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THE TEXTILE INDUSTRY IN EAST AFRICA

Note   Economic Development Research Papers are written
        as a basis for discussion in the Makerere Economic
        Research Seminar.   They are not publications and
        are subject to revision.

1. Introduction

The a i m of the study was to investigate (1)
the natural and political conditions of the textile
industry in East Africa (Uganda, Kenya and Tanzania),
(2) its present situation and (3) its chances for
further growth.   The results are based on two
s o u r c e s   o f   i n f o r m a t i o n: (1)
on interviews (the present situation of the textile
industry and its planned expansions and (2) on
secondary sources (the conditions of the textile
industry and the growth of cloth-consumption).

2. The Natural and the Political Conditions of the E.A.
   Textile Industry.

a. The Natural Conditions

East Africa is an important producer of cotton.   The
yield of cotton-fibre in the year 1965/66 amounted to
914,000 bales (1 bale = 400 lbs).   Uganda produced
446,000 bales, Tanzania 445,000 bales and Kenya 23,000
bales.   All three countries have the intention to
increase cotton production during the next 5 years.
Provided that the goals formulated in the development
plans can be achieved the yield of cotton-lint in the
year 1970/71 will reach 1,240,000 bales (Uganda 580,000
bales, Tanzania 560,000 bales and Kenya 100,000 bales).

Only a very small part of the locally grown cotton-lint
is processed by local spinning mills.   In 1966 the home-
consumption of cotton-lint in East Africa amounted to
about 55,000 bales.   Compared with the total yield of
cotton-lint (914,000 bales) the home consumption reached
only about 5.4%.   During the next five years (up to
1970 or 1971) the home consumption of cotton-lint will
increase tremendously, for some rather big spinning
mills are under construction or planned.   On the basis
of the planned expansion/programmes we expect for 1970
or 1971 a home consumption of cotton-lint in the region
of about 200,000 bales, or more than 15% of the locally
produced cotton-lint.

The East African cotton-lint is of a rather good quality.
The mainly cultivated types are S 47 (with an average
staple length of 36/32 inches), BP 52 (37/32 inches) and
UK 51 (also 37/32 inches).   These qualities are suitable
for the production of yarn up to 40 English counts, which
is a very fine yarn and which can be used for the
production of fine poplin cloth.

We find that in East Africa the high quality cotton-lint
is mainly used for the production of a very rough yarn,
for which the good cotton-lint is not appropriate. The
bulk of the produced yarn ranges from 12 to 16 English
counts, whereas the cotton-lint is suitable - as stated
above - for yarn up to 40 English counts.   Under these
circumstances the question arises, whether it is not
more economic for the spinning mill as well as for the
whole economy to export the high quality cotton-lint
and to import for the local industry a lower quality
(for example Middling with a staple length of 1 inch)
from Pakistan.

This problem is not very important in the moment, for
the home consumption of cotton-lint is rather low (1966:
55,000 bales), but it will become serious in the future
when the home consumption will be rather high (1970:
200,000 bales), It is true that the production-programmes
of the spinning and weaving mills will change in
correspondence with changes in the cloth-demand, and that
the proportion of finer cloth (poplins) will increase,
but there is no doubt that even in 1970 the bulk of the
production will consist of rough cloth containing yarn
of less than 20 English counts.

b. The Political Conditions.

aa. The Licensing System.

The textile industry is subject to an industrial lice-
nsing system which is under the authority of the
Licensing Council of the East African Common Services
Organization.   The licensing system was introduced in
1954 and will remain in operation for twenty years; that
means that the licensing system will expire in 1974.

There were mainly two motivations for the introduction
of the licensing system: (1)(The propensity of)
investment in the field of the textile industry should
be encouraged by avoiding too strong competition; (2)
the textile industry should be vertically integrated,
that means that a weaving mill should be always combined
with a spinning mill.

