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## AJANKOHTAISTA MAATALOUSEKONOMIAA

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AJANKOHTAISTA MAATALOUSEKONOMIAA  
Current Topics in Agricultural Economics

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ON THE SOURCES AND THE CHARACTER OF THE FOOD CRISIS  
IN POLAND

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cultural Economics Research  
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## ON THE SOURCES AND THE CHARACTER OF THE FOOD CRISIS IN POLAND

### 1. Background

For ten months Poland has been in a stage of an acute crisis, both political and economic. In the political sphere it is first of all a crisis of credibility which has its source in the fact that the political structures have not adjusted to the rapidly changing society and the state of its consciousness. The economic crisis on its part has its source in the collapse of the fundamental economic proportions, excessive forcing of the investment programme and numerous mistakes resulting most frequently from voluntary economic decisions. One should stress here that an economy which has no market mechanisms of control is by its very nature subject to faults of subjectivism. These unit decisions, if they are correct, may be a very strong factor stimulating development. However if they are wrong they may exert a strong influence on the economy. In the 1970's many such mistakes were made in Poland, especially in the field of investment and foreign trade

Most acute in its effects is the food crisis. How acute it is, is witnessed by the fact that the government was forced to introduce a system of meat and meat products rationing for some time, as well as rationing of sugar, butter and recently of some grain products. Thus dramatic questions are raised on the reasons for this state of things, and, first of all, the way out of this crisis. Intensive work is done in this field and much has been done to stimulate agricultural production, i.e. prices paid by the government to farmers for agricultural products were raised by approximately 40 %, price of production inputs for agriculture were frozen, new economic and financial systems were introduced, legal regulations limiting agricultural development were lifted: all pertaining to the peasant economy. Effects of these decisions will take some time to appear.

The food crisis in Poland has been accumulating for some time. It is of a structural character and its sources are to be found rather in the national economy as a whole than in agriculture itself. The crisis then, has numerous objective conditions which I would like to discuss in a moment. I would, however, like to stress that both the scale and the scope of the crisis would be much smaller if it was not for the crop disaster in 1980. A late and cold spring, followed by extensive rains and the floods on a scale unknown in the modern history of our country have resulted in a drop of 10 per cent in agricultural production compared with 1979, and the results of that year were not good either. It is sufficient to say that the 1980 potato crop was only half of the usual, and the sugar beet crop was 1/3 lower. As result of this, the fodder stocks have dropped drastically, which resulted in a rapid drop of the animal numbers, despite the increased imports of grains and feedstuffs. This resulted in deterioration of the supply of the food market. Regardless then of the structural causes accumulating for many years, the dramatic deterioration of the food supply situation was completed by the crop disaster of 1980.

No one in Poland believes that this was the only or the most important reason. The important reasons of the difficulties in achieving equilibrium of the food market are deep inside the structures of the Polish economy, and I would like to devote some attention to this subject. It seems to me that from the scientific point of view the explanation of these conditions of the crisis is most important and most interesting.

In Poland there are two reasons for growth of food shortages

- 1) the mechanism of demographical changes of the society,
- 2) the supply and demand mechanism on the market of food products.

I will discuss them shortly.

## 2. Reasons of demographical changes of the society

One should begin by pointing out that during the past 36 years the population of Poland has grown by 11 million, this is twice the population of Finland. The average annual rate of growth of the population is 1.1 %. At the same time we have experienced general changes of the social and professional structure of the population. Approximately 6 million people have migrated from the countryside to the cities during this period. The cities have absorbed practically the whole growth of the rural population. The rapid industrialization of the country resulted in demographical changes of character and scope yet unknown in our history, and the influence of this on the appearance of food barriers are grater than in usually believed.

The demographic factor is not yet fully appreciated in the theory of economic development and in economic policy. Arising from the character of growth processes there are two relations which are of fundamental importance for maintaining equilibrium of the food products market:

- 2 - the volume of agricultural production must grow more rapidly than the birth rate
- the agricultural production aimed at the market must grow more rapidly than the migration from the countryside to the cities. Therefore a more than proportional stream of food products, must flow to the cities because of migration as the level and composition of food consumption by the migrants is different from that of the rural population. To maintain these relations in practice is very difficult.

### 3. Supply and demand mechanism

#### 3.1. General reasons for the food crisis

During the whole period of accelerated development, agriculture is under strong market pressure, i.e. from food requirements. Industrialization and general civilization progress results in a growth of the population incomes, which is followed by a more than proportional growth of the demand for food products of superior types, especially the growth of consumption of very expensive animal protein. The consumption of animal protein per capita has increased by 30 % in Poland during the last 26 years and the consumption of meat by 28 kilograms since 1960. In the sense of the social costs of production this period of development is characterized by a change from cheap vegetarian diet to a relatively expensive diet based on consumption of animal protein. As it is known the transformation of plant products into animal products is accompanied by considerable losses of energy and plant protein, which raises the social costs of production. In this situation the growth of plant production must exceed that of animal production.

The former, however, encounters very strong biological barriers which causes a permanent disequilibrium on the food product market. It has been calculated that in order to fully cover the food requirements of the society and to secure the necessary growth of consumption per capita with the rapid demographic growth, the volume of agricultural production should increase at a rate of 2.5 to 3.0 % per year on the average. In order to achieve this crop production with a constant growth of the share of animal products, yields of grains and other fodder crops should grow at a rate of 4 to 5 % per year on average. Meanwhile, with the present level of production technologies, crop production may realistically increase at a rate of 1.8 to 2.0 % per year, with considerable fluctuations from year to year which additionally complicates and makes difficult the maintaining of the production equilibrium. The difference between the required and factual production of grains and feedstuffs in Poland was covered by imports.

As a result of the rapid growth of pressure on the food market and within it, especially on meat, the imports of grains and feedstuffs have reached the level of 1/3 of the total use of concentrate feedstuffs and have exceeded the foreign payments possibilities of the country. In this way the rapid industrialization and urbanization of the country have forced a growth of the demand for food, exceeding the factual possibilities of domestic agriculture. It is a matter of not only the absolute level of consumption but its structure as well. In fact, the food barrier has appeared in the consumption structure which has seemed to be irrational from the point of view of nutrition sciences; very expensive and not adapted to the possibilities of domestic agriculture.

From the analysis of growth processes we see that fundamental proportions of economic development have been infringed upon in Poland. Thus the question is whether this is a consequence of mistakes made in planning and in the economic policy or whether there are some objective conditions? It will certainly be difficult to give an univocal answer to this question. Much points to the conclusion that serious mistakes have been made which now must be corrected; but the character of these disproportions points to the existence of objective conditions linked to the rate of economic growth and the character of industrialization, these being regularities of this stage of Poland's present development.

### 3.2. The rate of economic growth

The first proposition in this subject is as follows: the appearance and the dimensions of the food barrier are derivatives of the rate of economic growth. This high rate especially in the situation of a lack of suitable reserves must result inevitably in the food shortage. The sequence of interdependencies here is rather simple. The rapid rate of growth causes exhaustion of reserves, as perturbations in the proportions become real, which ensues a lowering of the productivity of the whole production potential. In this situation even small fluctuations of agricultural production are sharply felt on the market. At the same time the

rapid economic growth causes an increase in non-agricultural employment and a rise of the population's incomes, which increases the demand pressure on agriculture and the food market. Thus a question arises whether it is possible to maintain a high rate of growth in the long run with balanced structures. Theoretically this is possible but in practice very difficult. From this we draw the conclusion that to avoid sharp food problems it is desirable to have a strategy of moderate economic growth which avoids disproportions. This achieves better results in the long run than strategies of accelerated growth, which permanently breed strains and conflicts lowering the rate of growth.

### 3.3. Industrialization

The second proposition is that the emergence of the food barrier depends on the character of industrialization and the structures of economic growth. An economically poorly developed country like Poland right after World War II, faces gigantic tasks in the field of industrialization. Problems of agriculture are quite naturally considered second in importance. It is, however, a matter of strategy when to choose the moment to re-orient the economy and change the GNP. In the first phase industrial development is aimed at creating the foundations of a modern economy. In the second phase, industrialization must be more and more oriented at covering the needs of agriculture and other final demand requirements. In the first stage the industrialization of the country happens to a considerable degree at the expense of agriculture, then in the second stage it must have a clearly pro-agricultural orientation. If not, then agriculture will not be capable of modernizing itself and increasing production to the level required by the urbanization processes and the general growth of the standard of living aspirations of the population. Of basic importance then is the pro-agricultural orientation of the national economy executed at the right time. This took place in Poland too late. We estimated that the far-reaching structural changes ought to have been done in the middle of the 1960's. In fact they began at the late 1970's and beginning of the 1980's. This delay, beside other factors, caused a lower rate of growth of agricultural production, which led

the country to an acute food crisis. It is then of a structural character, and its original causes lie in the fact that the production potential and the composition of industrial production, and the services linked with it, are not adapted to the requirements of the food economy and agriculture. The most serious difficulties in overcoming the food problem lie presently in the faulty structure of the production potential, especially in industry. It is not adapted to the needs of agriculture.

#### 3.4. Finances

The third proposition is that the food barrier depends on the intra-branch transfer of inputs and capital and the ways of financing the development of the food economy. As we have remarked before in the first phase we have a flow of capital from agriculture to non-agricultural sectors, agriculture thus finances partially the development of industry. In the second phase agricultural development should be supported by the whole national economy. It is important that this change of economic policy be executed at the optimum moment. But at the same time financing of economic development is important. Especially socialist economy there is a strong pressure on the social policy in the direction of supporting the growth of consumption. Thus, usually a policy of low retail prices for food is conducted, which is a form of financing consumption. To stimulate the required growth of agricultural production purchase prices of agricultural products must be raised. We arrive at a situation in which these purchase prices are higher than the retail prices of the final products, which makes steering of agricultural production difficult. This way consumption instead of agricultural production is supported. The change from the policy of financing consumption to the policy of financing production is the fundamental condition to prevent emergence of the food barrier. The artificial difference between the farm prices and the consumer prices destroys market equilibrium, increases the pressure on the food market and forces a growth of agricultural production, which, within the existing possibilities, is very difficult and especially very costly. The social costs of feeding the nation have a tendency to grow in this situation. The food

barrier may be passed by through a rational price policy and the change from financing consumption to financing food production. This process is currently beginning in Poland.

#### 4. Summary

An analysis of Polish agriculture shows that the fact the origins for its poor development and emergence of a sharp food barrier are outside agriculture. They are a consequence of the chosen strategy of development of the whole economy which depreciated agriculture and its needs. The developing industry and rapid urbanization of the country increased the demand for agricultural products, while, on the other hand, agriculture was supplied with insufficient inputs from outside and become less and less productive. The national economy of Poland was not re-oriented at the right time to the needs of agriculture. The first phase of industrialization was implemented to a large degree at the expense of agriculture. This was normal since in those conditions the country had no other sources of financing industry. After the creation of industrial foundations of development the economy should have been re-oriented to the needs of agriculture and to the problems of feeding the nation. In fact, the second phase of industrialization forced the needs of agriculture into the background. In this situation the food crisis was inevitable. There was only the question of its scale. The crisis has many-sided negative effects. The drop in food consumption decreases the growth of labor productivity and in this way agriculture becomes a barrier of general development. The present phase of development in Poland requires unconditionally very far-reaching change of economic structures and orientation to the needs of agriculture and the food economy.

