

How Governance Shifts in a Horticulture Value Chain Through Market Demands

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Abstract

For the Global Value Chain paradigm governance is a keyword. It establishes guidelines for its performance. In the case of the Horticulture Value Chain with an ample historical development between the regions of Mexico (Sinaloa) and the United States, the governance evolution has been characterized by leading agents with expertise in consumer's preferences. Throughout this historical process these agents have changed accordingly to the new properties of the market demands. Producing strategic changes in organizations, implemented and managed, to develop advantages in order to face competition and establish themselves in the preference of the leaders' favorite clients. To understand these changes we made a reconstruction of the economic history of horticulture export through qualitative methodology. We interviewed producers and distributors as well as public sector institutions that are part of the process. This study is useful to understand how the new market trends impact in decision-making and the implementation of strategic organizational changes and comprehend the evolution of the sector over time.

Key Words: Global Value Chain, Agriculture, Management, Supermarket, Retailers, Wholesalers, Consumer Trends.

Introduction

At the beginning of the nineties the Global Value Chains (GVC) paradigm was developed as part of the studies in global industrial organization. Stressing the importance of new global buyers as drivers leading the formation of productive and distributive chains globally dispersed in a fragmented organization scheme (Gereffi, 2001).

The segments that constitute the GVC, are represented by boxes or nodes connected in a sequence. Stages of production, distribution and consumption are linked through social or organizational relationships, which include tasks such as the acquisition of inputs, manufacturing, marketing and sales, among others and even the supposed existence of a determined space in an unequal economic world with different levels of access to markets and resources. Therefore richness is constantly varying; this is being recycled as the product goes through each of the nodes that make up the chain (Kaplinsky and Morris, 2001).

The analysis of this paradigm helps to understand the advantages and disadvantages of firms and countries, specializing in the production of a particular good and providing an explanation of how producers are connected to final markets and, how their participation can influence their behavior. The chain is not necessarily governed by trade policies, but is the result of strategic decisions of firm members.

To use the advantages provided by the use of theory, it is important not to miss three components (Kaplinsky and Morris, 2001) that the chain is a store of wealth, its operation involves some degree of governance and the existence of various types of GVC.

Governance ensures that interactions between firms meet organizational coordinated action, not affairs that only happen by chance. This indicates that the chains are operating with parameters requiring product, process and logistics are closely linked to activities, actors, roles and functions of the nodes that include in it. The term is used to emphasize the role of leadership imposed by certain companies over others. It can say that a GVC without governance is just a network of market relations, without a firm that sets the guidelines to follow in the chain (Humphrey and Schmitz, 2001).

It is important to mention GVCs have different shapes and patterns of governance according to sectors and leader firms. The governance structure of GVCs may vary (Cattaneo, Gereffi, Miroudot and Taglioni, 2013). Defining the authority and power relationships that determine how financial, material and human resources are allocated within a chain (Gereffi, 1994; Cattaneo, Gereffi, Miroudot and Taglioni, 2013).

In this sense, leaders in a GVC take responsibility for enhancing the capabilities of the participants involved in the same economic activity divided among the firms involved, according to market trends. The way of accessing the global market it's determined by the type of governance (Messner, 2002).

Governance structures are crucially influenced by lead firms, establishing product specifications, technical standards, and broad coast and performance structures, according to which global industries operate (Staritz, 2013). It also influences in local development strategies based in relationships and institutional mechanisms achieving coordination (Messner, 2002). In recent years governance structures become more complex (Staritz, 2013).

The main point is to know how governance is structured in a GVC. Its type is defined by the way in which the product decisions, production and merchandise flow coordination are performed (Messner, 2002).

Four structures can be identified: the first is performed in the market's coupling and it is called market governance. Here, a long term relation can remain between suppliers and buyers, with low cost transactions, also known as arm's length market relation (Gereffi, Humphrey and Sturgeon, 2005; Humphrey and Schmitz, 2002; Frederick and Gereffi, 2009).

