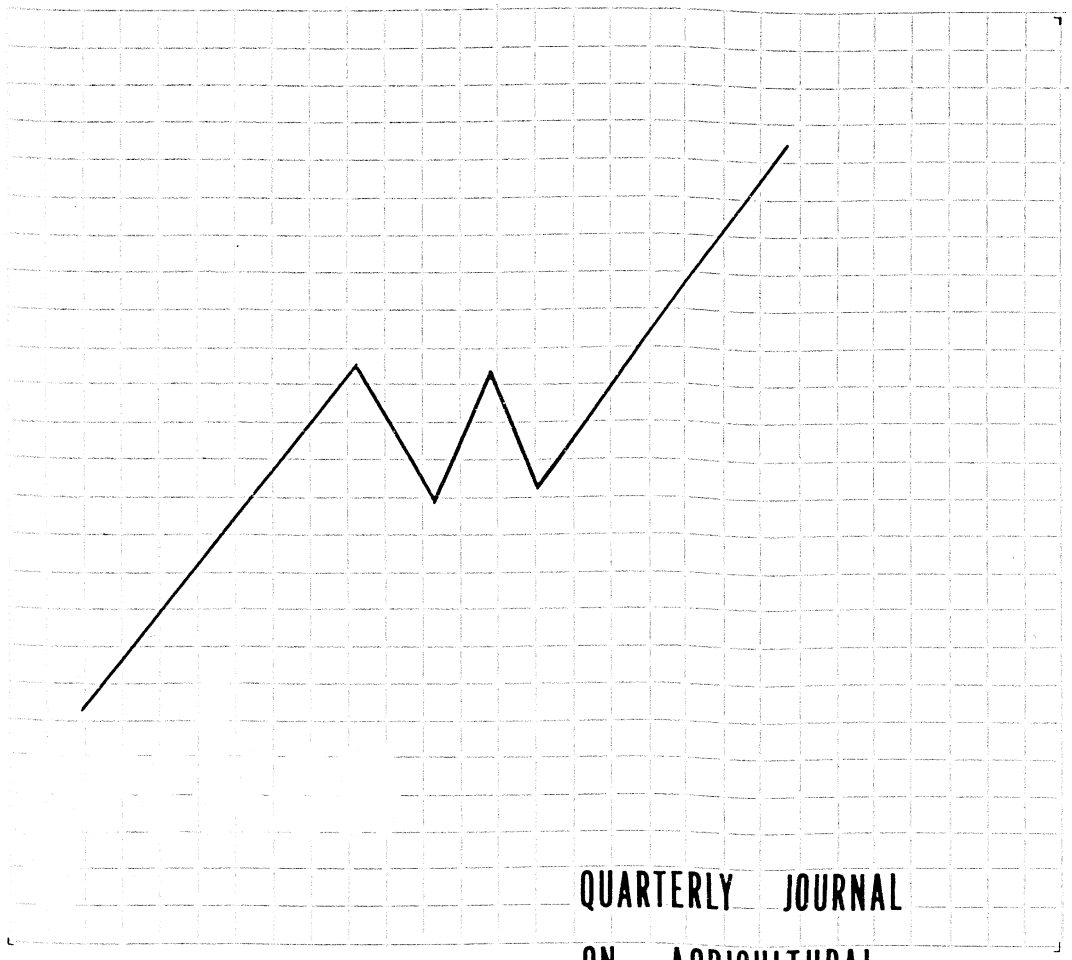
Vol. 4, No. 3
July 1965

PRICE 20c



QUARTERLY JOURNAL ON AGRICULTURAL ECONOMICS

Issued by the Department of Agricultural Economics and Marketing, Pretoria

Agrekon

VOL.4 No. 3 JULY 1965

REQUIREMENTS FOR CONTRIBUTION

Deserving articles in the field of agricultural economics, for publication in this journal, will be welcomed.

These articles should have a maximum length of 10 folio pages (including tables, graphs, etc.), typed in double spacing. All contributions should be submitted in triplicate (preferably in both languages) to the editors, c.o. Department of Agricultural Economics and Marketing, Pretoria, and should be received by the editors at least one month prior to publication date.

The journal is being distributed by and is obtainable from the distributors: "Agrekon", Private Bag 144, Pretoria.

(The price is 20 cents per copy or 80 cents per annum, post free.)

Date of issue, on a quarterly basis, are the following: January, April, July, and October.

"Agrekon" is also published in Afrikaans.

A Theoretical Approach to the Future of the Wool Industry

by
C.D. VAN SCHOOR,
Assistant Professional Officer, Agricultural Economic Research

A community's need of a particular product is reflected in the price the community is prepared to pay for it, and this price serves to indicate the most desirable line to be followed in production. The price mechanism[1] also takes care of the division of the total production among the individuals comprising the population; and this determines the balance between production and consumption. It is a complex mechanism with many shortcomings, but for the purpose of this discussion it will be assumed that it functions smoothly and faultlessly. The supply aspect is ignored; only the "Marshall demand curve"* and the forces interacting with it are studied.

