

The Efficiency Myth

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The evolution of the Common Agricultural Policy (CAP) in EEC/EU and the evolution of the Danish agricultural policy in the last four decades can be seen as complementary. That is the case because the European community as a whole could not originally supply itself with foods while Danish agriculture could supply a market around four times the size of its domestic one. Simultaneously agricultural policies in EEC and Denmark from the late 1950s were based on the same measurement, that is efficiency, and the same means, that is industrialisation of agricultural production. This common but complementary origin is the basis for the following analysis where the aim is to reflect present double-bindings related to the CAP by means of a brief historical sketch of the evolution of Danish agriculture and agricultural policy in the 20th century.

FROM THE CLASSICAL PERIOD TO EMERGING SATIETY

European agriculture experienced seriously declining prices on grain in the 1870s. Danish agriculture – and Danish economy – depended in these years on export of grain and the declining prices at the time led to a social crisis that forced the Danes to choose a new trajectory. The trajectory chosen implied a fundamental transformation of Danish agriculture into producing high quality animal products like butter and bacon, especially for the British market. To do so it was for instance necessary to build up processing industries like dairies and slaughterhouses. These were established as co-operatives, and from 1882 to around 1900 about 1000 co-operative dairies and 30 slaughterhouses were established. The following 50 years could be labelled as the classical period when the livestock producing sector (farms and co-operatives) strengthened the business. In these years the two main associations (Farmers' Union and Family Farmers' Association) represented respectively the middle size farms and the smallholdings. The latter founded their beliefs on a holistic conception of social responsibility, while the former fought to consolidate their farms in a more business-oriented spirit. The contradicting

beliefs surfaced in relation to social questions, but also when it came to securing a part of the strictly limited factor of production, namely land. On the other hand, the trade was characterised by a certain stability, and the conflicts in the classical period didn't change the trajectory into fundamental new directions.

However, in the 1950s, Danish farmers found themselves in an income squeeze. Partly due to increasing protectionism on major export markets, because several nations aimed at self-sufficiency when it comes to foods, but also due to the neglected fact that satiety was emerging in the wealthy part of world. The decreasing market potential meant decreasing prices to the farmers, and thus an income squeeze. In this atmosphere, where the dominance of agriculture in the Danish economy and way of life was threatened, the farmers' associations began to suppress their conflicting beliefs and unite their efforts. First, they appealed to government to consolidate the sector and to provide the farmers attractive standards of living. The focus on standards of living stems from the fact that the crisis emerged when the farmers observed that other sections of the population attained material goods of the industrialised society, such as cars, radios, televisions, laundry machinery, etc. The farmers wanted to acquire these goods too, but were not able to do so on their own. That is why the farmers' associations appealed to the government to ensure farmers an income on a level similar to that of other sections in Denmark. As a matter of fact, the main associations commonly formulated the aim as to ensure farmers an income equal to that of skilled workers. They formulated demands based on moral judgements and, at the same time, in spite of traditional, liberal values, they interfered in the distributional demands from other social groups, for instance by strongly advocating income policy. On one hand, the farmers wanted to secure their own level of consumption through a redistribution of wealth provided by government and then, to some degree, transform themselves into wage earners. On the other hand, they were, to some degree, employees through their collective ownership of co-operatives.

This change in beliefs was remarkable when it comes to the smallholders who then tended to break with the holistic ideas (Ingemann, 1997).

EFFICIENCY AND INCREASING PRODUCTION AS NEW POLICY MEASURES

The Danish government showed a positive attitude to the farmers' demands. Several measures were intended to meet the specific problems confronting Danish agriculture, and to some extent the nation, through collaboration between government and agriculture throughout the 1950s. Among the formulated means at the end of the 1950s were (Bjørn, 1982; Ingemann, 1998):

- Join the EEC as soon as possible.
- In collaboration with the government, speed up the use of modern marketing in the export markets.
- Establish a comprehensive subsidy-system.
- Speed up R&D efforts and the Danish advisory-system.
- The notion of "The Efficient Farm".

It was expected that Denmark – along with its main market the UK – could soon join the EEC, and membership was seen as a key to a fundamental solution: it would ensure admittance to a comprehensive market and to enjoy the benefits from the EEC's agricultural policy means. EEC was founded on the Treaty of Rome in 1957, and in article 39 it was stated that provision of foods in abundant quantities and at low prices were highly prioritised policy measures which seemed very rational while the original EEC members as a whole could not supply enough food.

