Commercialization and consumption of coffee in Mexico, a proposal of methodology approach

By Marisol Velázquez Salazar

Introduction

Global Value Chains (GVC) methodology developed by Gereffi in 1994 and updated in 2005 has enabled to incorporate different aspects to the study of the productive chains. According to this chronology, emerges a proposal to include dimensions posed by this author in addition to combine versions of governance as a domain, coordination or linkage and regulations in a single typology. In this way, it parses the string not only forward and backward, out or inside and towards, but workable, seen from a micro point of view, but also macro or global. Then, it shows the economic relationship between agents and its interaction with the economy in general.

The objective of this work is to show the theoretical, methodological and a view of empirical advances of the GVC applying to the coffee chain which is discussed under governance in its new version to generate a discuss about this propose. It should be noted that under these dimension is intended to show the socio-economic situation of the producers of coffee in Mexico and how is their relationship with the other participants in the chain, both nationally and globally.
Methodology for the determination of the governance as domain, coordination and normalization in Global Value Chains (GVC)

The study of the productive linkages from the theoretical framework of global chains of value (GVC) proposed by Gereffi and Korzeniewicks in 1994 allows us to observe and understand the chains from production to commercialization, as well as including aspects that define the behavior of the agents in and out of them. In this first study, the author proposes three dimensions of analysis: (1) structure of input and output (products and services chained in a sequence of value added economic activities); (2) territorial (spatial dispersion or concentration of production and distribution networks) and; (3) a structure of governance that refers to relationships of authority and power that determine how they are assigned human, financial and material resources and what flows within the string (Gereffi, 1994: 96-97).

Gereffi, Humphrey and Sturgeon included a new dimension that refers to the institutional context and describe the rules of the game between the organizations and the operation within the string (Bair, 2009: 9) in 2005. Within this update, governance suffers its first transformation and arises as the coordination or linkage between two key agents of the chain, suppliers and leading firm. According to Humphrey (2006) coordination is understood as the ability to provide and execute instructions.

The types of governance are derived from the combination of three variables: a) the complexity of the information and knowledge that is required to support a particular transaction, specifically with the product and process specifications; (b) the extent that learning and information can be encoded and transmitted effectively, without the need for investment of parties that participate and; (c) the actual and potential capacities of providers to react to the requirements of the transaction (Gereffi et al., 2005: 85). The spinal part of the analysis remains governance but now arises from empirical observation according to the dominant power of the actors, and is divided into 5 types: hierarchical, that refers to companies with vertical integration and whose dominant form is
management; captive, in which small producers have a limited market and depend on large buyers; relational, in which transactions are complex and there is a mutual dependency between buyers and sellers by the high level of specialization; modular, in which providers and clients tend to be linked or disconnected easily, resulting in a fluid and flexible network and; market, that mean simple transactions of products with simple specifications and capacity of acting with minimal input from buyers, in this type of chain providers governs the price. These types of governance are evaluated according to the more or less explicit coordination and asymmetrical power (Gereffi et al., 2005: 86-88).

Also in 2005, Ponte and Gibbon proposed governance by normalization, i.e. the imposition of regulations, rules and standards by certain agents, based on the Theory of Conventions (Ponte and Gibbon, 2005: 3; Gibbon, Bair and Ponte, 2008: 324). In this sense, a chain can be governed according to some set of rules that contain mechanisms of coordination (Sturgeon, 2009: 19). Conventions referred to standards are: market, domestic, industrial, civic, inspirational and opinion. A convention of market occurs when there are no doubts in the quality of the product and the price differences are explained by diversification in quality; domestic conventions explain consumer preferences for long-term relationships, for example, the product has elements that relate to the tradition; industrial contain rules or standards that are evaluated by a third party; civic refers to the existence of a collective, social or environmental well-being; inspirational is a convention that is difficult to measure because it refers to creativity, innovation and uniqueness, as in the case of craft or art; the conventions of opinion are based on judgements and opinions of specialists that raise the price of the products (Ponte and Gibbon; 2005).