CLASSIFICATION OF USES

Wool is a unique product, since it moves freely at an international level and therefore enjoys a world-wide demand. Moreover, in the raw unprocessed stage it has no consumer demand, but the processed product has many uses in a wide sphere and may (in its various forms) be classified into the following three main groups according to the purpose for which it is used by the consumer:

1. Clothing.
2. Household purposes -
   (a) blankets, mats, curtains, coverings, etc.
   (b) shoes, handbags, medical uses, etc.
3. Industrial uses.

*This distinguishes the ordinary demand curve from the approach of the indifference curve and its derived demand curve.

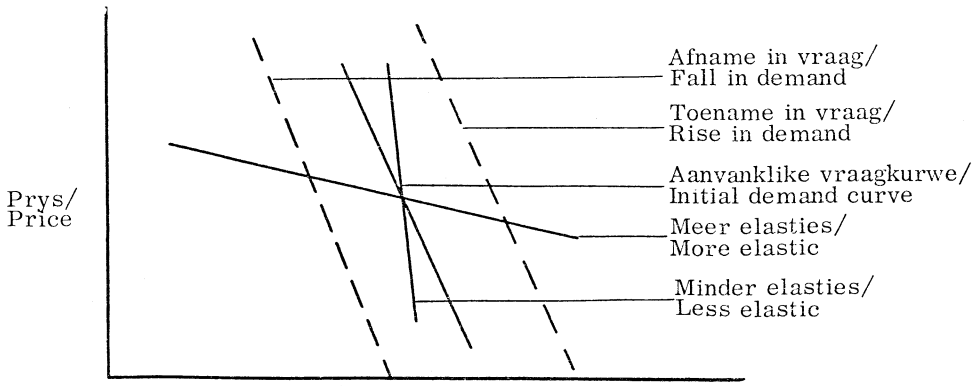
In Table 1[2] and 3) the use of all textile fibres (both natural and artificial) is classified according to these three main groups in respect of a few countries or groups of countries.

TABLE 1[2] and 3) - Estimated use of all textile fibres in the three main consumption groups, based on actual weight

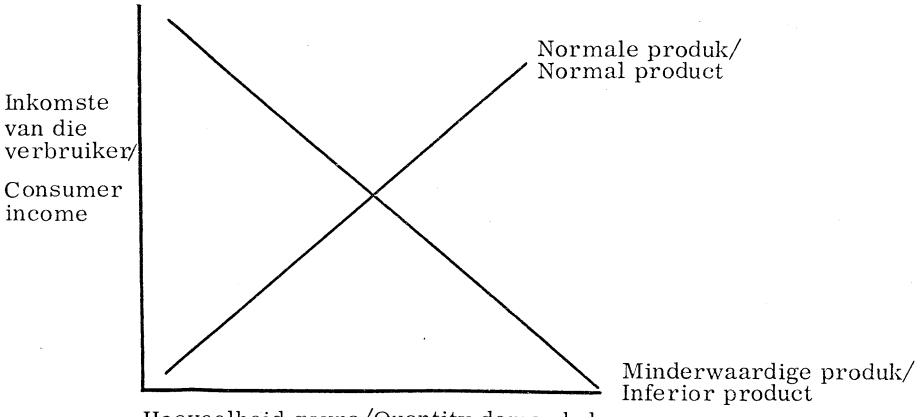
Country	Clothing	Household	Industrial
	%	%	%
U.S.A.			
(i) 1957 to 1959	54	24	22
(ii) 1961	55	27	18
Western Europe, United Kingdom, Sweden 1957-1959	56	24	20
Japan			
(i) 1957 to 1959	89		11
(ii) 1961	87		13

From the figures in Table 1[2] and 3) it emerges clearly that the greatest percentage of textile fibres is utilised for the manufacture of clothing. In Table 2 the contribution of wool fibres to each of the three groups is shown as a percentage for the U.S.A.