Simultaneously Denmark produced around four times the domestic needs. Though it was not said out loud, it was somehow implicitly stated that when Denmark became a member of the EEC, the farmers could produce as much as they liked, and the EEC would guarantee the prices and buy the surplus. Once Denmark became a net beneficiary of the EEC, other countries would be paying the bill.

In the meantime, the use of modern marketing should be implemented in the export markets to increase the market shares. To create the financial basis, government granted subsidies and furthermore by law enabled the associations to levy a duty on farmers' produce when brought to manufactories. The duty was then transferred to national funds for marketing purposes controlled by the farmers' associations.

The farmers' demand for a certain income level was met from 1958 through massive governmental subsidies. The idea was that the subsidies would be formed as mechanisms similar to the EEC agricultural policy means. Originally, the subsidy scheme was introduced as a temporary solution, and the Danish agricultural policy was labelled as the "waiting room policy". Farmers were waiting for EEC membership, after which the European community could assume subsidising and policy measures in general according to Danish agriculture. The national Danish subsidy system, where the Danish government provided the financial security for the trade, had to continue until 1973 when Denmark finally became a member. The intermediate national subsidy system inferred that the farmers' associations took part in collective bargaining with the government, parallel to the bargaining on the labour market.

Another method engaged in national policy was to make farm production more efficient by introducing new, industrial farming technology, such as chemicals and automated systems in livestock production. The farmers' associations received governmental subsidies for advisory-centres, where specialists in a vertical system were – and still are – linked closely to Danish R&D institutes for agricultural technology. This system was meant to ensure a quick transformation of R&D results into practical use on the farms.

In addition to using public finances to secure their income, farmers formulated the notion of the efficient farm (Ingemann, 1998) with the following chain of arguments:

- Farmers must be secured an income similar to that of other sections of the population.
- When the income from farming is limited, then it is necessary first to limit the number of farmers.
- Farmers who must leave the trade can get jobs in the urban areas, and in that way automatically obtain a level of income similar to that of other sections.
- This means that fewer farmers stay in business and they can share the total income of the sector.
- Second, every farmer must – by means of real capital and swallowing up the less effective farmers' property – increase production.

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Box 1 Treadmill and cannibalism

In the figure below it is illustrated that the amount produced is more than doubled while at the same time the farms' Gross Factor Income (GFI) in fixed prices is reduced to about 60 percent of the 1951 level. This seems to be an anomaly because the amount produced has increased and the income decreased. To explain this it is essential to make a distinction between the farm level and the national level. Some farms can increase the amount of production without notably affecting relative prices. But when all farms increase the amount of production, the total national amount is increased, and due to the limits of the human capacity to digest, the price level must decrease. The produced surplus can then be sold for exports, but in the western world – where there is effective demand – most consumers must be assumed to be satiated with food.

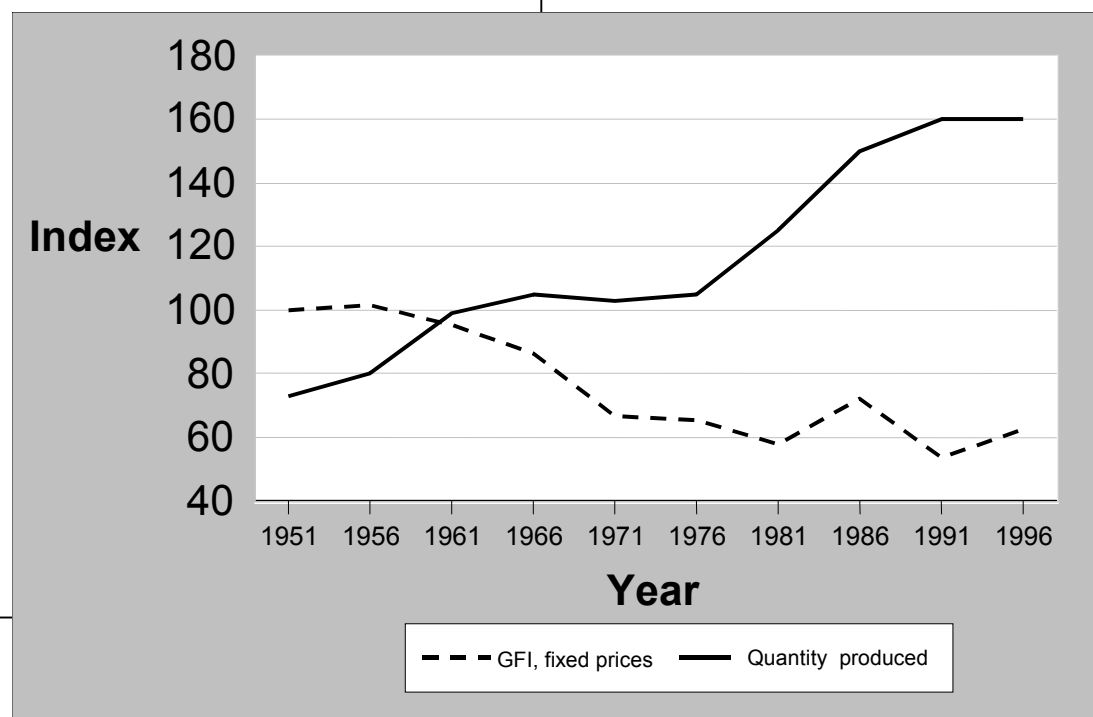
These points are leading to the concepts of 'the treadmill' and 'cannibalism' as originally introduced by W.W. Cochrane (1979). When farming is industrialised output tends to increase and the prices then to decrease. Thus the farmers' reaction is to increase output even more, which in turn imply further decreasing prices – that is the agricultural treadmill. Simultaneously industrialisation implies that each farm needs more farmland to expand production. Farmland is limited and the only possible way to increase farmland is then to buy that of the neighbours and amalgamate – that is agricultural cannibalism.