The second, focuses on satisfying some key merchandise supplier's demands, with some client's specifications that could be more or less detailed. This type is known as modular governance. In this one suppliers should take full responsibility of the process, meanwhile the established expenses for the components and materials are allocated to the client (Gereffi, Humphrey and Sturgeon, 2005; Frederick and Gereffi, 2009).

The third type is based in complex interaction networks between buyers and sellers, governance in networks. These often create a mutual dependence and high levels in the detailed specifications of the asset. Governance works through reputation or family and ethnic ties. Many authors have emphasized the role of spatial proximity in sustaining value chain related couplings. However, trust and reputation can also work in spatial disperse networks, where relations are based upon family and social groups. In this type of governance the firms have an intense relation based on information exchange (Gereffi, Humphrey and Sturgeon, 2005; Humphrey and Schmitz, 2002; Frederick and Gereffi, 2009).

The fourth type of governance is performed in the chaining, where transactions made by lower scale depend on bigger purchasers. The suppliers face significant cost changes and because of this are held captive, therefore being known as captive governance. Such networks are frequently characterized by a high degree of monitoring and control from the leading firms (Gereffi, Humphrey and Sturgeon, 2005; Frederick and Gereffi, 2009).

The hierarchical governance is characterized by vertical integration. The dominant way is through executive control, flowing from the executives to the subordinates, or from headquarters to the subordinates and members. The leading firm takes direct possession of some operations in the chain (Gereffi, Humphrey and Sturgeon, 2005; Humphrey and Schmitz, 2002; Frederick and Gereffi, 2009). Meanwhile in the almost hierarchical a company applies a high control degree over others by specifying the product's characteristics (Humphrey and Schmitz, 2002; Frederick and Gereffi, 2009).

The types of governance can be applied by different firms in the chaining. These not only depend on how the group of companies interferes in the behavior of others, but on the legitimacy of the mechanisms used for its performance based on a system of shared values. The leading firms represent the entry point to the global market for a multiplicity of companies.

Through the analysis of the transformations in a productive activity since its inception, like the export horticulture of Sinaloa in Mexico, it was possible to detect changes in chain leaders who would hand market transformations and practiced different types of governance. For more than a century, the state of Sinaloa has been recognized for its horticulture exporting tradition to the United States. Unintentionally, with the distribution of the different activities involved in diverse geographical zones between both countries, a Global Value Chain was established (GVC), specialized in the horticulture activity (Horticulture Value Chain, HVC). This made it possible to understand how horticulture exports from Sinaloa are interconnected to American consumers who have become its main client.

The HVC's governance has been associated to its structure. At the beginning it was fully performed by the American traders, since they were the financing source and the ones who had the knowledge of market and consumer's demand. Distributors appeared afterwards, which over the years were no longer only made of American capital, Mexicans became aware of a way to improve their negotiations with the establishment of their own distribution companies. The market's changes also have been added to this evolution.

To understand the economic development of the horticultural export of Sinaloa, the following hypothesis is proposed: "The governance structure of GVCs not only may vary according to sectors and lead firms, but also market demands that prevail at the time. This implicates that governance evolves with the changing demands of the market where the leaders take responsibility for enhancing the capabilities of the participants involved".

The GVC analysis of horticulture chain between Sinaloa, Mexico and United States and their types of governance provides a framework to capture the diverse conditions of producers in this sector and the evolution of the market demands. It specifies the governance structure of the chain by identifying lead firms that exert power to set the conditions for the permanence of the chain for more than a century.

This article sums up to recent research showing that most global industries are made up of a mix of governance structures in different parts of the global supply chain, and these structures change over time and across different regions and country settings (Gereffi and Lee, 2012).