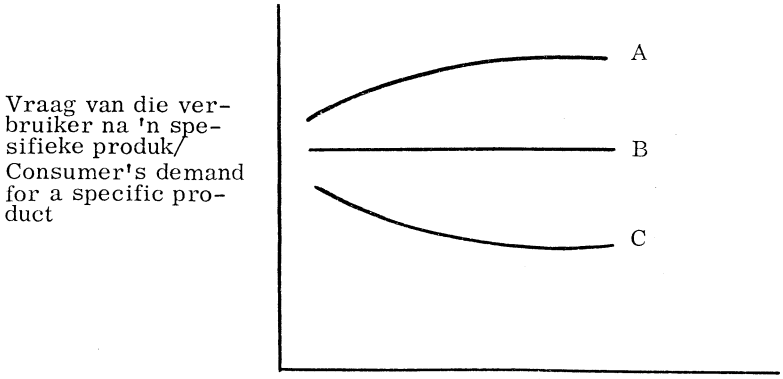
It is clear that wool constitutes an unimportant part of the fibres used for industrial purposes, but in the other two



Grafiek 1: Bewegings van die vraagkurwe/
Graph 1: Movements of the demand curve



Grafiek 2: Reaksie van minderwaardige en normale produkte op 'n toename in verbruikersinkomste/
Graph 2: Reaction of inferior and normal products to an increase in consumer income



Grafiek 3: Inkomste-elastisiteit/
Graph 3: Income elasticity

consumption groups it is more important, especially in the case of clothing. The distribution of the total wool utilisation in the U.S.A. among the three main consumption groups is shown in Table 3, and it is again apparent that the largest amount of wool is used for clothing purposes.

TABLE 2[2] and 3) - The relative importance of wool in each of the three main consumption groups for the U.S.A.

	1956	1961
	%	%
Clothing	14.0	11.0
Household	10.7	9.0
Industrial	1.7	1.0
Total	9.6	8.0

TABLE 3[3] - The distribution of total wool utilisation in the U.S.A. according to the three main consumption groups

	Clothing	Household	Industrial
	%	%	%
Average 1949-53	65	28	7
Average 1954-58	71	26	3
1959	67	31	2
1960	67	30	2
1961	70	28	2

In order to draw the demand curve for the wool industry, a series of prices and quantities in demand is required. As a result of many practical and theoretical problems, however, it would be virtually impossible to produce a demand curve of this nature for the wool industry in South Africa; the existence of a Marshall demand curve is therefore accepted. Because unprocessed wool has only a derived demand curve, it is necessary to define the demand of the tertiary industries - in order to derive the wool producer's demand curve from it. The demand exercised by the tertiary industries is in its turn determined by the collective demand curve for all consumers; and this in turn is the sum of the demand curves of the individual consumer. The individual demand curve will therefore be the first to receive closer attention.

THE INDIVIDUAL DEMAND CURVE

The demand curve shows two movements (see Graph 1): In the first place, it can move as demand increases or decreases; secondly, its slope may change in accordance with changes in the elasticity of demand.

1. Movements in demand

The factors causing a movement in the demand curve will now be discussed.

(a) A rise in consumer income. - As the income of a consumer rises (as a result of which he achieves greater purchasing power), he will demand a larger quantity of normal products at a given price. This amounts to a movement in demand to the right.

The difference between normal and inferior products is illustrated in Graph 2. A product is inferior when the consumer, on receiving a higher income, changes to a product of better quality. From the graph it will be seen clearly that, as income rises, larger quantities of normal products are demanded and smaller quantities of inferior products. Wool products are obviously a normal products and will therefore respond positively to a rise in income.

The extent to which a consumer will consume more of a product, with a rise in his income, apparently depends primarily on his marginal consumer tendency (m.c.t.)[4] - which will determine wat percentage of the increase in his income he will spend and what percentage he will save. Secondarily, the elasticity of income (e_i) determines in respect of a particular product what percentage of the increased income will be spent on consumption of the specific product. (Alternatively, the e_i can

take the initiative, and its total can dictate the m.c.t.)

A high percentage of consumers spend their entire income; that is, here their average consumption tendency (a.c.t.) and also their m.c.t. = 1. There are certain factors, however, which influence this m.c.t. Thus, a consumer with a high income will have a lower m.c.t. than the consumer with a lower income. It has been supposed that, as a consumer's income rises, his m.c.t. will fall; but research has shown that the a.c.t. remains constant in the long run, as a result of the upward movement of the consumption function. When the rate of interest rises, the marginal saving tendency tends to rise - and a drop in the m.c.t. follows in consequence.

The relationship between a consumer's income and the demand for a particular article is known as its e_i. This is the yardstick used to measure the rate of growth in respect of the demand for a particular product; and it is represented as shown in Graph 3.

Case A represents a normal product and case C an inferior one. Case B represents a product not influenced by a rise in the consumer's income. This usually applies where the product is comparatively unimportant in the household budget, e.g. salt.

According to Engel's Law the income elasticity of foodstuffs is less than 1. This also applies to many other products, but in the case of clothes, furniture, holidays, education, etc., the e_i is sometimes greater than 1. Table 4 shows the e_i of a few products for the U.S.A., while the e_i of all textile fibres for a few countries is given in Table 5.

Although the e_i of clothing is 1.0, it is considerably lower than the e_i of services rendered (processing and sales services) have been deducted; and, as will be seen from Table 5, the e_i for textile fibres in the U.S.A. is nil. In South Africa it is 1.0, while the highest figure is that applicable to the Middle East and Africa (excluding South Africa), namely 1.15.

