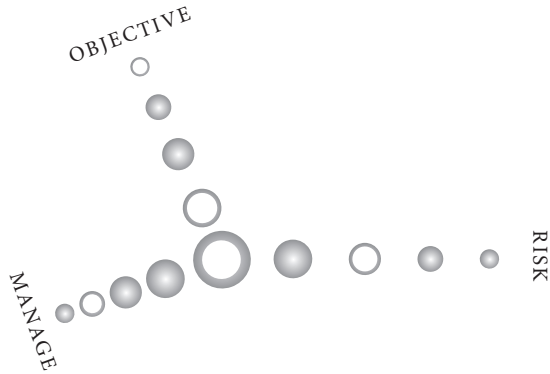

Alternatives for improving management of the value chain for greenhouse tomato production in Albania

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1 Problem statement

The production of fresh vegetables constitutes an important production activity for farmers located in the western part of Albania. However, farmers' access in the market is poor[1]. Furthermore, taking into consideration added value (created by movement in the value chain) farmers earn lower profit margins, while the opposite is true for other actors of the chain (wholesale sellers and retail sellers, etc). As a result, this situation affects negatively the prices paid by customers.

In Albania, one can notice a significant geographic concentration of fresh

1 In the Lushnja, Fier and Berat region several meetings have been held with representatives of the extension services, farmers as well as representatives' greenhouse tomato production. These meetings confirm that the connection among the farmers engaged in the production of fresh vegetables and the market (marketing infrastructure) are not consistent.

tomatoes on one side of the country and the marketing infrastructure on the other. Yet, there is a lack of cooperation and integration in these markets as well as the value added chain. This is mainly due to a fragmented demand and lack of cooperation horizontally and vertically.

The range of issues and the strategies that enable an increase of participation and control of the tomatoes producers in the value chain are, thus far, poorly understood. In the face of this situation, this project is tied to the indispensability of having a study in place which analyzes and puts forward in a thorough way the problems concerning these issues and strategies.

Studies in the field of value chain analysis for different products and for identification of alternatives of improving management in the value chain (horizontal cooperation, vertical integration, clusters etc), are relatively new. This study requires studying in depth details of all problems related within the value chain with the aim of identifying alternatives that allow the participation of greenhouse tomato producers in this chain.

2 Objectives

a. The main objective of the study would be to understand and evaluate the current situation of the agro-processing industry in such a context as to analyze and prove the hypotheses that are concerned with the range of issues facing the strategic leadership, seeing it from the perspective of the strategy of vertical integration and horizontal cooperation as well.

b. Furthermore, it intends to bring out and evaluate the role of all the actors that figure in the chain of values. Based on this chain of values, conclusions might be formulated around the strategies that might be utilized to stimulate internal cooperation and build partnerships through the organization and functioning of clusters.

3 Procedures

Realization of this study enables analyzing and evaluating the tomato value chain in the context of the research questions displayed in Figure 21.1.

The focus of the research lies on discovering variables for: 1) fostering local strategies for increasing the role of greenhouse tomato producers and 2) stimulating cooperation among different actors in the value chain. We used the econometric method of multiple regression analysis based on data relating to margins, profits, floating capital, investments made in the greenhouse, number of employees, geographic region, type of product, age of business etc.