Methodology

The reconstruction of the economic history of horticulture export of Sinaloa was conducted through qualitative methodology. As part of the activities a review of according literature was undertaken. It was also possible to visit the Horticulture Research and Defense Commission (Comisión para la Investigación y Defensa de las Hortalizas, CIDH) and the Merchandizing Support Service Direction (Dirección de Apoyos y Servicios a la Comercialización) of the Ministry of Agriculture, Livestock and Fisheries of the State of Sinaloa (SAGARPA), where an unstructured interview was applied in order to make an initial exploration of the topic.

To carry out research in the horticultural export and distribution companies a structured interview was made to the president, vice president, general manager or, sales manager and some of their founders as well. In the case of distribution it was possible to interview both American and Mexican companies, some of the latter with close family ties with the producer. Twenty companies were visited in total.

Results and Discussion: Shifting Governance

Articulated as a unit that covers different activities, the Horticulture Value Chain (Sinaloa-United States) is organized into fractioned functions including the following areas: production, cooling and post-harvest management, border transit and trading. Each one located in different geographical areas.

The activities that integrate the production node are: production management, which is in charge of planning the crops, accounting and field management; obtaining input on where everything necessary for production is acquired, from seeds to plastics; and the production process that covers from soil preparation for the sowing to picking the fruit.

The production node located in Sinaloa has been going through a specialized process for about eight decades and nowadays faces a stage of high concentration. The production is performed in a mayor scale and involves higher investments, as well as a high risk level. The profits in a season might be very elevated, as well as the loss. These factors are constituted by entrance barriers, since not all agricultural producers in the region have enough experience and capacity to remain in the activity. Likewise, not all of them have the knowledge and relations as the networks created which are considered vital for the chain's performance.

The transit across borders could be the most fragile link in the chain, because the simple transportation from Sinaloa to Nogales (Sonora, Mexico-Arizona, United States) implies at least twelve hours long travel and can represent twenty four hours or even more, depending on the inconveniences that the carrier faces.

The actions associated to transportation begin before the fruit takes off from the field of origin, when reporting and documenting shipments to fulfil the requirements established by the American government, in order to cross the border and end with the product's delivery to the distributor and the further return to the exit. These tasks are framed in a group of activities that involves specialized transportation methods, checking the product's quality which is being transported before crossing the border in services stations and turning in export documentation to the carriers by the Mexican and American customs.

The distribution node is located in the border area between Mexico and the United States. The main crossing points, besides Nogales, are Tijuana, Mexicali, San Luis Río Colorado, Ciudad Juárez and Nuevo Laredo.

The transportation of the product from the distributor to wholesalers and supermarkets is done through trucks. If the wholesaler or the supermarkets have not a complete familiarity with the company that offers the service, the distributor is the one in charge of hiring the service on behalf of their clients.

Besides wholesalers and supermarket chains, the commercialization node has institutional markets (food service) as participants, including hospitals and schools as well as re-packers that buy wholesale merchandise and pack them with their own brands for its sale. The final goal of transporting the product is the consumer in the United States or abroad.

History has demonstrated that governance has set the guidelines of horticulture exports in Sinaloa. At the beginning it was the American marketers who fully applied it and their purpose was clear: being the financing source, having the knowledge of market demands and supply game under a governance structure described in Table 1.

Table 1. Governance: End of the XIX Century-Thirties

Period	Type of governance	Agent in charge of governance	Management	Market demands	Client characteristics
End of the XIX Century-Thirties (1930's)	Market	Trade companies	<ul style="list-style-type: none"> -Production, packing or transport financing -Commercial bridge between Sinaloa and United States -Offices near the field 	<ul style="list-style-type: none"> -Consumer's lower requirements and product's quality -Minor population -Low diversification of vegetables 	<ul style="list-style-type: none"> -Retail food chains -First supermarkets -Retailers and wholesalers

Source: Own research

Access to financing allowed the region's producers to stay in the game of exporting. It is probable that the most relevant role of marketing companies was to build the commercial bridge between Mexico (Sinaloa) and the United States. Their proximity to the field establishing the offices into the production zone made possible this close relationship.