STRUCTURAL CHANGE IN FINNISH AGRICULTURE

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## STRUCTURAL CHANGE IN FINNISH AGRICULTURE

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Abstract. Rapid and extensive economic and social changes have occurred in Finland. Economic growth has been fast and the agricultural population has fallen sharply due to the migration to urban areas or Sweden. The proportion of the population engaged in agriculture has fallen from 40 per cent in 1960 to 10-11 per cent in 1980.

The number of farms has fallen from about 388,000 in 1959 to 233,000 in 1978. These were mostly small dairy farms. A typical feature of the structural change is increased specialisation, i.e. farmers produce only one or two products.

What is the future of Finnish agriculture? An attempt is being made to solve this problem using a large simulation model for agriculture as a whole. The model includes a sub-model for structural changes. The structure is depicted by the number, size and distribution of all the farms throughout country and by the lines of production (milk, pork, eggs and non-animal farms). The distribution of farms into different size classes is forecasted with a log-normal distribution.

The structural change is expected to continue. The agricultural labour force is still diminishing and the number of farms is likely to fall by 30-40 per cent in the next 20 years. This applies particularly to the number of dairy farms, which will decrease from the present 90,000 to 30,000 - 40,000 in the year 2000. The average size will rise from 8 to 13-16 cows per farm. A similar trend can be seen in pork and egg production. The number of non-animal farms will rise at first but will later decrease.

The official policy is to try to stop the decline in the agricultural population and the number of farms. However, whether this can be achieved is questionable. Production cannot be increased from the present level. New non-farming jobs should be created in the countryside, but it seems that even this will be difficult because of the mechanisation and centralisation of the economy. The ideology "small is beautiful" would be a solution to the problem, but how can it be brought about?

1. Description

1.1. Finnish agriculture in general

Finnish agriculture is based on family farms. The majority of arable land is privately owned and only a small fraction belongs to the state, municipalities, companies, the Church, etc. Farms are generally small, the average size being about 12 hectares per farm (disregarding farms under 2 ha). Agriculture is practised throughout the whole country, including northernmost Lapland. However, climate is a limiting factor on production. Wheat and rye can be grown only in the southern parts of the country, and hay production is the only realistic alternative in northern Finland. This also determines the structure of production. Grain, pork and eggs are the dominant products in southern Finland whereas in northern Finland milk is really the only feasible product. The average hay yield in northern Finland is nearly the same as that in southern Finland and therefore the profitability of milk production is also satisfactory in northern Finland.

Table 1. The area and yields of some products in the country as a whole and in the province of Oulu (the second most northerly province in Finland).

	Area cultivated in Finland 1000 ha	Yield	
		The whole of Finland 100 kg/ha	Oulu province 100 kg/ha
Wheat	96.9	27.6	21.7
Rye	53.3	23.2	18.8
Barley	533.4	28.8	27.3
Oats	447.8	28.1	26.9
Hay	477.8	38.3	37.0
Potatoes	40.9	180.0	204.4
Sugar beet	31.7	268.3	271.7

The soil is better suited to cultivation in southern Finland. The fields are often stony in the central parts of Finland and thus makes cultivation difficult. In southern and western Finland there are large, continuous agricultural areas where it is possible to form bigger farms, but in central and northern Finland, farms are small and scattered.

A typical feature of Finnish agriculture is that farms also incorporate forested areas. The average forest area per farm is about 35 hectares and this value increases towards northern Finland. Forestry is an important source of extra income for farmers.

## 1.2. Population

There are about 4.8 million people in Finland. The growth of the population is slow, about 0.2 per cent per year, and in some years the population growth rate has been zero due to emigration. According to the forecasts, there will be no further growth after the 1990s.

The proportion of the agricultural population in the total population is about 10 per cent. It has fallen rapidly in recent years. In 1960 it was 36 per cent and in 1970 about 20 per cent. The Finnish population is concentrated in the southern parts of the country, where the proportion of the agricultural population is only 3 per cent in some regions. In northern Finland, however, it sometimes approaches 50 per cent. Industrialisation is the explanation for this uneven distribution of the agricultural population.

### 1.3. Agricultural structure

Milk is the main agricultural product in Finland. Its proportion in the total value of agricultural production is about 45 per cent. Beef production is closely connected to milk production, and provides a further 15 per cent. In addition to these, pork production is equally as important as beef, and egg production forms about 5 per cent. In total, animal production makes up about 80 per cent of total production, the remainder being plant production. These figures do not include the breeding of fur animals and reindeer. Fur animal breeding has become a particularly important export with a value of 800-900 million marks.

At the moment there are about 700,000 dairy cows in Finland and milk is produced on 90,000 farms. The average size of dairy herds is thus only 8 cows. However, change has been rapid: only 10 years ago the number of milk suppliers was double that of today. Each year about 10,000 farms stop producing milk, but this is concurrent with an increase the number of large milk farms.

Table 2. Agriculture in 1980 (preliminary).

	Production mill. kg	Production price p/kg	Gross return mill. mk
Wheat	219.8	130.5	286.8
Rye	95.1	150.1	142.8
Barley	604.0	93.4	564.1
Oats	347.4	85.2	296.0
Others			721.0
Plant production			2010.7
Milk	3130.8	182.1	5700.9
Beef	112.1	1768.0	1981.9
Pork	170.1	1013.0	1723.1
Eggs	80.0	713.0	570.4
Others			156.4
Animal production			10132.7
Subsidies and others			881.1
Gross return			13024.5

Milk production exceeds consumption by about 25-30 per cent, which is considered too high. Many different measures have been introduced to reduce milk production. A slaughtering scheme, marketing fees and restrictions on the establishment of new, large production units are the most notable political measures. Since the average yield per cow (now about 4,500 litres) is increasing and production must not be allowed to increase, the number of dairy cows should be reduced. This also implies a corresponding decrease in the number of dairy farms.

Nowadays pork and eggs are produced on highly rationalised farms, which are quite highly profitable. However, the establishment of new, large production units is regulated because of overproduction of both pork and eggs.

Rapid specialisation is characteristic of agriculture. Nowadays farmers produce only one or two products, instead of the diverse production of the past. Milk, pork or eggs are produced on animal farms and wheat, rye and feed grains on crop farms. On some farms, sugar beet or oil seeds are the main crops. Vegetables and berries are also a line of specialisation. For example, strawberry production is concentrated in certain areas in central Finland.

Table 3. Numbers of animals in 1959, 1969 and 1980 (000 pieces).

	1959	1969	1980
Dairy cows	1121.2	969.2	719.5
Cows, total	1949.2	1981.3	1738.1
Horses	253.8	101.3	33.4
Sheep	209.4	75.8	105.9
Pigs	524.4	796.9	1410.2
Hens	3342.1	3876.0	6040.7

The proportion of agriculture in the gross national product has fallen to about 4 per cent. Thus agriculture has a minor role in the total economy and this trend will continue for some time, since production cannot be increased due to the low demand for agricultural commodities. Moreover, as the economy grows the proportion of agriculture will inevitably fall further.

## 2. Problems caused by structural change

The Finnish economy and society have gone through a period of enormous change during the last twenty years. The proportion of the agricultural population has fallen from 36 % to 10 %. A rapid large-scale movement of population from the countryside to towns and cities as well as abroad, particularly to Sweden, occurred during the 1970s. The population growth rate has become zero and has even become negative in many rural areas. The problems caused by this development can be easily understood and the situation is comparable to that in many other countries. Rural areas are being depopulated, and this is causing a general recession in the economy. When a population is decreasing, fewer services are needed and thus adds to emigration from the countryside. At the same time, business people lose confidence in these stagnating areas. As the population base becomes narrower, the establishment of larger farms is no longer possible because there is insufficient labour remaining in the area.

Social services suffer from this depopulation. Opportunities for education decrease, or it becomes more difficult to provide basic schooling since there are not enough children to fill even small schools. Shopping services also decrease and this raises farmers' costs since agricultural inputs have to be brought from distant places. The supply of cultural services decreases. For example, cinemas disappeared from many rural areas in the 1960s and 1970s although some have returned in recent years. The activity of and cooperation between people was weakened badly during this rapid transition period.

With economic stagnation, opportunities to earn extra money decreased, too. As the farms are small they cannot provide sufficient income for the farmers. Earlier, farmers made extra income from forestry, but mechanisation of lumbering has reduced this. Forestry companies hire full-time labour forces nowadays and so farmers have less opportunity to do logging work, and, since general economic stagnation has also affected other companies, the chance to make any extra money has decreased further. This means that a farmer has to make his living from only his own farm, and that fewer people can be given work on a farm. This further promotes emigration from the countryside.

### 3. Prospects

#### 3.1. MASSU model

How, then, will agriculture and particularly the agricultural structure develop? The food and agriculture model (MASSU model) under construction at the Agricultural Economics Research Institute is an attempt to answer this question. The purpose of this model is to depict the relationship between various sectors of agriculture and to forecast agricultural development up to the year 2000. The model is constructed in such a way that its basic values and estimates of parameters can be changed easily; i.e. it is also applicable to scenario analysis. It studies different facts of development by showing how agriculture develops if different policies are pursued (KETTUNEN 1980, HASSINEN & KETTUNEN 1980, KETTUNEN & al. 1981).

The model is so large that it is not possible to describe it fully here. It includes sub-models for population, production, consumption, plant production and structural change. The model is recursive in nature, and this facilitates construction of the model and simplifies programming.

The model is a part of an international research project by the International Institute for Applied System Analysis (IIASA), (RABAR 1979). This cooperation provides us with information about the building of such a model. In addition, we hope to be able to obtain forecasts of the development of world market prices from IIASA. This is of particular importance to Finland because, due to the combination of surplus production and low world market prices, it has become necessary to curb production, this being a particularly difficult agricultural and economic problem in Finland.

In this connection we pay special attention to the structural sub-model. The structural model is connected to the whole model by population and production. The growth of population is rather limited, no great changes can be expected in it, but there is more scope for varying production. Thus, by applying the MASSU model we can study the effect of different production targets on the structure of agriculture and on the income of farmers. In the following, the agricultural structure sub-model is studied in detail (HASSINEN 1980, HASSINEN & KETTUNEN 1980).

### 3.2. The general structure of agriculture

The general structure of agriculture is depicted by the agricultural population, the number of farms and their distribution into different size classes. The size of the agricultural population is the most important factor in this sub-model. In order to calculate it, the development of the total population (POP) is forecasted as follows:

$$(1) \quad POP_t = (1 + k_1)^t POP_0.$$

This relationship is, of course, very simple and clearly does not fully follow the growth of the Finnish population. The other alternative would be to apply the forecasts made by the Central Statistical Office, but since the alternatives given by the Central Statistical Office vary greatly we have decided to apply equation (1). The error in the forecast is clearly rather small.

