

Nurturing International Business Research through Global Value Chains literature: a review and discussion of future research opportunities

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Abstract

This article offers a comprehensive and systematic review of the literature on Global Value Chains (GVCs). The GVC framework has received growing attention in the last decade, providing theoretical concepts and analytical tools to understand and assess patterns of value creation in view of the new international division of labour. In this area, a broad overlap of research interest exists with the international business (IB) literature. Yet, few interactions between the two fields of study have been recorded so far. Performing a quantitative content analysis on all academic publications on GVCs in the period 1994-2018, this paper describes the evolution of GVC studies, emphasizing points of contact and potential synergies with the IB literature. It also identifies research opportunities along the four key dimensions of the GVC framework: geographical and industrial scope, governance, upgrading, and institutional context.

Keywords:

global value chains, quantitative content analysis, literature review, governance, upgrading, institutions, international business

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1. Introduction

Global Value Chains (GVCs) are increasingly attracting the attention of academics and practitioners, both as a phenomenon that characterizes a number of industries worldwide (Staritz, Gereffi, & Cattaneo, 2011) and as a framework that provides an understanding of the global organization of industries and impacts firms' strategies and local development, while accounting for the changing features of global trade (Gereffi, 2014).

The GVC framework – early named Global Commodity Chain (GCC) – describes the global economy as a '*complex and dynamic economic network made up of inter-firm and intra-firm relationship[s]*' (Gereffi, 2014: 10). It focuses on how value is generated and appropriated along functionally integrated but internationally dispersed activities, accounting for power dynamics among various global economic actors (De Marchi, Di Maria, & Ponte, 2014; Fernandez-Stark & Gereffi, 2019). Through the influential concepts of governance and upgrading, this framework offers a powerful perspective on the organization of economic activities beyond the single firm, looking at how the strategies and interaction of key actors – including lead firms, suppliers, buyers, platform leaders, and other non-firm actors – not only shape supply chains, but also influence the development trajectories of industries and territories at the global level.

In the past decade, the GVC framework became pervasive in academic publications focusing on globalization and local development (Gereffi & Lee, 2012). Moreover, it proved particularly effective in policy engagement. Several international organizations (IOs), such as the World Bank, the Organization for Economic Cooperation and Development (OECD), the International Labor Organization (ILO), and the World Trade Organization (WTO), have extensively adopted the GVC framework to inform policy-making on inclusive and sustainable development (Gereffi, 2019). The institutional success of the GVC approach lies in its ability to outline the structure of industries in a holistic way: by adopting a meso-level of analysis that goes beyond the firm's organization and its network, it allows depicting the economic implications of specific GVC structures on both firms and countries (i.e., paths for economic growth).

Despite the focus on similar issues and the complementarity of ideas (Buckley, 2009; De Marchi et al., 2014; Sinkovics, Sinkovics, Hoque, & Alford, 2017), the GVC literature has been rather overlooked within the international business (IB)

community. The review by Sinkovics et al. (2017) on GVC papers published in IB journals suggests that there is still a low degree of integration between the two fields, both at the theoretical and at the analytical level. This evidence is in line with an ongoing discussion within the IB community, suggesting that the IB domain *'has evolved almost independently from research on the very same phenomena in other disciplines'* (Buckley, Doh, & Benischke, 2017: 1050).

Against this background, this article carries out a comprehensive review of the GVC literature, with the aim of overcoming such divide and uncovering the most promising areas of integration with the IB research. Based on more than 1,200 academic articles published in the period 1994-2018, we perform a quantitative content-analysis on the existing body of GVC-related research across different time intervals. We also discuss the four key dimensions of the GVC framework, i.e., the industrial and geographic scope, governance, upgrading, the institutional context. For each of these dimensions, we highlight points of contact and potential synergies with the IB research. This exercise allows us to identify attractive research opportunities in several core fields of the IB literature, including the streams on the international configuration of multinational enterprises' (MNEs') activities (e.g., Devinney, Midgley, & Venaik, 2000), regionalization (Rugman & Verbeke, 2004), power mechanisms (Bouquet & Birkinshaw, 2008), linkages and spillovers (e.g., Eden, 2009), institutional arbitrages (e.g., Zhao, 2006) and emerging market MNEs (Ramamurti, 2012).

