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Greece in the European Union and the Agro-food Industry: Spatial Reorganizations

Abstract: *Apart from the differentiation of productive capacity it brings about, industrial development also contributes to the employment and the redistribution of income among people, social classes and areas. Agricultural industries, in particular, usually located in rural areas, do not only contribute to the utilization of a significant part of agricultural production. Their expansion influences the socio-economic structure of areas. It creates jobs for the rural population, while one of the most important social impacts of their establishment has to do with their contribution to the change in mentality with regard to the role of women, who consist a large part of their employees. The future of many rural areas seems to depend on whether farming activities are combined with other side agricultural or non-agricultural activities. The important role played by agrofood industries in rural development obliges us to examine how this sector was influenced in the framework of the European Union from within the example of the fruit processing industry, which is the most internationalized branch of Greek economy. The accession of Greece to the European Union reinforced the course of profitable utilization of its comparative advantages, causing structural realignments and spatial reorganizations.*

Keywords: *agro-food industry, rural development, fruit processing industry, spatial reorganizations.*

Introduction

Agricultural development, in the last forty years, has led to the internationalization of certain branches of the Greek farming production. The production and processing of vegetable products became so important that it contributed to the establishment of new economic activity centers and to income redistribution among rural areas. By contrast, the production of products stemming from the stock farming sector remained stagnant.

The initial activity of farming and processing created a primary income which, by the demand it generated, encouraged the creation of various secondary activi-

ties and became the driving force of the more general economic development of rural areas.

The agrofood industry is one of the most significant and dynamic branches of the Greek industry. In 1992, the foods and beverages sector participated by 25.1% in the generation of the industrial activity Gross National Product (GNP), in 1995 this rate became 22.5%, while in the last few years it ranged around 20%. The average annual increase, in 1986 to 1992 period, of 2.7%, the second most important increase rate of total processing, which during the period subsequent to 2000 continues to be around 2% but with several fluctuations, in contrast to the general index which ranged between 0.0 and 0.5%.

The internationalization of the foods and beverages branch, that developed mainly after the country's accession in the European Common Market (ECM) in 1981, as well as the new openings in the markets of the Central and Eastern European countries, made agrofood industry one of the most important foreign trade branch of the Greek industry, and economy in general. In 1993, the value of its exports reached 414.5 billion of United States Dollars (US\$), representing almost 21.4% of the value of the country's total exports. In 1998, the value of agrofood industry exports reached US\$ 1,836 billion (19.9% of the total); while in 2002 it reached US\$ 2,069.2 billion, representing 19.3% of the total.

The co-existence of farming and agro-industrial activities has supported the economy of areas running the risk of falling into economic decline. That risk came as a result of their dependence on an opening up to international trade, declining agricultural sector because of traditional farming and insufficient operational organization and because of the mutation of rural economy. The importance of primary production is decreasing, not only in relation with the general economic activity, but also with respect to the food sub-sector itself, whereas the significance of the agricultural products' processing is increasing.

The future of many rural areas seems to depend on whether farming activities are combined with other side agricultural or non-agricultural activities. Among the later, the agrofood industry can and does, indeed, play an important role, causing structural realignment and spatial reorganization. Besides, "the development of tighter linkages in the food production and distribution industries can have a major impact on market access in both the input and the product markets" (Boehlje, 1999).

The traditional method to analyze agro-industrial systems is confined to the study of the correlation between the conception of the projects and the activities of marketing, buying and processing. However, the direct relation of agro-industries with their economic and social environment leads to a new approach for the agro-industrial sector, an approach which examines the results of its development and the development of every economic activity within the context of the overall evolution in their area of establishment. Thus, the analysis framework of

agro-industrial projects includes three parts: the systemic, the monetary and the economic analysis (Austin, 1981:17).

The important role played by agrofood industries in rural development obliges us to examine how this sector was influenced in the framework of the European Union (EU) from within the example of the fruit processing industry, which is the most internationalized branch of Greek economy.