- When fewer farmers stay in business, and each produces more, they can increase their level of income – or, to put it the cannibal way: eat your neighbour or be eaten.

From the late 1950s, Danish agriculture was designed to stay in business by means of a strict vertical co-ordination within the sector, by subsidies and by increasing productivity. Besides, the notion of the efficient farm was supplemented by the notion of the efficient co-operative, which implied concentration; in general the farms gradually became a tiny part of a vertical integrated agro-industrial complex. The agricultural policy was formed to fit the notion of the efficient farm, covering a wide spectrum of policies such as governmental provision of R&D, favourable tax depreciation schemes related to investment in machinery and buildings, in addition to governmental security for loans to investment purposes.

ECONOMIC DOUBLE-BINDINGS OF THE TRANSFORMATION

The described change of trajectory implied that, from 1950 to 1995, Danish agriculture more than doubled its production, but at the same time the aggregated GFI (in fixed prices) of the sector was almost halved (see also Box 1). The so-called

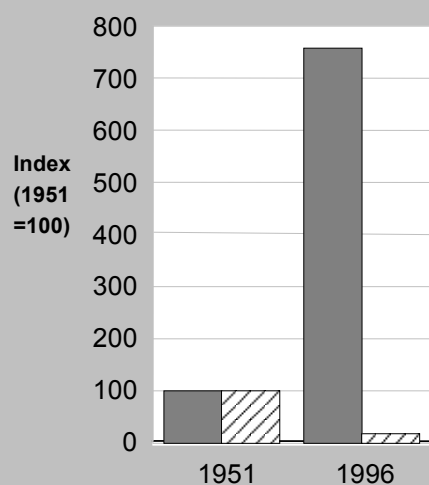


efficiency implied that the primary production was organised similar to industrial methods; thus labour was substituted by real capital and industrial inputs such as pesticides (see also Box 2). Simultaneously, Danish agriculture has experienced a dramatic decline in value added. In 1951, value added came to about 88 per cent of the production value, compared to 44 per cent in 1994. Furthermore, the value added in slaughterhouses is, in these years, only 27 per cent and in dairies only 21 per cent, compared to Danish manufacturing industry where the aggregated value added comes to 44 per cent (see also Box 3). Finally, from an income point of

Box 2 Efficiency through substitution

Industrialisation of farming represents a technological shift where human labour is substituted by real capital (machinery, equipment, etc) and industrial inputs (especially chemical inputs like antibiotics, chemical fertilisers, and pesticides).

Capital and labour



■ Capital/labour ratio
 ▨ Number of full time workers

The substitution by means of real capital is illustrated in the figure above. Capital engaged per full time worker has increased about 7.5 times from 1951 to 1996. (Ingemann 1998)

Box 3 Value added

A commodity contains inputs and an amount of real capital used in the production process. The value added is then an expression of the increase in value caused by "the building up" from inputs to final commodity, or to put it in other words: value added is the difference between value of production and the resources used from outside the firm. In that sense value added is the part of the commodity price left to pay capital, land, and labour.

