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EUROPEAN AGRICULTURE IN AN INTEGRATING ECONOMY

THE IMPACT OF LARGE CAPITALIST FIRMS ON EUROPEAN AGRICULTURE

by

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(1) - I am indebted to Andrea Belter and Eckhard Rapelius for computational assistance.

## 1 Introduction

European Agriculture has been described and analysed in the last decades in numerous books and articles. The reduction in the number of farms and agricultural labour force, rising agricultural production and productivity and the multidimensional aspects of agricultural policy at regional, national and international levels have been at the center of thought and empirical observation. Agricultural economists receive a certain type of education to perform their professional role as educators, administrators, analysts, or researchers. Their view of the problems of agriculture is a specific one. It is shaped by the mass of agricultural data which are increasingly provided by Ministries, statistical offices and pertinent agencies. The general interest agricultural policy decision makers, educationalists, extension workers and farmers have in information of this type seems very liable to continue exclusively along this avenue. However, agriculture is only a part of the food economy. The easy access to refined data to test agriculturally bound theories and hypotheses in the field of agriculture which are professionally en vogue, supports a view which equates the problems of agriculture with those of the whole food economy. The planning committee of this conference has to be congratulated on their wisdom in devoting one group of themes to the much more broadly defined area "Agriculture in the Food Economy".

These are some of the reasons that, after weeks of procrastination, hesitation and reflexion, finally led me to agree to prepare this paper. Further, I have to confess that in the course of my preparation the topic began to fascinate me increasingly. It opened up an unexpected opportunity within the European context of this conference, so that I finally couldn't resist elaborating more intensively on the assigned theme : the impact of large capitalist firms in European agriculture.

## 2 Some Remarks and Reflexions on the Term "Capitalist Firm"

Agriculture forms at present, in terms of its labour force and in the value added created in Western Europe, only a small and shrinking part of the whole economy. Within the food economy agriculture has not lost its typical spatial character to tap the sun's energy by growing plants and tending livestock on otherwise not usable grazings to produce the food required. The family farm prevails throughout Western Europe. However, to enable the farmer to produce more effectively per unit land and labour, an increasing proportion is contributed by various inputs coming from different industries and institutions. Finally, to provide the consumer with the desired quantity and quality of food when and where needed, food traders at several levels and various food, beverage and service industries have extended their activities to perform the functions necessitated by the requirements of expanding markets. It is in this general framework of completed dynamic changes that the capitalist firm emerges as hypothesised in the assigned title and makes its impact on agriculture.

The focus of the title on the impact of the capitalist firm on agriculture has obviously to be seen as an alternative or partly as a complementary enterprise to the cooperative firm. This aspect - among others - has been dealt with thoroughly in the paper presented by Professor Meulenbergh. However, the many connotations of the term "capitalist firm" can't be neutralized with any certainty by referring to the alternatives or to the competitiveness opened by cooperatives, because this would force us again to view the whole food economy mainly under the angle of the single farmer or the agricultural sector. For want of a proper definition the term "capitalist firm" is used here in the sense, that its various dimensions in terms of skilled labour

force, capital stock, total profits earned, turnover, research and development budgets, and geographical coverage have decisively distinctive and identifiable orders of size. The advantage of this broad definition centering exclusively on size is that it includes several types of enterprises. Public and shareholder corporations, private partnerships, multinational firms and large firms based on single proprietorships which meet one of the size dimensions might be considered as capitalist firms.

A serious barrier which originally appeared to be unsurmountable is how the impact of the capitalist firm on European agriculture can be quantified. One attempt has been made in this paper in section 3.2. Results and ideas of two others approaches or schools of thoughts will be reviewed briefly in sections 3.3 and 3.4 to structure the discussion.

### 3 Observations on the Appearance of Capitalist Firms in the European Food Economy

#### 3.1 Introductory remarks to classify a Variety of Approaches

There have been several attempts to explain the organizational strategy of successful capitalist firms with an international dimension. Vernon (28) developed his product cycle model to explain the expansion of U.S. multinationals with their three decisive stages of development. A lucid discussion and partially empirical tests can be found in Bornschier (3). Generally a leading capitalist firm experiences three distinguishable stages involving a number of basic decisions.

Stage 1 : Firms grow to a national dimension by exploiting the growth potential of local, regional and finally national markets in fields where they have the greatest technological and organizational superiority.

Stage 2 : The final asymptotic exhaustion of the national growth potential is reached, characterized by lower and fast declining growth rates. To sustain permanent growth the firm is forced to diversify products and services and to export products or services to accessible foreign markets.

