Literature Review – Value Chains

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Abstract

This paper offers a review of the literature on the theoretical underpinnings and practical uses of GVC value chain governance theory for the purposes of informing a development-focused graduate student consulting project that employs GVC methodology. The first and second sections provide a brief overview of value chains, GVC governance theory and the relevant concepts for conducting a value chain analysis within a development context. The third section discusses GVC interventions and offers a case study of a successful intervention. At the end of this paper, the author offers a set of recommendations for a graduate level development capstone project that would focus on value chains.

Introduction

In today’s globalized world, the traditional concepts that were useful to understanding global integration such as comparative advantage and the role of multinational corporations in shaping trade and investment are no longer sufficient. That is, these concepts do not account for the fragmentation in the value chain or the fast-rising capabilities in places that are new to the capitalist global economy such as China, India, Russia and Vietnam. Since the early 2000s, a new framework - global value chain governance theory - seeks to understand the economic interests, social structures and competition and strategy that advance or obstruct production.

This paper offers a review of the literature on the theoretical underpinnings and practical uses of GVC value chain governance theory for the purposes of informing a development-focused graduate student consulting project that employs GVC methodology. The first and second sections provide a brief overview of value chains, GVC governance theory and the relevant concepts for conducting a value chain analysis within a development context. The third section discusses GVC interventions and offers a case study of a successful intervention. At the end of this paper, the author offers a set of recommendations for a graduate level development capstone project that would focus on value chains.

1. Value Chains

The practice of global value chain analysis within international development is based on the science of global supply chain management and logistics. According to Alan E. Branch (2009), the supply chain is “the time-related positioning of resources ensuring the material, people, operational capacity and information are in the right place at the right time in the right quantity and cost.”

Stock and Lambert (2001) define the supply chain as the alignment of firms that bring products or services to market. Heizer and Render (2001) define it also as all interactions between suppliers, manufacturers, distributors, and customers. Since these interactions add value to the product, the supply chain is often referred to as the ‘value chain’ or the ‘demand chain’ in strategic management literature. Michael Porter’s concept of value chain system (1985) refers to a firm’s relationships with
upstream suppliers and downstream customers. This system differs from the value chain as such, which encompasses the range of internal value-added processes within one company, or specifically:

“The many discrete activities a firm performs in designing, producing, marketing, delivering, and supporting its product. Each of these activities can contribute to a firm’s relative cost position and create a basis for differentiation...The value chain disaggregates a firm into its strategically relevant activities in order to understand the behavior of costs and the existing and potential sources of differentiation. A firm gains competitive advantage by performing these strategically important activities more cheaply or better than its competitors” (Branch).

Porter’s value chain approach is primarily used to analyze the core competences of the firm to achieve cost reduction and differentiation. According to his typology, there are two types of value chains: primary activities including inbound logistics, operations, outbound logistics, marketing and sales and service, and support services such as infrastructure, human resource management, technology development and procurement (Branch).

However, is the value chain approach sufficient? Van Wijk et. al (2008) argue that the supply chain approach is less equipped to analyze sustainability issues: “The inclusion of social and environmental sustainability objectives in the corporate strategy requires analytical tools to examine (a) relationships with non-market parties, (b) interdependence among all firms within the chain, (c) the influence of governmental trade regulation on the room for maneuver in the chain, and (d) normative issues related to production processes and the distribution of chain gains.” Van Wijk et. al argue that Global Value Chain (GVC) analysis is the more appropriate theoretical approach to study sustainability issues.

2. Global Value Chain Governance Theory

In his initial research on GVC’s progenitor, the “global commodity chain”, Gereffi distinguished between two types of chains: (a) producer-driven chains and (b) buyer-driven chains (Gereffi 1994). In producer-driven chains the lead company is the manufacturer or a large, integrated industrial enterprise that controls the production system through its network of suppliers, subsidiaries and sub-contractors. Producer-driven chains are typical for capital and technology-intensive industries like automobiles, aerospace, and electrical machinery. In buyer-driven chains the lead company is the retailer or branded company that derives its position from its consumer market knowledge, while they outsource most, if

1 Large portions of this section were excerpted from Van Wijk et. al 2008
not all of their production. These chains are usually found in labor-intensive consumer good industries such as garments, consumer electronics, and food.

Gibbon (2001) identifies a third chain type, the international trader-driven chain, which can be found mainly in primary commodity markets. In the international trader-driven chain the core firms in this chain are the trading houses that trade in multiple commodities. Products from all over the world are obtained in order to be traded to other firms that process them into final consumer products.

Today a more dynamic, operational theory exists, called the GVC governance theory. As such, a new typology called “governance patterns of value chains” is offered by Humphrey and Schmitz (2004) and Gereffi et al (2005). Here, governance, rather than the buyers and producers that drive the chain, is central to this theory. The theoretical framework draws on three approaches: (1) transaction cost analysis, (2) production networks, and (3) technological capability and firm-level learning.