Once defined the three meanings of governance, Ponte and Sturgeon (2014) pose that is necessary in global chains review a framework that opens the discussion and incorporates the wide range of forces, actors and spatial scales of work. For this reason, they advance in the methodological part combining governance by coordination and governance by normalization, while the research presented here aims to cover the three forms described above. It is considered that a chain involves the characteristics and elements of each advance, allows the analysis of how the product changes through every
link, where it begins and where it ends, as well as explain how is the relationship among the actors of the chain.

In that sense, governance is first studied by control or dominance, in conjunction with the governance by coordination or linkage. The chain by domain or control enables determines which agent within the string exerts rules so others can enter or remain therein. On the other hand, governance by coordination allows the analysis of the changes over time in relations within the chain, but also, as Humphrey (2006) said it measured the different concentration levels of the chain, i.e. the number of suppliers and buyers who have different sizes and different options of coordination, as well as the role of intermediaries.

It is worth mentioning that such changes are generated by the demand and to reduce costs of companies. Governance in terms of coordination gives the chain a dynamic vision in time that changes according to the relationship between suppliers and the company. The more rigorous contracts and rules, the chain moves from a market to a hierarchical type as there are more explicit coordination and more asymmetrical power. The analysis by coordination is temporary and analyzes the change of governance over time, so, it measures the relationship between supplier and the firm and the quality of information flowing from one to another. Therefore, it complements and no contradicts the analysis of governance as domain.

According to the theoretical specifics of control or dominance of the chain, a chain leaded by the producer is one that has a vertical structure, while the one leaded by the buyer is horizontal (Gereffi, 1994). Similarly, in the case of the coordination, hierarchical chain is completely vertical (Gereffi, 2005), while the others have at least one link, which usually is the provider, which does not belong to the same firm or company. Therefore from the captive chain up to the market have some lesser degree of verticality which is different in each of them. It would define a total verticality in the hierarchical, high string in the case of the captive chain, media in the relational, low in the modular and null (horizontal) on the market.
Another theoretical feature of governance by domain is the type of property, transnational for the domain by the producer and independent businesses located in the third world in the case of domain by the purchaser (Gereffi, 1994). For governance by coordination, hierarchical and captive chain is transnational, while others have providers that may be located or not in third world countries, but are independent of the firm or company. It is considered that relational, modular and market types are owned by independent companies.

Theoretically, the governance by producer or buyer domain and by coordination matches in the terms discussed above. But it is important to mention that hierarchy coordination is an extreme and it isn’t controlled by anyone, because in this case the chain is controlled by a single link, then does not apply the governance by domain since it would dominate itself. That is, at the same time it is directed by the producer and the buyer because it is the same agent.

The analysis of empirical studies helps to rebel if it is true that chains by domain can tie with coordination types, the extent and characteristics of each that could match. In order of that, analysis of industrial products, agrifood and coffee chains were chosen to see how other authors have studied them under the initial (1994) or the most current approach (2005) of Global Value Chains.

The first is the case of the bike industry which shows a hierarchical behavior at first and becomes a type of market at the end of the study. At the same time the string passed to be directed by the producer to be dominated by the buyer (Gereffi et al., 2005: 90).

Moreover, the clothing industry became into captive governance from a relational one, reducing the ability of the coding of transactions, measured by more relaxed contracts. This industry is the typical network directed by the purchaser, in which stands out the competition for design, marketing and brand, as well as being marked by imbalances of power between producers and global buyers (Gereffi et al., 2005:92).
In the case of electronic, Gereffi (2005:95) highlights that this industry moved from a hierarchical mode to a modular one, but then it needed greater coordination and returned from that to hierarchical governance. This set of goods includes the phones, radio, television and personal computers. In terms of the domain, the chain was controlled by the producer, although according to Sturgeon and Kawakami (2010: 254) has changed to the buyer domination because of the activity of manufacturers and marketers. In this sense, governance proposed by these authors is the modular. They affirmed that power of the buyer exists, not by technology and brand development, but because of the financial risk taken by the placement of orders and sale of products.

The automotive industry was studied by Bieseboerck, Sturgeon and Gereffi (2008) under the framework of GVC and established that passes from captive to relational chain since there are higher requirements for the development of the vehicle but there is also a major gateway of outsourcing companies whose participate in the co-design of parts and modules of the automobile. Traditionally, this sector has been directed by the producer, according to the initial types of Gereffi (1994) governance.