Stage 3 : Any exporter is faced with reduced contact with traders and customers compared to national producers. Further, administrative barriers and threats of changes of policy cause the exporter's difficulties. These factors induce under favourable conditions production in foreign countries. The multinational firm emerges, bringing with it new dimensions of competition, experience, and probably superiority in discovering the growth potential of foreign markets (29).

The organizational instruments available at all stages to sustain growth and international expansion, and to acquire the needed assets are manifold : patents, licenses, partnerships, fusions, mergers and buying of foreign firms will be used. This model of the successful capitalist firm seems to be a useful introduction to the dynamic dimensions of the term capitalist firm. However, the model emphasizes the internal effects within the firm and neglects the external effects of changing environment. Multinational firms in countries with an appreciating currency have better conditions for launching an international strategy than those in countries with a depreciating currency.

To shed some light on the international and national dimensions of capitalist firms three different approaches will be pursued. No claim can be made that this classification is free from arbitrariness or that justice can be done to the three approaches.

The three approaches to be considered are :

- (a) International Agribusiness Studies
- (b) National Concentration and Competition Studies and
- (c) Single Firm or Single Market Studies without fixed geographic coverage.

(a) Investigations which embrace the whole food economy are referred to as agribusiness studies (Davis, Goldberg, 8). Originally they were developed to study the flow between the various components of the food economy in one nation or region (12). The agribusiness approach has proved flexible enough to study various subsystems of the international food economy, where technical education has been related to performances in export markets (13). Most space in this paper will be devoted to testing aspects of this approach.

(b) The main concern of national concentration and competition studies is to test economic theories on the changes in market structures and market shares of single industries and how the latter influence market behaviour (14). The main concepts of a few studies on the food economy will be referred to.

(c) Single firm or single market studies inform in a systematic way the interested public about the size and size distribution of firms and the development of supply, demand, technology, investments etc. These studies are frequently an essential prerequisite for the undertaking of international agribusiness studies or national concentration studies on a more advanced level. Only a few remarks will be made here.

### 3.2 International Agribusiness Studies

#### 3.2.1 Introduction

Systems theory and systems analysis (1,7), which originated in the biological sciences, provide at least a useful language and set of models to study such large organizational entities involving so many subsystems, variables and relationships as the food economy of Western Europe. The methodology of the black-box, where the systematic variations of identifiable input-output relations permits a subsequent elucidation of the pertinent parameters and variables of various structural relations, seems to be an appropriate tool at the beginning of any information-gathering activity. Relations to be studied within the framework of the black-box methodology could be, for example, what impact the capitalist firm has in agricultural input industries or in the food industry in several countries. The question could be raised : what are the typical prerequisites and the built-in negative and positive feed-back loops which promote and restrict the growth of the capitalist firm in the various subsystems of the food economy ? Further variables to be considered could be the variations in the market share of the largest four or ten firms in the industries under investigation in each of the European countries. The more studies could be devoted to critical areas where the capitalist firm is on the top of the hierarchy in these subsystems, the higher would be the probability of obtaining a comparative European perspective.

Considering the time and resource constraints given and due to the lack of accessible and comparable data, only one source (EG, 17, 1976) has been exploited to obtain an initial perspective. We concentrate in this section, therefore, on the appearance of multinational firms. The focus on the multinational firm has the advantage of contributing empirical observations to the international debate where the multinational firm is sometimes regarded as the prototype of the capitalist firm.

To bring numerical order or measurement into our observations, the number

of multinational firms in the whole economy and in selected industries has been subject to graphical and statistical analysis. The graphical analysis carried out is primarily based on Adam Smith's famous statement : "The size of the market determines the division of labour".

The size of the market is given by the Gross National Product in several countries, and the division of labour between countries and within industries is enhanced by the appearance of the multinational firm. This is our basic hypothesis. The number of multinational firms pertinent to several countries is therefore plotted in figure 1 against the Gross National Product (GNP). Parallel lines at an angle of 45° in this figure help regardless of the varying sizes of the individual countries to quantify the number of multinational firms (identifiable by the four ratio levels 10, 1, 0.1 or 0.01) per one billion US dollars of GNP. By means of this graphical device the results of a cross-section of industrialized countries with market economies open for the international division of labour can be summarized as follows (for statistical details, see Appendix, table 1) :