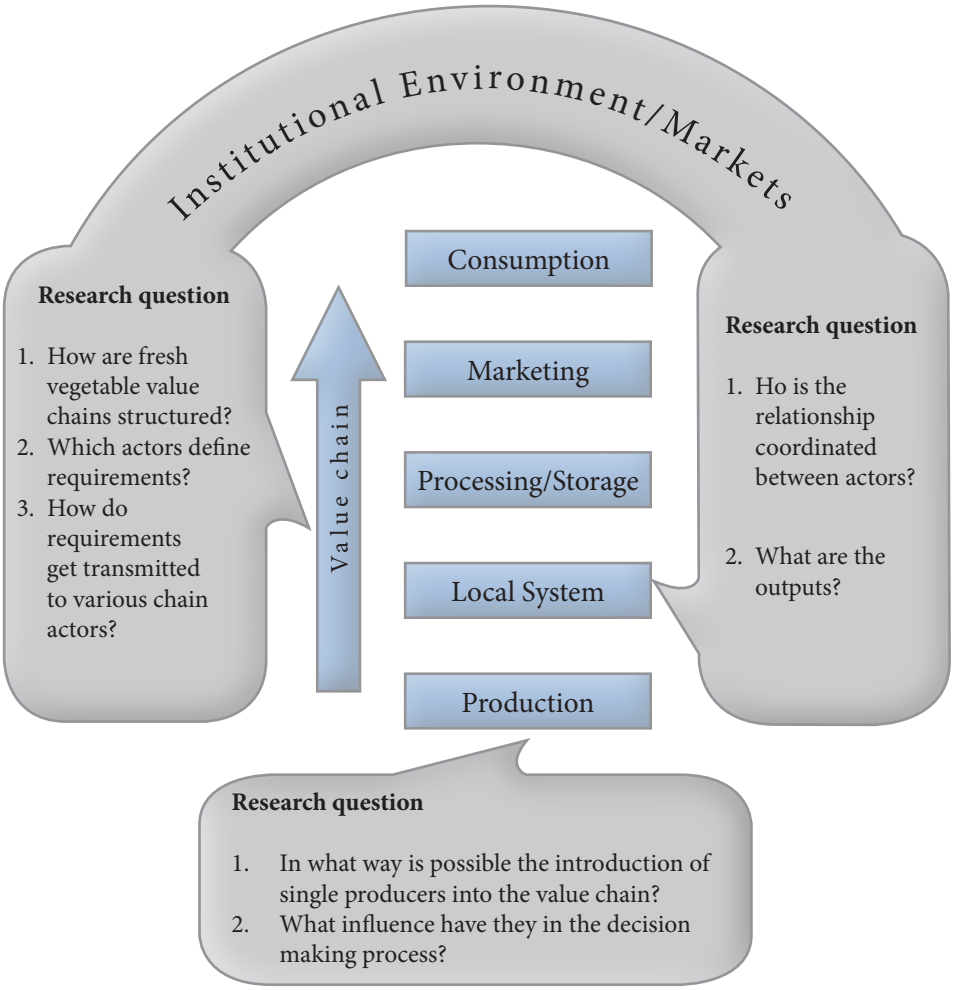

Figure 21.1 — *Conceptual Framework and Research Questions.*

Multiple regression analysis is more amenable to ceteris paribus analysis because it allows us to explicitly control for many other factors which simultaneously affect the dependent variable. This is important both for testing economic theories and for evaluating policy effects when we must rely on non-experimental data. Because multiple regression models can accommodate many explanatory variables that may be correlated, we can hope to infer causality in cases where simple regression analysis would be misleading. Naturally, if we add more factors to our model that are useful for explaining y, then more of the variation in y can be explained. Thus, multiple regression analysis can be used to build better models for predicting the dependent variable. The general form of multiple regression function is:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + ... + \mu$$

(Jeffrey M. Wooldridge, 2003), where as dependent variable we chose profit and floating

capital and as independent variables we chose investments, number of employees, geographic region, type of product, age of business. An additional advantage of multiple regression analysis is that it can incorporate fairly general function form relationships.

4 Hypotheses

Referring the above research questions, the study is focused on analyses, evaluation and confirmation of the following hypotheses:

a. Vegetable producers in the greenhouses, as representatives of a modern industry (normally profitable), as actors of value chain, are faced with lack of partnership and therefore with lower profit margins of value chain.

b. Encouraging and development of horizontal cooperation between farmers in the greenhouses, through marketing cooperatives, will enable participation and increasing their role in the value chain and therefore providing higher benefits.

5 Data collection

For the realization of the objectives of this study, two questionnaires were developed, to be administered to the leaders of green house tomatoes procedures. In compliance with the study objective, a qualitative methodology of collecting and processing information was used.

This research was focused on identifying and analyzing different variables, aiming at building strategies for improving management in the value chain in the vegetable filière, as well as getting acquainted with and facing competition, etc. It is known that competition does not depend only on the productivity of a single firm, but also on the integration of local firms that produce fresh vegetables and in coordination with relations among actors of the value chain. Figure 1, Conceptual Framework and Research Questions illustrates the conceptual framework on which the questionnaire was conceived, based on the theoretical background presented in the first part of this study.

6 Findings, analysis and interpretation

First, it is worthwhile to emphasize that in most cases farmers who cultivate tomatoes in the greenhouse were interviewed. The educational level of farmers and/or leaders of the family farm was relatively good; these people were working there

full time and the dominant age of interviewees was around 40-60 years. Albania had a very good tradition of vegetable production before the 90s, (especially tomatoes) and it should be pointed out that the destruction of the vegetable production industry that happened at that time brought about a significant decline in production. Survey results indicate that of around 64 hectares planted with vegetables (*study samples*), tomatoes constitute about 73% of the area and pepper constitutes about 5% of the area, which together forms 78% of the total area. Survey results confirm the above mentioned assertion, as we can see from the data illustrated in Figure 1.