TABLE 4[1] - Income elasticity of certain consumer goods and services in the U.S.A.

Product or service	Income elasticity
Food and fuel	0.5
Housing	0.8
Clothing and furniture	1.0
Recreation	1.3
Education	1.6

TABLE 5[2] - The income elasticity of textile fibres in various countries

Country	Income elasticity
U.S.A.	0.0
Canada	0.15
Australia	0.3
Western Europe	0.5
Japan	0.9
South Africa	1.0
Latin and Central America	1.05
India	1.15
Africa and the Middle East	1.15

The entire situation in regard to the e_i is best summarised by Adam Smith[5]: "The desire for food is limited in every man by the narrow capacity of the human stomach; but the desire of the conveniences and ornaments of building, dress equipage, and household furniture seems to have no certain boundary." As will appear from the following quotation, it is advantageous to the clothing and furniture industries that the per capita income should rise continually, as is the case at present: "Analysis of fiber consumption during the fifties shows that per caput income is the single economic variable explaining the greater part of the variation in per caput fiber consumption. Over the five 3-year moving averages 1952-54 through 1956-58, about 60 to 70 per cent of the variance in per caput consumption is explained by income variations.[2]

The elasticity of services, however, is very considerable and price rises also play an important part. Because of this, the increase in the actual quantity of fibres used is reduced considerably. "A 10 percent increase in income could be associated with a 9 percent increase in expenditures on shirts, a 5 percent increase in the number of shirts bought and only a 4 percent increase in the quantity of fibres going into these shirts."2)

(b) Future expectations. - It is doubtful whether expectations at the present time have any noteworthy influence on the normal demand for wool products.

(c) Tastes and habits (fashions). - These factors have a very important influence on the demand for wool products, as the demand for wool products is related to a considerable extent to fashions or new habits and tastes. In the first place, it would appear that consumers are developing a "taste" for synthetic clothing materials. "Remarkably rapid rates of innovation and changing consumer tastes are causing major adjustments in manufacturing output, and hence in the composition of the demand for raw materials."3) New fashions also dictate the increasing use of these synthetic materials. This is a sociological phenomenon, for which reason it is not pursued here. What is important, however, is that as the synthetic materials develop a consumer preference, they are continually becoming a better and closer substitute for wool. This trend is definitely in progress because as the good qualities of the synthetic materials gain ground, the tradition of using only wool clothing and other wool products is disappearing. In this manner the existing consumer status of woollen products is being gradually undermined. Research is essential to adapt wool products to the changed consumer tastes and habits.

The good properties of wool products and their improvement must be brought constantly to the notice of consumers by means of publicity campaigns. This publicity must not be aimed merely at increased sales, but also at isolating wool from its substitutes. Care must be taken, however, to ensure that the publicity programme does not merely enhance the prestige value of the services of the manufacturers and other intermediate persons, without contributing much to the sales of the product itself.

(d) Substitution. - Although the accent falls on wool, some of the other industrial fibres are also feeling the effects of substitution; and when substitution is mentioned, the concept of "crosswise elasticity" immediately assumes prominence. Graph 4 defines the two concepts supplementary products and substitutes.

(i) Supplementary products. - Some manufacturers prefer to add at least 20 per cent of fine wool to all their synthetic clothing and other materials. This apparently gives these materials the same soft handling associated with materials manufactured from pure wool. South African wool is very popular for this purpose because of its fine texture and soft handling.

If a fixed proportion of 20:80 is maintained, wool and synthetic materials are complementary to each other in such cases. The complementary relationship, however, is very low and wool and synthetic fibres are used mainly as substitutes for each other.

(ii) Substitutes. - When mention is made of substitutes in regard to the demand for various products, it is a matter of grave concern to the wool industry. The industrial fibres of importance here vary considerably from each other both in their origin and in their end-uses. Thus cotton, for instance, is of vegetable origin; wool is an animal product; rayon is a factory product with a vegetable basis; and synthetic fibres are factory products with a mineral basis. It is necessary to classify these industrial products, and the handiest classification is between natural fibres and man-made fibres. All these fibres have more than one end-use overlapping each other, so that many of them are to a greater or lesser extent substi-

tutes for each other. "One of the main threats to the exchange earnings of developing countries in recent years has come from competition of synthetics with agricultural raw materials."[3)]

On the present basis of technology, cotton and rayon will continue to compete against each other in the lower price range, and wool against the more expensive synthetic fibres. In recent years synthetic fibres have moved progressively closer to wool products as a substitute for them. As will be seen from Table 6, the relative share of man-made fibres in total consumption has increased rapidly from 7.4 per cent in 1935/37 to 25.4 per cent in 1962. This rapid increase is attributable to the growth of synthetic fibres, as the first true synthetic fibre (nylon) was announced in the U.S.A. in 1938.[3)]

TABLE 6[2)] - Man-made fibres as a percentage of the total fibre utilisation

1935-37	1948-50	1957-59	1962
%	%	%	%
7.4	15.5	21.1	25.4

Table 7 shows a number of countries or groups of countries together with the percentage of total utilisation represented by the various types of fibre. The percentage of total production used by each country is also indicated.