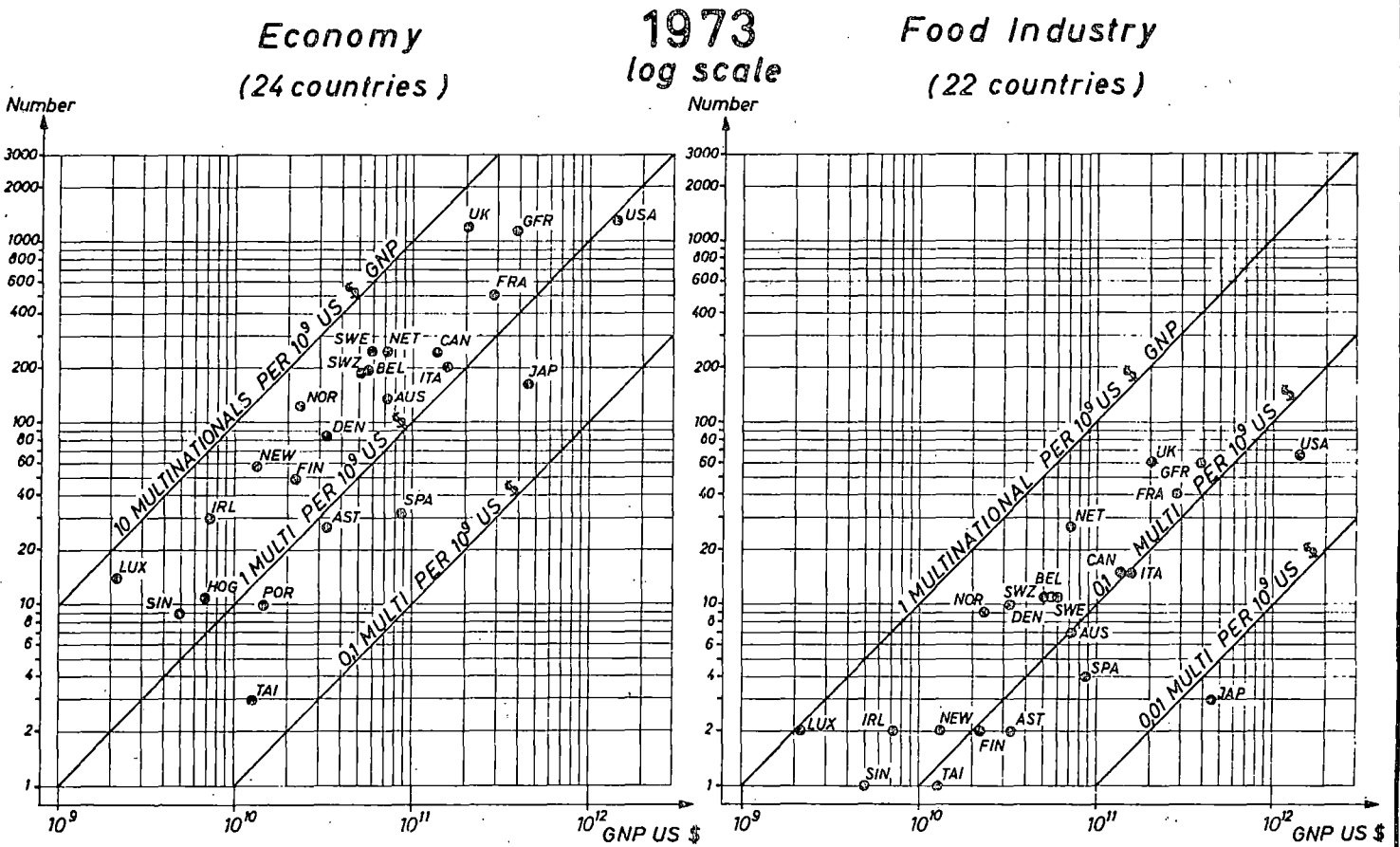
### 3.2.2 Economy as a Whole

It has been assumed in figure 1 that a country has to have a minimum market size of one billion dollars of GNP to be the seat of a multinational firm. In Europe, all countries (except Cyprus, Malta and five other smaller territories) meet this requirement. The economic prerequisites to be the host country are less favourable in those parts of the world where a low level of economic development (mainly Central and West Africa, Caribbean and Oceanic countries) is combined with a small population<sup>(1)</sup>. As the national market increases in size, the number of multinationals rises. However, there is in the countries under scrutiny no one-to-one relationship. Despite a similar market size {compare e.g. Spain (SPA) with Switzerland (SWZ), Sweden (SWE), Belgium (BEL) and the Netherlands (NET)}, those European countries with a higher per capita income have relatively and absolutely more multinationals. That means they are more integrated in the international division of labour. This might be due to the fact that with a higher per capita income the production and demand pattern becomes more diversified. The graphical dispersion of countries leads to the conclusion that further factors have to be considered. Contrary to popular belief the USA have as a result of their huge internal market proportionately less multinationals than Germany, the United Kingdom and