The labour force can be derived from the total population by assuming that the proportion of the population at working age remains constant. This is supported by the forecasts made by the Central Statistical Office. The total labour force (PW) is obtained as follows:

$$(2) \quad PW_t = k_2 \text{POP}_t.$$

The agricultural labour force is generally derived from the agricultural population and is determined by the internal development in agriculture. Internal demographic factors (DEM) therefore regulate the future evolution of agricultural labour force (AW):

$$(3) \quad AW_t = f(\text{DEM}, \text{GNP}).$$

Equation (3) also includes gross national product (GNP). During good times, the labour force migrates from agriculture to other sectors. On the other hand, some return to agriculture can be seen during bad times. This effect is rather small but it has to be taken into account in the model. When the agricultural population has fallen to a low figure, a high proportion of the agricultural labour force must obviously come from other sectors.

The active labour force in other sectors (NAW) can be calculated as follows:

$$(4) \quad \text{NAW}_t = \text{PW}_t - \text{AW}_t.$$

The number of farms (FARMS) is tied to the active labour force:

$$(5) \quad \text{FARMS}_t = k_3 \cdot \text{AW}_t.$$

The coefficient  $k_3$  is calculated from past trends and is assumed to be constant.

The average size of farms (ASF) is obtained by dividing the total arable land (TAREA), which comes from the main model, by the number of farms:

$$(6) \quad ASF_t = TAREA_t / FARMS_t.$$

### 3.3. Structure of model by production lines

It is difficult to depict the agricultural development in each production line. Most farms produce several products. Diversity of production, e.g. grain, milk, meat, eggs, etc., used to be a characteristic feature of Finnish farms. The farm register includes information on the basis of which the farms can be classified according to the production line. A farm is a dairy farm if it has one milk cow or a pork farm if it has one pig, etc. This means that a farm can belong to two or more production lines. The farms are classified into milk, pork, egg and non-animal farms. By the last class we mean farms producing only plant products. It must be emphasized that the total number of farms belonging to different production lines can be greater than the total number of farms. This system enables us to analyse agriculture by production lines. The structure of milk production is explained briefly in the following.

Milk production is obtained from the main model. The starting point is the forecast for milk consumption. By setting a self-sufficiency target for milk, the production is obtained by multiplying the consumption by the self-sufficiency target. In order to calculate the number of dairy cows, the average yield per cow (AY) is needed first:

$$(7) \quad AY_t = AY_1 + (t-1)dAY.$$

This average yield is a scenario variable, of which the growth rate dAY can be varied if needed.

The number of dairy cows (NC) is obtained by dividing production ( $Q_m$ ) by the average yield (ACN) which grows linearly:

$$(8) \quad ACN_t = ACN_0 + (t-1)dACN.$$

This method may cause some error but no other solution has been found so far. The number of dairy farms (MF) can then be obtained by dividing the number of cows by the average herd size:

$$(10) \quad MF_t = \frac{NC_t}{ACN_t} .$$

It is assumed that there is some correlation between the herd size and the total number of cows, but this problem has not been studied.

The structural model for egg production is analogous to that of the milk production model. Again, the average yield and size of poultry farms has to be estimated according to linear trends. The structural model for pork production is slightly different, but in principle it closely follows the model described above (HASSINEN & KETTUNEN 1980).

The distribution of farms into different size classes resembles the logarithmic normal distributions (HASSINEN & KETTUNEN 1980) which have been used to forecast future distribution.

The same method cannot be used for the non-animal production structure as applied above, since the production on these farms cannot be forecast in the same way as in the models above. A hyperbolic function has therefore been applied to describe the development of the number of these farms:

$$(11) \quad NAF_t = 0.8 \text{ FARMS}_t - \frac{a}{t+b}$$

where NAF = number of non-animal farms

a, b = constants

t = trend variable

The model assumes that non-animal farms account for a maximum of 80 % of all farms. This is a kind of scenario variable but in the light of forecasts it does not seem very realistic. It is clear that in this respect the model is very approximate but it serves its purpose.

### 3.4. Scenarios

The structural development depends to a large extent on the development of consumption. Forecasts indicate that milk consumption is decreasing slightly in Finland at a rate of about one per cent per year, whereas pork consumption is increasing fairly rapidly. Egg consumption is predicted to increase slightly but beef consumption is likely to stay at the present level (see Appendix 1).

A great change is going to occur in the structure of milk production. Whereas the number of milk suppliers is about 90,000 at the moment, it is going to be 50,000 in 1990 and about 35,000 in 2000. This development is a result of an increase in annual yields to 5500 kg per cow and of a decrease in the number of dairy cows to under 500,000. As the herd size will grow continuously to about 15 cows per farm, there will be a need for only 35,000 milk farms in Finland in 2000. By changing the production target, the number of cattle farms can be affected to some extent.

The same kind of development is expected in pork production. Production can, however, grow by 50 per cent from the present level, but when the size of piggeries reaches three times the present size, the number of pork farms will fall to half of the present figure. There will thus be less than 10,000 farms specializing in pork production in Finland in 2000.

The same development is also expected in egg production. Production cannot increase since the degree of self-sufficiency has been high, at about 150-160 per cent. This figure is too high and attempts have been made to reduce it. As the size of poultry farms increases their numbers will fall to about one-third of the present level.

The result of all this is that the number of non-animal farms will first increase but this trend will be reversed during the 1980s. This is due to the rather rapid decrease in the number of all farms.

### 3.5. Some conclusions

The change in the agricultural structure is beneficial to incomes development. As the agricultural population decreases extensively, the chances for remaining farmers to increase production and income are improved. However, the increasing integration of agriculture with the economy as a whole implies that farmers will use more purchased inputs such as machines, fertilizers, pesticides and services. Incomes development will therefore not be as rapid as the structural change might otherwise imply.

The target of agricultural policy is to keep the agricultural population at the present level in order to retain the rural population. This is a difficult task in the light of the forecasts presented above. The internal development of agriculture seems to imply that a decrease in the agricultural population is inevitable. This supposition is sustained by action taken to support incomes development. If the target is to secure a reasonable income for farmers, the average size of farms must be increased by amalgamation. Another way of increasing income would be to raise production, but this is not possible. The elasticity of demand for agricultural products is very low, i.e. the demand does not increase with rising income. With this restriction the only way to increase income is to combine farms. The acquisition of extra earnings from outside sources also causes problems. Economic development is slow in the underdeveloped areas and few new industrial jobs are created there. Therefore the opportunity for extra earnings improves very slowly and, since the population decreases simultaneously, the demand for service labour declines, thus causing a further decline in economic activity.

Forestry no longer provides very much work. Earlier, farmers were able to work in this sector, but nowadays lumber companies utilise permanent labour and thus this source of extra income is now almost closed to farmers. The forest area owned by farmers is also decreasing, and, with it, any chance for extra income from that direction.

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Appendix 1. Tables from HASSINEN and KETTUNEN 1980.

Table 1. Agricultural population, number of farms, average farm size and total acreage in the period 1975-1990.

	Total acreage (1000 ha)	Number of farms (1000)	Average farm size (ha)	Agricultural population (1000)	Agricultural population %
1975 .....	2 641.0	273.0	9.7	671.6	14.3
1978 .....	2 617.3	243.1	10.8	597.9	12.6
1981 .....	2 593.8	215.5	12.0	530.0	11.1
1984 .....	2 570.5	190.3	13.5	468.2	9.8
1987 .....	2 547.5	167.8	15.2	412.8	8.6
1990 .....	2 524.6	147.9	17.1	363.8	7.5

Table 2. Actual and percentage farm size distribution in the period 1975-1990 (1000).

	ha/farm							Total
	1-4.9	5-9.9	10-19.9	20-29.9	30-49.9	50-99.9	100-	
1975 .....	96.1	88.3	61.7	16.6	8.0	2.1	0.2	273.0
	35.2	32.3	22.6	6.1	2.9	0.8	0.1	100.0 %
1978 .....	74.3	78.3	60.7	17.8	9.2	2.6	0.2	243.1
	30.5	32.2	25.0	7.3	3.8	1.1	0.1	100.0 %
1981 .....	56.1	68.0	58.6	18.8	10.4	3.3	0.3	215.5
	26.1	31.6	27.2	8.7	4.8	1.5	0.1	100.0 %
1984 .....	41.3	57.9	55.5	19.6	11.6	4.0	0.4	190.3
	21.7	30.4	29.2	10.3	6.1	2.1	0.2	100.0 %
1987 .....	29.9	48.1	51.6	20.0	12.8	4.8	0.6	167.8
	17.8	28.7	30.7	11.9	7.6	2.9	0.4	100.0 %
1990 .....	21.3	39.3	47.0	20.0	13.8	5.7	0.8	147.9
	14.4	26.6	31.8	13.5	9.3	3.9	0.5	100.0 %

Table 3. The structural change of dairy sector in the period 1975-1990.

	The consumption of milk products		Milk production, mill. kg self-sufficiency target			Average yield	Herd size
	kg/cap	mill. kg	110 %	120 %	130 %	kg/cow	cows/farm
1975 .....	552	2 600	3 172	3 172	3 172	4 149	6.1
1978 .....	536	2 540	3 038	3 089	3 140	4 385	7.0
1981 .....	522	2 487	2 914	3 014	3 113	4 621	8.0
1984 .....	509	2 439	2 800	2 947	3 093	4 856	8.9
1987 .....	497	2 399	2 696	2 888	3 080	5 092	9.9
1990 .....	487	2 364	2 601	2 837	3 074	5 328	10.9
	Number of cows (1000) self-sufficiency target			Dairy farms (1000) self-sufficiency target			
	110 %	120 %	130 %	110 %	120 %	130 %	
1975 .....	764.5	764.5	764.5	126.4	126.4	126.4	
1978 .....	692.8	704.4	716.0	98.8	100.5	102.1	
1981 .....	630.7	652.2	673.8	89.1	81.8	84.5	
1984 .....	576.6	606.8	636.9	64.6	67.9	71.3	
1987 .....	529.4	567.1	604.8	53.5	57.3	61.2	
1990 .....	488.1	532.5	576.9	45.0	49.1	53.2	

Appendix 1 (continued)

Table 4. The structural change of pork production in the period 1975-1990.

	The consumption of pork		Pork production, mill. kg self-sufficiency target			Average piggery size
	kg/cap	mill. kg	100 %	110 %	120 %	
1975 .....	26.3	124.0	124.0	124.0	124.0	54
1978 .....	28.3	134.0	134.0	136.7	139.4	73
1981 .....	30.4	144.8	144.8	150.6	156.4	91
1984 .....	32.6	156.6	156.6	165.9	175.3	110
1987 .....	35.1	169.2	169.2	182.7	196.3	129
1990 .....	37.7	182.9	182.9	201.2	219.5	147

	Number of pigs (1000) self-sufficiency target			Pig farms (1000) self-sufficiency target		
	100 %	110 %	120 %	100 %	110 %	120 %
1975 .....	1015.5	1015.5	1015.5	18.8	18.8	18.8
1978 .....	1081.5	1103.1	1124.8	14.9	15.2	15.5
1981 .....	1151.5	1197.6	1243.6	12.6	13.1	13.6
1984 .....	1225.8	1299.3	1372.9	11.2	11.8	12.5
1987 .....	1304.6	1408.9	1513.3	10.2	11.0	11.8
1990 .....	1388.0	1526.8	1665.6	9.4	10.4	11.3

Table 5. The structural change of egg production in the period 1975-1990.

