EFFECTS OF AGRICULTURAL CRISIS ON ESTONIAN FARMING

SUMMARY OF THE DISSERTATION SUBMITTED FOR THE DEGREE OF DR. AGR. AT TARTU UNIVERSITY 1938.

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Effects of Agricultural Crisis on Estonian Farming.

1. Goals for Developing Agriculture. Estonian agriculture during the period of independence to date has shown a satisfactory rate of development in all its branches. With the gradual change to more intensive methods of farming considerable progress has been recorded in augmenting agricultural production and raising the importance of this section of the national economy. The present increase of the total production by 2 per cent. yearly is to be considered a notable achievement, as most agricultural countries do not show a quicker rate of growth. Whereas in the first half of the period under reference a large proportion of capital as well as labour was used for the erection of farm buildings and renewal of equipment, being thus diverted from productive activities proper, nowadays agriculture is more fully stocked with the requisites of production and there are prospects for an even greater expansion in the near future.

The rise in the marketable production has been much greater as compared with the total output, viz., 5 per cent. yearly on the average. This divergent rate of growth reflects the structural change that has taken place in Estonian agricultural production — the system of natural economy prevailing in the early stages of independence having gradually given way to market husbandry, which has raised the importance of this industry in the national economic system.

Taking into consideration the potential reserves of production in Estonian agriculture, there appears to be ample scope for further development, it having been estimated that the value of the total agricultural production could be raised up to Ekr. 330 million, and that of the marketable produce up to Ekr. 231 million, i. e., over double the present figures. These estimates being based on reliable data, there is little doubt that with the gradual mobilisation of these latent reserves the above-stated level of production will effectively be attained.

The question of raising the total production as well as the marketable portion thereof has, however, to be examined in conjunction with the remunerativeness of farming, which has a vital bearing on the volume and, especially, on the structure of production. It is for this reason that the factors affecting farmers' earnings — that is, besides the volume of goods produced, more particularly the movements of prices — have been given an ever increasing measure of attention of late. In fact, apart from measures of agricultural policy, changes in prices, profits on production, and price relationships are the most important economic factors capable of exerting a considerable influence on the growth and structure of production.

2. Characteristics of Agricultural Crisis. A marked deterioration of the financial position of Estonian agriculture took place during the years 1929/30 to 1932/33, i. e., at a time when farming activities were showing a rapid expansion. It should be observed, however, that the effects of the agricultural crisis on Estonian farming and, more especially, on the structure of production have been of great importance and have helped agriculture to take the right turn in its further development. In view of the frequent recurrence of agricultural crises, an analysis of this problem from the point of view of agricultural development is essential.

Turning to examine the characteristics of an agricultural crisis, consideration may in the first instance be given to symptoms of a more general nature, principal among which are: fall in the prices and purchasing power of farm products and in the monetary income of farms; deterioration of the position of agriculture from the point of view of private economic interests; reduced spending power of the rural population, and financial difficulties of farms.

a) Prices of farm products in Estonia began to fall in the agricultural year 1928/29, the lowest point being reached in 1932/33. Taking the average for 1927/31 as a basis (= 100), the price index of farm products moved as follows: 1929/30 — 107.5; 1930/31 — 84.9; 1931/32 — 64.5; 1932/33 — 49.8; 1933/34 — 76.2.

This shows that, compared with the 1927/31 average, prices of farm products by 1932/33 had dropped by over 50 per cent. Between 1928/29 and the latter year there was a fall of over 60%. As prices for the things that the farmer has to buy declined to a less extent than those of farm products, latters' purchasing power diminished, being in 1932/33 approximately 35 per cent. below the average for 1927/31.

b) The financial income of farms shrunk considerably during the agricultural crisis, falling as it did between 1927/28 and 1932/33 by 49 per cent. or nearly one-half. At the same time, the relative weight of the various items which go to make up the farmers' income also changed.

c) With the fall in the prices and purchasing power of farm products the solvency and buying capacity of the rural classes diminished. An inquiry into this question showed that in 1932 the solvency of indebted farms had been reduced to less than one-half as compared with the year 1929. Thus, the proportion of the debt burden to the farms' active capital (total invested capital and working funds) increased between these years from 12.5 per

cent. to 20.7 per cent. At the same time, the total farm income per Ekr. 100 of the active capital diminished from Ekr. 18.16 in 1927/28 to Ekr. 8.72 or less than one-half in 1932/33. As a consequence, there increased the number of forced sales of farms, which is symptomatic of a period of agricultural crisis.

d) The fall in the purchasing power of farm products entailed a reduction of the buying capacity of the rural classes by some 30 per cent. during the interval from 1929/30 to 1932/33. It will thus be seen that the farmers' spending capacity diminished in a lesser proportion than the purchasing power of farm products, this being due to a voluminal increase of marketable produce.

