price of 10 cents per lb. these are again costs of 1 cent per lb. so the distribution costs on the market are 1.67 cents if whole bunches are sold and 3.33 cents if matoke is sold in small heaps.

There are no distribution costs if matoke is sold to institutions.

54 Trade Margins

Consumer prices have been collected since March '67 for one week in each month. Daily consumers who had bought whole bunches on the market were asked how much they had paid and then the bunches were weighed. Table 13 gives (in line 1) the average retail prices for each week. Line 2 gives the average producer prices paid by bicycle traders in Bugolo, a mutalla 7 miles from Jinja on the Mengo side. These prices were collected by asking the traders who brought matoke into the market. Line 3 gives the trade margins as difference of the retail and the producer price. Line 4 gives the margins in % of the retail prices. Line 5, 6 and 7 give the costs for collecting, transporting and distributing as we have calculated them in the previous chapters. Line 8 gives the total marketing costs. Line 9 gives the profits as difference between margins and costs.

Table 13 Prices, Margins and Marketing Costs for Maotke Sold per Bunch at Jinja Central Market from March to October 1967

	March 16-22	April 17-22	May 15-20	June 19-24	July 10-15	Aug. 14-19	Sept. 11-16	October 16.21	Average
1. Retail prices	13.7	13.0	13.9	13.8	13.4	15.3	16.0	13.0	14.0
2. Producer prices in Bugolo	9.0	7.9	9.1	8.5	7.2	9.3	12.1	9.5	9.1
3. Margins	4.7	5.1	4.8	5.3	6.2	6.0	3.9	3.5	4.9
4. Margins in % of retail prices	34	39	35	38	46	39	24	28	35
5. Collecting costs	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
6. Transport costs	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
7. Distribution costs	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67
8. Total costs of marketing	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64	3.64
9. Profit	1.06	1.46	1.16	1.66	2.56	2.36	0.26	0.14	1.26

6. Conclusions

The discussion of the costs of marketing should enable us now to interpret the marketing structure and the distribution of the supply areas.

61. The Bicycle Trade

It is quite clear why Jinja's private households get most of their matoke directly from the bicycle traders and only to a very limited extend from the market. Firstly, the direct supply is cheaper than the market supply because it has to bear distribution costs of 0.47 cents/lb. only compared with 1.67 cents/lb. at the market and secondly it saves the consumer the transport of the matoke to his home. The question may arise, why at all some matoke is still handled hrough the market. It is mainly because on the market matoke can be bought in small quantities down to 50 cents and because the market is used as an alternative if there is no time to wait for a bicycle trader. Specially small 'hotels' use this alternative and some times even bigger institutions do in case their suppliers have failed to deliver the required amount.

For the bicycle trader the direct supply offers better prices than the market or the institutions. Therefore most of them try first to sell their matoke directly and only if they fail to do so or if they are in time pressure they ride to the market. The consequence is that in times of scarcity the matoke is hardly coming to the market as we can see on Table3 specially for September. In these times the female matoke retailers go as far as to the

boundaries of Jinja to get hold of the bicycle traders before these have sold their loads directly.

The supply area of the bicycle trader is physically limited to approximately 15 roadmiles round Jinja. From tables 4 and 5 we see that only small amounts are brought with bicycles from distances of more than 15 miles. Within this area he has an absolute monopoly where the concentration of supply is low. If the concentration of supply is medium he has to compete with lorry traders who have lower transport costs, except for very short distances. But in the direct supply of private households which pay the highest prices the bicycle traders can still compete with the small lorry; though at 15 miles distance their transport costs are 2.58 cents per lb. compared with 1.54 cents for the smaller lorry. At a high concentration of supply the medium size lorry has not only clear advantages in transport costs for all distances but the producers do also prefer to sell their product in one lot to a big buyer. So there is in fact no competition between the bicycle and the big lorry.

Summarizing we can say that in areas of low supply concentration the bicycle traders collecting costs advantage gives him an absolute monopoly and at the same time he enjoys a monopoly in direct supply of private households because at a marked distribution costs advantage.

62. The Lorry Tarde

Lorry traders prefer to supply institutions because this saves them distribution costs. The institutions prefer a regular supply in big lots and they often make supply contracts with lorry traders. So the bigger traders some of which have their own lorry supply exclusively institutions, whereas smaller traders are more on the lookout for the best prices and supply to institutions or to the markets wherever the prices are higher. If they are not able to sell their matoke to retailers on Jinja Central Market they may drive on to the next market or they decide to do the retail selling on the market by themselves.