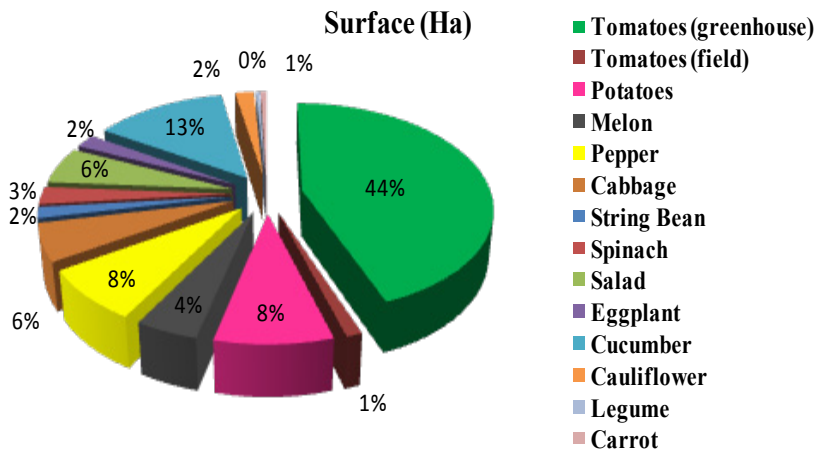

Figure 21.2 — *Vegetable Production Structure.*

We believe that further diversification of vegetable production structure is necessary, especially concerning some kinds of garden plants for which there is market demand and their added value is increasing. Based on this idea and within the study framework it was interesting to know better the future trends for vegetable production structure. Hence, we asked in the questionnaire if tomatoes producers thought that this structure would change for 2010. Results show that approximately 56% of the interviewees answered positively. This situation shows that tomatoes producers, especially those in greenhouses, have tried to include in the production structure a number of other garden plants, which are lesser or never cultivated.

It is very clear that for building production structures it is very important to know where to go for advice and who should advise farmers. Therefore, we asked who had advised them about the information they were given for the construction of vegetable structures.[2] The survey results are presented in Table 21.1.

2 Bringing the attention of the reader that the study in question had had in focus the problematic of improving management of value chain for tomato in the greenhouse, but the fact that greenhouse farmers produce not only tomato but also other vegetables, it is way in this study is used often the term "vegetables".

Table 21.1 — *Construction of Production Facilities.*[3]

No.	Description	Data in %
1	Yourself without any information	54
2	Your perception of the market	28
3	Your perception that in this way you can earn more money	40
4	Advisory services in the area	56
5	Representatives of processing enterprises	0
6	Physical persons	12
7	Economic needs	2

Referring to Table 21.1, we can conclude that vegetable producers use different sources of information for the construction of production structures. In general, the local advisory service constitutes the most important source of information; in about 54% of cases, the interviewees did it themselves, and in 56% of cases, they were assisted by the local advisory service. It is worth emphasizing the fact that producers have little knowledge about the market; only 28% of respondents stated that they based the construction of production facilities (structures) on market information.

The data in Table 21.1 show that none of the respondents has been in contact with representatives of the processing enterprises industry, which made us understand that it is very difficult to talk about vertical integration with back direction. This phenomenon is very problematic for providing safe markets for vegetable producers.

Undoubtedly, production constitutes the main link in the vegetable supply chain. However, we cannot speak of the term "chain" if we do not consider other links through which the product goes until it reaches the final consumer. That is the reason why respondents were asked if they had received consultation on tomatoes treatment, and if "yes", by whom.

Table 21.2 — *Information Regarding Consultancy about Vegetable Treatment.*

No.	Description	Data in
%	Yourself without any information	54
1	Myself	30
2	Experts	38
3	Family Members	15
4	Executives	0
5	Advisory services in the area	47
6	Different enterprises	6
7	Input trades	12

The data in Table 21.2 indicates that generally, about 47% of respondents have

3 Interviewers ticked more than one question, therefore, the result is more than 100%.

consulted local advisory services, while 38% asked different experts.

As for the conditions in Albania, the distribution of production, and particularly of vegetables under this context, is associated with many problems. Getting acquainted with this situation in advance is one of the main reasons why this study was undertaken. The interviewees were asked if they had ever had contacts with a third party concerning vegetable sales and quantities sold through these channels. The survey results are listed in Table 21.3.

Table 21.3 — *Information about Contacts with a Third Party.*

No.	Description	Data in %	Sales
1	Traders	24	8700
2	Preservation enterprises	2	600
3	Different people	16	3604
4	Sales by them-selves	8	2200

As can be seen from Table 21.3, some of the interviewees did not answer this question. As for those that answered, in most cases, about 24% of respondents have had contact with different traders and in about 16% of cases, tomatoes producers have had contact with different people, in an informal way[4], and it should be noted that in this case the contract system has not worked.