In our presentation, following a theoretical approach of the role of agricultural industries in rural economy, we shall present the development of the Greek fruit processing industry and especially of Argolis Valley, which is a primary sector for the development of the area. The local tradition and knowledge have contributed to the expansion of their firms all over the Greek productive regions of raw material. This regards the outcomes of a research conducted from the late 1980's until the early 1990's as well as the beginning of the year 2004. This research was carried out by using the method of filled-in questionnaires which corresponded, as regards the first period (1989/1990), to the whole of fruit processing enterprises of the area, and as regards 2004, to the 5 most important enterprises. During the course of these 15 years, 7 factories have closed down, while two new factories were created for the processing of citrus fruit, the size of which is not particularly important. We shall compare two time periods attempting to define the grounds of the advancement of this branch which is characteristic for the development of a large number of regions of the Greek countryside.

Agrofood industries in rural area

As it was noted by J.R. Lasuen “the adopter of the innovations has always been the firm, but the consequences of the adoption for the nation have been, and can be, very different [...]” (Lasuen, 1969) and decisive for the future of the areas. Agricultural industries, in general, and agrofood industries, in particular, not only contribute to the exploitation of quite an important part of agricultural production, but also to the development of the socio-economic structure of those areas, by supporting their more general development. This is achieved through the better utilization of the products of every area, by the exploitation of their comparative advantages, and the increase of employment potentials and the support of multi-activity for rural populations, which thereupon lead to the improvement of their income.

The development of agrofood industries affects the utilization of the soil of those areas, in regard to the agricultural production and the areas being cultivated, on the one hand, and in regard to their general utilization, on the other hand, by reason of the secondary activities required by the operation of the individual production units, such as the establishment of factories for the production of packaging materials, etc. Purchases of goods by industries play a significant role in the impact that an industrial project has on regional development, because they relate the industrial with the agricultural sector, by transferring the

market trends to producers. From within the procedures of vertical integration, the relations between farmers and industries have changed. The main result thereof is the ways of doing business in agriculture, which is the cultivation of new varieties, the adoption of process control technology and a manufacturing mentality (Boehlje, 1999).

The most direct transactional mode between farmers and industries are market contracts, which constitute the most completed type for the integration of agricultural production in the general agrofood system. There are a large number of contracts, the type of which depends on the commodity. In Greece, contract farming is mainly applied to industrial tomato (100%), sugar-beets (100%), barley for the production of beer, vegetables, citrus fruits (oranges 100%), other fruits that are processed, as the processable varieties of peaches (100%), grapes for the production of wine, table and oil olives and the seed production (Papageorgiou, 1996).

The rural income level has been improved due to the, most of the times, more efficient organization of agricultural products' markets. Because of the increase of competition between firms and the improvement of their organization, there is a better functionality of the market between producers and industries, and many times certain industries co-exist and offer, by reason of the strengthening of competition, better prices in order to acquire good-quality raw material.

Apart from the permanent jobs which the establishment of factories creates in local economies, agro-industries and food and beverages industries in particular, effectively support the multi-activity of rural family. Given that their labor force is by large seasonal, it can plan farming jobs in such a way that, the head of the family himself, besides other members, will be able to work in the industry, and obtain an additional income. Further, one of the most important social impacts of the establishment of agro-food industries in rural areas has to do with their contribution to the change in mentality with regard to the role of women and women farmers, who consist a large part of their employees and more than half of the seasonal labor force¹. Besides, we should not forget that women financial contribution to the budget of a small traditional holding makes her a most significant factor for the subsistence of the household (Papageorgiou, 1992:221–223).

The development of various outer and para-agricultural activities, by strengthening the local job market, contributes even to a larger degree to the reduction of the abandonment of the rural areas.

However, agricultural industries strain the natural environment with their solid waste and effluents, due to the existence of a limited number of waste process plants, which in turn is due to the small size of units and their insufficient use depending on cost. In Greece, over the past few years, through the concentration

¹ The field research in Argolis has shown that in fruit processing industries women's employment corresponds to 50% of their permanent workforce, while as concerns seasonal employment this factor exceeds 75%.

of the agrofood industry into a smaller number of enterprises, but with a much stronger and more competitive financial infrastructure, less and less cases of environmental aggravation are stated. Besides, as the time goes by, a much stronger ecological sensitivity system is established together with a system concerning the follow-up of the factories' activities, both at the level of the inhabitants of the area and at the level of the local authorities.

The Greek fruit processing industry

In the beginning of the 1970's Greece, by having climatological conditions suitable for the expansion of fruit tree yards, managed to become one of the most important countries supplying Western Europe with fresh fruit, in principle, and processed fruit at a later stage. The main contributors to the development of the Greek fruit processing industry were the increase in fruit production and the possibility of exporting the products deriving from its processing.