South Africa uses only 0.6 per cent of the world's fibre production. This is close to that of Australia, with 0.7 per cent. The highest percentage of wool (30.7 per cent) is used in New Zealand, while in South Africa wool represents only 10.0 per cent. Among the high-income countries wool represents a lower percentage only in the U.S.A., namely 7.1 per cent. High-income countries use relatively more wool, namely 12.6 per cent as against 5.6 per cent in low-income countries. Of the world total, wool represents only 9.6 per cent (approximated at 10 per cent). Low-income countries, on the other hand, make more extensive use of cotton, while the use of synthetic fibres is thus far virtually confined to high-income countries. The low proportion of wool in South Africa does not result in a very high relative proportion of cotton; on the contrary, South Africa is relatively the greatest user of rayon.

During the period 1952 to 1960 the importance of syntehtic fibres increased very rapidly in the U.S.A., Japan and Western Europe. It is expected that there will still be a high degree of substitution between synthetic fibres and wool and cotton in high-income and highly industrialised areas, particularly during the 1960's.[2)]

It is clear that man-made fibres have increased universally in relative importance. During this period Japan remains the most important user of man-made fibres, while these have gained ground most rapidly in Italy.

Table 8 represents the changes in the contributions of wool to the various consumer groups from 1950 to 1960.

Substitution has occurred as follows within the three main consumer groups:

Clothing: During the fifties the contribution of rayon declined by 10.1 per cent and that of wool by 2.8 per cent, while that of cotton increased by 5.8 per cent and synthetic fibre by 7.1 per cent. Wool therefore declined comparatively slightly here, but synthetic fibre shows an appreciable rise. Part of the drop as regards wool resulted from the lighter materials for boys' and men's suits.

Household uses: During the fifties the relative contribution of the natural fibres, wool and cotton, declined by 15.4 per cent. The greatest decline was in respect of cotton, namely 8.3 per cent wool declined by 7.1 per cent. For blankets, mats, coverings and curtains, man-made fibres constituted 43 per cent as far back as 1960. In the case of shoes, handbags, medical uses, etc., the contribution of natural fibres dropped by 8 per cent from 1950 to 1960, while synthetic fibres took over virtually the entire market.

TABLE 7(a)[2] - Various types of fibres as a percentage of total utilisation for a few geographical areas in 1957-59

Country	Cotton	Wool	Rayon	Synthetic fibres	Total	Percentage of world fibre consumption
	%	%	%	%		%
U.S.A.	65.7	7.1	18.7	8.5	100	19.8
Western Europe	53.6	18.3	24.0	4.1	100	20.3
Australia	54.9	22.3	18.3	4.5	100	0.7
New Zealand	48.1	30.7	18.3	2.9	100	0.2
Japan	54.4	10.1	27.9	7.6	100	5.2
South Africa	45.8	10.0	41.8	2.4	100	0.6
Total high-income countries	58.7	12.6	22.4	6.3	100	48.2
Total low-income countries	80.4	5.6	13.3	0.7	100	22.1
Sino-Soviet area	78.8	7.9	12.7	0.6	100	20.7
World total	69.5	9.6	17.5	3.4	100	100

TABLE 7(b)[3] - Changes in the relative (percentage) contribution of natural fibres and man-made fibres in certain countries during the decade 1952-62

	1952	1962
U.S.A.		
Natural	78	69
Man-made	22	31
United Kingdom		
Natural	80	64
Man-made	20	36
France		
Natural	82	66
Man-made	18	34
Germany		
Natural	66	61
Man-made	34	39
Italy		
Natural	81	62
Man-made	19	38
Japan		
Natural	70	60
Man-made	30	40

Industrial uses: Here the contribution of synthetic fibres rose from 7.5 per cent to 20.2 per cent during the period 1950 to 1960. For tyres alone it rose by 34.4 per cent. Wool lost ground in all spheres, while the relative importance of synthetic materials increased everywhere. As regards total contribution, all materials declined in favour of synthetic fibres, which increased by 9.9 per cent.