By the end of the XIX century until the thirties some trade companies didn't have the market's control due to the fact that transport was precarious, the irregular quality and acceptance from the consumer was not always met. The relationship with purchasers was direct, population was smaller, consumers were not very demanding and phytosanitary requirements didn't exist. Among their clients there were retail food chains, the first supermarkets, other retailers and specialized wholesalers.

By the forties (1940's) marketing companies changed their location. They moved away from the fields and transferred to the border dividing Mexico and the United States, and along with them, their names, now being called distributors. What caused this change was the activities' turnover leading to an eminent distinction of two concepts: distribution and commercialization. The first refers to the wholesaler's commerce that supplies resellers with products (González and Calleja, 1999), and the second to the merchandise sales related in a closer manner to the final consumer.

The activities that trade companies developed some time ago are now done by distributors as well as the governance in networks performance characterized by: financing the production, packing and transport stages, being the commercial bridge between Mexico and the United States (see Table 2). Its existence was

possible due to the identification of a production zone with a considerable number of horticulturists, whose tasks emphasized the activity's specialization and guaranteed supplying fresh vegetables and their quality. The last mentioned was part of the agriculture modernization in the mid-forties.

Table 2. Governance: Forties-Eighties

Period	Type of governance	Agent in charge of governance	Management	Market demands	Client characteristics
Forties (1940's)-Eighties (1980's)	Network	Distributors	<ul style="list-style-type: none"> -Production financing, packing and transport -Commercial bridge between Sinaloa and United States -Offices in the border near buyers -Companies from businessmen from Sinaloa in the border -Growth of the number of Mexican companies 	<ul style="list-style-type: none"> -Specialization of activities -Duty's increase, especially in tomato -Higher requirements in the vegetables' quality -Trade openness -Detailed commerce release 	<ul style="list-style-type: none"> -New supermarket chains -Supercenter's emergence an new detailers - Entry of European enterprises

Source: Own research

During the sixties (1960's) and seventies (1970's) the sales channels that reached the final consumer had been multiplied, as the population increased also its fresh vegetable consumption did, placing Mexico as the main supplier of United States. During this period, producers from Sinaloa took a step to a higher vertical integration, establishing the first distributors in the border, sharing the performance of governance with the American distributor companies.

The vertical integration of the production with the distribution had a boom period in the seventies when most of the distributors working with Mexican capital that were established in the border joined the established American companies. This meant sharing governance through providing credit to farmers, especially with packing and transport expenses, serving as a commercial bridge between producers from Sinaloa and the American market showing leadership in this process.

The eighties (1980's) and nineties (1990's) were defined by political changes in Mexico. This movement led to a bigger commercial opening and lower government intervention in agriculture. Those changes weakened horticulture since some producers lost their capacity to export. The lack of order created altered stability, forcing an adjustment in the number of farmers involved in the activity. Just the most ambitious and adaptable to new circumstances survived.

At the same time an acceleration process in the technical field happened, incentivized by the availability of seeds for the tomato's production with the characteristic of a longer life on the shelf, and reviving protectionist measures benefiting producers from Florida, causing new accusations of dumping. This was how the number of Mexican distributors decreased in the United States.

By the end of the eighties (1980's) new supermarket chains were born in the food system in the United States. Wal-Mart is an example, with its fast expansion in a supercenter format, as well as other detailers,

such as Trader Joe's, or companies from Europe (Carman, Cook and Sexton, 2004). This established different scenarios for governance. One where this new range of retail sellers finalizes with leadership that distributors had been performing, generating the guidelines for a transition period in governance from distributors to supermarket chains from 1990 to 2000, under a hierarchical scheme described in Table 3. Another type prevailing is where the distributor is the responsible agent of governance (in networks).

Table 3. Governance: Nineties-2000.