Our study offers three main contributions. First, in a departure from previous research that has approached the analysis of the GVC literature focusing on single elements of its framework (mostly governance, like in Kano, 2018; McWilliam, Kim, Mudambi, & Nielsen, 2019; Strange & Humphrey, 2018), and surveying selected journals or adopting specific theoretical perspectives (e.g., Kano, Tsang, & Yeung, 2020; Sinkovics et al., 2017), our review is based on a comprehensive account of the studies published on GVC. Thus, it provides a key companion for IB scholars interested in understanding and making use of the GVC framework in its entirety. Second, through this holistic approach, our analysis enables to assess the influence of the GVC literature along each of its core pillars, thus uncovering various relevant gaps and as many research opportunities for IB scholars. While the IB literature has traditionally regarded the GVC framework as a tool to understand mainly the governance aspects (Kano et al., 2020; Strange & Humphrey, 2018), our study shows that there are many more complementarities between the two fields. In such areas, the cross-fertilization of the IB and GVC literatures is not only desirable, but often necessary. Engaging with the GVC literature, which has proven so successful in

engaging with IOs, might be particularly useful to overcome one of the weaknesses of the IB literature, i.e., to make '*modest inroads [...] into policy circles*' (Van Assche, 2018: 117). Finally, the paper also contributes to the GVC literature by providing a systematic account of how the key concepts of its framework have evolved over time and, most importantly, by identifying areas in which its most recent agenda can be deployed to inform the adjacent IB field, thereby promoting a synergetic evolution of both literatures.

2. Methodology

With the aim to provide a comprehensive review of the wide body of GVC literature, we performed a systematic literature survey using a methodological approach to investigate the development of a discipline based on published studies and other relevant literature that contribute to that field. A literature review becomes 'systematic' when it is based on an explicit and objective methodology to ensure that all relevant literature is: 1) included in the corpus, 2) properly assessed for its 'quality' (e.g., dropping non-relevant documents), and 3) analyzed with the purpose of extracting its key features (Khan, Kunz, Kleijnen, & Antes, 2003; Tranfield, Denyer, & Smart, 2003). Hence, a systematic literature review should provide a replicable research protocol to collect, code, and analyse the information (Denyer & Tranfield, 2009; Kupiainen, Mäntylä, & Itkonen, 2015).

We built our database in two steps. First, we retrieved documents using a focused research query that included only:

- Journal articles (thereby excluding books, conference proceedings, reviews, editorials, and grey literature) – to ensure a consistent unit of analysis
- Written in English – to perform a textual analysis
- Published starting 1994 – to restrict to relevant publications on the GVC/GCC framework
- Containing the string 'global value chain' in the title, abstract, or keywords – using this explicit mention as a proxy for the centrality of the topic to the paper. Because it was referred to as the Global Commodity Chain (GCC) until 2005,

we also considered the string ‘global commodity chain’ limited to papers published before 2005.^{1 2}

We searched articles in Scopus³, which allowed us to be both selective – by including only high-quality contributions – and broad – by considering sources focused on different fields and based in different geographical contexts. After performing this query, checking all the abstracts to ensure relevance with respect to the scope of the research, and excluding cases of disambiguation, we obtained 1,239 papers dated between 1994 and 2018.

Second, as a robustness check, we performed a *snowballing* procedure (Wohlin, 2014) – i.e. we checked if there were any additional contributions being heavily cited

¹ GCC and GVC share an interest in the chain as analytical unit of analysis. Especially after the GVC concept has been developed (see the next paragraph for a detailed discussion), the two literatures started to diverge, in terms of both empirical focus and theoretical approaches (Bair, 2005; Ponte & Gibbon, 2005; Werner & Bair, 2019). Accordingly, we decided to include in our analysis just the earlier contributions on GCC. While we acknowledge that this choice might have resulted in the exclusion of some papers, we are confident that such conservative approach has advantages in terms of consistency. Future research could compare the evolution of the GCC and GVC literatures and assess the degree of overlap between the two fields.