	The consumption of eggs		Egg production, mill. kg self-sufficiency target			Average yield kg	Average farm size hens/farm
	kg/cap	mill. kg	100 %	110 %	120 %		
1975 .....	10.9	51.4	79.6	79.6	79.6	12.9	146
1978 .....	11.1	52.5	75.6	76.7	77.7	13.4	197
1981 .....	11.3	53.7	71.4	73.6	75.7	13.8	248
1984 .....	11.4	54.9	67.0	70.3	73.6	14.2	299
1987 .....	11.6	56.1	62.3	66.8	71.3	14.7	349
1990 .....	11.8	57.4	57.4	63.2	58.9	15.1	400

	Number of hens (1000) self-sufficiency target			Number of poultry farms (1000) self-sufficiency target		
	100 %	110 %	120 %	100 %	110 %	120 %
1975 .....	6 160	6 160	6 160	42.2	42.2	42.2
1978 .....	5 659	5 738	5 816	28.7	29.1	29.5
1981 .....	5 174	5 330	5 485	20.9	21.5	22.1
1984 .....	4 703	4 934	5 166	15.8	16.5	17.3
1987 .....	4 244	4 550	4 856	12.1	13.0	13.9
1990 .....	3 796	4 175	4 555	9.5	10.4	11.4

Table 6. Non-animal farms in the period 1975-1990.

	Number of farms	Per cent of all farms	Acreage (1000 ha)	Average farm size
1975 .....	109.4	40	828.4	7.6
1978 .....	116.5	48	934.2	8.0
1981 .....	111.7	52	945.9	8.5
1984 .....	102.6	54	915.2	8.9
1987 .....	92.2	55	863.9	9.4
1990 .....	81.9	55	804.0	9.8

Appendix 2.

Production of main commodities in the period 1960-1980, mill. kg.

	1960	1965	1970	1975	1980
Milk (mill. litres)	3384.0	3655.7	3213.7	3065.7	3173.6
Beef	71.6	94.8	106.1	112.6	113.7
Pork	54.0	68.7	105.5	127.0	168.9
Eggs	42.3	52.3	65.3	80.2	78.7
Wheat	368.0	501.4	409.3	621.5	356.7
Rye	186.1	189.7	131.4	80.7	123.6
Barley	440.1	501.6	933.4	1241.9	1533.6
Oats	1109.4	1020.1	1239.7	1450.1	1258.3

FINNISH AGRICULTURAL TRADE  
FROM THE DEVELOPING COUNTRIES IN THE 1970's

Clare de Carteret-Bisson and Lauri Kettunen

FINNISH AGRICULTURAL TRADE FROM THE DEVELOPING COUNTRIES  
IN THE 1970's

1. Introduction

The developing countries have for a long time attempted to improve their share of world trade, and this has been the subject of many international discussions.

Trade is very important for the developing countries since they require investment goods to build up their young industries; these have, of course, to be imported. Particularly important to the less developed countries (LDCs) are agricultural exports, which account for a large share of their export trade. It is the most natural source of foreign currency for countries with only infant industries and it is thus vital to them to encourage agricultural trade.

The developing countries are striving for better access to the export market, however, many trade barriers exist which hinder trade between them and industrialised countries. These include duties, import levies and non-tariff barriers.

Problems such as these have been the subject of several international fora, including GATT (General Agreement on Tariffs and Trade) negotiations; the two major talks, the Kennedy and Tokio Rounds, of the seventies are discussed in this article.

Finland has taken part in the GATT negotiations on trade liberalisation, and spoken out for freer trade for the developing countries. During the early 1970s Finland granted GSP (Generalised Scheme of Preference) treatment to certain products. This was renewed and extended in the Tokio Round Talks in 1978.

It is interesting to look at the development of trade in the 1970s making reference to the two GATT agreements of 1972 and 1978<sup>1)</sup>. Notable changes in Finnish imports of agricultural products are analysed here.

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1) An earlier study by ROUHIAINEN and KETTUNEN (1975) deals with the same subject. This study has, however, been updated to include data until 1980.

## 2. GATT Negotiations of the 1970s

Discussions under the auspices of GATT have been going on since 1948, with the general aims of reducing barriers to, and increasing the volume of, world trade. Quarterly meetings take place as well as more detailed and longer negotiations. During the seventies two Rounds of talks took place, as mentioned earlier. The first, called the Kennedy Round, began in 1967 and was concluded in 1972; the second, the Tokio Round, began in 1973 and was finalised in 1978. These two Rounds together went a long way towards liberating world trade.

Both Rounds reduced tariffs considerably and made an attempt also to remove some of the non-tariff barriers (NTBs - such as import licensing, subsidies, countervailing duties, technical barriers, etc.) imposed by countries.

It has been the trend that liberation of agricultural goods has fallen behind that of industrialised goods. This stems from the fact that many countries desire to be self-sufficient in agricultural production and therefore give farmers support which allows them to produce at above world market prices. In order to protect these higher domestic prices, measures at the frontier are applied.

GATT talks which have taken place in the 1970s have included over 99 countries, who together account for 9/10 of the world trade. These talks also mark the first time when LDC affairs have taken such a prominent part in GATT discussions.

The period 1967-72 was characterised by protectionist tendencies and GATT discussions were unable to erase these. Immediately after the Kennedy Round very serious attempts were made to improve the workings of world trade by the systematic removal of trade barriers. These discussions led to the Tokio Round Talks. In the early years of the Round countries were unwilling to commit themselves to tariff reductions. As the seventies progressed growth in world trade slowed down, making international co-operation even more difficult. (see GATT Discussions 1970-1980).

The difficult economic climate certainly had a dampening effect on the potential agreements during the decade, but progress was nevertheless made. The best example of this was the implementation in 1972 of the Generalised Scheme of Preference, which had been agreed upon in principle in 1968 by UNCTAD in New Delhi. Seventy-seven countries were originally included, but by 1980 this number had grown to 116. The countries granted GSP treatment are all developing countries (as defined by FAO) except for Bulgaria, Israel, Malta, Romania, Uruguay and Yugoslavia. Further GSP treatment was granted in 1975, during the Tokio Round. Substantial reductions in tariffs and NTBs were also achieved in the decade, as well as a permanent legal basis within GATT for preferential trade treatment was set up.

As well as talks on general tariff reduction, the seventies saw more specific talks on individual products e.g. textiles and dairy products. Talks on tropical products, especially, were important in the period.

A new problem arose in the middle seventies, known as the food crisis; for the first time for twenty years there was a problem of underproduction, this, combined with crop failures, meant that agricultural supplies were unable to keep pace with growing world demand. So earlier policies designed to counteract surplus production needed to be revised. This was discussed by GATT in its general quarterly meetings.

Another new trend for the seventies was the increasing use of reciprocal agreements between developed and developing countries, earlier agreements had not expected reciprocity. The Kennedy Round discussions had the specific aim to make agreements on a "basis of mutual advantage and mutual commitment, with overall reciprocity".

The 1973 Tokio Round began with the aim to "achieve the expansion and ever greater liberalisation of world-trade and improvement in the standard of living and welfare of the people of the world". Also, "to secure additional benefits for the international trade of developing countries so as to achieve a substantial increase in their foreign exchange earnings, the diversification of their exports, (and) the acceleration of the rate of growth of their trade".

The monetary crisis of 1973, and the deceleration of trade in 1974 and after, made GATT discussions difficult, since countries were trying to increase NTBs to protect their balance of trade figures. But, progress was made, and final agreement was reached in 1978. Many experts believed that these talks made great progress in the pursuit of free world trade.

Finland, for her part, expanded GSP treatment to many new tropical products from 1977 onwards, and granted favoured nation clauses to developing countries.

We now look at the figures for Finnish trade, observing the development and the composition of trade with respect to value, volume and price changes; in total and for individual products; world-wide and with developing countries; and try to isolate trends caused by the various trade agreements from other factors influencing levels of trade.

### 3. The Development of Trade

#### 3.1. Total Trade

The import trade in Finland grew over the past decade. Per capita GDP was also rising in the 1970's, although the growth rate was much slower than it had been in the sixties, rising by approximately 3 % per annum. In the early seventies, and again towards the end of the decade, real incomes were rising, too, the consequence of which was rising consumption expenditures.

On the import side consumer and investment goods made up the bulk of increased volumes in the early years of the decade. The growth in households' real purchasing power at the end of the 1980's again stimulated import demand.

Since 1970 both Finland's imports and her exports have risen annually in value terms. The average percentage rise in trade was around 19 % for both. This indicates a rise in volume terms, too.

Table 1. TOTAL IMPORTS in 1970-80.

Year	All countries (mill. FIM)	LDCs (mill. FIM)	LDCs %
1970	11071.4	867.2	7.8
1971	11734.4	590.6	5.0
1972	13106.7	849.1	6.5
1973	16601.4	1135.1	6.8
1974	25666.3	2249.9	8.8
1975	28002.0	2693.2	9.6
1976	28555.1	2880.1	10.1
1977	30707.8	3365.4	11.0
1978	32337.7	3231.7	10.0
1979	44222.1	5272.4	11.9
1980	58250.4	7515.8	12.9
Average % Change/year	19.1	28.9	

Table 2. TOTAL EXPORTS in 1970-80

1970	9686.7	581.2	6.0
1971	9897.2	593.2	6.0
1972	12082.0	626.8	5.2
1973	14605.2	956.9	6.6
1974	20686.4	1660.4	8.0
1975	20247.4	1366.0	6.7
1976	24504.6	1667.4	6.8
1977	30931.4	2414.2	7.8
1978	35206.2	3234.8	9.2
1979	43430.4	3675.8	8.5
1980	52794.6	5087.5	9.6
Average % Change/year	19.1	26.9	

The early seventies saw a growth in Finland's total exports due to favourable changes in exchange rates. This expansion tailed off in 1974 as the inflation rate rose above that of her competitors. The agreement with EEC countries for free trade had the potential for further increasing exports to Western Europe, but the peak of world economic growth was reached in 1973 and the Western markets declined. (see Suhdanne-Economic Prospects in Finland 1972-81).

The explosion of oil prices which started in 1973 allowed Finnish exporters to increase trade with Eastern Block countries, due to the Bilateral Trade agreements; and it is for this reason, for example, that trade with Socialist countries expanded by 1/3 1980, when oil prices rose again by 150 % in one and a half years.

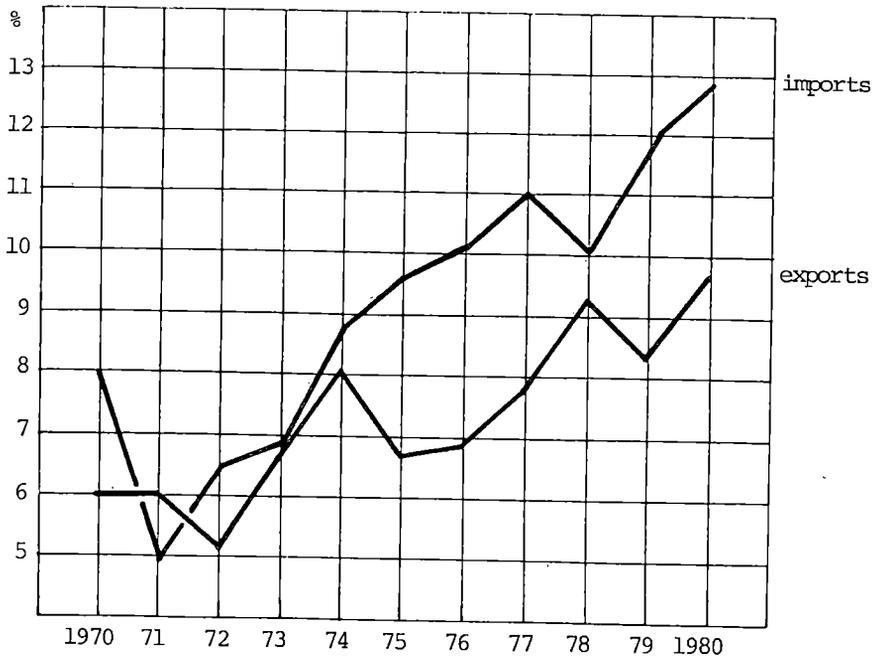
Metal industry exports continued to expand until 1978; exports of wood and paper expanded also during the early seventies but were especially severely hit by the world recession.