Sweden. Austria, Japan and Spain seem to share - obviously for other reasons - in all four parts of figure 1 the low level of international integration of the USA. A multifactor analysis of further variables (e.g. GNP per capita, economic distances to neighbouring countries with exploitable markets, degree of comparative advantage by specialization on certain industries, original factor endowment, foreign trade component in certain markets) seems to be a challenging task which could explain the degree of variation in the number of multinationals in relation to GNP. It would be even more revealing if not only the number of firms could be regressed on GNP but also the various size dimensions of multinational firms

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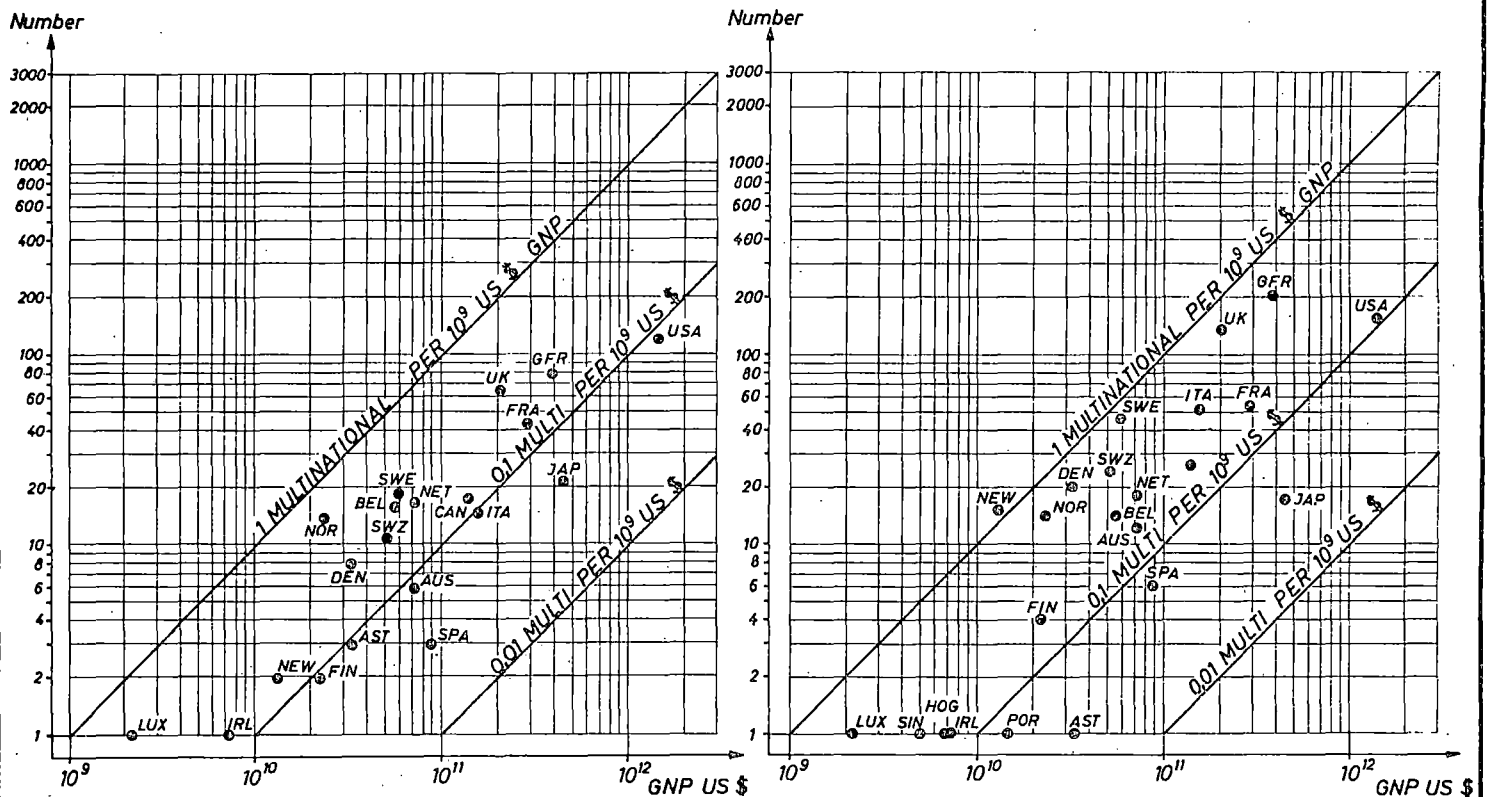
(1) - It is further important to notice that aside from a high per capita income the type of industry is decisive for determining a minimum market size. The aircraft or car industry, for example, needs, to be started successfully, a larger national market than the food industry. One billion dollars GNP as a minimum market size seems to be a useful yardstick only if broad classes of industries are considered. It has further to be noted that the analysis presented here is restricted to industrialized western countries. Data and analysis of the impact multinational firms have in Eastern Europe can be found in Wilczynski (30).