The association of Greece with the EEC in 1962 and the prospect of its accession created ideal conditions for the encouragement of its internationalization, constituting a further incentive for the attraction of American, mainly, funds because, through Greece they could have access to the EEC market.

Following a long period of development and opening to the international market, which began by the signature of the Agreement of the Association of the country with the EEC (1962) and which lasted over a period of twenty years, in 1981 it entered the stage of streamlining and concentration from within acquisitions, mergers, partnerships and the closing down of enterprises. At the same time, the strategy of many industries was revised vis-à-vis the area of establishment of their new factories and we have been observing their geographical concentration in the zones of the raw material production.

Today, the processing of fruit in Greece seems to have completed the largest part of its development and it presents signs of saturation. Greece constitutes the main supplying country of the international trade in terms of canned peaches (27% of the world production in 2004) and one of the most important producing countries in the sector of canned apricots and fruit cocktails. Further, it exports apricot and peach puree and pulp and citrus juices.

As we have already stated, the first foreign investments were implemented in 1962 for the establishment of factories producing citrus juices. Until 1970 the foreign capital was channeled almost exclusively in the juice industry, a sector considerably more developed vis-à-vis the sector of the canned fruit. After 1970, the crisis that developed on the international market of fresh peaches, in conjunction with the increasing demand for processed fruit, facilitated the rapid development of the industry and the attraction of foreign capital.

The internationalization procedure was implemented mainly at the commercial level, rather than the industrial level, by usually taking the form of trade and

financing agreements between the Greek and foreign enterprises. The “foreign industry” most of the times intervenes and differentiates the “domestic industry” by adapting it to the requirements of the importing firms, which play a decisive part in its whole course (Malassis, 1987). The entry of the industrial funds is effected either from within the participation of foreign investors in Greek enterprises or by the establishment of a subsidiary company, in collaboration or not with Greek capital. The entry of foreign enterprises and the transfer of technology strengthened the competition among enterprises of this sector and contributed to the modernisation of the already existing industries (Bicheron, 1979, Rastoin, 1989).

Diagram 1 shows us that since 1965 the fruit processing industry has grown at a fast pace. However, the progress of citrus processing into juice actually lasted until 1970. In 1971 Greek juices began facing problems of distribution on the EEC Market by reason of their second-rate quality. Therefore the placing of money on that activity stopped presenting any interest. Only some factories continued their operation by streamlining their production process and by differentiating their products. By contrast, the entry of a large number of enterprises into the canning industry continued until 1976, when its progress almost stopped by reason of the inadequacy of raw material. The government prohibited any new investment. In 1977 peach tree yards begin to become productive, the measures against the establishment of new factories are withdrawn and new industrial projects appear.

After 1981, the growth of the number of fruit juice factories and canneries presents a spectacular decrease. Food technology proceeds to the direction of mass production and requires a continual renewal of mechanical equipment of the factories and the progressing increase in their productive capacity. As it is noted by Dixit and Stiglitz, “each potential commodity involves some fixed set-up cost and has a constant marginal cost” (Dixit and Stiglitz, 1977) and this presupposes industries fairly sizeable and financially strong, so that they may be modernised and reach a satisfactory level of profitable utilisation of their facilities, that is to say, by achieving economies of scale. A considerable number of small-sized factories that did not have either the organisation structure or the necessary funds closed down or became obliged to be confined to the processing of tomatoes. The number of factories decreased, but, at the same time, we are observing, at least until 1989, a considerable increase in their productive capacity. During the last five years, the processing capacity of this industry reached its maximum point, taking into account the relevant European Directive, which provided for a maximum processing quantity for Greece, as well as the fact that the operation of a large number of factories was supported by European funding.

In Greece there are 31 companies which are actively involved in fruit processing. Of them 8 are diversified, because they are producing both canned fruit and fruit puree and pulp, out of which one is a Greek multinational company also established in Latin America and two are subsidiaries of multinational enter-

prises. 9 are producing only various sorts of canned fruit, while one of them also produces packaging materials. 12 of them are mainly processing citrus, out of which the three largest of them are also producing fruit puree and pulp. A citrus juice production multinational company after a long-term presence in Greece left and was established in Turkey. The number of the factories currently in operation amounts to 40 approximately because many companies own different factories for the production of individual products.