Over the decade Finnish trade was in deficit for all but the years 1977 and 1978. Since 1978 the balance of trade has not caused serious problems to the economic policy.

Comparing this total picture with Finland's trade with developing countries: LDC trade has risen over the period much faster than Finland's total trade, an average of 29 % for imports and 27 % for exports. There were years in which trade actually fell though (1970-71 and 1977-78 for imports and 1974-75 for exports). Trade again was in deficit for the period, with tiny surpluses realised in 1971 and 1978.

The percentage of total trade (excluding oil) coming from developing countries has risen both for imports and for exports since

Figure 1. Percentage of Finland's Total Trade Coming from Developing Countries 1970-1980.



1970, and stood at 12.9 % for imports, 9.6 % for exports in 1980. For imports the share fell during 1970-71, but rose every year after that, apart from a small, temporary drop in 1978.

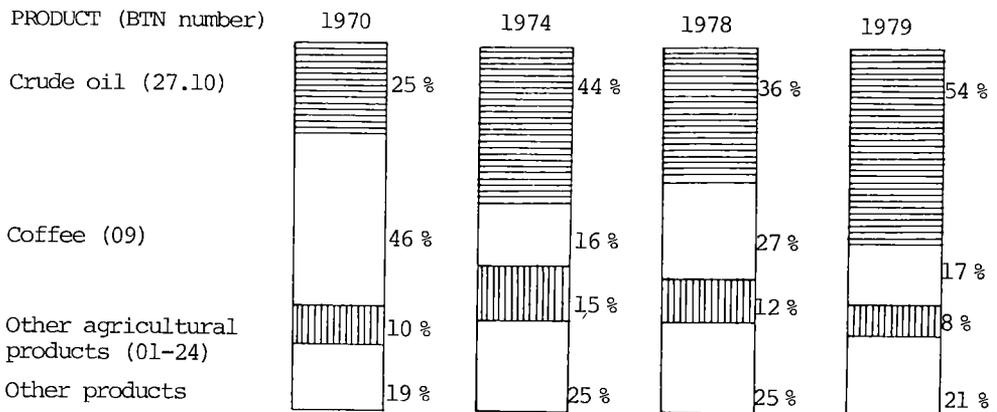
The growth of the export trade was less stable, but the trend was again for it to rise. Imports from developing countries grew faster than exports, 7.0 % growth compared with 5.8 % for exports.

Total imports from LDSs stood at 7515.8 million FIM in 1980 and total exports at 5087.5 million FIM. Corresponding figures for total trade were 58250.4 million FIM and 52794.6 million FIM.

The developing countries accounted for 12.9 % of trade. Amongst the LDCs, the main exports to Finland, in order of importance, were Saudi Arabia, Iran, Iraq, Colombia and Brazil. Growth in imports has come mainly from the Far East and the Middle East; increased exports, on the other hand, have mainly gone to the the Middle East and Afrika.

Data for the analysis has been extracted from FAO statistics and Finnish Foreign Trade Statistics, in the main. The classification of countries into developing and developed is in accordance with the FAO tables.

Figure 2. Finnish Imports by Products from LDCs by value  
(see Foreign Trade: Tullihallitus Kauppatilasto-  
toimisto 1980)



### 3.2. Agricultural Trade

In the ensuing, agricultural products are taken to mean those falling under BTN (Brussels Tariff Nomenclature) classifications 01 - 24.

The trend for agricultural trade, like that for total trade, was for an increase in value terms. In agricultural products though, the increase was much less smooth, both for total imports and for imports from developing countries. Trade fell fairly substantially for both in 1970-71 and fell slightly in 1976 for total imports and 1978 for LDC imports. In other years trade grew, but the rate of growth was rather erratic.

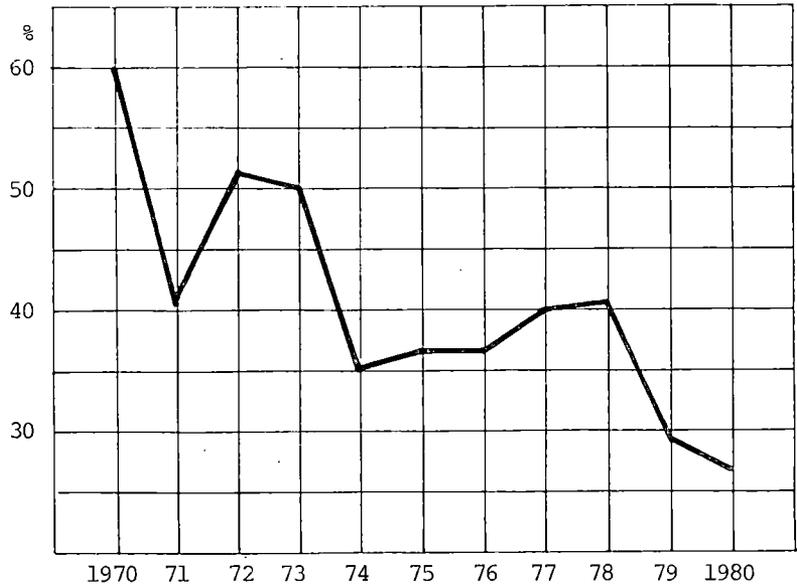
The average figures for agriculture again show imports from LDCs growing faster than total imports, 19.3 % compared with 15.1 %, but the difference is less marked than the figures for total trade.

The LDC share of total agricultural trade remained roughly constant for the entire decade, at around 40 %, except for 1971 when the percentage fell to 26 %.

Table 3. AGRICULTURAL IMPORTS in 1970-80

Year	All Countries (mill. FIM)	LDCs (mill. FIM)	LDCs %	Agricultural imports as % of total im- ports from LDCs
1970	1186.4	515.0	43.4	59.4
1971	943.9	241.4	25.6	40.9
1972	1250.5	435.7	34.8	51.3
1973	1643.5	569.2	34.6	50.1
1974	2181.0	781.9	35.9	34.8
1975	2472.2	980.4	39.7	36.4
1976	2342.3	1044.5	44.6	36.3
1977	2899.9	1359.2	46.9	40.4
1978	3117.2	1319.7	42.3	40.8
1979	3679.9	1387.3	37.7	26.3
1980	4598.1	1842.4	40.1	24.5
Average % Change/year	15.1	19.3		

Figure 3. Percentage of Finland's Total Imports from LDCs made up by agriculture, 1970-1980.



The most remarkable feature of Finnish agricultural imports from developing countries was the drop in percentage that agricultural imports made of total LDC imports. In 1970 the figure was 59 %, and this had dropped to 25 % in 1980; the figure in 1964 having been 73 %.

Since total trade increased, such a drop suggests a diversification of exports by developing countries. The products showing the largest rises in import shares over the decade are raw materials, especially those for the textile, clothing and leather industry, for the wood industry, for the chemical industry, for crude oil refinement and for the glass, pottery and stone industry. Also notable is the increase in imports of consumer goods.

### 3.3 The Six Main Products

An analysis of Finland's agricultural import trade may be conveniently carried out by looking at six product groups (BTN headings 08, 09, 12, 17, 18, and 24). These constituted on average 92 % of the share of agricultural imports from LDCs, and thus serve as a good approximation for all farm products. Within these six groups, six products may be isolated, these forming on average 83 % of the developing countries agricultural trade.

The product groups, in order of BTN classification, with the main product in brackets, are Fruit (citrus fruits), Coffee and Tea (coffee), Oil Seeds (oil seed), Sugar (raw sugar), Cocoa (raw cocoa) and Tobacco (raw tobacco).

Most of the products have maintained a fairly constant share of agricultural imports from the LDCs. Sugar, however, had very fluctuating percentage shares, even on figures averaged over two years (varying between 2.2 % and 36 % of total agricultural imports from developing countries). In value terms the imports fluctuated quite a lot. Coffee, tea and sugar are the products most vulnerable to bad harvests and consequent high prices, so it is not at all surprising that these products experienced such great fluctuations.

All of the product groups, except cocoa and coffee and tea, experienced a greater rise in imports from developing countries than overall. Sugar imports from LDCs had the most remarkable growth, an average of 90.3 % per annum over the decade, but this growth was very erratic, fluctuating between 403.3 % and - 63.7 %, the growth rate is so high because initial imports were negligible. None of the groups showed steady growth patterns, neither overall nor with the LDCs.

The share of total Finnish imports of each product group taken by LDCs has in general stayed roughly constant, this is especially true for fruits (about 27 % coming from developing countries) and coffee and tea (about 97 %). Again sugar fluctuated greatly, between 0 % (when imports came principally from the Soviet Union) and 92 % coming from developing countries. Oil seed imports from LDCs fell

Table 4. Imports of Six Main Product Groups into Finland 1970 - 1980 (million FIM)

Year	Total	LDCs	LDCs %	Total	LDCs	LDCs %	Total	LDCs	LDCs %
<b>FRUITS (08)</b>									
1970	153.8	40.7	26	414.7	408.0	98	86.7	9.5	11
1971	164.6	47.6	29	119.2	111.8	94	84.9	7.0	8
1972	186.4	53.0	28	273.5	264.2	97	81.6	7.4	9
1973	227.8	57.3	25	347.9	334.9	96	126.4	18.4	15
1974	274.9	66.8	24	389.6	378.6	97	164.8	22.9	14
1975	341.4	90.1	26	368.5	352.6	96	155.4	23.5	15
1976	366.0	98.3	27	692.3	667.9	96	134.4	9.9	7
1977	404.1	116.5	29	1012.9	987.3	97	158.3	7.9	5
1978	447.1	132.4	30	904.4	869.4	96	159.8	10.2	6
1979	533.9	148.1	28	932.7	907.4	97	187.7	28.0	15
1980	638.0	174.2	27	1097.1	1073.2	98	199.2	11.4	6
Average % Change/yr	15.4	15.9		25.1	24.5		10.2	22.1	
<b>SUGAR (17)</b>									
1970	100.2	0.1	0	26.6	12.5	45	43.6	7.9	18
1971	116.6	16.7	14	26.3	9.7	37	41.1	9.2	22
1972	170.0	59.0	35	29.3	11.9	41	62.0	12.0	19
1973	165.1	86.0	52	37.5	11.9	32	65.8	14.2	22
1974	300.6	201.3	67	68.6	26.1	38	67.9	14.4	21
1975	469.8	433.3	92	65.6	18.5	28	100.1	17.0	17
1976	184.9	157.1	85	71.5	15.8	22	85.2	14.5	17
1977	158.7	116.4	73	106.3	32.4	30	90.8	15.3	17
1978	161.9	117.1	72	125.6	34.2	27	135.7	34.0	25
1979	161.5	87.0	54	141.1	31.9	23	143.3	25.8	18
1980	478.4	350.9	73	147.4	25.0	17	151.1	38.0	25
Average % Change/yr	31.8	90.3		21.2	15.8		15.4	22.1	
<b>COFFEE &amp; TEA (09)</b>									
<b>COCOA (18)</b>									
<b>TOBACCO (24)</b>									

after 1976, when the percentage fell from 15 % to 7 %, staying at the lower level each year since, except for 1979 when it rose again temporarily.