The greatest gain is shown by synthetic fibres, while there has also been an increase in respect of rayon. Wool shows a slight decline, but the relative importance of cotton has declined sharply. For the rest of the sixties it is expected that "the whole field of inter-fibre competition will be wider than ever before, embracing the man-made products as well as natural ones."[3]

2. The changes in the slope of the demand curve or the price elasticity of demand (e_p)

The greater e_p, the more strongly do users react to a small price change, and the more easily substitution occurs. The following factors influence e_p:

TABLE 8(a)[2] - The trend in the relative contribution of wool to the various main consumer groups in the U.S.A., 1950 to 1960

	1950	1960	Change
	%	%	%
Clothing			
Cotton	61.4	67.2	+ 5.8
Wool	15.6	12.8	- 2.8
Rayon	20.2	10.1	- 10.1
Synthetic fibre	2.8	9.9	+ 7.1
Household			
Cotton	71.5	63.2	- 8.3
Wool	17.8	10.7	- 7.1
Rayon	10.2	16.5	+ 6.3
Synthetic fibre	0.5	9.6	+ 9.1
Industrial			
Cotton	83.3	71.8	- 11.5
Wool	6.9	1.2	- 5.7
Rayon	4.1	6.8	+ 2.7
Synthetic fibre	5.7	20.2	+ 14.5
Total			
Cotton	66.6	62.8	- 3.8
Wool	12.4	9.0	- 3.4
Rayon	18.7	16.0	- 2.7
Synthetic fibre	2.3	12.2	+ 9.9

TABLE 8(b)[3] - Distribution of world utilisation of cotton, wool, rayon and synthetic fibre for 1952, 1957 and 1962

	1952	1957	1962
	%	%	%
Cotton	73.0	68.6	65.3
Wool	10.3	9.9	9.3
Rayon	15.3	18.1	18.0
Synthetic fibres	1.4	3.4	7.4

(a) When the particular product, such as wool, has substitutes which approximate very closely to it, demand tends to be more elastic. As noted previously, wool has near substitutes in the form of synthetic fibre which contributes towards an elastic demand.

(b) The demand elasticity of high-income -groups tends to decline, but because wool is a product used by all strata of the population (and as the middle-income group is probably the largest group), elasticity, in regard to this factor also, will be relatively high for wool.

(c) When only a small part of the budget of a household is spent on a specific product, the price elasticity of demand is lower. Fibre products, however, make big inroads into the budget - with the result that the demand for wool is also elastic in respect of this factor.

(d) The demand elasticity of luxury articles is usually higher than that of essential products. Wool, in the form of clothes, is initially a primary necessity, since people must be clothed. When it comes to smart fashions, however, wool becomes a purely luxury article. It will also be observed from Table 7 that the relative contribution of wool is 12.6 per cent in high-income countries but only 5.6 per cent in low-income countries. It would appear, therefore, that wool bears a relationship to luxury articles, and the elasticity of wool will consequently also be relatively high as a result of this factor.

(e) During depressions the elasticity of non-storable products is reduced, but wool is a product that is easily stored.

It would therefore appear that wool has a relatively high price elasticity of demand. The elasticity of services, however, are known to be high; and for this reason the elasticity of raw wool is reduced when the service elasticity has not yet been added to it. The price elasticity of demand on the farms will consequently be lower.

THE COLLECTIVE DEMAND CURVE

This is the total demand curve of all individuals in a national economy. This demand curve, however, is influenced by certain global factors.

1. Population increase

With an international products such as wool, these accordingly include the increase in the population of the world; that is, the net natural increase. This factor will continually move the collective demand curve towards the right.

2. Composition of population

This is a factor which exerts an important influence on the movement of the demand curve for a specific product.

(a) The civil as against the non-civil forces: When the military and police forces constitute a large proportion of the population, government policy has an important influence on such things as the use of wool uniforms.

(b) The producers as against the consumers: The more numerous the consumer corps in comparison with the producers, the more favourable are conditions for the product. This, however, is of greater importance from the point of view of supply; in other words, a smaller number of producers.

(c) Age composition: It is the young people in a population who are particularly fashion-conscious. Consider the ("teenman") teenage fashions.

(d) Sex composition: "In the United States, between 1949-51 and 1958-60, per caput consumption of all fibres (unweighted) increased by more than 5 per cent for women but remained constant for men."[2)]

3. Rises in income and income distribution

(a) This income refers to the total population and particularly to the trade-cycle movement between depressions and inflations.

(b) A better division of income among all strata of the population may increase consumption.

4. Shocks

These include sudden movements in demand in times of war, etc. Consider the position of wool during the Korean War in 1951.

THE DEMAND OF MANUFACTURERS

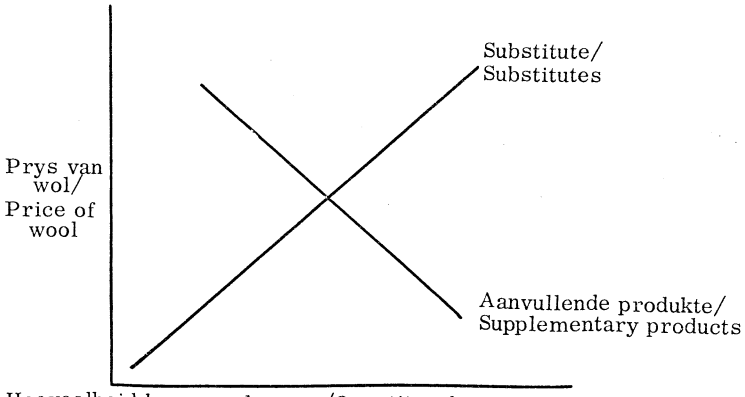
The collective demand is exerted on the manufacturers, and a derived demand curve for the wool producers results from this.