# Number of Multinational Firms versus Gross National Product (GNP) in Selected Industries of Various Countries



*Chemical Industry*  
(20 countries)

*Machinery Industry*  
(23 countries)





(profits, investments, turnover, research and development expenditure, proportion of skilled labour etc.). Such highly desirable data are at present not available.

### 3.2.3 Food Industry

The history of Europe's two largest multinational firms in the food industry (Nestlé, Switzerland and Unilever, Netherlands) can be traced back to before World War I (Franko, 11, p.16), and other multinational firms followed. As can be seen by a simple inspection of the upper half of figure 1, the same tendency as can be seen in the whole economy prevails in the food industry. The number of firms increases with the size of the respective country's market. However, it should be observed that most European countries have in the food industry, as compared with the whole economy, a one log or even smaller ratio of multinationals to GNP. The food industry consists of several branches. Which branches of the food and beverages industries are more suited to the international division of labour by multinational firms has to be investigated.

The factors which are probably of strategic value for the mobilizable growth potential of multinational firms are manifold. Such factors include the capital-intensity and the labour-intensity of the production processes. Other factors are the purchasing capacity for raw materials in foreign countries and/or domestic areas. The experience based on applying and refining specific technologies to come up with consumer-oriented products like chocolate or coca cola seems to be important. Assuming continued economic growth and without inferring too many details from a small number of observations, the general tendency described favours the conclusion that the potential of national markets is becoming less and less important for the orientation of the multinational firm within the food industry. However, even if the number of farms and the number of multinational firms were to double their respective rates of decrease and increase, the ratio between the two is at present so large that it would take hundreds of years for them to become equal. Even in such a theoretical case, a simple take-over of the land of farmers could not occur, because the price of land would still be too high and the profitability of farming too low to be an inducement for the multinational firm.

In Germany (around 1975), there were 15 000 farms over 1 ha per one multinational firm and the corresponding figure in the United Kingdom is 4 400 farms per one multinational firm. However, in certain fields of specialization the ratio will be down to some hundreds of farmers. Whether the immediate impact of the multinational firm on farmers' income, prices or social status is positive or negative would have to be studied within such a system. The design and conclusions of such a microeconomic study would be valuable as soon as a reliable and transferable reference system could be found.

### 3.2.4 Chemical and Machinery Industry

The food industry is in most industrialized countries still one of the largest industries (20). The chemical and machinery industries are also comparatively important industries. They include the agricultural input industries, which produce fertilizers, protective substances for plants and animals, tractors and agricultural machinery. The higher total number of multinational firms in the chemical industry (475) and the machinery industry (816) as compared with the food industry (365) might indicate that these industries are internationally better integrated and a possible specialization within these industries probably easier to accomplish. In principle, however, the observed tendency still holds : the number of multinational firms in the machinery and chemical industries increases with the national market size. Other barriers in the food

industry, casing less multinationals, might be that economies of scale in production and marketing costs are offset very quickly by increased shipping costs. Furthermore, research budgets in the food industry are low and food is still organic in nature. Considering the large size of many multinationals in the chemical and tractor industry the impact felt in agriculture can be traced with certainty. But the products are standardized. They are supplied in competition by many firms and farmers. In the long run they determine by their buying agents (cooperatives, traders) market conditions to a substantial degree. As rule of thumb we can conclude that in the European context for all industries about six multinational firms per one billion dollars of GNP seems to be the upper limit regardless of the size and specialization of countries. For the selected industries (food, chemical, machinery industries) a similar maximum number of multinationals would generally require a market at least ten times as large, in the order of ten billion dollars. However, less favourable conditions, such as a low income per capita, a lack of engineering skills and organizational aptitudes, large economic distances or political barriers preventing a mutual benefiting from the growth potential of neighbouring markets, and many others, reduce the possibility of becoming the seat of multinational firms<sup>(2)</sup>.