These two goals should be reached by the following
technique of licensing: (1) The Licensing Council
adapts the licensed production to the growth of demand.
(2) The firm which is licensed is forced to begin
spinning usually after a 3 years period from the start
of the weaving plant.

In 1959 this policy of the Licensing Council was reconsi-
dered, and partly changed.   From that time a weaving
mill with a capacity of 3 million square yards (19 yds)
of cloth per annum or less is no longer obliged to
establish a spinning plant.   The reason for this
alteration was, that it is not possible to run a spinning
plant economically on such a low capacity.   But apart
from that, the policy of the Licensing Council remained
unchanged.

The attempt to adapt the licensed production to the consumption avoids over-capacity and wastage of capital. But on the other side this policy gives the producer, whose plant is still in operation, a kind of monopolistic protection, and hampers the replacement of an uneconomic producer by an economic one. The only competition, which remains is the competition from abroad, which is limited because of the high import duties.

Another problem is vertical integration. The Licensing Council is afraid that unless vertical integration is enforced, private firms would establish only weaving plants and import the yarn from abroad. In order to save foreign currency and to create high employment - and income-effects in East Africa the Licensing Council insists on vertical integration. But vertical integration can be reached on two different levels: (1) on the basis of a firm or (2) on the basis of a country or the whole of East Africa.

The writer is convinced that vertical integration on the basis of a firm (the present policy of the Licensing Council) is by far not the most economic way to achieve vertical integration. The minimum-capacity of a spinning plant differs very much from that of a weaving plant. While a weaving plant can be run economically on a very small scale (3 - 5 m. sq.yds p.a.) the spinning plant needs at least a production of 60 - 80 m lbs of yarn per annum, enough to produce 15 - 20 m sq.yds of cloth per annum. These figures demonstrate that vertical integration on the basis of a firm is no problem for the big spinning and weaving mills, like Nyanza Textiles Ltd., Mulco Textiles Ltd., Kisumu Textile Mills Ltd., Tasini Textiles Ltd., but is a real problem for weaving mills with a capacity of less than 15 m sq. yds per annum. With regard to these firms it would be much more economic to stimulate the existing big spinning mills to increase their production, so that they cannot only cover the yarn consumption of their own weaving plant but also provide the relatively small weaving mills with raw material. That means that vertical integration on the basis of a firm is substituted by vertical integration on the basis of a country or the whole of East Africa.

bb. The Common Market

Free Exchange of Goods

In respect of the textile industry, the East African Common Market (with common external import duties and a free exchange of goods between the three countries) is still operating, and we find a remarkable transfer of cloth mainly from Uganda to Kenya and Tanzania. The writer was told - from rather well informed sources - that it is not sure that the mechanism of the Common Market (based on the recommendations of the Philip Commission) which is under discussion, will guarantee a free exchange of textiles (cloth) in any case. It may be decided that even the goods of the scheduled industries may be treated in the same way as other goods in respect of which it is proposed that a country which is in a defecit position, can impose a surcharge (import duty on imports from a partner country.

On the other hand it is believed that quantitative restrictions will not be allowed.

Common External Import Duties

The common import duties on cloth imported from outside East Africa are rather high. For grey and unbleached cotton fabrics the import duties amount to 1 sh per sq.yd or 40% of the cif value (whatever is higher), for other cotton fabrics and for fabrics consisting of man-made fibres 1,25 sh per sq yds or 40% of the cif-value (whatever is higher). These high import duties seem to be necessary to give the local industry sufficient protection, for the Asian countries are in a position to offer their fabrics at a very low price. At first glance it is very astonishing to realize that the East African textile industry needs such high import duties to be able to stand against competition from abroad, for the wages in East Africa are low and the textile industry is still a very labour-intensive industry (at least in Asia and in Africa). But later, when we discuss the labour efficiency of African workers, we will find that low wages are not identical with low labour costs.