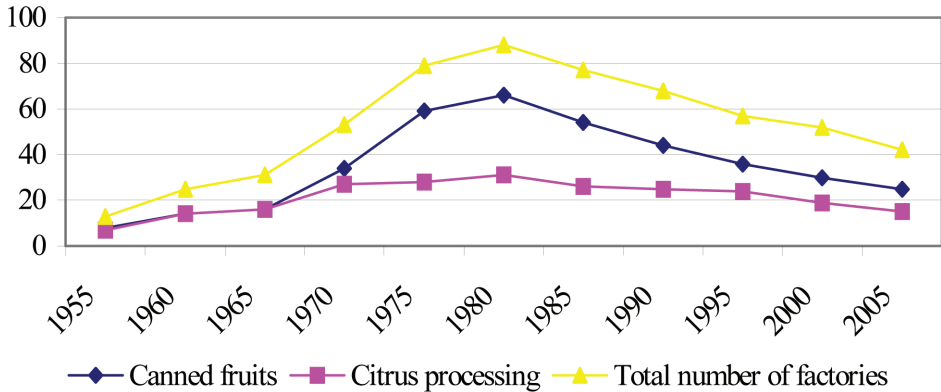


Diagram 1. Number of fruits processing factories

The fruit processing industry on the basis of the companies' processing capacity may be divided into three categories:

- small-sized companies, which are processing less than 20,000 tones a year of citrus and approximately 12,000 tones of other fruit.
- medium-sized companies which are processing approximately 20,000 tones of citrus and 20,000–32,000 tones of other fruit and
- large companies which are producing approximately 40,000 tones of citrus and more than 35,000 tones of other fruit.

Between 1988 and 2004 the largest part of the small-sized canneries closed down, while the production capacity of the large canneries continued to increase, like it also happened with respect to most of the medium-sized factories focusing on the fruit puree and pulp production.

If we compare the development of the numbers of the three most important categories of factories, to wit the canneries, the puree and pulp producing factories and the fruit juice factories, we can see that the decrease in the number of canneries was much more important vis-à-vis the decrease in the number of the two other categories. And we also can see that their growth was faster. Subsequent to the opening up of this industry to the international market, global competition has been increasing, the risks are high, the environment is unfamiliar and appropriate strategies are often unconventional. Thus, strategies are required which can only be adopted by large enterprises (Shanks, 1985). The number of large

canneries remains the same, while, by reason of the strong competition, many small-sized enterprises closed down their factories or fell back in less “difficult” sectors. We can observe an intensive phenomenon of concentration of the fruit canning industry, with a continuous and considerable reduction of the number of factories, while, at the same time, their processing capacity improves. That is to say, we can observe the re-distribution of the overall processing capacity of the country in their favour.

As regards fruit juices we can see that there are several small-sized factories which manage to survive thanks to their orientation towards the Greek market, where there is no intensive competition, because their average consumption per capita continues to increase². Nevertheless, during the last five years the number of the smaller citrus juice factories presented a considerable decrease too.

Therefore, we draw the conclusion that the more internationalized the industry is, the more intensive the phenomena of concentration are, taking into account that the canning industry is the most internationalized branch of fruit processing, being followed by the fruit puree and pulp production industry and finally the citrus juices industry.

Fruit processing industry and spatial reorganizations

The selection of the place of establishment of a factory along with the selection of technology is very important elements for the whole course of an investment project. The first criterion is its distance from the place of production of raw materials and markets, also in conjunction always with the cost of transport. The other factors pertain to the supply of work, the existing infrastructure, the cost of land and their consequences to the development of the region in general.

The decision concerning the establishment of a factory close to the place of production of raw materials or to the market of products depends on the characteristics of raw materials and the processing procedure and also on the cost and the possibility of ensuring the existence of means of transport (Austin, 1981:138–143). By reason of the perishability of raw materials, the fruit processing factories follow the method of expansion of the tree yards and are being established close to their production areas.

Until 1960 the limited production of peaches, apricots and citrus was concentrated in very specific areas: In the Vermion Valley (Central Macedonia) and the Northern end of Peloponnesus for peaches and apricots, in Crete (Prefecture of Chania), in Chios, in the seaside zones of Peloponnesus as well as in the plains of Arta and Preveza for citrus.