Wool and synthetic fibres are utilised as production factors in the processing industries, and then the factor/factor relationship comes into operation. Assume that the consumer's demand is for clothes as such and not so much for the constituents of clothing (i.e. wool and other fibres). Under such circumstances the manufacturers will use the cheapest combination of production factors in the production process.[6)]

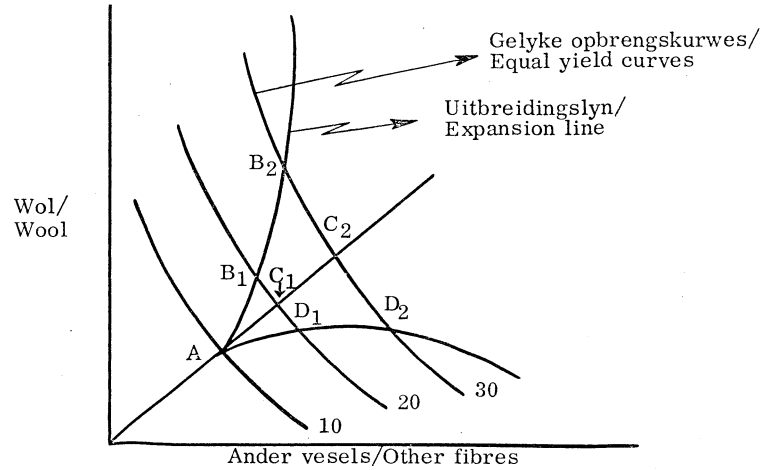
Assume that the initial combination of the production materials is A. If a technological development now occurs in respect of wool to make it relatively cheaper as a production factor, expansion will occur in accordance with the expansion line B_1B_2. If no change occurs in respect of the two factors, expansion follows the course C_1C_2. When the technological development favours synthetic fibres, expansion occurs along D_1D_2. It would appear that the last-mentioned process is now in operation. The following quotation refers to this: "It seems that in many cases the replacement of one fiber by another is largely influenced by technological considerations."[2)]

FUTURE EXPANSION

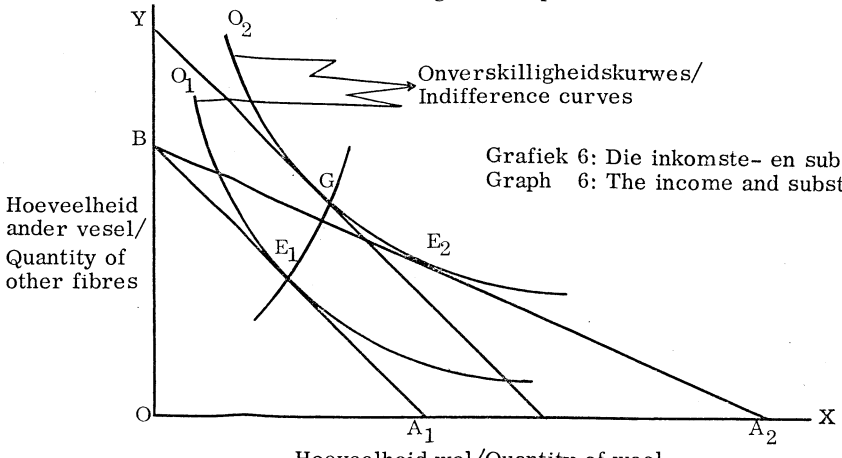
In pursuance of the discussion thus far, the future expectations of the wool industry can now be considered.



Grafiek 4: Kruiselingse elastisiteit/
Graph 4: Crosswise elasticity



Grafiek 5: Tegnologiese verbeterings/
Graph 5: Technological improvements



Grafiek 6: Die inkomste- en substitusie effek/
Graph 6: The income and substitution effect

It will be observed that the per capita use of wool has risen appreciably; and although this did not hold good for 1948-50, it is expected to continue increasing.