### 3.2.5 Statistical Test

To summarize the present discussion numerically a statistical test by the simple regression model of linear logarithmic equations was applied to the data used in figure 1 (see Appendix, table 2). In terms of the usual criteria ( $\bar{R}^2$ , t-, F-, D.W.-test) the estimation is statistically sufficient. An increase of the GNP by 10% leads to a rise in the number of multinational firms in the economy by 8.8% (equation (1)), in the food industry by 6.6% (equation (2)), in the chemical industry by 8.2% and by 9.1% in the machinery industry (equations (3) and (4)).

What conclusions can be drawn from these results? The cross-sectional analysis of various industries and countries with relatively recent data (1973/1974) supports the hypothesis that the size of market determines the international division of labour practised by the multinational firm. The impact on agriculture of the multinational firm changes, according to this statistical test, in specific ways proportional to the size of the market, measured by the GNP. A more refined statistical model, which would include additional economic and technical variables to investigate the parameters of the various agricultural input industries and branches of the food industry, seems to be a path worth pursuing.

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(2) - Longitudinal studies of the emergence of multinational firms in various industries in Japan, Hong Kong or Taiwan could demonstrate that despite the very unfavourable conditions of many decades ago the systematic specialization and continued accumulation of scarce skills in electronics and textiles has been a successful strategy. Ministates which offer tax shelter have even greater potential as hosts to multinational firms. Nevertheless, the uneven demographic, geographic and economic size causes concern in the international debate. It is beyond the economist's task to explain why some states or territories seem to survive despite their small size or determine what might be the minimum or optimum size of countries in our time. But the view of some political scientists, who claim to have a unique interpretation, based on very few data, on the appearance and impact of multinational firms, has to be rejected.

### 3.3 National Concentration and Competition Studies

One of the basic tenets of the market economy is an assumed correlation between the degree of competition and the rate of economic progress. The onset of a concentration or the reduction in the number of firms in an industry is a cause of concern in this philosophy, because huge capitalist firms might gradually reduce market competition by their organizational power. Karl Marx was one of the first political economists who advanced the prognosis of increased concentration of industrial production in capitalist firms accompanied by a reduction of competition. The empirical evidence, however, is not as clear. It can be argued with reason that a reduction in the number of firms increases competition (14). Therefore, what should be called concentration has created an abundance of literature among lawyers, statisticians, sociologists, economists, philosophers and politicians. But in spite of such efforts no easy generalization can be made. Each observation seems to be special. vague discussions on the probable and possible future effects of concentration characterize the literature. Similar difficulties have to be expected if conclusions on the impact on agriculture are to be drawn from concentration studies. However, despite the broad range of interpretations these studies have, they do at least reveal the size and size distribution of firms within one country between different branches of the food industry. If time series of concentration were available, typical growth patterns of capitalist firms in certain branches of the food industry could be analysed. But special efforts would be necessary to put the results of such country studies in their European perspective. The European Commission in Brussels presented as early as 1967 a report of a group of experts (17) about the causes and effects of concentration. These experts made proposals about the methodology to be used and the sectors to be studied. Several country-sector studies have been produced, among them those for the food industry (Breitenacher, (4) 1976, de Jong et al., (15) 1974, Rastoin et al., (24) 1974, Development Analysis Ltd., (9, 10) 1975, 1977, Smith, (27) 1975). Unfortunately, a summarizing report has not been presented. The main problem in evaluating the results of concentration studies in a European context might be listed under the headings of methodology, reference area and history :

Methodology : To describe the wide variance of size distribution groups of enterprises have in the (national) market, different concentration measurements have been developed by statisticians (Großkopf, Alter, (15) 1978). The market itself, however, has no spatial structure, it exists in these studies as a single point. The same concentration index for any two markets of the food economy in one country doesn't permit any real conclusion about the respective degree of competition and the impact on the farmer. The varying production and consumption densities, the diversification of products, the minimum production size requirements or the technical potential for innovations would have in any national comparison of two markets substantially different weights.

Reference area : The progress in economic integration in Europe reduces the national territory with respect to competition and concentration to a time- and market-dependent variable. This is not reflected in the space-bound data production of a national administration. An increase of any concentration index over time might be offset decisively by the effects of foreign competition. Therefore a very critical assessment has to be made of what value such measurements of concentration ratios actually have for national economic policy.