When producer and retail prices are fixed the supply area of the lorry trader is determined by his collecting costs and his transport costs. Collecting costs depend on the concentration of supply. Transport costs depend on the distance, the size of the lorry and how far it is tun to capacity. The higher the concentration of supply the bigger the size of lorry that can be used and the lower are the transport costs per ton/mile. This means that the size of the supply area is indeed ceteris paribus determined by the transport costs per ton/mile but the transport costs per ton/mile are determined by the concentration of supply.

For the determination of the supply areas the attraction of other consumption centres have also to be taken into account. Jinja's supply area is overlapping mainly with Kampala's area of supply and as Kampala prices seem to be slightly higher its supply area goes as far as 10 miles from Jinja on Mengo side. Upto a distance of 20 miles in Kyagwe and 35 miles in Bugere the areas of supply overlap - beyond that distance all matoke goes to Kampala. In Bugisu we find over-lapping with the supply areas of Mbale, Soroti and Tororo and presumably inspite of the distance of more than 150 miles also with the supply area of Kampala. Over-lapping with smaller centres like Iganga in 23 miles distance and Kamuli in 35 miles distance is not significant because both centres are situated in areas of low concentration of supply which would be of interest for bicycle traders only but cannot be served by bicycles as they are out of the 3-15 miles region.

7. Summary

We will now return to our hypothesis. The transport costs seem to be in fact a determining factor for the matoke price if we take into account that the matoke coming from Bugisu is burdened with 3.98 cents transport costs even if the medium size lorry is used. Taking collecting and distribution costs into account we have marketing costs of 6.82 cents per lb. for the Bugisu matoke compared with the average retail price of 4.2 cents on Jinja market in 1962.

But the rise in transport costs does not give sufficient argument for the rise in matoke prices. Even in 1962 matoke came from Bugerere and had to bear transport costs of at least 1.55 cents. Collecting and distribution costs might have been only half the present size bringing total marketing costs to 2.47 per lb. So we have a rise of marketing cost of 4.35 cents/lb. compared with a rise in retail prices of 9.8 cents/lb. Even if we allow for a 1 cent/lb rise in traders profits, the rise in the trade margin is only 5.35 cents/lb. So the producer price in the marginal supply area must have risen by 4.45 cents. Judging from our calculations the marginal producer prices in 1961 were 1.73 cents/lb. that is 52 cents a bunch, so we are faced with an increase in producer prices of 257% which seems to be more connected to the rise in retail prices than the rise in transport costs.

To increase the size of the supply areas further is impossible, not because of the transport costs but because there are no more production areas with a concentrated supply which have not already been tapped by either Kampala or Jinja. The total monetary demand is increasing faster than the total supply. This means that the rising matoke prices are only partly a marketing problem and mainly a production problem. If the demand raises by 120% over a period of 6 years and the

producer prices rise by 257% in the same time, this means that the price elasticity of the matoke production must be very low indeed. It will be interesting to see what reasons the agriculturists can give for this fact.

What is necessary is firstly an increase in matoke production to lower the producer prices, secondly an orientation of production to transport costs, that means intensified cultivation of matoke near the towns and thirdly a concentration of supply so that collection and transport can be rationalized.

With the present production structure the scope to improve the marketing structure is very limited. Only in regions with low concentration of supply more than 15 miles round Jinja which provide very little matoke for Jinja at the moment it might be possible to mobilise an increased supply. The problem is that in those areas as far as the concentration of supply is concerned only the bicycle trader can operate and as far as the distance to Jinja is concerned only a lorry can cover the distance. A combination of both means of transport might be the solution. The bicycle traders collect and bring the matoke to bulking points where they are bought by lorry traders who bring them to Jinja. Bulking points should be established in 10 miles distance so that the bicycle traders have to cover an area of 5 miles only. The collecting costs for the bicycle trader would be 0.67 cents, his transport costs less than 1 cent and he could easily bring two bicycle loads per day to the bulking point. At a distance of 35 miles using a small lorry the total marketing costs would be exactly 5 cents per lb. and allowing for 1 cent/lb profit would still leave the producer with 8 cents/lb. At present only very few of these bulking points exist.

14th November, 1967.