The methods used for tomatoes sales undoubtedly constitute a very important element for the issue of improving management in the supply chain. According to this issue, the interviewees were asked a number of questions, as illustrated in Table 21.4.

As can be seen from the data in Table 21.4, about 82% of interviewees answered that they had sold products by themselves in the market and this is related with wholesale markets that actually exist in several districts of the country.

However, we should keep in mind that we are speaking mainly of tomatoes producers in greenhouses, and not of tomatoes producers in open fields. However, even in this case, due to lack of cooperation among producers, fragmentary supply, lack of producer partnership in the markets, etc, producers are facing many problems regarding the profitability level. On the other hand, contacts with the processing and conservation industry are very weak and only in 14% of cases have the agro-industry companies been interested in buying directly from tomatoes producers.

Table 21.4 — *Information Related to Alternatives of Vegetable Production Sales*

No.	Description	Data in %	Sales
1	You have sold by yourself to the processing/canning companies. If yes, how many:	10	1730

4 Generally meetings and informal conversations.

2	Processing/canning companies have bought directly from you. If Yes, how many:	14	9070
3	You have sold by yourself to the storage centers. If Yes, how many:	22	3760
4	Storage centers have been buying from you. If Yes, how many:	16	5020
5	You have been selling directly in the market place. If Yes, how many:	82	16139
6	Production sold in the field	4	200

Considering the answers given by respondents regarding the ways of selling their products in the markets, we can make a general reflection as illustrated in Figure 21.3.

Figure 21.3 shows the steps through which the tomatoes production industry enters the market channel. Here are included picking, packing, transporting, broker services, wholesaling, shipping, as well as retail sales. The retailer always charges higher prices for products compared to what he/she pays the producer. The producers' profit is much smaller compared to that of the retailers' because of fluctuation periods. Selling direct to the shops adds value to the producer. Furthermore, direct marketing reduces the need for packaging, hence there are fewer costs and producers profit more. Roadside markets eliminate the need for transportation because they sell products on the farm where they are produced.

On the other hand, pick-your-own is a good strategy for customers, which means picking products by themselves and bringing them to their home. This is a way of reducing costs. Furthermore, agricultural entertainment is becoming one of the most profitable ways to add value to producers.

As can be seen in Figure 21.3, the options used for product sales on the market are different. It shows that a small number of farmers sell their products on the street. Of course, here we refer to farmers who produce limited quantities; this kind of sale is not an alternative to be recommended, because it is applied mainly by farmers for self-subsistence.

Most tomatoes producers use more than one alternative for selling premiums. Hence, for example, a large number of farmers that were interviewed sell their own products in the local markets to wholesalers and in special cases to exporting companies. However, which are the positive and negative characteristics of these methods of sale?. Let us refer to the data in Figure 21.4 gives four levels of price escalation for tomato production in Albanian currency (All).