In addition to the symptoms referred to above, there may be mentioned the decline in the remunerativeness of farming, up to a point where the net return is converted into a net loss. The returns on the invested farm capital as well as the remuneration to be allowed for the farmowners' work diminished, and eventually, by way of agriculture, the depression caught hold of the entire national economy.

These, in brief outlines, are the economic phenomena characterising the past agricultural crisis in Estonia.

3. Causes of Agricultural Crisis. The basic factors to be considered in attempting an analysis of the remunerativeness of farming are the net production *) and the net farm income **). The levels of, and changes in, these two items depend on the total production (value) and the working costs, i. e., the total value of articles turned out on a farm and the cost of producing the same. How far the above-stated indicators (net production and net farm income) of the productiveness of the farms are correlated with the principal

*) Value of total production less working costs.

**) Remuneration for farmowner's work plus net return (value of total production less working costs and interest on loan capital).

individual factors determining the remunerativeness of farm work is apparent from the following computations:—

1) The movement of the net farm income stands in connexion with the changes in the total production and the working costs to the extent of 64 per cent., the correlation being absolute and positive ($R_{1.23} = + 80.0$)

2) The coefficient of separate determination between the net farm income and the working costs is —0.31, showing that the latter affect the net farm income inversely to the total production.

3) The coefficient of separate determination between the net farm income and the total production is +0.95.

4) The coefficient of partial determination between the changes in the net farm income and in the total production is +0.91, i. e., the correlation is complete, and between the net farm income and the working costs it is +0.72, i. e., the correlation is clearly perceivable.

5) The correlation between the net farm income and the total monetary income and the total monetary outgoings, combined, is indistinct ($R_{1.23} = + 0.30$), and the correlation-coefficient of part determination is likewise uncertain ($_{12}r_3 = +0.10$ and $_{13}r_2 = +0.20$). It is not possible, therefore, to link up the question of the net farm income with monetary receipts and disbursements.

6) The correlation ($R_{1.234}$) between the net production and the total monetary income, the active capital and the loan (borrowed) capital is +0.57, i. e. positive and clearly perceivable. Therefore, the monetary income, active and loan capital, combined, exert a certain influence on the level of the net production, in other words, 33 per cent. of the net production is subject to these influences.

The correlation-coefficient of separate determination between the net production and the total monetary income is +0.21, or 21 per cent. of the net surplus is influenced by monetary receipts, the coefficient of partial determination being +0.47, i. e., indistinct.

The coefficient of general determination of the active capital is +0.11, while the coefficient of the loan capital is +0.01, showing that the size of the farm capital is of little consequence to the net production. A correlation, although slight, exists in the case of the active capital, whereas the net production and the loan capital are not correlated.

It follows from this that the decline in the above-mentioned two indicators of the productiveness of farming, viz., the net farm income and the net production value, and, hence, the causes of the agricultural crisis in a broader sense, are to be traced to the contraction of the total production and the monetary income. This contraction, however, has been associated with the fall in the prices of farm produce. An analysis of the causes of the agricultural depression must start therefore with an inquiry into the causes of the universal slump in farm prices.

In view of the fact that the movement of agricultural prices in Estonia is largely dependent upon changes in world market conditions, consideration had to be given in the first place to the causes of the fall in prices on foreign markets, but domestic market conditions also were investigated. In dealing with this question, the existing theories of agricultural crisis had to be analysed. These theories may be classified as follows: —

1) historic-realistic theories, 2) Marxist theories, 3) monetary theories, and 4) E. Lagler's theory.

The essence of these theories may be summarised thus: —

a) According to the realistic theory, agricultural crises arise owing to the decline in the exchange (barter) value of farm products, caused by the development of agriculture outside Thünen's "state";

b) Agricultural crises are caused by the relative rise of rent and mortgage debts in the event of a fall in prices of farm products;

c) The development of technique has made it possible to reduce the cost of production and to sell farm products at cheaper prices. However, as production costs have only been lowered on the bigger farms, which can afford to buy the necessary machinery, the smaller ones have fallen into difficulties, and an agricultural crisis has thus developed;

d) Agricultural crises are due to the unduly high level of currency values owing to the adoption of the gold standard; and

e) The causes of agricultural crises are to be sought in the changes that have taken place in the structure and trend of the economic system.

The question as to which of the different crisis theories should be given preference is largely a matter of opinion and also depends on the method of investigation applied and the statistical material available.

Analysis of the causes of agricultural crises showed that the fall in world prices cannot be explained by an increase in the absolute amount of agricultural production. What may be supposed to exist is a rise of supply in relation to demand, in other words — a decrease of demand owing to reduced purchasing power. Hence, the development of agricultural production has proceeded contrary to Malthus's theory of population and the supply of food.