History : Agricultural input industries and the various branches of the food industry in European countries and regions have their own distinctive history. Without a historic knowledge of firms, institutions, markets and their specific technologies no meaningful understanding of concentra-

tion developments and degrees of competition can be achieved. Some examples might be quoted.

Early starters and latecomers in the various branches of the food economy are now competing for customers in the European markets. Being an early starter might be an advantage, but if new cost-reducing technologies are becoming available or new products are becoming feasible, the latecomer might benefit more than the early starter. Producers in smaller national markets might have been forced to develop an export capacity earlier than those in larger countries who could derive their growth from the domestic market. On the other hand producers in countries with larger domestic markets could probably reach larger firm sizes with lower per unit costs in production and marketing earlier, which gives them a comparative advantage for exporting to the markets of other countries.

Whatever might be the fundamental explanation of the reasons for the concentration of capitalist firms, the farmers' interest is in the income and stability the capitalist firm provides compared to other firms. If they are beneficial to farmers in the long run they will be keen to accept them, regardless whether the firm is a national or multinational firm or a cooperative.

### 3.4 Single Firm and Single Market Studies

The bird's-eye view which we have tried to take of the impact of the multinational firm on agriculture in various countries was a very distant one. Concentration and competition studies are a step towards reality. However, they reflect to a certain extent the short-sighted horse-race-goer's view, who wants to transfer the fair competition rules of the few minutes of a horse-race to the many facets of a permanent market process. Single firm and market studies can avoid some of these obvious deficiencies, because they permit us to describe in less rigid terms the conditions of growth and decline of capitalist firms. The researcher who subscribes to this approach gains by subsequent studies skills and experience. It enables him to trace the various financial, organizational and personal linkages among emerging, merging and disappearing capitalist firms. The strength of this approach can easily become a major weakness, if the growth of capitalist firms is seen without the constraints given by the size and the specific rules of each market. As soon as this approach is used excessively and filled with too many details the view is similar to that of the mole, who wants to understand the whole world of plants and animals from its hill. Therefore, the narrow mole-hill view, the distant bird's-eye view and the short-sighted horse-race-goer's view have to be combined to get a broader perspective of the impact of capitalist firms on agriculture.

A quick perusal<sup>(3)</sup> of the accessible literature in European professional agricultural economic journals of the most recent years reveals that pertinent single firm and market studies are extremely few and far between. Further, they are very unevenly distributed among countries and the various sectors of the food economy. Since the appearance of Servan-Schreiber's famous book "Le défi américain" (25) in 1967, the impetus to carry out research in the field of food economy has been followed up most actively by various French authors (5, 6, 24).

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(3) - Considering the time constraint to prepare this contribution no comprehensive review of Western European literature has been possible. The literature quoted reflects, therefore, partly the author's state of knowledge and the space constraints given in a conference paper.

However, in all countries there seems to be more studies dealing with the food industry. The agricultural input industries (fertilizers, tractors, feed and fuel) are with few exceptions (2, 19, 22, 26, 27) very seldom analysed. This is surprising, since the average firm size in these industries surpasses that in the food industry many times, the international dimension is marked and their impact on the efficiency of agriculture is striking. Almost totally neglected are studies which analyse firms engaged in the foreign or intra-European trade of cereals, oilseeds and oilcake, livestock and tropical products. There are several investigations which focus on the impact of centralized purchasing by national wholesaler or retailer organizations on vertical integration in agriculture.

This review of the literature leads to the conclusion that the various components of the food economy have not been investigated according to their economic importance. Whenever in the past the access to data has been facilitated - as in the food retailing sector - parts of the research community have been attracted. However, the unbalanced data generation does not reflect the structural changes and the interdependencies of the various components of the food economy, and a balanced view seems to be beyond present research capabilities.

#### 4 Concluding Remarks

The state of our empirical knowledge with respect to the impact of capitalist firms on agriculture has increased over the years. But the knowledge gained remains scattered, incoherent and distorted, and moreover it is not reduced to a level which could give a European perspective. It is the speaker's opinion that agricultural economists will fail their mission to contribute to a better understanding of the food economy if new research programmes by various graduate schools are not initiated and pursued. More resources in terms of talent, money and institutions have to be devoted to these areas before the impact of capitalist firms in and on agriculture can be better assessed and policy recommendations made.