From here on, when we discuss the GVC studies, we will also consider this selected part of the GCC literature. For both GCC and GVC, we allowed up to two other words between ‘global’ and ‘value chain’, e.g. ‘global mobile phone value chain’, in the search string.

² Given that the aim of the paper is to review the GVC literature, we have not considered other tangent research streams like the Global Production Network (GPN), which entail key differences, as it has been thoroughly discussed by many cornerstone articles in the GPN literature over the years (Coe, Dicken, & Hess, 2008; Henderson, Dicken, Hess, Coe, & Yeung, 2002; Hess & Yeung, 2006).

Indeed, even if both arise from the GCC literature (Hess & Yeung, 2006), “the Global Production Network framework evolved in dialogue, and as critique of, the GCC framework” (Bair, 2009). The two literatures focus on different research questions and have different core concepts – e.g. value, power, and embeddedness for GPN researchers (Coe, Hess, Yeung, Dicken, & Henderson, 2004; Henderson et al., 2002) versus concepts like governance, upgrading, and value chain mapping for GVC researchers. This is connected with the fact that they use theoretical and empirical lenses borrowed from different disciplines (economic geography for GPN vs. economic sociology, political economy, and development studies for GVCs). Given these differences that make them two distinct literatures, it would not be appropriate to review them in a single study. Further research, however, could investigate how both streams might contribute to IB focusing on specific elements they are tackling, for example the role of the state in shaping local development (Neilson, Pritchard, & Yeung, 2014).

³ Scopus is the largest citation database of peer-reviewed literature, containing more than 69 million contributions in the fields of science, technology, medicine, social sciences, and arts and humanities (see <https://www.elsevier.com/solutions/scopus> for more information). We are aware that it is not a complete source. However, especially in the fields of social science and business, economics, and management – which are the most relevant for this study – it is mainly overlapping with, and exceeding in terms of the number of papers covered by other sources as Web of Science (Martín-Martín, Orduna-Malea, Thelwall, Delgado López-Cózar, 2018) and Business Source Premier (Greenwood, 2011). Additionally, Scopus is more selective than other sources, such as Google Scholar – which also includes, for example, master theses and non-academic reports.

by the articles included in the first step but not identified by that analysis. Accordingly, we added 18 contributions, identified as those that:

- Were not initially comprised in our database but cited by more than 30 articles included in our database
- Satisfy the same criteria used in the first step (being academic articles, written in English, focused on the GVC framework)⁴

The final database, therefore, consists of 1,258 articles, which have been used both to investigate the features of the academic literature published on GVC and the content they analysed, considering for their evolution over time.

A quantitative content analysis has been performed on the articles collected, assisted by a specialized software (see Appendix 1). Content analysis is a sound methodological approach for conducting rigorous, systematic and reproducible literature reviews (Seuring & Gold, 2012). Compared to narrative reviews, this method allows for a more thorough account of the literature results, and lays the ground for valid and trustworthy inferences also on large volumes of unstructured data and being “*relatively free of both researchers’ demand biases and informants’ recall biases*” (Gaur & Kumar, 2018: 280). In this context, we adopted a deductive approach to coding, identifying coding based on the theory. Appendix A describes in detail the methodology adopted to perform the content analysis and reports all the codes identified (Table A.1), which are going to be used in Section 3. The list of examined articles is included as supplemental material. Appendix B reports the key features of the GVC literature, which enables to appreciate the magnitude of the literature and its patterns of evolution over three distinct periods of time (Figure B.1), the top authors who contributed to this research (Table B.1), and the journals in which they published (Table B.2) so as to appreciate the interdisciplinarity of this framework (further addressed in Table B.3).