A critical study of the existing theories of agricultural crises enabled an opinion to be formed as to the factors responsible for the fall in agricultural prices on the foreign market. In the case of Estonia, prices were affected, in addition, by a fall in demand owing to an increase in the number of unemployed. An allied cause of the agricultural crisis is to be sought in the weakening purchasing power of farm products in relation to both industrial articles needed by farmers and labourers' wages.

4. Effects of Agricultural Crisis on Scope of Individual Branches of Agriculture.

Analysis of the causes of the agricultural crisis showed these to be cyclical developments. Therefore, the influences of cyclical factors during 1929/30 to 1932/33 may be taken to present the effects of the agricultural crisis on agriculture in general and its individual branches.

The results of the investigation showed that these effects have been by no means uniform, the principal branches affected being grain for human consumption, flax, and stock breeding, i. e., branches producing marketable articles. The areas under feedingstuffs, except fodder-beets, remained unaffected.

The trend of such movements as occurred during the agricultural crisis under the influence of cyclical factors was upward in the areas sown to rye and wheat and in horse and sheep populations; downward in the flax area and the pig population; and more or less stable in the numbers of cows and poultry.

The extent of the influences produced on the various branches of the agricultural economy during the crisis is illustrated by the following table (trend = 100): —

Areas under:		*Number of:*	
Rye	101.8	Horned cattle	100.3
Winter wheat	98.6	Thereof cows	105.3
Summer wheat	100.0	Horses	97.0
Barley	100.0	Swine	101.3
Oats	101.1	Sheep	88.7
Mixed grain	98.5	Poultry	104.1
Field hay	102.8		
Fodder beets	101.0		
Flax	77.1		

It will be seen from the above figures that the influences exerted by, and during, the agricultural crisis have had a generally upward effect on the area sown to rye and the cow and pig populations (i. e., on branches sensitive to changes, and a downward effect on the areas

under flax and winter wheat and the sheep and horse populations. The effect of the changes in business conditions that occurred during the agricultural crisis has thus been different in the branches of agricultural production.

For the purposes of analysing the effect of cyclical factors during the agricultural crisis knowledge of the scope of activity of individual branches of agriculture is of great value for business policies in that it enables any undesirable developments in a given branch to be checked by appropriate measures. In fact, in several cases it has been possible by suitable Government measures to overcome a difficult situation more easily and to develop agricultural production in the desired direction.

5. Importance of Individual Factors, and Practical Results Obtained.

Such changes as have occurred in the areas under grain for human consumption have on the whole been dependent upon the relative remunerativeness of these grains, which improved during the agricultural crisis as a result of measures taken by the Government and induced farmers to expand the area thereunder. It is therefore desirable that the existing system of regulating the local grain market by the fixed price policy now pursued should continue in operation until world prices of rye and wheat have risen at least to a level covering the cost of production, otherwise a contraction of the food grain area will have to be faced.

The deciding factor in the case of the flax area is the price obtainable for the product. To keep production of this crop remunerative and uniform it will be necessary to stabilise the flax price by a system of bounties to be paid in bad years when prices are below prime-cost out of the surpluses realised in good seasons. Such a system would undoubtedly provide effective means to keep the flax area stable.

The number of horned cattle in general and cows in particular has not been directly influenced by changes in economic conditions, but merely as a consequence of the reduced general productiveness of farms. It can therefore be argued that the effect of the respective measures of busines policies upon the number of dairy cattle has been over-estimated.

The pig population was protected during the agricultural crisis by premiums paid on bacon pigs, but the effect of this measure operating towards an increase of the number kept was offset by other cyclical factors operating in the opposite direction. The scope of pig rearing on farms is dependent on the remunerativeness of this branch rather than on the price of pork.

Changes in the poultry population are not associated with direct cyclical influences, but with so-called indirect influences which produce a stimulating effect as a consequence of measures aimed at raising the general productiveness of farming. For this reason a noteworthy expansion of the poultry industry is only to be expected if this branch of production were favoured by exceptionally high bounties or, alternatively, if the egg price rose materially in relation to other animal products.

The number of horses has been influenced and regulated by the market price, in addition to which influences are exercised by changes in the structure of agricultural production as well as by the process of mechanisation of agriculture.

The direct effect of changes on the growth of the sheep population is difficult to ascertain. It may, however, be conjectured that the number of sheep underwent a relative increase during the agricultural crisis as a consequence of the fall in the monetary income of farms, which favoured the production of home-made cloth. In connection therewith, it is believed, greater attention was paid to sheep-rearing.