All the product groups have shown an increased value share for total imports year on year, except cocoa and sugar whose rises were less smooth. The LDCs figures were much more erratic, as would be expected.

Of the individual products under study raw cocoa imports from LDCs were reduced by 3 % per annum; and total raw sugar imports fell on average by 0.2 % per annum but the percentage growth of LDC imports was 25 %. Coffee, oil seeds, raw sugar, and tobacco imports from LDCs grew more rapidly than total imports of those products.

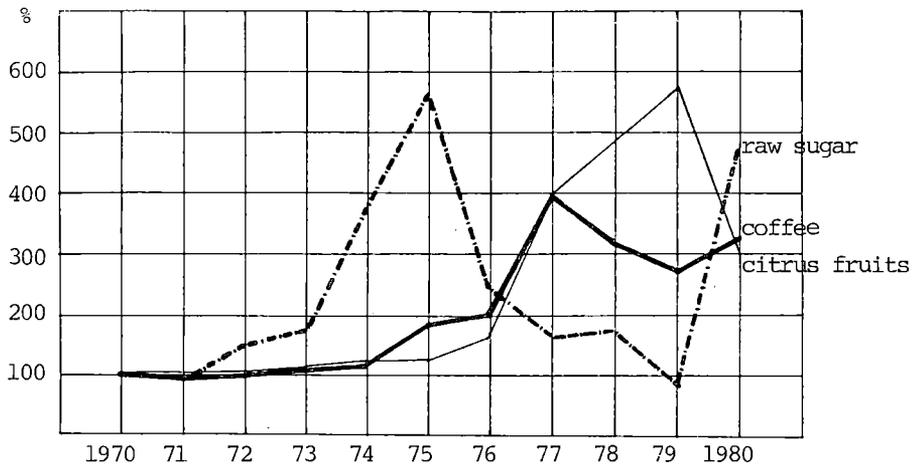
Imports of raw sugar from developing countries grew from a negligible amount (less than 0.5 percent of the total) to 99 % between 1970 and 1975, and have remained at 75-100 % of total raw sugar imports thereafter.

The percentage of citrus fruits imported from developing countries is also of interest in that the percentage in the early seventies was about 23 % of the total imports in value terms but after 1974 this fell to nearer 13 % whilst imports of total fruits remained almost constant. This seems to imply the rise in importance of other fruit imports.

#### 3.4 The Price Development and the Terms of Trade

The terms of trade is a useful summary measure to indicate relative purchasing powers of two parties. The index shown in Table 5 was calculated from the agricultural imports index of the six main products and Finland's total exports index; it thus shows the net barter rate between Finland and the developing countries. This index can only be used as a rough indicator of trends since 90 % of the weights in the import index are made up by coffee and raw sugar, both of which experienced great price fluctuations. The 1980 terms of trade increase, like that of 1975, can be attributed to rises in prices of one commodity, namely raw sugar, rather than a general increase.

Figure 4. Price development of coffee, sugar and fruits, 1970-1980.



Looking first at the price trends for the six individual products chosen earlier (see Table 6).

Citrus fruits had a slow price increase until 1976, an average of 11 % per annum. From 1976-79 prices rose rapidly, by 100 percentage points each year, falling equally rapidly in 1980. The volume of imports fell in the years of rapid price increase.

Coffee prices were very stable until 1974 rising only 26 % in the 4 years. Prices then rose sharply in the next three years and fell back during 1977-80. The volume of imports was very consistent throughout the period.

Oil seed prices fluctuated remarkably little, they fell slightly in the early years, but remained virtually constant after 1973. Volumes of imports have varied considerably though.

Table 5. Finland's Terms of Trade with Developing Countries

Year	Import price index of agr. products (Cif)	Finland's export price index (Fob)	Terms of trade
1970	100	100	100
1971	95	104	91
1972	104	110	94
1973	122	147	83
1974	174	196	89
1975	240	216	111
1976	199	215	92
1977	352	228	154
1978	300	229	131
1979	248	254	98
1980	338	284	119

Raw sugar prices, as one would expect from the foregoing analysis, fluctuated fairly dramatically. No index is available for 1970 because the import volumes were so low. From 1971 to 1975 prices rose, reaching a peak of 559 % of the 1971 price in 1975. During 1975 prices fell very rapidly. Prices in 1980 again soared up. The volume of imports was somewhat unstable as well.

The picture for raw cocoa was one of gradually rising prices until 1976. In two years, 1976-78, they rose 263 percentage points. During 1978-80 prices fell. The volume of imports remained almost constant.

Raw tobacco prices rose gradually over the period, with only small exceptions. For the individual products the prices rose steadily until 1976, followed by a sharp increase in 1976-77.

For the terms of trade index these imports are weighted by average value shares, coffee making up almost 3/4 of the weights raw sugar nearly 1/5 and the other 4 products the remaining 1/10. The export index is derived from Finland's total exports price index, and is calculated FOB; imports are calculated CIF.

Table 6. RELATIONSHIP BETWEEN VALUE AND VOLUME OF AGRICULTURAL IMPORTS FROM DEVELOPING COUNTRIES 1970-80

YEAR	VALUE	VOLUME	PRICE	VALUE	VOLUME	PRICE	VALUE	VOLUME	PRICE
	(mill FIM)	(mill kg)	(FIM/kg)	(mill FIM)	(mill kg)	(FIM/kg)	(mill FIM)	(mill kg)	(FIM/kg)
	<u>CITRUS FRUITS (0802)</u>								
1970	10.5	13.2	0.79	398.8	79.6	5.01	10.4	8.4	1.25
1971	14.5	17.2	0.85	103.0	21.9	4.71	7.1	9.5	0.75
1972	13.2	15.8	0.83	257.9	53.8	4.79	7.4	11.1	0.67
1973	15.7	17.6	0.89	328.7	59.0	5.57	18.4	16.4	1.12
1974	19.2	19.4	0.99	367.8	58.8	6.26	22.8	21.4	1.07
1975	13.6	12.7	1.07	344.8	58.8	5.86	23.0	18.2	1.26
1976	18.3	13.0	1.41	665.3	69.1	9.62	11.7	10.3	1.14
1977	41.4	12.8	3.23	971.5	47.7	20.37	7.8	5.4	1.44
1978	34.0	8.8	3.86	865.5	52.1	16.44	9.2	7.1	1.30
1979	48.0	10.7	4.49	892.5	65.5	13.63	26.7	19.6	1.36
1980	35.4	15.1	2.34	1059.3	67.3	15.74	10.9	7.7	1.42
	<u>RAW SUGAR (1701)</u>								
1970	-	-	-	12.5	2.8	4.41	9.3	1.7	5.42
1971	16.7	36.2	0.46	9.7	2.9	3.31	10.5	2.0	5.30
1972	59.0	89.5	0.66	11.9	3.6	3.33	13.9	2.5	5.65
1973	86.0	109.1	0.79	12.0	2.8	4.29	11.2	2.6	4.31
1974	174.0	100.1	1.74	26.2	3.1	8.45	14.6	1.8	8.11
1975	433.0	170.4	2.54	18.5	3.0	6.17	17.0	2.2	7.73
1976	156.3	136.0	1.15	15.8	2.3	6.87	13.2	2.1	6.29
1977	112.5	154.3	0.73	32.4	2.2	14.73	13.1	1.3	10.08
1978	116.3	154.5	0.75	34.2	1.9	18.00	31.1	2.9	10.72
1979	71.7	172.3	0.42	32.0	2.0	16.00	27.0	2.3	11.74
1980	325.9	150.3	2.17	25.0	1.8	13.89	38.0	3.4	11.18
	<u>RAW TOBACCO (2401)</u>								

The terms of trade remained fairly favourable for Finland for most of the early seventies, rising in 1975 due to a large sugar price increase which accounted for 40 % of the rise. In 1977 the index rose very steeply but this rise was reversed in the following two years. In 1980 the index rose again, but 25 % of this rise can again be attributed to the sugar price increase.

### 3.5. Effects of GATT Agreements

Trade in Finland has grown over the last decade at a reasonable rate, with imports from LDCs growing fairly rapidly.

Import growth in 1972-73 and 1978-79, the years of conclusion of the two GATT Rounds discussed here, accelerated markedly for both total and LDC imports; for exports, such a trend is not noticeable except for exports to the LDCs in 1972-73, when the growth rate jumped for two years. Such clear cut statements cannot be made about agricultural imports.

During the Kennedy and Tokio Rounds during the seventies GATT talks covered GSP extension. Finland granted GSP treatment to many products (of the six main products discussed earlier some fruits - mainly tropical, cocoa products, some oil seeds and raw tobacco are included. Lemons were included from 1977, and roasted coffee from 1980). From the data it is not possible to discern any difference in percentage imports of these products from the developing countries: the major effect of the GSP agreements can be seen in trade with the Eastern Block countries and in trade of industrial products. The overlapping of the GSP and some other trade measures hampers the analysis, too, but as a whole, the GSP extension can be considered to be favourable to the LDC countries.

It is difficult to separate the results of trade agreements from other trends, such as falling world trade, high inflation rates and oil crises. The 1973 dramatic rise in world food prices, for example, was not reflected in lower volumes of trade due to the opening up of the huge market of the oil producing countries at the same time.

The trend had been for both imports and exports to rise, but for export growth the rate has not accelerated as much. Finland's GDP has grown faster than many other countries in the last few years, the ability to import has therefore remained higher than in other Western European countries, and it is in the export market that the world recession has been hitting Finland hardest, hence widening the trade gap in recent years.

#### 4. Summary and conclusions

The growth of trade is of vital importance to developing countries if they are to be able to make their industry competitive on the world market. Trade barriers are a great impediment.

The industrialized countries erect barriers to protect their industries and agriculture, especially the latter. Many countries have chosen to offer subsidies to farmers to maintain a high level of self-sufficiency, which usually means that they are producing at above the world market prices. Trade barriers are an effective way of allowing this to continue. GATT and other international bodies have tried to systematically remove the barriers and liberalise the world's trade. The latest concessions were granted during the Kennedy and Tokyo Rounds of GATT discussions. Especially the Generalised Scheme of Preferences (GSP) have been applied to foster the trade with developing countries.

Finland extended her GSP scheme during the Kennedy and Tokyo Rounds. The coverage of the scheme is not very large and its effect on the trade is difficult to discern. Therefore, many other factors affect the Finnish trade of agricultural products, which is reviewed in this article.