3. The evolution of the Global Value Chain framework: a review

The surge of the GVC literature can be traced back to the publication of the book by Gereffi and Korzeniewicz (1994), emanating from economic sociology, political economy and development studies. Research on how economic activities are carried

⁴ Given there is not fixed rule on how many papers and citations to be included for a snowballing exercise, the threshold of 30 citations was set looking at the distribution of internal citations. Robustness checks have been performed to ensure no significant contributions was missed even if considering for lower number of citations. Table A.2 in the Appendix reports all the contributions that were cited more than 30 times by the papers identified in the first step and highlights those that have been included in the final sample.

out in the global sphere, and the relationships that link actors and activities related to good production, was initially explained in terms of a commodity chain (Hopkins & Wallerstein, 1994), which became an alternative view to a trade-based framework to explain the global economy (Bair, 2009). In the realm of this theoretical debate, research on GCCs was developed to explicitly consider the increasing global dimension of most industries (Raikes et al., 2000) in addition to the spheres of production and labour organization at the macro and micro levels. Driven by the increasing attention directed toward value creation, and following a five-year initiative supported by the Rockefeller Foundation (2000-2005) (Gereffi, 2018a), the GCC concept was modified and enriched to become the Global *Value Chain* (Gereffi & Lee, 2012). Following the seminal contribution by Gereffi, Humphrey and Sturgeon (2005), and the publications of other seminal contributions spanning from that experience (Gereffi, 2018a), the literature started to bloom. While the IB literature has been committed to explore why, how and where firms internalize some activities, GVC literature has been rather focused on understanding how such activities are externalized and how lead firms are able to leverage on asymmetries in power to decide conditions for participation and thriving in their GVCs (governance) and the implications for local development trajectories (upgrading) (De Marchi et al., 2014; Strange & Humphrey, 2018).

Observing the transformations that took place within the U.S. textile/apparel and consumer-goods industries during the late 1970s and 1980s, GVC scholars acknowledged the emergence of non-equity forms of MNEs' internationalization. These were characterized by the functional integration of activities dispersed at the international level and held by independent, yet interconnected, companies. During those years, while the IB literature focused on understanding the actors and modes of firms' internationalization, the GVC literature had taken global industries and an inter-firm linkages perspective and defined '*a theory managing externalization in a global context*' (De Marchi et al., 2014: 465). The emphasis of GVC studies is on how value is created, distributed, and captured along different forms of global inter-firm networks (Bair, 2009), focusing on how power exerted by leading firms and other actors (Dallas, Ponte, & Sturgeon, 2019) shapes conditions to participate to and capture value in GVCs, affecting both corporations and entire countries (Cattaneo, Gereffi, & Staritz, 2010).

By analysing the full range of activities needed to produce products or services, the GVC framework proved to be a useful tool to gain an integrated view of the global structure of economic activities, providing 'top-down' and 'bottom-up' views of GVCs. Indeed, according to Fernandez-Stark & Gereffi (2019), GVCs encompass

different dimensions: 1) an input-output structure describing the activities performed and their geographical scope; 2) a governance structure, focusing on the actors and relationships among them, i.e., a *top-down* view of industries; 3) upgrading, the process of value acquisition through which suppliers ‘move up the value chain’ – i.e., a *bottom-up* view of industries; and 4) the institutional context and the industry stakeholders that influence developmental opportunities. Based on these four dimensions, the following paragraphs provide evidence of the GVC concepts and their dynamics, intertwined with our proposal of the key contributions that could enrich the IB literature and its future studies. While each of this pillar will be analysed separately, the four are inherently interconnected: one of the key strengths of the GVC literature, indeed, lies in its holistic approach.