3. The Structure of the Textile Industry.

a. Location

aa. The Geographical Distribution

At present Jinja is the main centre of the textile industry in East Africa. The two firms in Jinja, Nyanza Textiles Ltd. and Mulco Textiles Ltd., produce much more cloth than all the other textile industries in East Africa together. Apart from Jinja we find medium-sized or small textile mills in Kampala, Kisumu, Nairobi, Thika, Mombasa, Dar-es-Salaam and Moshi. In 1970 or 1971 Jinja will be still the main centre, but Dar-es-Salaam will have become a second one, and we will find - apart from the above mentioned places - textile industries in Mbale, Eldoret, Limuru, Arusha and Mwanza.

bb. The Choice of Location

With regard to the choice of location, the problem is to compare different sites in respect to the production-costs and receipts (quantity produced multiplied by the selling prices ex-factory) and to find out the optimal site, that is the site which guarantees the highest profit. Only under the condition - which is usually not realized - that in every place the selling prices ex-factory are the same is the site with the lowest production-costs identical to the site with the highest profit. It is only in this case that the location problem is reduced to a pure cost problem.

It is true that the choice of location in an under-developed country is rather limited.

Vast areas of the country are without any facilities
for transport, water and electricity and cannot a
priori offer the optimal location. Usually few places
remain, which can be compared with each other in the
framework of a location calculation.

We found that no textile firm has carried out an
exact location calculation, comparing different sites
with each other. Several firms claim, that they have
chosen the optimal site, but their assumptions are not
based on empirical datas, they are more or less vague
feelings. They may have chosen the optimal site, but
it is not sure.

The location-motivations of the textile industries -
mainly: good transport facilities, sufficient supply
of water and electricity - do not give us a satisfactory
explanation of the actual location, for these conditions
are usually not only fullfilled by the actual location
but by several other places as well. So these motivations
outline only the area, where the optimal location can be
found or - in other words - they outline the area, which
cannot contain a priori the optimal location.

b. The Production

aa. The Production of Cloth

At the end of 1966 - apart from blanket factories - 12
weaving mills were in production. The cotton mills
mainly produce piece-dyed cloth, grey and unbleached
cloth and khaki drill. The output of the rayon mills
mainly consists of coloured woven piece-goods, like
kikoys and ghingams. The output will increase from
47.7 m sq yds in 1965 and 77.6 m sq yds in 1966 to 113.2 m
sq yds in 1967. The bulk of the cotton cloth is made
from locally spun yarn, and the rest from yarn, mainly
imported from Israel. The production of rayon cloth
is mainly based on imported yarn from Japan and China.

bb. The Output of Yarn

Due to the growth of the cloth production the output of
yarn is increasing: 1965 16.0 m. lbs, 1966 24.5 m. lbs
and planned for 1967 39.1 m. lbs. About 75% of the
produced yarn is made from locally grown cotton and the
rest from imported rayon staple fibres (about 25%).
Nearly the total quantity of yarn was manufactured by
local weaving mills and only a very small part (mainly
rayon yarn) was used by local knitting mills, the
knittwear of which is mainly used for the production of
singlets and briefs.

cc. The Production Technique

The weaving mills in East Africa mainly use non-automatic
and semi-automatic looms, that means that the production
technique in East Africa - compared with European
countries - is highly labour-intensive. This fact is
in accordance with our theoretical considerations, for
under the condition of low wages the optimal production
technique must be rather labour-intensive.

