

GLOBAL VALUE CHAINS FROM A MULTIDIMENSIONAL PERSPECTIVE. A PRELIMINARY INSIGHT

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Abstract. *The present paper addresses a multidimensional perspective on global value chains (GVC), starting with the smallest actor (i.e., the firm), continuing with the medium-sized actor (i.e., the network) and finishing with the largest actor (i.e., the sectoral global value chain). All these actors are integrative parts of a systemic mechanism which majorly influences the achievement of competitive advantages at different levels. In order to discuss the primacies of the aforementioned elements, the organizational agility is brought to the fore along with its different facets, namely network agility and GVC agility. By corroborating the main lines of research in this respect, the paper proposes a new outlook on the extant studies, advancing a future research proposal in the field of interest. Against this backdrop, the current work stands for a preliminary insight into the dynamics of GVCs, shedding light on potential theoretical and empirical gaps.*

Keywords: *global value chain; agility; network; competitive advantage.*

Introduction

The international vertical fragmentation of many products and services stands for a topical issue covering the dynamics of global value chains (GVCs). According to DFAIT (2011, p.86), "A global value chain describes the full range of activities undertaken to bring a product or service from its conception to its end use and how these activities are distributed over geographic space and across international borders."

Today, a paradigm shift has occurred as the processes of goods production traverse through a series of phases and locations, the final output being derived from an interconnected worldwide system. Against this backdrop, GVCs advent and evolution are convergent with the liberalization of international trade, of foreign direct investments projects, of people and technology capitalization, of progressively interconnected organizational players which are clearly positioned on the supply chain flow (Antràs & Chor, 2013; Baldwin & Venables, 2013; Koopman, Wang & Wei, 2014). The rapid rhythm of the technological progress, the proliferation of information devices and services and the technological innovations in transportation infrastructure have dramatically enabled the coordination of geographically spread production facilities and the effective management of intricate GVCs.

With a view to depict GVCs and the international production flows, Baldwin and Venables (2013) approach two constructs: "spiders", a concept describing production processes where various parts and components are assembled in no particular order

and “snakes”, a concept describing processes whose unfolding follows a step by step flow from upstream to downstream stages with value being added along the way. Similarly, Bernard and Fort (2013) address the international fragmentation of production through the lens of “factoryless goods producers”, components of the wholesale sector who perform pre-production activities and preserve their control over the sequence of manufactured goods.

In this vein, giving way to strong networks, GVCs exert a special impact on the world economy, supporting and potentiating the emergence and development of competitive edges at the international, national and organizational levels (OECD, 2013; Orefice & Rocha, 2014; Vătămănescu et al., 2016). Countries and firms are, thus, becoming more economically interdependent, each part of the whole being decisive for the system’s overall performance (Foster-McGregor & Stehrer, 2013; Koopman, Wang & Wei, 2014; Păduraru et al., 2016). This is why a thorough analysis of GVCs should integrate the combination of added values derived from various sources and the investigation of multidimensional frameworks consisting of productivity, trade flows, market variations, policy influences, external competitiveness (Dean, Fung & Wang, 2011; Amador & Cabral, 2014).

From firms towards networks

The re-evaluation of the interconnected actors and industries as parts of a worldwide mechanism becomes a functional and adaptive imperative, related to the “international networks of individual and autonomous suppliers that specialize in specific phases of the production process and locate in different countries. The spatial unbundling of production stages previously clustered in factories and offices (the second unbundling) benefited from the sharp fall of communication and coordination costs and radically changed the nature of international trade and investment.” (Amador & Cabral, 2014, p.4).

At this level, a paramount issue related to the GVCs dynamics and phenomena refers to the models of governance. The term ‘governance’ was coined by Gereffi (1994, p.97) and was defined as “authority and power relationship that determine how financial, material, and human resources are allocated and follow within a chain”. Sun and Zhang (2009, p.32) mention in this respect that „a set of strategic parameters can be highlighted as characterizing governance types: ‘what’ or ‘how’ a product/service should be produced as well as ‘when’, ‘how much’ and even ‘at the price’”. The authors also point the theoretical developments on GVCs governance and give credit to Gereffi, Humphrey, and Sturgeon, (2005) for their analysis of transactional relationships between lead firms and subordinate firms and for advancing five main models of governance: market, modular, relational, captive and hierarchy.

The GVCs rely on very complex networks which include actors with different properties and functions: manufacturing, logistics, transportation, customs agents, public authorities, etc. The technological infrastructure and processes directly influence the production phases and the interlinked stages, a fact which engenders a novel insight on organizational agility.

Placing networks in the frame of reference, organizational agility stands for an imperative for business success, supporting the firms' achievement of competitive capabilities in dynamic business environments (Fink & Neumann 2007; Bi et al., 2012; Ghasemi, 2015). Agile organizations act beyond adapting changes and envisage potential opportunities to attain development and progress. In response to the changing and unpredictable business environment, there is a high exigency for a global mindset regarding production, purchasing, selling, distribution opportunities. All the inherent components should adhere to the consistent improvement and update of technology, management, communication and transportation infrastructure, coordination and general harmonization of priorities (Ghasemi, 2015).