The main thrust of the theory is (1) that chain governance is located on a continuum between a markets situation (little governance) and a hierarchy situation (high governance combined with a high degree of vertical integration), and (2) that three variables determine that location: the complexity of inter-firm transactions, the ability to codify these transactions, and the capabilities of suppliers to meet requirements of buyer.

Using these variables, five basic types of value chains can be distinguished (see Exhibit 1). The ‘Captive’, and ‘Hierarchy’ value chains are demand-driven; the ‘Modular’ and ‘Relation’ chains resemble most of what used to be producer-driven chains. The ‘Markets’ chain type tends to be the least driven.

**Exhibit 1: Typology of Global Value Chains**

**Market:** Transactions easily codified, specifications relatively simple, and suppliers capable of producing the products. Little chain coordination required. Switching costs are low for both suppliers and buyers.

**Modular:** Suppliers make products to specifications of buyers. Modularity rises with increasing codification of specifications (through technical standards). Suppliers capable of internalizing tacit information. Coordination and switching cost remain low.

**Relational:** Codification difficult, which makes interactions complex. Suppliers and buyers are mutually dependent because of complexity. Relational value chain governance is to be expected because a lot of tacit knowledge must be exchanged. Outsourcing is likely to benefit from capabilities of supplying firm. Mutual dependence regulated through reputation, social and spatial proximity, family and ethnic ties, etc.

**Captive:** Ability to codify and complexity product specification are high, but supplier capabilities low, then governance tends toward captive type. High degree of monitoring and control required of the lead company. Suppliers are dependent on buyers. The chain is ‘captive’ because switching costs for suppliers are high.

**Hierarchy:** Products are complex and specifications cannot be codified. Capable suppliers cannot be found, then core firms develop products in-house. Vertical integration. Dominant form of governance: managerial control, from managers to subordinates and from HQs to

Comment [3H2]: Good to illustrate these types. May want to simplify the explanations a bit or provide real world (Developing world) examples to illustrate these ideas.
subsidiaries and affiliates.
Sources: Gereffi et al (2005), Humphrey and Schmitz (2004)

USAID offers a practitioner-friendly explanation of how to use GVC governance theory to analyze value chains and offer appropriate interventions. One must first identify the type of governance structures that exist, and then select appropriate interventions and leverage points (USAID). The leverage points are the “where, how and when practitioners can intervene to effect systematic change and industry behavior” (USAID). Value chain analysis, therefore, should seek to understand:

1. Economic interests: assess the interests of key lead firms and suppliers; evaluate changes that could be made in the system to balance the benefits, profits and power likely to accrue to lead firms versus suppliers.

2. Social structures: work with respected and knowledgeable social figures, such as key farmers, influential trade organizations or industry leaders who can influence others to adopt or purchase new techniques, technologies, services or inputs.

3. Competition and strategy: changes in the level of competition or in lead firm strategies can pressure buyers and others to change predatory or abusive behavior.

According to USAID, the dynamic nature of value chain governance can be largely accounted for by three determinants: information complexity, information codification and supplier capability. Other contributing factors include business enabling environment and institutions and power -- the ability of the firm to drive the direction of the value chain and thus control other firms in the chain (USAID).

“At any point in the chain, a firm (or organization or institution) can set parameters under which others in the chain operate. By setting the parameters for governance, powerful actors influence who acquires production capabilities and market access and how gains are distributed throughout the chain” – USAID Briefing Paper on Value Chain Governance

3. Value Chain Interventions

Appropriate interventions must provide answers to the corresponding GVC analysis. Interventions fall into one of two categories. They either encourage capability-enhancing governance at all levels of the chain or facilitate the development of supportive markets. Capability enhancing activities means that “practitioners should work with lead firms and suppliers to create and monitor rules and standards that will make the chain effective, efficient and equitable for all parties involved” while supportive market activities include technical assistance that ensures products meet the needs of consumers in that market (USAID).

Industrial Upgrading

In the development context, industrial upgrading has been one very popular type of value chain intervention in countries where it is difficult to influence the business enabling environment. Van Wigk
explains the phenomena of upgrading, which may happen naturally or with expert consultation: “As actors in global value chains, developing country suppliers may be able to upgrade their position in the chain.” Gereffi refers to industrial upgrading as a process of “improving the ability of a firm or an economy to move to more profitable and/or technologically sophisticated capital and skill-intensive economic niches” (Gereffi 1999: 52).

Humphrey and Schmitz (2004: 352) distinguish four types of industrial upgrading:

1) Process upgrading: More efficient transformation of inputs into outputs by reorganizing the production process or introducing innovations;

2) Product upgrading: Moving into more sophisticated product lines (increased unit values);

3) Functional upgrading: Acquiring new functions in the chain (such as design, marketing, branding) to increase overall skill content of activities. This route is in the literature usually discussed as the transition from assembly to OEM (original equipment manufacturer) to ODM (own-design manufacturer) to OBM (own-brand manufacturer);

4) Inter-chain upgrading: Using the knowledge acquired in particular chain functions to move horizontally into different sectors (e.g. television producers that move into computer monitors).