Imports, at the beginning of the decade, coming from the developing countries accounted for 7.8 % of total imports of 59.4 % was made up by agricultural products. In value terms this meant 867.2 million FIM of 11 071.4 million FIM of

imports came from developing countries; 515 million FIM consisted of agricultural products. Total agricultural imports of Finland were 1 186.4 million FIM.

The corresponding figures for the end of the period showed annual growth rates of 19.1 % for total imports and 15.9 % for agricultural imports; 28.9 % for total imports from developing countries and 19.3 % for agricultural imports.

According to FAO statistics, agricultural exports of developing countries grew by 25 % between 1970 and 1977, the figure for Finnish agricultural imports from LDCs was 22.6 % for the same period. The share of total agricultural imports coming from the developing countries for all countries has remained fairly constant at 35 % for two decades, the share of Finnish agriculture from LDCs is higher at around 40 % for the 1970's. This figure, too, has been very stable.

Finland's terms of trade with developing countries, as calculated in Table 4, may only be considered a rough guide to the ratio. It shows though that in spite of the fact that Finland tried to aid the LDCs via trade agreements, it is Finland which has benefited of increased trade, in the early part of the seventies at least. This is contradictory to the basic ideals of GATT. Table 4 shows a clear picture of improving terms for Finland in the early seventies, until 1974, then fluctuating fortunes, the index rising (i.e. an adverse trend) in 1975, 1977 and 1980 and falling in other years. The price fluctuations of coffee and sugar are the main reason for the improvement of the terms of trade, and the development may easily be completely different if a different period is analysed.

Examining the break-down of agricultural imports in more detail we see that six product groups stand out: fruits (BTN 08), coffee and tea (09), oil seeds (12), sugar (17), cocoa (18), and tobacco (24). From these we can note that imports are most concentrated on coffee, sugar and fruits, accounting for over 83 % of the total agricultural imports from developing countries.

For most of these six product groups' imports from developing countries have grown more rapidly than total imports, this has widened the market share of developing countries. The growth of imports in both quantitative and value terms has been equally erratic.

The growth of agricultural imports from developing countries depends on two factors: growth of consumption and trade diversion towards developing countries. The latter is sought via preferential trade agreements.

Growth of agricultural imports of 4.3 % per annum; and imports from developing countries of 6.7 % showed a promising trend, i.e. that agricultural trade with developing countries is growing faster than world agricultural trade. These figures were calculated by weighting the increases in imports of the six main products by the value share of their imports.

The other course open to widen the market share for developing countries has been effected through two Rounds of GATT talks and the extension of GSP arrangements in the seventies.

Bilateral agreements with the Soviet Union are ever increasing in importance for Finland, since export volumes are related to imports, especially of oil, which are continually increasing in value; trade with traditional partners - EFTA and EEC countries - also hinders extension of trade with developing countries, as do transport costs. Trading partners can be changed, but distance will always be a limiting factor in extension of trade with developing countries.

Some positive results can be seen for the agreements of 1972 and 1978, but the GSP arrangements show no noticeable effects on imports of relevant agricultural products from developing countries. This would suggest that GSP concessions have been too modest and that there are still possibilities for further negotiations to remove remaining trade barriers.

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LANTBRUKETS TYPOLOGI; VILKA  
KLASSIFICERINGSTYPER BÖR ANVÄNDAS?

Lauri Kettunen

Föredraget i typologi-  
seminariet i Oslo den  
23 september 1981

## LANTBRUKETS TYPOLOGI; VILKA KLASSIFICERINGSTYPER BÖR ANVÄNDAS?

### 1. Inledning

Med lantbrukets typologi avses i vid bemärkelse en klassificering av lantbruksstatistiken enligt olika kriterier såsom region, driftsinriktning, företagets storlek osv. I vissa fall definieras typologin endast som en klassificering enligt driftsinriktning. Det rör sig alltså om en typklassificering av gårdarna i syfte att producera statistik.

Behovet att klassificera uppkommer ur olika användningsbehov. Utövarna av lantbrukspolitik, forskarna, undervisningen, rådgivningen m.m. har vanligtvis behov att utnyttja statistik, som skiljer sig från varandra, även om en tillräckligt mångsidig grundstatistik torde vara nog för alla dessa intressegrupper. De tjänar ju alla lantbruket dvs jordbrukaren och utövarna av lantbrukspolitik.

Tyngdpunkten för utnyttjandet av statistiken varierar med användaren. För utövaren av lantbrukspolitik räcker det ofta med en statistik för hela landet indelad enligt driftsinriktning och storleksklass. En planerare på kommunalnivå vill ha uppgifter antingen endast från sin egen kommun eller sitt eget landskap, men möjligen rätt detaljerat indelade sådana. I vissa fall vill användarna ha statistik om specialväxter eller om konsumtionen av vissa specialprodukter. Allas behov kan den allmänna statistikproduktionen kanske inte tillfredsställa, men den nuvarande datatekniken torde dock rätt långt kunna betjäna också specialbehov, om bara statistikuppgörarna får vetskap om den i tid.

I det följande har lantbruksstatistikens klassificeringsbehov granskats framför allt ur forskarens och lantbrukspolitikernas synvinkel. Man har till förfogande flere utredningar i ämnet (bl a har man i Sverige gjort en omfattande jämförande utredning), ur vilka man får en mera ingående bild av grundproblematiken. Man har här nöjt sig med att endast kort referera vissa av dem och granskat dem framför allt ur finsk synvinkel. De i artikeln

framförda rekommendationerna eller förslagen är framställarens egna personliga åsikter, som har framlagts enbart som grund för en diskussion, varför de inte bör anses ens som skribentens slutgiltiga ställningstaganden.

## 2. Den nuvarande klassificeringen av lantbruksstatistiken

### 2.1. Klassificering i Finland

Den finska lantbruksstatistiken klassificeras i huvudsak enligt region och storleksklass, men delvis också enligt driftsinriktning.

I den regionala klassificeringen använder man sig av en indelning enligt län, lantbrukscentraler och lantbruksdistrikt. Inom bokföringen sammanslås lantbrukscentralerna till storområden (södra Finland, inre Finland, södra Österbotten och norra Finland). Det har upplevts besvärligt med många olika regionindelningar och man strävar också till en statistik på länsnivå, men man torde dock inte helt komma ifrån den nuvarande brokiga indelningen.

Statistikcentralen sammanställer på basen av beskattningsdata företags- och inkomststatistik också enligt driftsinriktning. Klassificeringen sker enligt bruttointäktvariationen enligt följande:

1) Nötboskap	a) 60-100 %	b) 80-100 %
2) Svin	"	"
3) Fjäderfä	"	"
4) Spannmålsodling	"	"
5) Övrig växtodling	"	"
6) Övriga gårdar	"	"

Ifall således 60 % av bruttointäkterna kommer från nötboskaps-skötseln, klassificeras gården som nötboskapsgård. Gården är specialiserad, ifall bruttointäktandelen överstiger 80 %.

I lönsamhetsundersökningen (bokföringen) sker klassificeringen också enligt bruttointäkten, men den är en aning annorlunda:

1) Nötboskapsgårdar	a) 80-100 %	b) 60-80 %
2) Svingårdar	30-100 %	
3) Övriga husdjursgårdar		
4) Brödsädesgårdar	45-100 %	
5) Övriga växtodlingsgårdar		

Klassificering enligt driftsinriktning började först användas i lönsamhetsundersökningsverksamheten. Den stod också som grund för företags- och inkomstnivåstatistikens klassificering, även om den ändrades en aning. Såsom vi senare kan se skiljer sig den finska klassificeringen från den som är i bruk i övriga länder, vilket naturligtvis försvårar en jämförelse. Det vore också skäl att överväga en ändring av klassificeringen i Finland så att den skulle motsvara internationell praxis.

De statistiska uppgifterna ifråga om företags- och inkomststatistiken har också klassificerats enligt ägoförhållandena:

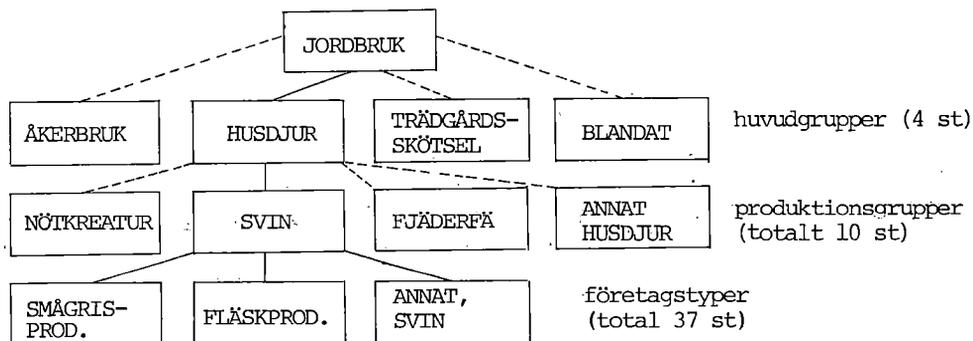
- 1) **Naturlig** person
- 2) Beskattningssammanslutning, dödsbo
- 3) Aktiebolag, andelslag, öppet bolag o dyl
- 4) Förening, stiftelse, församling
- 5) Staten
- 6) Kommun, kommunförbund

I klassificeringen ovan är gruppen med naturliga personer utan tvivel den viktigaste och den grupp, som vanligen är målet för de lantbrukspolitiska åtgärderna. Också ifråga om sitt ekonomiska beteende kan denna grupp väsentligt skilja sig från de övriga grupperna.

## 2.2. Exempel från övriga länder

Den klassificering som används i Förbundsrepubliken Tyskland baserar sig på den potentiella bruttomarginalen, som uträknas genom att multiplicera spannmålsarealerna (exclusive foderproduktionen) och djurmängden med en genomsnittlig, standardiserad enhetsbruttomarginal och genom att addera mellanprodukterna.

Bruttomarginalen för var och en driftsinriktning bestäms genom att från de rörliga intäkterna avdra de rörliga kostnaderna. Driftsinriktningen bestäms enligt den 50 %:a andelen (om t ex mjölkens potentiella bruttomarginal överstiger 50 % av den totala bruttomarginalen räknas gården till mjölkgårdarna). Ifall andelen överstiger 75 % är gården specialiserad på den ifrågakvarande driftsinriktningen. Om ingen produktion når upp till 50 % klassificeras företaget som blandat (såsom t ex jordbruk - trädgård eller jordbruk - skogsbruk). Huvudklasserna i den tyska klassificeringen är jordbruk, skogsbruk, trädgårdsskötsel och kombinationsföretag. Gårdarna indelas hierarkiskt i fyra nivåer. Vad hierarkisk klassificering beträffar bör också den holländska klassificeringen nämnas. Den framgår ur figur 1.



Figur 1. Klassificeringen av den holländska lantbruksstatistiken

Klassificeringen går alltså att avbilda rätt långt. Till principen påminner den om det tyska systemet. Inom EG. använder man sig av en typklassificering, som en aning avviker från de föregående. Den skiljer sig från den tyska och den holländska klassificeringen bl a på följande punkter:

- a) företagets bruttoproduktion används som bas
- b) det urskiljs fyra sektorer: åkerbruk, permanentbruk (vinträdgårdar osv), husdjursskötsel beroende av mark och husdursskötsel ej beroende av mark.
- c) ett företag betraktas som specialiserat på 1) sektornivå om minst 2/3 av produktionen kommer från sektorn och 2) bransch-

eller produktionsgrensnivå om minst 50 % av totala produktionen erhålls vid motsvarande bransch eller produktionsgren. I det system som tillämpas i USA sker klassificeringen på basen av försäljningsinkomsterna varvid marginalen är 50 %. Man har 12 klasser (bl a saluspannmål, tobak, bomull, mjölk, fjäderfä, övrig husdjursproduktion osv).