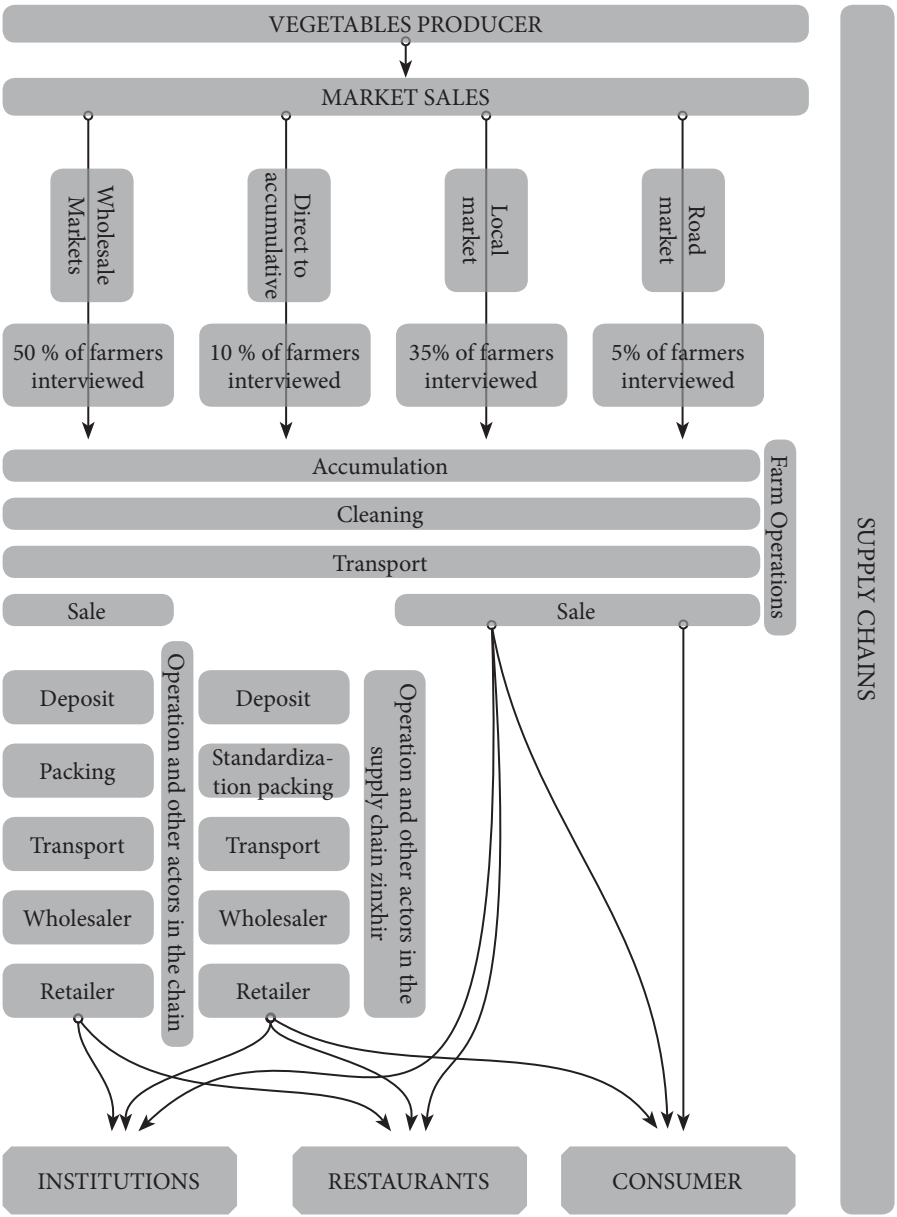

Figure 21.3 — *Value Added Supply Chain in the Study Area*

As can be seen more clearly from Figure 21.4, the tomatoes producer earns from his activity on the farm about 0.13 Eur/kg or 15 All/kg (55-40), while the other actors in the supply chain earn about 0.30 Eur/kg or 40 All/kg (95-55), only for operations like transport, storage, etc., which are performed for a short period of time. Thus, it can be concluded that the length of this chain and the great number of actors involved in it constitute a major problem for tomatoes producers.

Considering the above comments that derive from the scheme presented, and evaluating also the general business environment in Albania, we believe that in general, the tomatoes supply chain should function as follows. On this issue, the interviewees were asked about their agreements. The results are shown in Table 21.5.

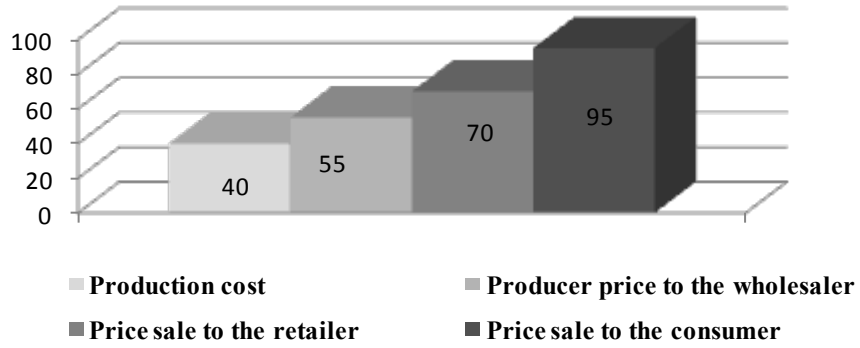

Figure 21.4 — *Price Escalation of Tomato Production.*

Table 21.5 — *Information Regarding the Types of Agreements and Destination of Sales.*

No.	Agreements and their types	Information	
I	**Types of agreements**	**Data in %**	**Sales**
1	No. agreement	84	0
2	Oral agreement	6	1800
3	Agreement with traders	8	2100
4	For export	2	600
II	**Destination of sales**	**Quantity (Quintal) %**	
1	Wholesale in the local market	28	
2	Industries	19	
3	Domestic market	25	
4	Export	3	
5	For fresh consumption	42	

Referring to Table 21.5, we can see that over 84% of the interviewees have not signed any legal agreement, only 6% of the respondents have an oral agreement, and about 8% have an agreement with different traders. On the other hand, the majority of products are sold for fresh consumption and the remainder, and 50% are traded on the local markets.