Examples of upgrading activities include any kind of investment that results in the firm becoming more productive: training the workforce, adopting new technology, obtaining production certifications and investing in research and development, proactively developing networks and pursuing strategies to serve current markets in new ways and penetrate higher value markets (Jones 2009).

Case Study

1. Process Upgrading: the Farmapine model in Ghana

Yeboah (2005) examines a marketing arrangement in Ghana – Farmapine’s small holder-owned export company—that has the potential to change the industry. Technoserve, a US-based development agency, had been assisting the cooperative members (small farmers called outgrowers) to improve their production and management practices (Boselie & Muller 2002). Historically, the small holders offered exporters little advantage over large plantations and were marginalized due to a number of disadvantages they faced when competing with larger producers.¹

¹ In his analysis of pineapple producers of varying sizes in Ghana, Takane argues that that there are certain advantages and disadvantages that smallholders have over large producers. From the viewpoint of production cost, small holder farmers’ is lower due to the lower labor cost of smallholders’ use of family labor (Takane 2004). Smallholders may also possess a competitive advantage when it comes to goods requiring intensive and skilled labor such as highly damageable fruits including strawberries and grapes. Large producers using hired labor incur high supervision and enforcement costs compared to small farmers’ self-supervised family labor. Smallholder production may flourish when large-scale land acquisition requires considerable costs or risks for exporters. However, there are disadvantages when it comes to 1) requirements of large capital investment (Carter et al., 1993, cited in Collins, 1995), 2) the unavailability of specialized inputs such as specialized machinery, seeds,
In 1999, the World Bank, under its agricultural diversification program, provided $1.4 million for the formation of Farmapine Ghana Limited (FGL). FGL processes and exports the farmers' produce. Five farmers' cooperatives at 80% and two former producers/exporters at 20% own company. After the World Bank Loan is repaid, the cooperative members will be able to share in any profits resulting from operations. Formal contracts were signed between FGL, the cooperatives, and cooperative members. Membership in these cooperatives was initially open to all pineapple producers. Once FGL was formed, new members were no longer accepted. Pineapples was selected for support because it is an exportable crop with a ready market in Europe and as a relatively shorter gestation period and the farmers cooperatives were already formed and active.

There were two constraining factors: first, access to European importers or buyers and second, lack of in-depth knowledge of the export market. To overcome this, two former exporters were included as shareholders in FGL. The managing director hired by the board of directors oversees day-to-day operations, assisted by three production managers and an export management. The board is made up of the presidents of the five farmers' cooperatives, the two former exporters, the managing director and a representative from Technoserve.

FGL provides chemical inputs on credit to cooperative members, which is repaid when the pineapples are harvested in order to reduce their financing needs (the cost of chemicals is the largest variable-cost item in pineapple production). The output price is indexed to the US dollar and is negotiated at the beginning of the growing season and reviewed periodically to reflect prevailing prices in the industry. Payment takes place approximately 2-5 weeks after harvest. The cooperative members also receive technical advice from the production managers at FGL, who also act as extension officers or field specialists and assist the farmers with any challenges they face in production. The production managers coordinate the planting and harvesting activities, advise and monitor the level of chemical usage by the farmers to ensure that they conform to export standards. However, the farmers still have to bear the production risk, which is reduced by FGL field specialists. FGL takes on all the price risk, and is assured of quality pineapples to meet its export obligations and is able to negotiate favorable prices for its exports, based on its ability to provide a steady and reliable supply of quality fruits. Because FGL provides chemical inputs on credit to farmers, it usually requires outside financing from banks and other sources at favorable terms in larger quantities and significant discounts.

Yeboah (2005) concludes that Farmapine has proved more successful than conventional arrangements because Farmapine small farmers make higher profits and face lower risks than those not affiliated with Farmapine. In fact, he argues that the model should be replicated in other developing countries for similar crops.

**Conclusions and Discussion per Capstone**

In this sense, global value chain (GVC) theory is a more complete understanding of a much more complex global economy. For the development practitioner who is interested in offering business development solutions to developing countries, GVC analysis is used to analyze the core competencies...
of the firm to achieve cost reduction and differentiation, and thusly, increase productivity and profits and ultimately, the country’s macroeconomic growth. An intervention that responds to a chain’s weaknesses (e.g. industrial upgrading) moves the firm to more sophisticated capital and skill-intensive niches.

If our capstone group decides to move forward with a value chain analysis, all group members should read up on GVC literature. The topic is very technical and probably requires some practice before embarking on a consulting project in which one can become an expert. A good start is reading Van Vigk’s study on the retail GVC. It provides a comprehensive explanation of GVC analysis and has a good example of methodology. Moreover, further review of methodology, leads the author to conclude that to understand any one GVC requires much time and cost, both in terms of desk research and the actual business surveys and interviews that are required for the analysis. If a capstone group decides to move forward, it should choose a product with a product chain that is not too complicated.

References


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