But the motivations for the choice of this rather
labour-intensive production technique differs very
much from our theoretical consequences. Most of the
entrepreneurs claimed, that (1) the very advanced
production technique applied in Europe is also the
optimal technique for African countries, and that (2)
the choice of the comparatively labour-intensive
production technique was the result of limited financial
resources.

c. The Employment

aa. The Number of Workers Employed

The number of workers in the East African textile
industry increased from 6,500 in 1965 (end of the year)
to 9,000 in 1966 and it will reach about 12,500 end of
1967. Roughly 40% of the workers are skilled, 30%
semi-skilled and also 30% unskilled. The workers, who
enter the firm usually without any vocational experience
and who in some firms pass an aptitude test, are trained
by the firms. As a result, during the first years
after the start of a factory the number of expatriates
is rather high and the efficiency of the mill rather
low.

bb. The Mobility of the African Workers

The spinning and weaving mills in East Africa found that
it is not difficult to find African workers even in
places where the labour potential is rather limited in
the first instance. The reason for this fact is, that
African workers are able and willing to migrate from
rather remote places to a place where they can find a
job. Whatever the reasons for this behaviour may be,
for us only the fact is important that the African worker
is very mobile. That means that in the choice of
location a firm is rather independant from the problem
of getting enough workers.

bb. The Wages of African Textile Workers

In East Africa we do not find a common wag tariff for
all of the textile workers of a country. The usual
practice - in all three countries is, that the trade
union negotiates seperately with each of the textile
industries, and consequently we get individual wage
tariffs. The trade unions prefer this system, for the
wages can be adapted to the economic situation of each
individual firm, while a common wage tariff must have
regard to the most uneconomic firms. The wages of the
unskilled and semi-skilled African workers range from
200 to 350 shillings per month.

cc. Labour Efficiency

The low wages of the African workers create the impression
that the labour costs in East Africa must be very low.
But this impression is based on the assumption, that there
is no or no essential difference between the African worker
and the European or Japanese worker in respect to the
labour efficiency.

As we found this assumption is not true. The fact is,
that the labour efficiency of the African worker - at
least in the field of the textile industry - is much
lower than the labour efficiency of the European or
Japanese worker.

As a quantitative measure we used the relation: number
of looms handled by one worker. A satisfactory
comparison between the African and the European or the
Japanese worker is only possible, when (1) the types
of the looms and (2) the fabrics produced are in both
cases the same. These conditions were fullfilled only
in some cases: Some weaving mills in East Africa use
second-hand looms-bought from Japan - which produce now
about the same cloth than they produced formerly in
Japan.

The result of the comparison is surprising: In Japan
one worker handles between 8 and 10 semi-automatic
looms, while in East Africa an African worker handles
2 to 4 looms. If we take the labour efficiency of the
Japanese worker as 100%, the labour efficiency of the
African worker ranges between 20 and 50%. The monthly
wage of a Japanese worker amounts to about 600 shillings
and the wage of an African semi-skilled worker to about
250 shillings. That means that the African textile
industry has, in a lot of cases, no comparative advantage
in the labour costs per square-yard produced.

d. The Consumption of Fibres

aa. The Total Consumption

Fibre consumption of the East African spinning mills
amounted in 1965 to 17.2 m. lbs and in 1966 to 26.3 m. lbs.
It will reach 1967 42.3 m lbs. Apart from a very small
quantity of polyester fibres the fibre consumption only
consists of cotton and rayon fibres. On the average
80% of fibre consumption is covered by cotton fibres
and 20% by rayon fibres. The cotton fibres are obtained
from locally cultivated cotton, whereas the rayon
fibres are imported mainly from Japan.

bb. Specific Consumption

The consumption of yarn and the consumption of fibres
depend on the kind of cloth produced. Usually the yarn
input for the production of 1,000 sq yds of cloth amounts
to:

sheeting (cotton cloth)	340 lbs yarn
khaki drill (cotton cloth)	510 lbs yarn
other drill (cotton cloth)	440 lbs yarn
satin (cotton cloth)	370 lbs yarn
coloured woven rayon cloth (kikoys and ghingams)	290 lbs yarn

The input of fibres differs from the input of yarn only
by the wastage of fibres, which usually is about 7% of
the consumed fibres (cotton fibres as well as rayon fibres).