The more difficult and hence qualified work process the more qualified labour is needed, which again means that more value is added. With the ongoing industrialisation of farming it has been necessary to introduce methods of production where the animals somehow are reduced to machinery. In that way farmers are able to produce increasing amounts of goods using a high degree of real capital and a low degree of labour. For instance it is said that no special skills are needed to produce eggs when the hens are in cages, because the routines then are scheduled and automated. But when it comes to egg production by means of free-range hens – as in organic farming – the production manager must necessarily have great skills and experience to understand the behavioural signals of the herd and to be able to respond quickly to these signals. So, the farmer is more in the center in organic and similar modes of farming, tending to increase value added. A survey has exposed that conventional milk farms produced 39 per cent of production value as value added while comparable organic farms produced 50 per cent value added due to lower costs and higher output prices (Anonymous, 1997; Ingemann, 1998).

view it also seems difficult to assert that the efficiency strategy has been able to solve the income squeeze for the farmers (see also Box 4). (Ingemann, 1998)

POLITICAL DOUBLE-BINDINGS OF THE TRANSFORMATION

In the 1950s other sections were able gradually to enjoy the fruits of the industrial society, while the farmers found themselves caught in an income squeeze. The latter then entailed claims on other sections while the pay-level of skilled workers was advanced as a moral standard. If farmers couldn't obtain that level through the market, it was seen as the social responsibility of other groups to make up the difference. The farmers' associations were able to use their economic and political power to persuade the government to establish a complex policy system to support Danish agriculture,

primarily through subsidies. Thus, the policy system in the 1950s represented an innovation to collaboration: The negotiated economy was

Box 4 Decreasing income

The Danish membership of EEC lifted the income level of Danish farmers but only for a short while. The figure below illustrates the average income per holding in fixed prices and it reveals a decreasing trend.

The chronic income squeeze of farmers has institutionalised comprehensive subsidy schemes in most rich countries. In Denmark the direct and indirect subsidies (calculated by means of OECD method) are indicated in the table below. The figures reveal that the total subsidies equal more than two times the value of the family's private consumption (Ingemann, 1998).

Per full time holding. 1000 DKK. 1996

Direct subsidies	150
Indirect subsidies	316
Total	466

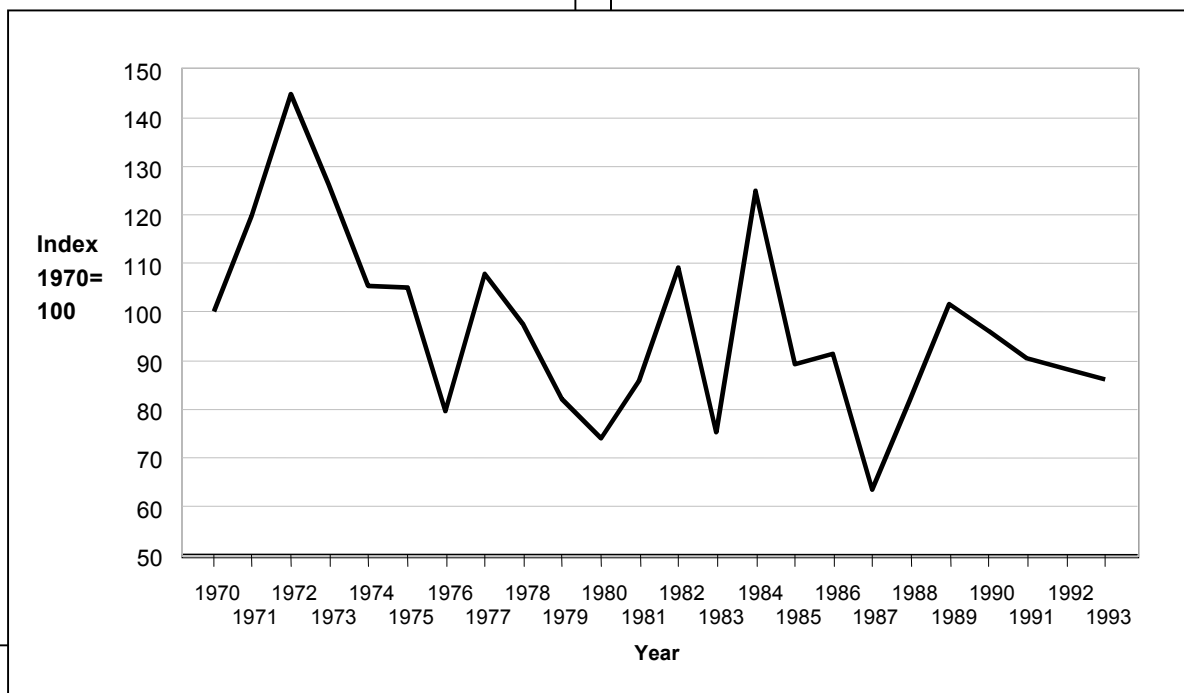
In comparison

Taxes paid	74
Family's consumption	206

The experienced development indicates that it is not possible to solve the income squeeze by increasing output of standard foods.