Ifråga om klassificeringen i allmänhet kan man konstatera, att driftsinriktnings- och specialiseringsmarginalerna varierar från ett land (område) till ett annat. Någon större skada torde det inte föra med sig, även om det vore önskvärt att marginalerna skulle stämma överens. Skillnaderna framträder kanske en aning i samband med lönsamhetsjämförelserna. Vid uppgörandet av produktionskostnads kalkylerna, som görs just på basen av statistiskt material på driftsinriktningsbas, torde klassificeringens olikhet inte just vara till någon större skada. Produktionen av mjölk och kött är ofta hopkopplade, varför man nästan aldrig kan uppgöra rena kalkyler för dem. Vad produktionen av svinkött, ägg och spannmål beträffar kunde man däremot hålla en hög marginal, tom 100 %, och på så vis få "rena" gårdar och resultat.

### 3. Hur kunde klassificeringen lämpligast ske

Behovet av statistik varierar rätt mycket med användaren. Några behöver uppgifter om det förgångna, varvid det naturligtvis är lättare att hopsamla de uppgifter, som haft den mest avgörande betydelsen för utvecklingen. Andra är intresserade av framtiden, men det är naturligtvis knappt om uppgifter, som skulle förutse utvecklingens riktning och statistikern i gemen fäster inte någon större vikt vid dem. Exempel finns det hur många som helst. I det följande har man granskat klassificeringsbehovet med tanke på skötseln av lantbrukspolitiken och forskningen kring den. Det är svårt att säga hur allmängiltig denna indelning är, men den lämpar sig antagligen för de flesta ändamål. Gårdarna borde indelas enligt följande klassificering:

- 1) Gårdens utvecklingslinje
- 2) Regional indelning
- 3) Driftsinriktning
- 4) Företagets storlek

Klassificeringen är hierarkisk i fyra olika nivåer. Vi skall här närmare granska indelningen.

### 3.1. Utvecklingslinjen

Vid skötseln av lantbrukspolitiken kan genomsnittsuppgifter för hela landet vara missvisande bl a av den orsaken att en del av gårdarna är regressiva gårdar, på vilka man inte längre utövar aktivt jordbruk. En del av dessa inaktiva gårdar ägs av pensionärer eller stärbhus, varvid gårdens ekonomiska resultat får en mindre betydelse än vad som är fallet om gården hör till en aktiv jordbrukare. Gårdarna gör inte längre några investeringar, utan kan snarare "ätä" av sitt kapital. Härvid har de lantbrukspolitiska åtgärderna en olik inverkan på olika gårdar, just beroende på aktivitetsnivån.

Jämförbar med aktivitetsnivån är situationen också då man granskar gårdarna som heltids- kontra deltidsföretag. Deltidsjordbrukarens reaktioner på lantbrukspolitiska åtgärder kan skilja sig från dem hos de egentliga heltidsjordbrukarna. Det är svårt att säga hur ifrågavarande klasser borde bildas, vilka de lämpligaste kriterierna skulle vara. Tecken på gårdar i utveckling är bl a investeringar (byggnadsverksamhet, grundförbättringar, jordanskaffning). Ifall några investeringar gjorts under de senaste 5 (5-10) åren skulle gården räknas som en gård i utveckling. Eller finns det möjligen någon annan indikator? I definitionen av en biinkomstgård skulle utgångspunkten vara inkomsternas fördelning. Om över 50 % av inkomsterna härstammar från någonting annat än jordbruket har man att göra med ett deltidjordbruk.

### 3.2. Regional indelning

För att kunna beakta (eliminera) de naturliga förhållandena måste man då och då ta till regional klassificering av statistiken. Klassificeringsbehovet kan också uppkomma ur de allmänna förhållandena (bostadscentra - landsbygd, syd - nord, utvecklingsområde - industriområde, osv).

För klassificeringen torde inte föreligga några särskilt stora metodiska hinder, naturligtvis med undantag av alltför detaljerad indelning. En indelning på länsnivå torde ofta räcka, eftersom man lätt kan få större områden av det. Visserligen behövs också en statistikindelning på kommunalnivå och sådan framställs också i många fall.

I vissa specialfall skiljer sig bildandet av statistiska områden från de här nämnda gränserna. För att tillfredsställa också dylika behov borde grundstatistiken kodas med hjälp av koordinater, varvid en detaljerad icke forbunden klassificering vore möjlig för alla behov.

### 3.3. Driftsinriktning

Såsom tidigare framgått har man till förfogande många metoder för en indelning enligt driftsinriktning. Indelningen går tydligen lättast att göra enligt bruttointäkten. Den egentliga marginalen kan anses vara 50 % av totalintäkterna. Marginalen för en specialiserad gård kan stå vid 75 %. Dessa procentmarginaler gäller också i det fall att företagen använder rikligt med köpta insatser såsom t ex köpta foder. Ifall mjölkens andel av totalintäkterna på gården överstiger 50 %, är gårdens huvudsakliga produktionsform utan tvivel mjölkproduktion. Ätminstone för Finlands del är en indelning i rena driftsinriktningar (i synnerhet specialiserade gårdar) förknippad med svårigheter. Det beror bl a på att de specialiserade gårdarna utgör en så liten del av det totala antalet gårdar, varvid restgruppen blir stor (över hälften av gårdarna). Härvid kan man erhålla vilseledande resultat av den egentliga mjölkproduktionen, om man endast fäster vikt vid resultaten från de specialiserade gårdarna. De gårdarna är ju ofta nya företag, som nyligen kraftigt investerat i gården, som ofta använder sig av den nyaste teknologin och vilkas företagare själva också ofta är unga. Sålunda kan dessa gårdars ekonomiska resultat ofta vara helt annorlunda jämfört med det från de konventionella mjölkgårdarna med mångsidig produktion.

Det är naturligtvis svårt att eliminera problemet, men genom att grunda grupper med blandgårdar kan man någorlunda undvika det. Vilka grupper borde man då grunda? Mjölk - nötköttgårdarna är ett naturligt exempel. På samma sätt är svinkött - grisproduktion en annan naturlig kombination. Svinkött - äggproduktion kan också i vissa fall komma på fråga som en enhet med köpt foder. Övriga kombinationer är sedan mera konstgjorda, om också möjliga naturligtvis.

Vad har man då för bruk av resultat räknade enligt driftsinriktning? Ett av de viktigaste är uppgörandet av produktvisa konstnads-kalkyler. För detta skulle man behöva möjligast specialiserade gårdar, eftersom de övriga produkterna krångrar till kalkylerna. Blandgårdarna lämpar sig mycket dåligt för detta. De kan också användas endast för en allmän lönsamhets- och inkomstnivåjämförelse, vilken naturligtvis har en betydelse och ett intresse i sig.

#### 3.4. Företagets storlek

En klassificering enligt företagets storlek baserar sig i allmänhet på arealen. Visserligen använder man sig i t ex USA av omsättningen som grund för klassificeringen. En indelning enligt areal har i många sammanhang konstaterats vara dålig. I synnerhet specialiserade svin- och hönsgårdar lämpar sig inte för en dylik klassificering. I allmänhet lämpar sig arealklassificeringen inte för sådana gårdar, som använder rikligt med produktionsinsatser (framförallt foder) utifrån. En indelning enligt storleksklass kan basera sig på t ex omsättningen. Den är dock inte alltid en bra indikator, eftersom den kan ge en förvrängd bild t ex om företaget använder rikligt med köpta insatser. Den eliminerar också en faktor, företagets effektivitet, vilken man ofta vill förklara med någon faktor. I sådana fall borde klassificeringsfaktorn vara en annan än omsättningen.

Man behöver kanske inte heller något enhetligt mått, utan husdjursgårdarna t ex kunde klassificeras enligt djurens (kornas, svinens, hönornas) antal. En inbördes jämförelse mellan driftsinriktningarna är då möjlig utan problem. Om man vill göra jämförelser mellan de

olika husdjursproduktionsformerna kunde man ta djurenheten (nötenheten) som mått på företagets storlek.

Inom växtodlingen, i synnerhet spannmålsodlingen, är en klassificering enligt arealen i allmänhet bra. Vissa produkter med stor arbetsåtgång (frukter, bär, grönsaker) utgör naturligtvis ett undantag. För deras del kunde någon annan klassificeringsfaktor komma på fråga, såsom t ex fruktträdens eller bärbuskarnas antal.

Nackdelen med många slag av klassificeringskriterier är naturligtvis att det blir svårare att göra jämförelser mellan gårdarna. Om man vill ha ett indelningskriterium, som lämpar sig för alla företag, kunde man kanske ha som mått den av företaget producerade ökningen i förädlingsvärdet, i det fall att ett sådant lätt kan konstrueras.

#### 4. Sammandrag och slutsats

I denna artikel har man granskat klassificeringsbehovet i lantbruksstatistiken ur forskningens och lantbrukspolitikens synvinkel och med tanke på finska förhållanden. Det är dock sannolikt att granskningen går att generalisera i större grad än vad man velat göra. I detta sammanhang har endast klassificeringsbehovet granskats, men inte det, hur klassificeringen utförs eller om det överhuvudtaget är möjligt på det sätt som framlagts. I artikeln föreläggs först vissa i Finland och övriga länder använda klassificeringsgrunder. De kan konstateras ha rätt stora olikheter, vilket måste anses beklagligt. Uppgörandet av statistik borde också åtminstone delvis förnyas, även om det inte torde vara klokt med en total samordning, eftersom produktionens inriktning och utvecklingsgrad varierar. Lantbruksstatistiken borde klassificeras hierarkiskt enligt följande indelning:

- 1) Utvecklingslinje
- 2) Region
- 3) Driftsinriktning
- 4) Företagets storlek

Fördelarna med en sådan indelning är bl a att man då kunde undersöka t ex utvecklingen och det ekonomiska resultatet hos de i utvecklingstadda medelstora mjölkgårdarna i norra Finland. Avsikten med den första klassificeringsfaktorn vore att skilja de regressiva odlingarna och deltidsodlingarna från aktivodlingarna, eftersom deras ekonomiska beteende i avgörande grad kan skilja sig från varandra. I den regionala indelningen förekommer i Finland för tillfället stor brokighet, vilket kunde korrigeras genom att ta i bruk en indelning på kommunal- och länsnivå. En grundstatistik kodad enligt koordinater skulle möjliggöra alla former av regional indelning.

En indelning enligt driftsinriktning kan basera sig på bruttointäkten, varvid en andel på 50 % vore gränsen vid definitionen av driftsinriktningen och en andel på 75 % för specialiserade gårdar. Arealen är en lämplig mätare på företagets storlek endast inom spannmålsodlingen. Inom husdjursproduktionen, i synnerhet om man använder sig av mycket köpt foder, kunde klassificeringskriterierna vara djurens antal som sådant eller omvandlat till nötenheter.

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