3.1 The geographical and industrial scope

The starting point of the GVC framework is the analysis of the activities to realize a product, from initial conception, to consumption, and beyond, identifying an input-output structure. This analysis allows to uncover how value is generated and appropriated by different actors while accounting for their location. On the one hand, the GVC literature explores how production processes and the manufacturing of products are structured, adopting a fine-grained level of analysis and focusing on the intermediate goods that are produced and traded in selected industries. On the other hand, it investigates the geographic scope of such structure, zooming into the location where each activity is performed and exploring the evolution of locational patterns in relation to industry dynamics (Fernandez-Stark & Gereffi, 2019). Thus, a fundamental characteristic of the GVC framework lies in its simultaneous account of (1) individual value chain activities, (2) the overall value chain organization and its evolution over time, and (3) the multiple actors and territories involved. Through the adoption of a meso (rather than micro) level of analysis, this approach expands the span of investigation beyond the study of individual firms, which is the traditional focus of the IB literature, by endorsing the importance of accounting for the whole set of relationships, agents and locations involved in the value chain. The seminal article by Bair & Gereffi (2001) is a clear case in point: the authors report a fine-grained analysis of the activities needed to perform jeans (e.g., trim and labels, laundry and finishing,...), depicting how the geography of such activities evolved over time, between US and the Torreon cluster, and illustrating the actors performing each activity. While accounting for the strategies of single actors (e.g. MNEs such as JC

Penney or Wrangler), such analysis allows a ‘depth of field’, highlighting implications for the whole value chain and the involved locations at various geographical scales.

As the results of the literature review suggest, the double perspective of how value chains are structured (in terms of input-output and geographical scope) has spurred investigation into a growing set of empirical contexts. GVC scholars initially focused their attention on industries that have been more interested by offshoring processes and global sourcing dynamics. As reported in Table 1⁵, natural resource-based industries, including agricultural and mineral-related industries, are by far the most investigated (24% of total contributions). The other three sectoral groups represent a similar portion of the literature: namely, traditional industries (14%) – textile and apparel being the focus of more than half of such papers; services (covered in 13% of the papers); and complex products (mostly automotive, 5% and electronics, 7%).

Important shifts in the focus of the empirical analysis occurred over time. Indeed, the emphasis on traditional manufacturing industries has decreased dramatically (from 30% of the early period to 8% of the latter), driven mostly by the drop in research on textiles/apparel (from 21% to 5%). Thus, as the results show, the framework significantly improved along two directions. On the one hand, it expanded its applicability to allow for an understanding of a greater variety of industries featuring higher complexity and value addition. On the other hand, its methodological approach evolved, moving from in-depth analyses of specific industries (Bair & Gereffi, 2001; Gereffi, 1999; Nadvi & Halder, 2005) to more quantitative, cross-sectoral analyses (Los, Timmer, & de Vries, 2015).

Table 1 here

From a geographical point of view, GVC scholars started to explore how the US and other Western firms organized their production overseas, with attention given to the global trade dynamics between the Northern and the Southern hemispheres. As reported in Table 2 most of the papers focused on developing countries.

⁵ Industries have been classified using the classification proposed by Giuliani, Pietrobelli, and Rabellotti (2005). Other than such sectoral groups, we also analyzed three specific industries that can be interpreted as the ‘flagships’ of GVC studies, considering the number of papers that focused on such industries and their importance to the world economy: textile and apparel, automotive, and electronics (see e.g., Gereffi, 1994; Sturgeon & Van Biesebroeck, 2011; Sturgeon & Kawakami, 2011).

Asia, in particular, is a key context of analysis for almost 40% of the papers in our database, half of which focuses on China⁶, consistent with the special attention that scholars and policy makers have devoted recently to the ‘the factory of the world’ (Staritz et al., 2011; Gereffi & Sturgeon, 2013; Azmeh & Nadvi, 2014). Not surprisingly, the role of China in the GVC literature has grown considerably over the years (from 6% of the total papers in the period from 1994-2007, to 21% in 2017-2018).

African countries have been characterized by an opposite trend: while the absolute number of contributions exploring these locations has been quite stable, their relevance to the overall literature has decreased because of the strong growth in the total number of articles on GVCs.