In the beginning of the 1960's, prior to the start of the rapid development of the fruit processing industry, the factories were established in the Southern part of

² The total consumption of juices had increased from 110,000 tones in 1990 to 215,000 tones in 2004.

the country, with the exception of a co-operative factory in Thessaloniki, which was utilizing the non-distributed quantities deriving from the production of the Vermion Valley.

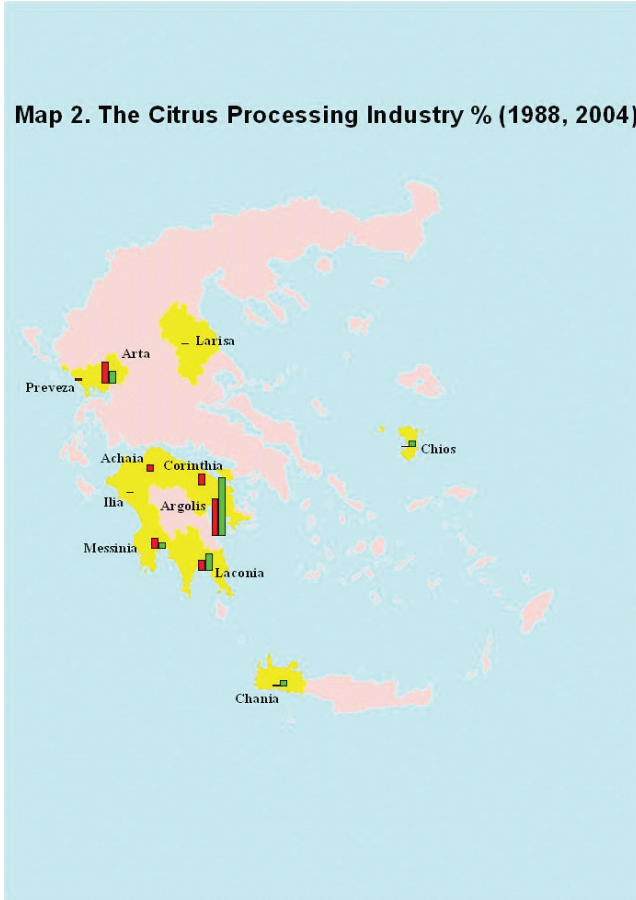
Since the production of peaches and apricots increased, the canning industry began to develop and new factories opened up in all of the areas of their crops. Two regions of Peloponnesus, Argolis and Corinthia, became the centers of production of apricots, while the Vermion Valley and Central Macedonia, represented the center of peach crops.



During the period of the large increase in the number of factories (1965, 1980) we may distinguish three establishment zones:

- The Southern and Western Greece, to wit Peloponnesus and the regions of Arta and Preveza, which constitute the initial fruit processing zones, where factories for the production of citrus juices are mainly established, but they are processing, at the same time, also peaches and apricots.
- Central Macedonia, in which the largest part of canned peaches and apricots is produced, the latter being imported from Peloponnesus and

- c) Prefecture of Larissa which is characterised by a geographical advantage, because of its position between the two centres of fruit production, Peloponnesus for apricots and Macedonia for peaches.



Subsequent to 1980, the concentration of the industry led to the reduction and specialisation of the areas, a process which also continued until the beginning of the 2000's. The production of cans takes place in the Prefecture of Larissa and in Central Macedonia as well as in the Prefecture of Argolis but not every year. While the factories in Argolis were also specialised in the production of fruit puree and pulp, they have currently separated their facilities and the processing of fruit, except for citrus, is being done in Central Macedonia. Almost the total of the citrus juice production is processed in the same initial prefectures.

Maps 1 and 2 show us the gradual development of the geographical allocation of the processing capacity of the factories³. The number of the regions pertaining to the canned fruit production, to wit the sector which is most internationalized and with the largest concentration, after following a movement of concentration

³ Maps were processed with G.I.S. technology by Alex Vithoulkas.

of production around the vertical axis uniting the Vermion Valley with Argolis ended up with a stricter delimitation of the installation of factories in the 4 prefectures which constitute the productive system of the peach crops, to wit Central Macedonia, primarily, and Larissa, secondarily. The geographical allocation of fruit pulp and puree production industry, a sector less internationalized and less important than canneries, follows the same course, plus the prefecture of Thessaloniki.