In the case of agrifood chains, there is empirical consensus that accepts there are directed by buyers, either final or intermediary, which are the one that processes, transforms, and sells the commodity (Pelizzon, 1994;) Goldfrank, 1994; Reynolds, 1994; Wilson et. Al., 1994; Shields, 2004; Dyck, 2004; Wu Huang, 2004; Gehlhar and Regmi, 2005; Reardon et. Al, 2005; Humphrey, 2004, 2005 and 2006; Talbot, 2009; Gereffi and Lee, 2009; Kaplinsky, 2010; Fernández, 2011). The agent that issued the rules is the retailer, transnational corporation or marketers of brand, while the producer belongs to developing countries or third-world and is not part of that corporation. Then, there is some vertical structure but not total, there are still several intermediaries, there is a mid-level of asymmetry and coordination, highly complex transactions, but they operate under relaxed contracts, which are characteristics of the relational network.

The case of fresh vegetables chain (Gereffi et.al; 2005) became, in a first moment, from a market coordination to a modular one and subsequently to a relational because of
currently need of more explicit coordination. For the three types, the chain is run by the buyer. Humphrey (2004, 2005 and 2006) also parses this string and comes to the same conclusion, the coordination of agro food tends to become more complex over time as information becomes more specific, required standard production of products for which manual and instructions are issued to producers, and responds to a demand that requires certain attributes such as food safety, health and nutrition, authenticity, care of the environment, sustainability and fair trade. Attributes that make the chain more complex, and therefore needs more explicit coordination.

Pelupessy (2005) reaffirms that the agrifood chain has been required greater coordination since the producer must be informed about the requirements of demand or otherwise, will be excluded from the chain. It is the case of most of the small producers although not of all. Only those able to get assistance technique and training manage, *i.e.* those providers who achieve to coordinate explicitly with the buyer, can stay. This is another example of relational coordination on a chain dominated by the buyer.

In the case of agrifood chains of coffee there is a control or economic power of the retailers and transnational corporations over located in developing countries or third-world producers (Jafee, 2012; Pelupessy, 2007; Nielson and Pritchard, 2007; Muradian and Pelupessy, 2005; Pérez Akaki, 2010; Bitzer, 2008; Jiménez Porras; 2011). In terms of coordination, this line shows the changes since before the liberalization of the market so far. The need of the consumer to purchase products with attributes referred to health, food security, quality, geographical location, empathy with the environment and trade that no affect social or human conditions, have made to increase the level of explicit coordination by rules, instructions and manuals, as well as the constant training to producers. It is considered that this chain is a relational type because it has vertical structure, although not total and the decisions and rules are issued by one agent towards primary providers. However, it must be according to the proposed indicators to assess and verify the result.
To extent that the governance analysis has been exposed, proposes the following typology that links both versions (Figure 1). It is worth mentioning that coordination occurs in an environment micro from the relationships between suppliers and firm, while the domain is presented in a global manner because it covers the chain from production to commercialization that are activities carried out in different countries. This makes the study becomes more complex and not have determinants results that depends on the characteristics of each asset.

**Figure 1 Governance by domain and coordination**

Source: Own elaboration.

In conclusion, the captive and the hierarchical chain match, theoretically and empirically, with the chain run by the producer; modular and market chains are tied with the domain by the purchaser and; the relational type coordination can have both domains, both directed by the producer as directed by the purchaser. The cases that led to this final conclusion were the clothing industry and the automotive since both became from captive coordination to a relational linkage, i.e., eased the types of contracts but increased the requirements to suppliers. In terms of the domain, the garment industry is the primal example of a buyer-driven string and automotive is a domain by the producer.
With regard to the regulations, there are few studies that include it as such. However, if it is defined as governance by rules, regulations and standards, it can tie with governance coordination and, once made the previous analysis, with governance by domain. As more explicit coordination, there is greater complexity of transactions, more manuals, instructions and rules, so that there are more regulations. I.e. in captive chains, producer-driven, are high standards to stay in it. In a string of market, on the contrary, there is low or no regulations since there is a lack of rules and the sale is governed by buyers and suppliers without an explicit formal agreement. In this sense, Humphrey (2006) analyzes the evolution of standards in the agri-food sector under the theoretical approach of global value chains from the early 1980s until 2006. Indeed, there is greater need for explicit coordination, greater regulations expressed in rules, inspections, homogeneous processes, regulations and public and private standards became necessary.