Period	Type of governance	Agent in charge of governance	Management	Market demands	Client characteristics
Nineties (1990's) - 2000	Network	Distributors	Production financing, packing and transport	-Higher commercial openness and less government intervention	Increase of the leading role in the supermarket chains
			Commercial bridge between Sinaloa and United States		
			Offices in the border near buyers		
			Companies from businessmen from Sinaloa in the border		
	Hierarchical	Transition from Distributors to Supermarket Chains	<i>Distributor</i>	-Accelerate the technical change	
			Production financing, packing or transport	-Higher protection measures	
			Knowledge and quality standard's counseling	-Wide range of merchandise	
			Participation with government and non-government agencies to elaborate quality standards	-Adaptation to the population's eating habits changes	
			<i>Supermarket Chains</i>	-Requirements of quality certification and innocuousness	
			The increase in the number of stores in the United States		
			Higher offer of fresh products		
			Nearness to the consumer		

Source: Own research

For this next period the supermarket chains increased their leading role in American consumer's life, offering a wider range of merchandise, establishing themselves in ample number of cities and adapted themselves to the population's eating habits changes (Carman, Cook and Sexton, 2004).

By 2002, the main four, eight and 20 supermarket chains had obtained 31, 45 y 57%, respectively, from food sales in the United States, which meant that suppliers faced a market where only 20 retailer firms sold at least 276 thousand million dollars in food and only eight had approximately a thousand stores, and one had around two thousand outlets (Carman Cook and Sexton, 2004).

Supermarkets got systems that identified consumer's preferences, changes and taste more effectively; this was reflected in their strategies and influence over other stages in the chain. This favored consumers' habits to prefer products that supermarkets offered since these satisfied their requirements, quality needs, quantity and diversity. A distributors' readjustment was necessary to satisfy the new market's requirements.

Demand was not the only factor that justified the fast growth of the supermarkets in the nineties and XXI century. Among others are the detailed commerce liberation and commercial opening by the end of the eighties, accompanied by an organizational adjustment in the mid-nineties that reduced big chains' transaction costs, allowing the establishment of big and small branches in cities in the United States (Reardon, Berdegué and Timmer, 2005).

Big supermarket chains turned into one of the main distributor's purchasers, which main governance faculty was to transmit market signals to the producers and give support in the improvement of production processes and vegetable quality.

In such way that distributors address supermarket chains and other client's needs, transmitting information to producers and assuring that the vegetables are produced under strict quality standards and obtain the necessary phytosanitary certifications. These organizations are able to induce presentations and special products, in reaction to consumer's demand, as well as provide counselling to facilitate the producer's adjustments to new consumer's preferences and government regulations.

The influence of supermarket chains leads to another change in governance. Once being responsible for governance, distributors now share a newly created environment of shared responsibility where supermarket chains are now leaders. The hierarchical governance was established and was reflected on the information transmission between chain nodes (see Table 4).

Supermarkets show distributors the way of doing business, establishing specific directions about products and supply. The directions make possible the satisfaction of an objective to keep them like their best clients, by their purchased volumes and the speed of payments that enhance the profit margin. For all these reasons the distributors do whatever is necessary to induce answers in the production zones.

Producers definitely face consumers with a better knowledge of what it is appropriate to eat. Besides they require better and innovative ways of processing their food since nowadays everyday life allows less time for consumers to do these tasks.

Supermarket chains have focused in getting to know their clients better, and not only that, but also in offering them high quality products that are good for their health. Based on that experience and knowing they're the most important detailed market at the present time they are aware of their privileged position in the negotiation hierarchy.

Therefore they don't hesitate when asking in an explicit and unappealable way what the consumer requires, establishing time, qualities, quantities, products and presentations to be covered, a series of defined

requirements, and a diverse client portfolio of competitors, where more than one of them is willing to satisfy the expectations. The incentives they offer are better buying prices and product's prestige.