More recently, the attention that was originally devoted to North-South GVCs shifted toward South-South interactions, based on the evidence of the emergence of polycentric trade and the role of emerging country MNEs (EMNEs) (Azmeh & Nadvi, 2014; Horner & Nadvi, 2017; Tessman, 2017). Such new geographical configuration has been found to impact both the GVC governance and the related upgrading opportunities. Indeed, the literature suggests that EMNEs engaging in South-South trade (vs. North-South) have to face the trade-off between social/environmental and economic upgrading (i.e. they engage in higher value-added activities but at the expenses of working conditions), and uneven economic outcomes – given that the easier access to markets might be counterbalanced by greater competition (Barrientos, Knorringa, Evers, Visser, & Opondo, 2016; Horner, 2016).

Such a trend is intertwined with the progressive regionalization of GVCs (Gereffi, 2018b). Trade is increasingly occurring within regional areas – i.e., continents (i.e. inter-Asia trade, Chen & Lombaerde, 2019) or homogeneous multi-country areas within continents (i.e. Sub Saharan Africa, Morris, Plank, & Staritz, 2016) - rather than at the global level. Such a shift is driven by the rise of EMNEs, which are increasingly organizing GVCs at a regional level to satisfy the needs of the local markets, as well as by logistic aspects and the proliferation of trade barriers (Gereffi, 2014).

Table 2 here

3.1.1. The geographical and industrial scope: GVC-IB connections and opportunities for future research

⁶ Please note that, both here and in the following analyses, we are potentially underestimating the phenomena because we do not count papers that mention these words within the text, but not in the abstract or title. We indeed adopt a conservative approach based on the assumption that the empirical and theoretical elements that are at the center of the analyses are definitely going to be reported in the title or abstract. Also, the percentage in the tables do not sum up to 100%, as the same paper might report on several GVCs.

The GVC focus on how activities are ‘sliced’ across different locations is a shared element with the IB literature (Contractor, Kumar, Kundu, & Pedersen, 2010). IB studies have strived to understand the *raison d’être* of MNEs and the strategies that drive the international configuration of their activities (Buckley & Casson, 1976; Dunning, 1988). These efforts have resulted in powerful theoretical frameworks that help explain how MNEs organize their production activities across different locations, depending on the interaction between the MNE-specific assets and the advantages such locations can offer, as well as in a rich set of contributions that delve into the management of pre- and post-production activities across space (e.g., Alcacer, 2006).

A close look into these studies reveals that, in spite of their growing theoretical and empirical sophistication, the analysis of the organization (internal vs. external) and location of MNE activities has remained at an aggregate level in the IB literature, typically differentiating across production, R&D, sales, services and headquarters activities (e.g., Alcacer, 2006; Enright, 2009).

However, each of these aggregate categories is composed of a variety of more detailed, discrete tasks, whose execution is characterized by idiosyncrasies and interdependencies with other fine-grained activities, which often span the functional boundaries. Moreover, most of the studies of MNE location choices have focused on individual MNE activities (e.g., Kuemmerle, 1999) rather than looking at the entire international configuration of such activities. This approach limits our ability to understand the full set of strategic, organizational and operational motivations behind specific MNE decisions (Benito, Petersen, & Welch, 2019; Strange & Humphrey, 2018), as it implicitly assumes that the multiple, detailed tasks involved in MNE activities are internally homogeneous and relatively independent on each other. By providing “*insights in regards to mapping the structure and process of value generation*” (Sinkovics et al., 2017: 262), the input-output approach proposed by the GVC framework could be used by IB scholars to identify the specific traits of individual, finer-grained activities and the interdependent relationships linking them. This could uncover potentially overlooked factors that influence the spatial organization of MNEs, and inform the related literature on MNEs’ strategic and organizational approaches to foreign markets (Devinney et al., 2000). Furthermore, because MNEs are likely to be simultaneously involved in different GVCs, an explicit account of the product-driven perspectives that are typical of the GVC literature could promote a more holistic view of how multi-product MNEs manage potentially synergetic activities across space, a topic that IB research has yet to fully explore (Verbeke and Kenworthy, 2008).