The selection of the specific area for the establishment of the factories seems to have been influenced by three basic contributory factors:

- a) The existence of raw materials
- b) All those advantages which are related to the concentration of several firms in a single location and constitute the basis of agglomeration economies. Through the connections or linkages between economic activities, such as production linkages, service linkages and marketing linkages, external economies are transmitted to the individual production unit (Dicken and Lloyd, 1990:221, Krugman, 1991), and
- c) The presence of important infrastructures as regards the research and development of the industry, which reminds us of the point noted by M. Porter to wit that: “the competitive advantage results from the presence of world-class institutions that first create specialized factors and then continually work to upgrade them” (Porter, 1990).

This geographical zone seems to concentrate for this specific industry the “diamond” of national advantage which is determined by: a) factor conditions, b) demand conditions, c) related and supporting industries and d) firm strategy, structure and rivalry (Porter, 1990).

By contrast, the processing of citrus into juice appears with a considerable differentiation. On the one hand, the relevant importance of the Prefecture of Argolis increased, while, on the other hand, no restriction of their installation zones is observed. As we have already noted, this is explained by the orientation of the production of certain factories towards the domestic market.

When a sector is internationalized and begins to face intensive competition, the concentration being created leads to the marginalization or abandonment of certain areas, mainly of those which are the remotest ones vis-à-vis the fruit production centers. Thus, we are led to a more rationalized, closer establishment of factories vis-à-vis the place of production of raw materials, which, however, does not apply to the Prefecture of Argolis. Here, at this place, although the citrus processing industry may be considered to be internationalized, the insufficiency of fruit varieties being subject to process has not led to the relocation of the factories. By contrast, 4 of the major companies of this industry, established in Argolis, are continually expanding, the most characteristic example being the expansion of activities of three of them in Central Macedonia for the production

of fruit puree and pulp, which were activities previously implemented by them in Argolis. The fruit processing industry continues to grow and strengthen the multi-employment of the inhabitants not only of the Argolis Valley, who reside near to the factories, but also lots of others residing in quite remote places. In 1990 there were 223 job positions of permanent personnel and approximately 1,600 job positions of seasonal workers, while in 2004 there were 230 job positions of permanent personnel and 1,730 job positions of seasonal personnel. The companies with multipurpose factories have, comparatively, a larger number of permanent personnel.

The agro-industrial tradition of the area and the individual motivation seem to have led the enterprises' executives to the search of innovation and continuous differentiation of products, thus ensuring the continual improvement of their competitiveness. We may find elements of what M. Porter emphasized: "nations succeed in particular industries because their home environment is the most forward-looking, dynamic and challenging" (Porter 1990).

Conclusion

The accession of Greece to the European Union reinforced the course of profitable utilization of its comparative advantages, both in regard to the agricultural production and to agricultural industries. It constituted a product access gate on the ECM, which contributed to the development of investments and to the attraction of foreign capital.

However, the agrofood industry is in the midst of major structural changes in product diversification, in technology, in size of enterprises and in location of factories. Upon the opening up to the international market, the fruit processing industry, in particular, entered a growth procedure which, although it is regarded, from a quantitative aspect, that it has completed the largest part of its expansion, from a quality aspect the continuation of its improvement constitutes a target which will ensure the long-term competitiveness of its products. The input supply and product processing sectors are becoming more consolidated, more concentrated and more integrated.

The realignments that have arisen because of the internationalization of the industry did not only have direct consequences to the development of the areas, but they had also cumulative sectoral and special differentiation; "it implies sectoral and spatial clustering of activities around the leading activities, and their faster growth than the rest" (Lasuen, 1969). Of course, apart from the areas that availed themselves of the whole situation, there are areas that were abandoned. Nevertheless, this dis-investment must not be regarded as condemnatory for the future of each area. As Perroux noted: development means the birth of new and death of old industries; it means the continuous differentiation of the rates of growth on the new and old products and respective industries away from the

equal growth rates of the stationary circuit model (Lasuen, 1969). The accession of Greece to the EEC appears to have accelerated this procedure.

With respect to the fruit processing industries, we shall have to underline that the continuation of their success shall depend on whether they will co-operate for the purpose of continuing to avail themselves of all the externalities which have been formed through the long-term evolution of the industry. As M. Boehlje has noted: “Competition or rivalry occurs not in the form of individual firms competing with one another for market share within a stage but in the form of supply chains competing for their share of the consumer’s food expenditure” (Boehlje, 1999).

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