That means, that the specific consumption of yarn is 93% of the specific consumption of fibres:

sheeting	360 lbs fibres
khaki drill	550 lbs fibres
other drill	470 lbs fibres
satin	400 lbs fibres
coloured woven rayon cloth	310 lbs fibres.

The average specific consumption for the production of cotton cloth amounted in 1966 to about 380 lbs of yarn and 410 lbs of fibres per 1,000 sq yds of cloth, and for the production of rayon cloth to 300 lbs of yarn and 320 lbs of fibres per 1000 sq yds of cloth. These averages are the result (1) of the specific consumption of the different kinds of cloth and (2) the composition of the production programme. The composition will change a little bit during the next years, for the proportion of fine cloth (poplin) will increase. The consequence of this will be, that the average specific consumption will be slightly reduced.

4. The Growth of the East African Textile Industry.

The period under consideration is limited to the period from 1964 and 1970. The possible growth of the production of fabrics is defined by (1) the present output, (2) the consumption of fabrics in 1970, (3) import-substitution (4) the possibility to export. The present production of fabrics was described in the last chapter, whereas the remaining three points will be discussed on the following pages.

a. The Consumption of Fabrics in 1970

aa. The Projection Model

In the projection model the following abbreviations are used:

P_t	population in the period t
$RP_{t1 - tn}$	average rate of growth of the population between the period t1 and tn
CH_t	consumption of fabrics per head in the period t
$RCH_{t1 - tn}$	average rate of growth of the consumption of fabrics per head between the periods t1 and tn
$REH_{t1 - tn}$	average rate of growth of the Monetary Gross Domestic Product per head (at constant prices of the year 1964) between the period t1 and tn.

e   elasticity of demand for fabrics per head with respect to changes in the Monetary Gross Domestic Product per head.

The consumption of fabrics in 1970 is defined as the population in 1970 multiplied by the consumption of fabrics per head in 1970.

$$(1) \quad C_{1970} = P_{1970} \times CH_{1970}$$

The population number for the year 1970 is derived from the population in 1964 and the growth-rate of the population between 1964 and 1970.

$$(2) \quad P_{1970} = P_{1964} \times (1 + RP_{1964 - 1970})^6$$

The consumption of fabrics per head in 1970 is defined as the consumption of fabrics per head in 1964 multiplied by the growth-rate of the consumption of fabrics per head between 1964 and 1970.

$$(3) \quad CH_{1970} = CH_{1964} \times (1 + RCH_{1964 - 1970})^6$$

We assume, that the growth-rate of the consumption of fabrics per head only depends on the growth-rate of the Monetary Gross Domestic Product per head and that the constant factor (the income-elasticity) has the value of 0.8.

$$(4) \quad RCH_{1964 - 1970} = e \times REH_{1964 - 1970}$$

The Monetary Gross Domestic Product is used because of statistical reasons: In East Africa no figures are available about the Monetary National Product. By that the further estimates will not get disturbed, if the Monetary Gross Domestic Product and the Monetary National Income will have the same rate of growth between 1964 and 1970.

From (1) - (4) the following equation can be derived:

$$(5) \quad C_{1970} = P_{1964} (1 + RP_{1964 - 1970})^6$$

$$CH_{1964} (1 + 0.8 \ REH_{1964 - 1970})^6$$

bb. The Results

The values of the independent variables (P_{1964}, $RP_{1964 - 1970}$ CH_{1964} and $REH_{1964-1970}$) are described in the tables 1 - 4.

By means of these values and under the assumption, that the income-elasticity is 0.8, we get the following results:

In 1970 the consumption of fabrics will be 97 m sq.yds.
in Kenya, 137 m sq yds in Tanzania and 77 m sq yds in
Uganda. (East Africa 311 m sq yds).