TABLE 9[2] - World trend index in the use of wool with the index for 1911-1913 = 100

	Population	Wool used
1911-13	100	100
1935-37	120	127
1948-50	137	128
1957-59	162	172

TABLE 10[2] - Per capita use of wool, cotton, rayon and synthetic fibres, average for the years 1957-59

Countries and groups of countries	Kilogram/ capita/ annum
U.S.A.	15.5
Total North America	15.3
Total Oceania	9.8
Total Western Europe	8.8
Japan	7.9
South Africa	5.2
Total Central and Latin America	4.3
Total Africa and Middle East	2.2
Total Asia and Far East	2.0

When the per capita use of North America is considered, it is clear that the per capita use of fibres by the rest of the world can still increase considerably - and wool will probably have an important share in this increase.

Although South Africa's sheep have not increased particularly rapidly in numbers, the wool production per sheep has shown the most rapid rise. The numerical increases of both Australia and New Zealand exceed that of South Africa. The increasing interest of the Chinese-Russian block in wool production may also be inferred. The number of sheep in the U.S.A. started to decline at the beginning of the 1960's.

TABLE 11[2] - Percentage increase per annum in numbers of sheep and wool production for the decade 1950-60

Country	Percentage increase in number of sheep per annum	Percentage increase in wool production per annum
	%	%
Australia	3.6	4.8
New Zealand	4.1	4.3
South Africa	1.4	2.5
U.S.A.	0.3	1.1
Sino-Soviet	6.3	6.9

TABLE 12 [2] - Projection of wool production in 1970 with the index of the 1957/58-59/60 wool production = 100

Country	Index for 1970
Australia	132
New Zealand	131
U.S.A.	130
Africa and Middle East (excluding South Africa)	125
South Africa	124
Latin America	121
Total (Sino-Soviet excluded)	127

A rise of about 24 per cent in wool production is forecast for South Africa for the decade 1960-70. This, however, does not compare very favourably with certain other wool-producing countries. It is also expected that world production will increase by 27 per cent (Sino-Soviet excluded).

It is expected that this increase in wool production will easily be absorbed. The decline in wool prices since 1951, however, is expected to continue, but at a lower tempo.[2] This decline in wool prices will set both the income effect and the substitution effect in operation

(see Graph 6), which will enable wool to withstand its decline in relative importance.

If the price of wool declines, the consumer's equilibrium between wool and other fibres will move from E_1 to E_2.

This movement, however, will occur in two stages. To begin with, consumer income for spending will increase if the price of wool declines. It will then move to position G on a higher indifference curve (thus the income effect). As the wool has now become relatively cheaper, however, the slope of the budget line in favour of wool and the consumer moves from G to E_2 (thus the substitution effect). The net result is therefore a movement from E_1 to E_2; that is, an increase in the amount of wool consumed.

The decline of wool prices, however, is often preceded by a decline in that of synthetic fibre products. In other instances the synthetic fibre prices follow a decline in wool prices almost immediately. This substitution effect is consequently at a minimum in favour of wool.

SUMMARY

1. Wool is an international product with no demand in the raw, unprocessed stage. It therefore has only a derived demand curve at the producer end of the distribution chain.
2. Wool products may be classified into three main consumption groups, namely clothing, household and industrial. Of these, clothing is by far the most important.
3. Wool is a normal product and responds positively to a rise in income; in fact, a rise in income is the one factor which has contributed most to the higher per capita use of wool.
4. Future expectations should not upset the use of wool to any great extent.
5. The price elasticity of the demand for wool is relatively high, and substitution can thus occur easily.
6. Synthetic fibres have become a better substitute for wool, and substitution in favour of synthetic fibres is occurring. This is increased by changing tastes and habits, to make way for synthetic fibres and the breaking-down of the tradition of buying only wool products. The substitution is being combated, however, by constant reductions in the price of wool, as a result of which the income and substitution effect is seen.
7. As a result of technological developments the factor/factor expansion is also swinging in a favourable direction for synthetic fibres.
8. Population increase in the world continues to act as a stimulus on the demand for wool, while population composition also exerts and important influence.
9. The world production of wool will probably increase by 27 per cent during the decade 1960-70. In South Africa it will be due to a higher yield per sheep.
10. The rising wool production will be easily absorbed by increased use, but the trend of declining wool prices will probably continue - although at a slower tempo.
11. Due to the rapid growth rate of the world population and the increasing use per capita, the total consumption of fibres will increase appreciably. This can place a floor in the drop of wool prices and the relative scarceness of wool at this stage may then, on the very long run, lead to an increase in prices.

REFERENCES

1. GREGORY, J.J., Prys en Inkomstebeleid in die Landbou met spesiale verwysing na Suid-Afrika.
2. Food and Agriculture Organization of the United Nations: Agricultural Commodities projections for 1970.
3. Food and Agriculture Organization of the United Nations: Synthetics and their effects on agricultural trade - Rome, 1964.
4. SCHUMANN, C.G.W., FRANZEN, D.G. & DE KOCK, GERHARD, Ekonomie, 'n Inleidende Studie.
5. SMITH, ADAM, Wealth of Nations.
6. KINDLEBERGER, CHARLES, P., Economic Development.