Referring to the above discussion, we can thus make a summary of the problems that are associated with the production system and vegetable trading, identifying and assessing them as strengths, weaknesses, opportunities and threats.

In favor of the realization of this study, and referred general form of multiple regression function is:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + ... + \mu ,$$

we gathered data for: i**nvestment volume, surface planted with tomato, efficiency, realized production, sale price from farmer, production sold, sale's price from wholesaler, sale's price from retailer, total revenue, sale's revenues and number of participants in the chain**, where as:

- Dependent variable is chose the revenue.
- Independent variables are chose the other indicators.

Study results showed that there is a **strong link between levels of added value in the production of fresh tomatoes in green houses and investment level, number of actors into the value chain & farm size**.

Considering this conclusions we think that a strategy of horizontal and vertical integration, regarding the benefit of clusters in the greenhouse vegetable sector, would be a useful solution and we support and strongly recommend this idea.

6.1 What kind of cooperation and cooperative type does Albania need?

Referring to the problem of the cooperation efforts of Albanian agriculture it should be highlighted that the most convenient form of organization is according to **unique management and separate ownership**. Separate ownership of land implies the owner's right to own it, but its use could be individual or collective. According to this principle, cooperatives could be managed in two ways. According to the first way, land is not fated for common use, and farmer-members of cooperatives practice their activities in their farms and in total autonomy. In this organization form, the management is focused on cooperatives, which show up in two main aspects. **Firstly**, the cooperative orients farmers to define production structures in their farms. **Secondly**, it accumulates the produced products by farmers to sell them at better prices.

According to the second method, land is fated to common use, saving ownership and its borders. It is obvious that this organization form represents a high level of cooperation, and farmer-members of cooperatives practice their activities not very simply and only on their own lands. In the case of the dissolution of a cooperative, land passes into the individual use of its owners. A farmer's position in a cooperative like this is shown in Figure 21.5.

Cooperative cooperation according to the principle of unique management and separate ownership has many advantages, a few of which are mentioned below.

- **Very Acceptable from the Psychological Point of View**: Preservation of activity autonomy in farm, farmers understand very well that it is not a cooperative with unique management and separate ownership, farmers are convinced that the cooperative is the only enterprise here on that farmers can do business with in their favor, big possibilities to

consider social problems of farmer families, etc.

- **Simple to be Realized from the Organization Point of View**: In this cooperation form, cooperatives should be considered as a "storehouse" or "shop" where farmers sell their products and buy inputs that they need to reduce or organize expenditures, especially when the cooperative is considered multi-purpose, etc.
- **Effective in Considering Economic Factors**: Increase of supply and negotiation possibilities; Increase of farmer' partnership in markets; Increase of enterprise size and profits from "economy scale" effects; Bigger possibilities for farms' vertical integration; Supplement profits for farmers as a consequence of the control increase in the value added chain; More flexibility to determine price policies; Procurement of missing services in different rural areas; Marketing improvement; Profits from risk reduction; Increase of market power; Quality improvement; Provision of furnishing and markets; Bigger profits from coordination activities of consequence; Increase of political influence; Better education possibilities; Support for family farms; Other benefits for the wider community
- **Effective in Considering Management Factors of Cooperative Activities, etc**. Farmer members of cooperatives only need management orders on how to practice their activity.

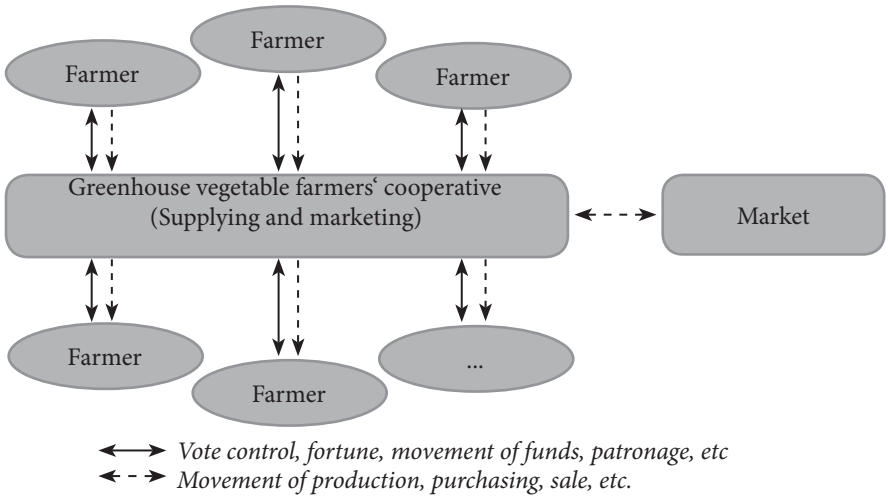

Figure 21.5 — *Organization of Marketing and Supply Cooperative According to Unique Management and Separate Ownership.*