At this level, the investigation of the organizational agility specificity among the "chained" components is indicative of the inter-influences and sectoral effects at the component and global value chain levels. The variations of organizational agility among GVCs may emerge as a moderator factor when examining the performance of GVCs (Swafford, Ghosh & Murthy, 2006) – "A firm's supply chain agility (FSCA) is defined as the capability of the firm, both internally and in conjunction with its key suppliers and customers, to adapt or respond in a speedy manner to marketplace changes as well as to potential and actual disruptions, contributing to the agility of the extended supply chain" (Braunscheidel & Suresh, 2009, p.119).

Prior empirical developments

GVCs have set themselves up as a paramount topic within the boundaries of current research, a considerable body of theoretical and empirical studies discussing their compelling and relevant nature from the international trade standpoint. A recurrent challenge in most of the extant studies was the identification of the main drivers and measures for pertinent assessments of GVCs dynamics. With a view to examine and map GVCs particularities, studies have employed a wide spectrum of methods, starting with case studies and finishing with macroeconomic analyses (Lall, Albaladejo & Zhang, 2004; Amador & Cabral, 2009; Sturgeon & Memedovic, 2010; Antràs, Chor, Fally & Hillberry, 2012; Corcos et al., 2013; Tukker & Dietzenbacher, 2013). At the sectoral level, three primary methodological perspectives have been employed, as Amador and Cabral (2014, p.3) summarized: "international trade statistics on parts and components; customs statistics on processing trade and international trade data combined with input-output (I-O) tables. In spite of the intense research over the last decades, the mapping and measurement of GVCs is still incomplete and several research strands may bring further valuable results, in particular, those basing on recently available global I-O matrices. In addition, empirical studies on GVCs using firm-level data are still scarce, but expanding rapidly".

A timeline of the main articles in each methodological approach and major measures of GVCs focused on micro-level data are illustrated in the figures below.

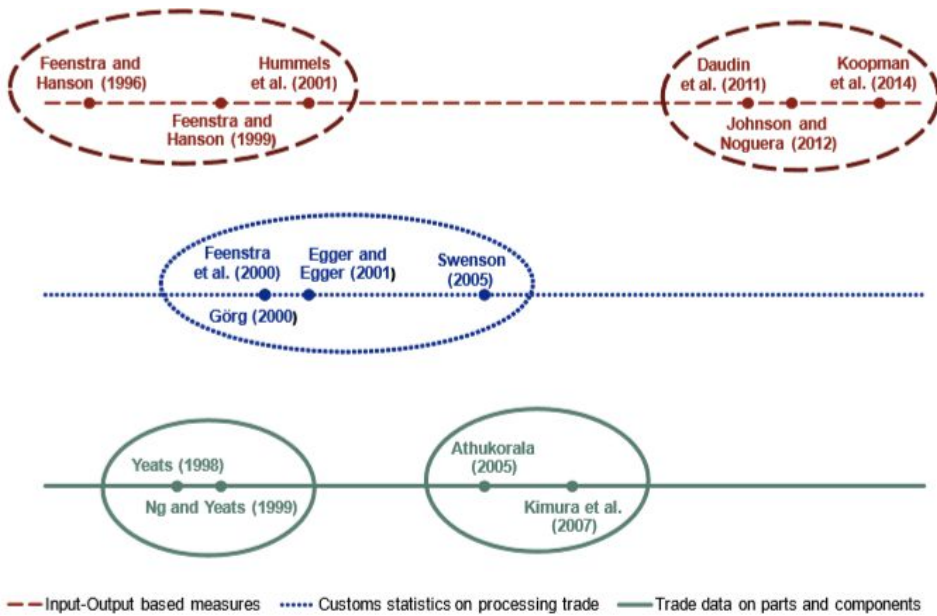
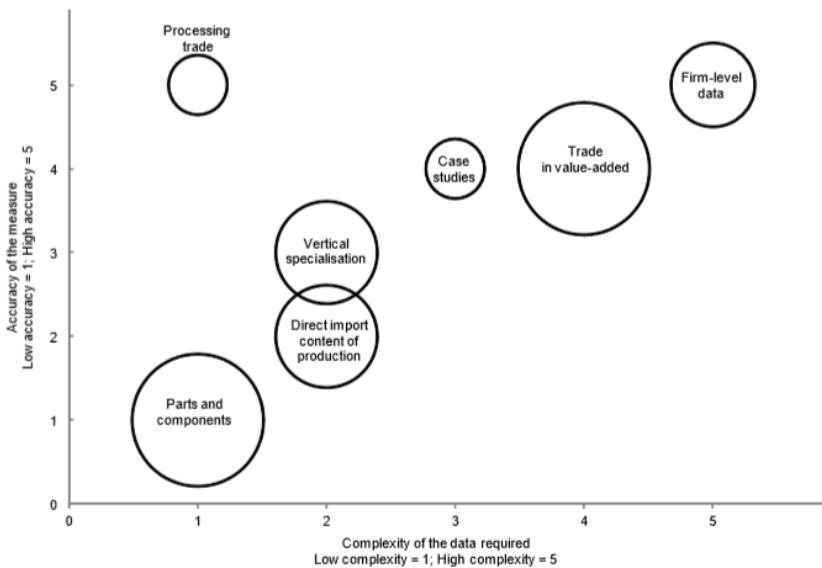