Ponte and Sturgeon (2014) have made progress in this regard and propose a level of microeconomic analysis of governance covering the governance by coordination, establishing relationships or links between the actors and governance by normalization, that part of the theory of conventions (Dupuy; 1989 and Eymard; 1992). It is worth mentioning that conventions can be commercial or mercantile, defined by the value of the market and the price difference explains the quality of the product; domestic, where the long-term relationships and knowledge of brands determine the choice of the product and are referred to the tradition; industrial, explained by the productive efficiency and in which quality is measured from norms and standards evaluated by a third party; civic, influenced by the wellness collective, social, or environmental; inspirational, where creativity innovation and uniqueness are considered artistic or craft and influence the choice and; opinion or reputation, in which the trials of specialists give value the product. Likewise, it is worth mentioning that the Theory of Conventions stems from the problems of coordination between individuals, as a solution to them. I.e. from collective action agreements which are formalized are created rules, regulations and standards that dissolve conflicts and reach a more efficient economy. Its execution is divided into 6 types of conventions described.
In the analysis of Ponte and Sturgeon are nodes in the chain to establish relations that exist between governance coordination and standardization. They illustrate how mechanisms of bonding (coordination) and the types of conventions (standardization) explained the characteristics of exchange between the individual nodes on the string at a micro level. These may differ on different nodes of the chain and does not necessarily apply to the entire chain. In addition, the types of conventions can juxtapose in any of the types of coordination (Ponte and Sturgeon, 2014:211).

The result of their investigation propose that the market linkage coincides with the convention market in simple transactions where dominates the price-product relation. Modular links are typically related to industrial conventions and involve a third party to evaluate the quality standards. Relational links are tied to domestic conventions based on tradition and long term relationships (Ponte and Sturgeon, 2014: 21-212). The conventions civic, inspirational and opinion are not included in the analysis of the authors, but they clarified that its proposal is not deterministic because different conventions may appear in the different nodes of the string and also a node can have more than one convention.

Following this line of research, the following approach is proposed. According to Sturgeon and Ponte (2014), although it is not a definitive approach, it serves to make the study of the specific agrifood chain of coffee. Under this logic, the results show that a chain typically directed by the buyer, can be coordinated through market, modular or relational linkages and includes the conventions of commercial, industrial or domestic conventions in their nodes. Moreover, the typical chain dominate by the producer may have relational, captive, or hierarchical links and incorporates domestic conventions in its nodes.
Finally, we arrive to the typology presented in table 1 which incorporates the three forms of governance and the variables to evaluate the string. In table 2, governance includes indicators that characterize the three visions of the authors as domain, coordination or linkage and normalization or convention.

Table 1 Governance typology

<table>
<thead>
<tr>
<th>TYPOLOGY</th>
<th>Domain</th>
<th>Linkage</th>
<th>Convention</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Buyer</td>
<td>Market</td>
<td>Market</td>
</tr>
<tr>
<td>G2</td>
<td>Buyer</td>
<td>Modular</td>
<td>Industrial</td>
</tr>
<tr>
<td>G3</td>
<td>Buyer</td>
<td>Relational</td>
<td>Domestic</td>
</tr>
<tr>
<td>G4</td>
<td>Producer</td>
<td>Relational</td>
<td>Domestic</td>
</tr>
<tr>
<td>G5</td>
<td>Producer</td>
<td>Captive</td>
<td>Domestic</td>
</tr>
<tr>
<td>G6</td>
<td>Producer</td>
<td>Captive</td>
<td>Industrial</td>
</tr>
<tr>
<td>G7</td>
<td>Producer</td>
<td>Captive</td>
<td>Opinion</td>
</tr>
<tr>
<td>G8</td>
<td>Without domain¹</td>
<td>Hierarchical</td>
<td>Domestic</td>
</tr>
<tr>
<td>G9</td>
<td>Without domain¹</td>
<td>Hierarchical</td>
<td>Industrial</td>
</tr>
<tr>
<td>G10</td>
<td>Without domain¹</td>
<td>Hierarchical</td>
<td>Opinion</td>
</tr>
</tbody>
</table>

Source: Own elaboration based on Gereffi (1994, 2005) and Ponte and Sturgeon (2014).