Apart from the lack of appropriate data, some conceptual deficiencies have to be recognized. International Economics is not a field in which graduates from agricultural economics departments receive intensive training. Furthermore, some knowledge of the main European languages is a prerequisite for real research efforts but at present the time-consuming acquisition of skills in mathematics and statistics competes more or less successfully in degree programmes with the acquisition of skills in applying foreign languages. An increasing emphasis on both in capable individuals seems to be highly desirable. Without actually having made a full investigation it is my impression that less and less doctoral dissertations are designed with a strong European flair. This has the sad consequence that most programmes of agricultural economics studies in Europe are certainly not fully meeting the challenges of our time.

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Tableau 1.- Comparaison entre le nombre de firmes multinationales et le PNB  
pour divers pays et branches

PAYS et symbole	PRODUIT NATIONAL BRUT 1974 (millions \$ US)	NOMBRE DE FIRMES MULTINATIONALES 1972/73							
		Ensemble de l'économie b)	IAA		Chimie		Industries mécaniques		
			N	%de b)	N	%de b)	N	%de b)	
Australie AUS	71 080	138	7	5,1	6	4,3	12	8,7	
Autriche AST	33 310	27	2	7,4	3	11,1	1	3,7	
Belgique BEC	55 430	199	11	5,5	16	8,0	14	7,0	
Canada CAN	139 260	249	15	6,0	18	7,2	26	10,4	
Danemark DEN	32 470	85	10	11,8	8	9,4	20	23,5	
Finlande FIN	22 030	50	2	4,0	2	4,0	4	8,0	
France FRA	285 780	508	41	8,1	45	8,9	53	10,4	
Allemagne (RF) GFR	388 670	1 174	60	5,1	81	6,9	201	17,1	
Hong-Kong HOG	6 850	11	-	-	-	-	1	9,1	
Irlande IRL	7 170	30	2	6,7	1	3,3	1	3,3	
Italie ITA	156 510	201	15	7,5	15	7,5	51	25,4	
Japon JAP	446 026	168	3	1,8	22	13,1	17	10,1	
Luxembourg LUX	2 180	14	2	14,3	1	7,1	1	7,1	
Pays-Bas NET	71 120	251	27	10,8	17	6,8	18	7,2	
N. Zélande NEW	13 070	58	2	3,4	2	3,4	15	25,9	
Norvège NOR	23 360	125	9	7,2	14	11,2	14	11,2	
Portugal POR	14 650	10	-	-	-	-	1	10,0	
Singapour SIN	4 970	9	1	11,1	-	-	1	11,1	
Espagne SPA	87 250	32	4	12,5	3	9,4	6	18,8	
Suède SWE	59 100	254	11	4,3	19	7,5	46	18,1	
Suisse SWZ	50 680	190	11	5,8	11	5,8	24	12,6	
Taiwan TAI	12 710	3	1	33,3	-	-	-	-	
Royaume-Uni UK	200 830	1 205	62	5,1	66	5,5	136	11,3	
Etats-Unis USA	1 413 530	1 317	67	5,1	125	9,5	153	11,6	
Totaux		6 308 100	365	5,8	475	7,5	816	12,9	

a) La Malaisie et le Liechtenstein ont été exclus de cette liste.

Sources : Banque Mondiale et CEE (18)



Tableau 2.- Régressions entre le nombre de multinationales pour l'ensemble de l'économie et diverses branches  
et le PNB pour diverses séries de pays (1973).

REGRESSION		Nombre de pays	Ordonné à l'origine	Variable indépendante PNB	Coefficients	
Numéro	Variable dépendante Nombre de multinationales dans				$\bar{R}^2$	S
1	l'ensemble de l'économie	24	- 2,142	0,876 (0,122) 7,180 <sup>+</sup>	0,689 0,401 51,960 <sup>+</sup> 2,645 <sup>+</sup>	
2	les IAA	22	- 2,250	0,660 (0,120) 5,500 <sup>+</sup>	0,582 0,376 30,268 <sup>+</sup> 2,518 <sup>+</sup>	
3	la chimie	20	- 2,914	0,816 (0,106) 7,698 <sup>+</sup>	0,756 0,302 59,723 <sup>+</sup> 2,674 <sup>+</sup>	
4	les industries mécaniques	23	- 3,245	0,914 (0,131) 6,977 <sup>+</sup>	0,685 0,425 48,811 <sup>+</sup> 2,086 <sup>+</sup>	

Note : Le  $\bar{R}^2$  est ajusté pour tenir compte des degrés de liberté. L'écart-type des paramètres estimés est indiqué entre parenthèses. Les valeurs significatives au niveau 5 % sont marquées +. Le test de Durbin-Watson ne montre pas de corrélation serielle. Les équations sont linéaires dans les logarithmes.