Figure 1. Measuring GVCs using sector-level data - Timeline of main research (Amador and Cabral, 2014, p.18)



Notes: The size of the circles represents the coverage of each measure relatively to the real size of the GVCs phenomenon in the world economy, with larger circles standing for higher coverage. The x-axis corresponds to the complexity of data required to compute the measure and the y-axis stands for the accuracy of the resulting quantification, i.e., to what extent the measure records with precision the aspects of GVCs that it aims to assess.

Figure 2. Summary of main strands of the empirical research on GVCs (Amador and Cabral, 2014, p.18)

Taking into account the extant research directions, a future approach may encompass 1. The synthesis of the current theoretical developments on GVCs and organizational agility, respectively of firm’s supply chain agility (FSCA); 2. The investigation of the GVCs governance models within specialized fields; 3. The theoretical investigation of

the interrelation between GVCs and organization/chain agility; 4. The advancement of a new construct “network-driven agility”; 5. The proposal and validation of a conceptual model integrating GVCs, firm’s supply chain agility and network-driven agility; 6. The assessment of the GVCs dynamics within a specialized industry.

In order to achieve this objective, along with the sectoral analysis of global I-O matrices (for example, GTAP - Global Trade Analysis Project; WIOD - World Input-Output Database; OECD-WTO TiVA (Trade in Value Added) made available by different organizations and authorities, the methodological approach will include firm-level and network-level data analyses.

An alternative method of GVCs mapping will rely on microdata, provided by external researchers and organizations, like the International Study Group on Exports and Productivity (ISGEP) that used comparable micro-level panel data for 14 countries and a set of identically specified empirical models to investigate the relationship between exports and productivity (ISGEP, 2008) or the Competitiveness Research Network (CompNet) established in 2011 with participants from European central banks, as well as from a number of international organizations. Additionally, relevant information may be retrieved from the European statistical authorities which are currently cementing sample-based comparable firm-level databases.

Empirical studies on GVCs using firm-level data are yet to be properly capitalized and, thus, a thorough investigation based on qualitative and quantitative survey data would be a valuable asset in the overall context of the research. Furthermore, integrating the construct of firm’s supply chain agility (FSCA) within the frame of analysis will result in a multidimensional and complex approach of the organizational and chain dynamics. The measurement of organizational agility will rely on the extant agility indices (<http://www.mckinsey.com/business-functions/organization/our-insights/the-keys-to-organizational-agility>, <http://agility-mini.com/>, http://www.signetconsulting.com/action_items/assessment.php).

Focusing on a specialized industry and providing evidence from document analysis, interview and questionnaire-based inquiries conducted with key players in the field (managers of plants, factories, stockists, distributors, transportation logistics, end-user organizations) would furnish a pertinent image of the highly complex networks and of added value dynamics within a systemic mechanism. The analysis will focus both on corporate actors and small and medium-sized enterprises, offering an integrative perspective and not just a multinationals-dependent overview. Also, the research will encompass comparative analyses between different competing value chains / networks under specific conditions (please see figure 3 for a detailed methodological design).

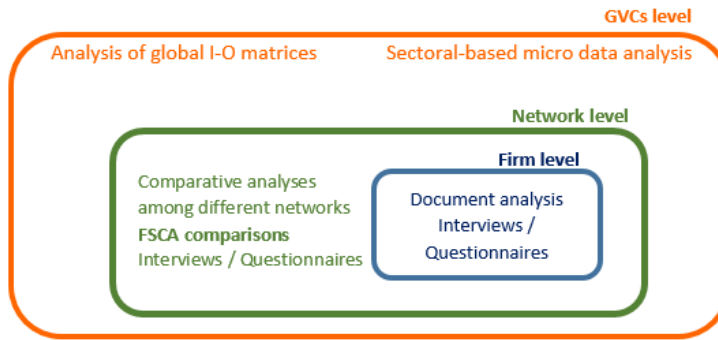


Figure 3. Proposed methodological design

Concluding remark

The advancement of the aforementioned types of analysis will provide pertinent answers to the extant research gaps related to the study of global value chains. It would, thus, engender 1. A pertinent conceptual and structural model integrating GVCs, firm's supply chain agility and network-driven agility, business performance and business network performance; 2. A thorough depiction of the GVCs governance models within a specialized industry. 3. An inbuilt construct - network-driven agility; 4. A thorough overview of a certain industry from the concurring standpoints of GVCs, firm's supply chain agility and network-driven agility.

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