introduced and institutionalised. In this system, the government played the role as a court of appeals when the outcome on the market wasn't satisfactory to the farmers (Hernes, 1978). In the 1950s, it became the aim for every farmer to raise his standards of living - as a minimum to the level of skilled workers - without any serious reservations as to the means. Here, the notion of the efficient farm was also introduced. To push farmers into other trades would be justified by referring to an expected increase in their standard of living, while the remaining farmers would increase their income by commanding an increasing amount of capital goods and by introducing various industrial inputs, such as chemicals, into farming. These means should enable them to increase production and thus their income.

The argument that the rejected farmers would be secured a certain income level was at that time correct, while manufacturing and services needed labour power. The other part – stating that increased production would secure higher income to farmers - was and is somehow more troublesome in acknowledgement of the mechanics of the treadmill and cannibalism as illustrated in Box 1. These mechanisms have been obvious since the 1950s and have led to production of standard goods by industrial methods, doubling production and halving the aggregated GFI. At the same time, the industrial mode has entailed a dramatic increase in the capital intensity on farms and a dramatic



decrease in farmers' equity. That means increasing dependence on industrial manufacturers and financial institutions, as well as dependence upon governmental subsidies. (Ingemann, 1998)

In the outlined evolution notions and political power have had a marked influence on the conditions under which the market functions. Governmental institutions have been used as a board of appeals when the resulting allocation by the market was not acceptable to the farmers, and in general combined efforts have been made to arrange the allocative outcome by means of managing operations of political as well as economic institutions. As a parallel to the agro-industrial complex, an agro-political complex evolved too, based on the special policy style of the negotiated economy. (Ingemann, 2002)

By maintaining the notion of the efficient farm, it has, until recently, been possible to neglect the limits of the human capacity to digest and the treadmill. However, the anomaly between this notion and reality might have gone too far. The crucial policy measure in Denmark and EEC was to expand output by means of industrialisation of farming. The policy was successful – one might to some degree say too successful – which already in late 1970s made it obvious to raise the radical question: *why stick to a policy implying that we in the EEC produce too much food causing pressure on the EEC budget and rural areas, maintain an income squeeze on farmers and serious negative effects on natural life support systems and developing countries?* However, the general picture of the CAP is still *de facto* a policy that involves incentives to continuously expand output by means of industrialisation, although a limited number of incentives to decrease output in certain marginal areas are introduced as supplement. In that manner the system reproduces its own fundamental problems. Thus we are still waiting for a radical change of trajectory in a more sustainable direction.

THE DOUBLE-BINDINGS AND THE CAP

To sum up, looking at the evolution of Danish agriculture and the reflections of CAP within it we are facing a construction of a Gordian knot involving several economic, political, and ecological problems. The economic problems are especially linked to income squeeze from satiety and the consequent treadmill among the farmers and budget pressure on the EU. The political problems are especially linked to the evolution and

institutionalisation of a negotiated economy regime where various interest groups are woven into a complex and balanced network of relations; this network includes both agro-industrial and agro-political complexes. The ecological problems are linked to environmental threats to Europe's and other nations' natural life support systems and to carrying capacity in developing countries. In this complex of problems it seems rather obvious that the interplay between the economic and political problems is the cause while the ecological problems are among the crucial effects. Further, the economic and political problems reproduce themselves and each other which makes the necessary (radical) solutions very difficult.¶

References

- Anonymous, 1997:* Produktionsøkonomi – økologi. Landbrugets Raadgivningscenter. Skejby.
- Bjørn, Claus, 1982:* Dansk mejeribrug 1882-2000. Odense.
- Cochrane, Willard W., 1979:* The Development of American Agriculture – A Historical Analysis. Minneapolis.
- Hernes, Gudmund (ed), 1978:* Forhandlingsøkonomi og blandingsadministrasjon. Oslo.
- Ingemann, Jan Holm, 1997:* Arven fra Køge-resolutionen. In B B Thomsen (ed): De forvandlede landet. Viborg.
- Ingemann, Jan Holm, 1998:* Strukturudviklingen i dansk landbrug – overvejelser om effekter, årsager og landbrugspolitiske valg. Aalborg University.
- Ingemann, Jan Holm, 2002:* Agricultural Policy. Chapter 10, In Henning Jørgensen: Consensus, co-operation, and Conflict – The Policy Making Process in Denmark. London.

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