6.2 Cooperatives and activities in the value chain

As mentioned in the theoretical part, value chain analysis describes all activities that occur in the organization where these activities are related to an analysis of the

competitive strengths of the organization. This idea came upon the insight that an organization is more than machinery, equipment, people, as well as money. Porter (1985) argues that the ability to perform particular activities and to manage the linkages between these activities is a source of competitive advantage. The idea of activities in the chain that adds value is to increase potential customer utility. Furthermore, organizations should always deliver products for which customers are willing to pay a higher premium than the sum of the costs of these activities in the chain. On the other hand, we have also said that value added expresses the difference between the value of goods sold and the cost of materials or supplies used in producing them. It also means adding value to a raw product by taking it to the other stages of production.

Referring to Figure 21.5, the organization of tomatoes producers in the supply and marketing cooperatives is to the benefit of the growth of added value. Furthermore, this is to the benefit and function of the added value control from tomatoes producers.

As stated in figure, which reflects the added value chains for tomatoes, the number of actors that participate in the chain goes from 4 to 6. Furthermore, vegetable producers do not have any influence in this process. If we consider another interesting fact, the exact levels of value added are along the value chain excluding production, we can conclude that membership of the tomatoes producers in the cooperative would be an extremely lucrative alternative (specifically when it comes to producers of tomatoes), as it would be to the benefit of downsizing the value chain. Among the benefits of this type of integration, we also would like to emphasize the increase in the level of partnership of tomatoes producers in the market, through the increase in the level of control with many links in the value chain, and the increase in the level of economic benefits for tomatoes producers.

The above claims are based on the concept of a specific role that a cooperative plays as the connecting point between the producers and retailers, as shown in Figure 21.6.

However, are tomato producers ready to cooperate among themselves? To answer this question, during the study were collected data for a number of indicators, such as: **Age of farmers, Gender, Farms Size, Education, Profession, Level of sociability, Desire for cooperation or Willingness to cooperate, Information for markets, Transportation problems, Distance form the consumption center, Evaluation for prices**.

By processing the data resulted **a stronger relationship between the level of potential cooperative and farm size & age of farmers**. According to the results, the study show that **young people are more willing to cooperate among themselves, mainly in terms of buying inputs and selling products**.

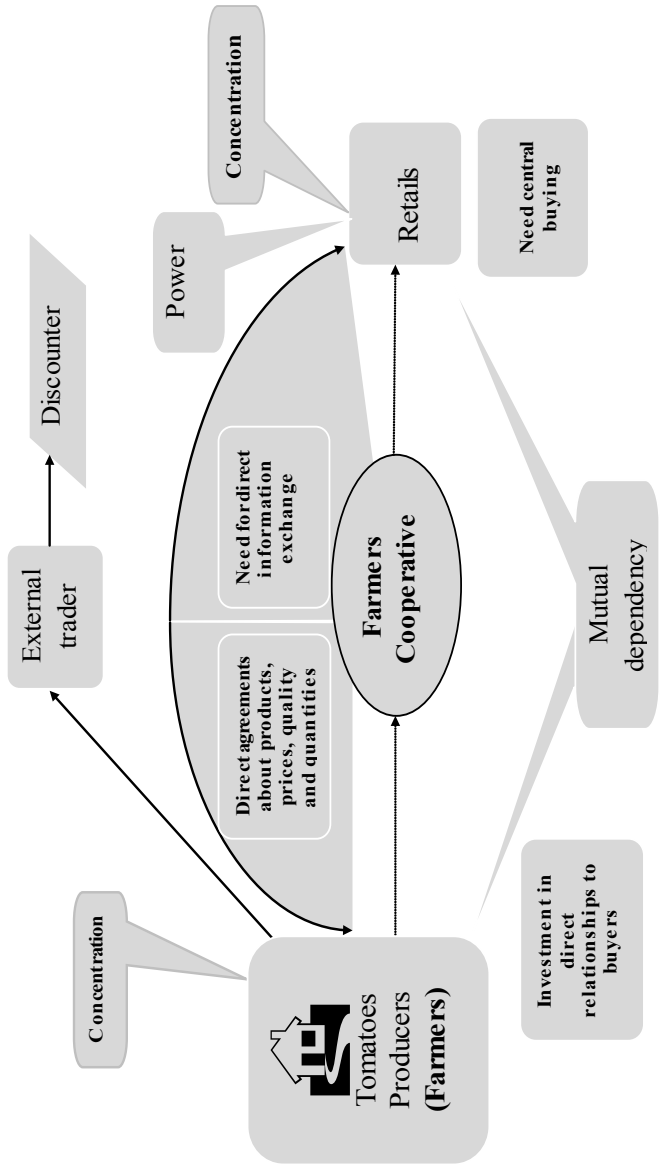

FIGURE 21.6 — *The purchase-sale relationship for fresh vegetables: the role of the cooperative*