Table 4. Governance: 2000-Nowadays

Part 1

Period	Type of governance	Agent in charge of governance	Management	Market demands	Client characteristics
2000-Nowadays	Hierarchical	Supermarket's chains to distributors, distributors to producers	<i>Supermarket Chains</i>		
			Indicates the type of product, quantity and quality		
			Serves a more demanding consumer	-A more conscious consumer about their eating habits	
			Demands presentations and special products		
			Distributors' main client	-Products that facilitate food elaboration	
			<i>Distributors</i>		
			Financing	-Product's prestige importance	The supermarket chains are the most important detailed market nowadays
			Support producers with their own phytosanitary standards elaboration	-Diversity in presentation and type of products	
			Counselling in field's quality standards		
			A strong field certification program and border companies	-Having a social responsibility certificate from the horticultural producers of origin	
			Specialized employees in phytosanitary standards.		
			Counselling the producer in the client's taste and preferences		
			Advising in the best sowing and harvesting periods		

Source: Own research

Table 4. Governance: 2000-Nowadays
Part 2

Period	Type of governance	Agent in charge of governance	Management	Market demands	Client characteristics
2000-Nowadays	Network	Distributors	Production, packing or transport financing		The supermarket chains are the most important detailed market nowadays
			Commercial bridge between Sinaloa and United States		
			Offices in the border near the purchasers		
			Companies owned by Sinaloa's businessmen in the border		
	Almost Hierarchical	Supermarket chains to producers	<i>Supermarket Chains</i>	-A more conscious consumer about their eating habits	
			Indicates the type of product, quantity and quality	-Products that facilitate food elaboration	
			Nearness with the consumer	-Product's prestige importance	
			Presentation requests and special products	-Diversity in presentation and type of products	
			<i>Producers</i>	-Having a social responsibility certificate from the horticultural producers of origin	
			Direct connection to the supermarket chain, minimizing intermediaries		
			High quality standards achievement		
			Constant training		
			Flexibility in presentations		
			Innovative technology		

Source: Own research

In addition to this schemes almost hierarchical governance appears, reflected on the efforts conducted by horticulturist producers to establish a direct relation with the supermarket chain. This does not imply the distributor disappearance, which acts as the negotiator agent. Besides, there is another type of governance based on networks, where producers commercialize through other clients of the chain (retailers, detailers, wholesalers and institutions).

The HVC is characterized by being managed by the purchaser, implying that the supermarkets are in charge of governance where capital is its main carrier. The areas of opportunity in order to compete are design and commercialization. And one consideration of major importance in the configuration of the chain is development around perishable goods, which in this case are vegetables.

Conclusion

This study appoints the governance structure of GVCs showing that they may not only vary according to sectors and lead firms but also market demands that prevail at the time implying that governance evolves with the changing demands of the market where the leaders take responsibility for enhancing the capabilities of the participants involved.

Through historical analysis of the Horticultural Value Chain (Sinaloa-United States) periods of market changes were established. Each one has their own market and client demands, as well as reasons for the existence of a varied governance structures with different leaders who answer to those requirements.

The article shows how a global industry is made up of a mix of governance structures and changes in more complex structures with time.

It was also possible to understand how every step of the chain is connected to final market and how the demands influence in the companies' planning to stay in it thus consolidating trade relations between the members and how the leaders have a perfect knowledge of the consumer, thanks to easy access to technology and methods to obtain information by their proximity to them and the possibility to establish a quality communication with other actors of the chain on short term.

According to practice the goal of a GVC is staying ahead in the market to meet new business scenarios. Its possible metaphor would be an invisible octopus of communication flows that give organic stability to a system of economic interest and social production where innovation, leadership and adaptation, are indisputable characteristics of its actors. They know that governance cannot be static in a productive chain, highlighting the importance of this type of research.

The GVC framework helped to analyze the evolution of a productive activity in order to extend the existing literature on changes in demand and governance structures, and raising promising questions for future research. The challenge is to continue the study and identify upcoming changes in market demands. So it is necessary to build trust with companies in the sector to obtain more comprehensive information.

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