Our estimates are based on the consumption of fabrics
in 1964, which comprehends (1) the total local output
of fabrics and (2) the imports of fabrics. (Exports
did not take place). But there is a third component,
which was not taken into consideration: the amount of
fabrics contained in imported clothing. Usually it is
assumed, that this amount was in 1964 about 10% of the
total consumption of fabrics. That means, that our
estimates for 1970 cover only 90% of the total consu-
mption of fabrics, and that - taking this into account -
the total consumption of fabrics in 1970 will be 345 m
sq yds in East Africa (Kenya 108 m sq yds, Tanzania 152
m sq yds and Uganda 85 m sq yds).

b. Import-substitution

The East African countries pursue a policy of a very
high tariff protection of the local industry. This
policy will be continued and - if necessary - strengthened.
Therefore we can suppose, that a higher proportion of the
total consumption of fabrics can be covered by local
products. We think that it is not too optimistic to
suppose that this proportion may amount to about 75%.
Under this condition we come to the conclusion that in
East Africa the market potential for the local industry
will be about 258 m sq. yds in 1970.

c. Export Possibilities

There is no doubt, that East Africa will not be able
to export fabrics to countries outside East Africa.
Usually the production costs of the East African fabrics
are at least 20 - 25% higher than the cif-prices
(ex Mombasa or Dar-es-Salaam) of fabrics imported from
Japan, Hong Kong, India, China and Pakistan.

The only possibility for East Africa to export would
arise, if the East African Sub-region (comprehending
Ethiopia, Sudan, Rwanda, Burundi, Zambia, Madagascar
and the three East African countries)would form a big
common market, as recommended by the Lusaka-Conference
at the end of 1965. But knowing the difficulties of the
common market between the three East African countries,
we are convinced, that these proposals will not affect
the situation up to 1970.

d. The Growth Possibilities

As there are no export possibilities, the East African
Textile industry will be depending on the local market-
potential, which - as mentioned above- will amount in
1970 to about 258 m sq yds. In 1966 the output of
fabrics was about 78 m sq yds. Accordingly the
production of fabrics can be expanded during the next
four years (1967 - 1970) by about 180 m sq yds annually.

e. The Planned Expansion

Due to the expansion-programmes of the firms we may
expect for 1970 an output of about 220 m sq yds. of fabrics.
That means, that the output of fabrics will expand
during the next four years by about 140 m sq yds.
Compared with a consumption of fabrics of nearly 260 m
sq yds, which can be covered by the local production,
the growth-possibilities of the textile industry will
not be totally used in 1970.

Table 1. The Growth of the Population between 1966 and 1970

Countries	1964 (in m.)	1970 (in m.)	Average Rate of Growth
Kenya	9.100	10.900	3.0%
Tanzania	10.000	11.400	2.2%
Uganda	7.400	8.500	2.5%
Total	26.500	30.800	2.5%

Table 2. The Growth of the Monetary Gross Domestic Product
(at constant 1964/65 prices) between 1964 and 1970

Countries	1964 (in m Ls)	1970 (in m Ls)	Average Rate of Growth
Kenya	212.8	321.8	7.1%
Tanzania	159.5	259.8	8.5%
Uganda	182.5	259.5	6.1%
Total	554.8	841.1	7.1%

Table 3. The Growth of the Monetary Gross Domestic Product
(at constant 1964/65 prices) per Head between
1964 and 1970

Countries	1964 (in Ls)	1970 (in Ls)	Average Rate of Growth
Kenya	23.4	29.5	3.9%
Tanzania	16.0	22.8	6.0%
Uganda	24.7	30.6	3.7%
Total	20.9	27.3	4.6%

Table 4. The Growth of the Consumption of Fabrics per Head
          and the Total Consumption of Fabrics between 1964
          and 1970

Countries	Consumption per Head (in sq yds)		Total Consumption (in m sq yds)	
	1964	1970	1964	1970
Kenya	7.43	8.94	68	97
Tanzania	9.13	12.10	91	137
Uganda	7.68	9.14	57	77
Total	8.14	10.10	216	311