The organization of the purchase and sale relations between producers, cooperatives and retailers can be seen clearly in Figure 21.6, concerning the role played by the cooperative in relations between actors, the impact that it has in the concentration of the offer, the cooperation between actors, etc. To understand the development of the relations illustrated in Figure 21.6 we must first understand what has happened at the retail level.

- The level of retail is generally characterized by a very high concentration

(Humphrey and Memedovic, 2006), which gives retailers the opportunity to have a very strong position in the market; on the other hand, it allows governing/ managing the chain according to their desires and demands.

- Retailers need large quantities of production, purchased from major suppliers, focused on time, price and conditions wanted by retailers. They have very specific and rigorous requirements of quality and safety for products, requirements that a cooperative can ensure and meet very well. This obliges them to have close relationships with main suppliers for accomplishing their needs, in our case, for the cooperative.
- Retailers need to exchange information directly and to have direct agreements about products, prices, qualities, quantities, etc; a cooperative enables such a thing.
- Everything that retailers need is a signal for producers, who, through membership in cooperatives, increase their business to create increased supply capacity. This can be used very well as a strategy to gain power in relations with buyers.
- In the supply chain analysis, two very important elements are concentration and power. A high concentration of retailers leads to the creation of oligopolies and inequalities in the market power. Concentration is very important, because the level of concentration of retail leads to the increased concentration in other parts of the chain (Humphrey and Memedovic, 2006; Hingley, 2005).
- A very important aspect of the value chain theory is the issue of the leadership chain and dependence (Humphrey and Memedovic, 2006). In this context, the presence of cooperatives puts the producers in the position that belongs to them.

The role of cooperatives in improving management in the supply chain is also suggested for other reasons. As mentioned above, retailers must have stable relationships with the main suppliers because suppliers may guarantee for them the safety and quality of the products that they want, as traders often cannot guarantee high-quality safe products because they buy from different manufacturers that can be changed.

Therefore, we do not believe that wholesale is a valuable strategy for selling fresh tomatoes to major supermarkets in the modern markets. Moreover, retailers can't afford the expenses to go to wholesale markets and buy small quantities of products from different suppliers.

It is not difficult to notice that in this case is aimed further growth of market power, but not only that, also due to the entry in the "game" of other producers who do not have membership in the cooperative. They are offered two alternatives for the distribution of their product. In the first case, they can enter a special commercial agreement with wholesalers, and in the second case, they can use the cooperative to sell their products.

7 Conclusions

1. The ways they accomplish the sale of vegetables undoubtedly constitutes an important element (possibly the most important) for the problems related to the improvement of the supply chain. It emerges from the study that about 82% of the interviewees answered that farmers have sold their crops themselves in the market, and this is related to the wholesale markets that exist in several districts of the country.
2. We judge that the organization of vegetable producers in cooperatives with supply and marketing functions (as we have presented in this study) is for the benefit of increasing the value added, and furthermore, to the benefit of its control function (added value) on the part of the vegetable producers.
3. The membership of the vegetable producer in cooperatives would be an extremely profitable alternative (especially when it comes to vegetable producers), as it would be to the benefit of downsizing the value chain, furthermore, increasing the level of partnership of the vegetable producers in the market through cooperatives, increasing the control level of many links in the value chain, and increasing the level of economic benefits for vegetable producers.
4. The above claims are based on the concept of a specific role that cooperatives play, as the connecting point between producers and retailers; this is because retailers need large quantities of a product, purchased from major suppliers, focused on the time, price and conditions wanted by retailers. Furthermore, they have very specific and rigorous requirements for the quality and safety of products, requirements that a cooperative can meet very well.
5. In the supply chain analysis, two elements that are most important are concentration and power. A high concentration of retailers leads to the creation of oligopolies and inequalities in the market power. Concentration is very important because the concentration in the level of retail sales leads to increasing concentration in other parts of the chain.
6. A very important aspect of the value chain theory is the issue of the leadership chain and dependence, where the presence of cooperatives put the producers in the position that they belong.
7. In the study it is concluded that retailers should have solid relationships with suppliers, as this may guarantee them high-quality safe products that retailers want, as traders often may not guarantee the quality and safety of products because they buy from different manufacturers.

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