¹ The chain is at the same time dominated by the buyer and the producer in order that it is the same economic agent.
Table 2: Governance indicators for the proposal of governance

<table>
<thead>
<tr>
<th>TYPOLOGY</th>
<th>DOMAIN</th>
<th>LINKAGE</th>
<th>CONVENTION</th>
<th>STRUCTURE</th>
<th>PROPERTY</th>
<th>MARKET</th>
<th>INTERMEDIARIES</th>
<th>COORDINATION LEVEL</th>
<th>ASYMMETRY</th>
<th>COMPLEXITY TRANSACTIONS LEVEL</th>
<th>HABILITY IN CODING TRANSACTIONS</th>
<th>CAPACITY OF RESPONSE OF THE SUPPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Buyer</td>
<td>Market</td>
<td>Market</td>
<td>Horizontal</td>
<td>Independent</td>
<td>Several producers, one buyer</td>
<td>Key intermediary</td>
<td>Middle-low</td>
<td>Middle-low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>G2</td>
<td>Buyer</td>
<td>Modular</td>
<td>Industrial</td>
<td>Vertical</td>
<td>Transnational</td>
<td>Several producers, one buyer</td>
<td>Relational intermediary</td>
<td>Middle</td>
<td>Middle-low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>G3</td>
<td>Buyer</td>
<td>Relational</td>
<td>Domestic</td>
<td>Vertical</td>
<td>Transnational</td>
<td>Several producers, one buyer</td>
<td>Without intermediaries</td>
<td>Middle-high</td>
<td>Middle-high</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>G4</td>
<td>Producer</td>
<td>Relational</td>
<td>Domestic</td>
<td>Vertical</td>
<td>Transnational</td>
<td>Monopoly or Oligopoly</td>
<td></td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>G5</td>
<td>Producer</td>
<td>Captive</td>
<td>Domestic</td>
<td>Vertical</td>
<td>Transnational</td>
<td>Several producers, one buyer</td>
<td></td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>G6</td>
<td>Producer</td>
<td>Captive</td>
<td>Industrial</td>
<td>Vertical</td>
<td>Transnational</td>
<td>Several producers, one buyer</td>
<td></td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>G7</td>
<td>Producer</td>
<td>Captive</td>
<td>Opinion</td>
<td>Vertical</td>
<td>Transnational</td>
<td>Several producers, one buyer</td>
<td></td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>G8</td>
<td>No domain*</td>
<td>Hierarchical</td>
<td>Domestic</td>
<td>Vertical</td>
<td>Transnational</td>
<td>Several producers, one buyer</td>
<td></td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>G9</td>
<td>No domain*</td>
<td>Hierarchical</td>
<td>Industrial</td>
<td>Vertical</td>
<td>Transnational</td>
<td>Several producers, one buyer</td>
<td></td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>G10</td>
<td>No domain*</td>
<td>Hierarchical</td>
<td>Opinion</td>
<td>Vertical</td>
<td>Transnational</td>
<td>Several producers, one buyer</td>
<td></td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

*The chain is dominated by both, buyer and producer because it is the same agent.

Source: Own elaboration based on Gereffi (1994, 2005) and Ponte and Sturgeon (2014).

With these indicators and under the proposed typology the coffee chain will be analyzed. The intention of this progress is to discuss this methodology in order to applied it to a specific chain.

According to the proposed indicators of governance, the coffee chain is a horizontal structure with independent companies, so would be inserted in the G3 type. There are several producers on the market, but usually only a buyer identified as large transnational corporations that buy green coffee, processed it, transform it and marketed it, adding value in each activity. The role of the intermediary is relational, i.e., select and buy grain from producers and sells it to the leading firm. Coordination between agents is a coordination and asymmetrical power medium, with highly complex transactions, high capacity of suppliers and contracts relaxed response, which is reflected in a low transactions coding ability. This is a general conclusion about one traditional coffee chain but it is not the only one that exists. The complete results are not here because of the extension but it will be presented at the ordinary session in a few charts.
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