In addition to the research opportunities in the context of the international configuration of MNE activities, another potentially fruitful area of integration of the IB and GVC literatures arises from the evidence on the regionalization of GVCs. IB studies on regionalization have questioned the “global” scope of MNEs’ downstream activities, while suggesting that globalization can – and does - occur at the upstream end of the value chain, where “*some of the world’s largest MNEs master the art of connecting globally dispersed inputs*” (Rugman & Verbeke, 2004: 16). Focusing on geographic sales data, it has been shown that these firms’ regional – rather than global – market coverage (Rugman & Verbeke, 2004) is due either to their inability to access to or build up the required foreign distribution networks, or to the low attractiveness of products to geographically dispersed consumers. This has supported the idea that the Firms-Specific Assets (FSAs) required in downstream activities differ from those that are necessary in upstream activities, and that the liability of foreignness that MNEs face may vary depending on the type of activity (upstream vs. downstream) carried out abroad (Rugman & Verbeke, 2004). Interestingly, the current regional trend emerging in the GVC literature points toward a growing convergence in the geographical spread of sales and sourcing/manufacturing activities. Thus, even the upstream end of value chains seems to be exposed to pressures and obstacles that, over time, are pushing toward regionalization. This partially challenges the original beliefs and empirical evidence on the phenomenon and provides opportunities for IB scholars to explore the similarities and differences behind the regional scope of upstream and downstream value chain activities. Moreover, it calls for research into the organizing principles and routines that could be used to manage the potential expansion of the geographic scope of any of the two ends of value chains. Investigating these issues could uncover new mechanisms that explain the geographic dimension of MNEs and their value partners, thus contributing fresh insights to the literature on FSAs and liability of foreignness in both downstream and upstream activities.

3.2. The top-down perspective: governance and lead firms

Because the GVC literature investigates dispersed and fragmented economic activities within industries, *governance* is one of its cornerstone concepts (Gereffi & Lee, 2012). Not surprisingly, Table 3 shows that the governance topic has been addressed by almost one out of four papers reviewed in this analysis. The interest in governance issues peaked during the central period of our analysis, spurred by the seminal contribution by Gereffi et al. (2005), yet retained its importance over the entire

timeframe of investigation. The most cited papers in this area are included in Table 4. Governance has been defined as “both the process by which particular players in the chain exert control over other participants and how these lead firms (or ‘chain drivers’) appropriate or distribute the value that is created along the chain” (Bair, 2009b: 9). Thus, this strand of the GVC literature explores power asymmetries, i.e. how power is distributed among actors in the chain. As described in Ponte and Sturgeon (2014), three approaches to GVC governance can be identified in GVC literature: governance as driving, linking or normalizing.

The initial approach of governance ‘*as driving*’ identifies the key firms (either buyers or producers) that, through their strategies, are able to influence the evolution of entire industries and to exert power to set rules and standards in the industry (Gereffi, 1994). Such leading companies define the terms of participation in GVCs and determine how, where, when, and by whom value is added and appropriated, thanks to the exercise of different forms of power (Dallas et al., 2019). In this strand of the GVC literature, the key actors that shape the GVC development are ‘global buyers’, namely large retailers such as Walmart or Tesco, or brand vendors such as Nike (Gereffi, 1994), which have often been overlooked by previous research (De Marchi et al., 2014). As far as the coordination of national and international activities (FDIs) is concerned, global buyers (later named ‘Global Factories’ in the IB literature) de-emphasize manufacturing bases and instead orchestrate chains of offshore, low-cost, and capable suppliers, especially in East Asia (Gereffi, 1999). Such actors are playing an increasing role in the global economy, especially because of the concentration dynamics taking place in retail industries (Gereffi & Lee, 2012).

Interestingly, the focus on leading firms⁷ has diminished over time (from 12% in the early period to 6% in the latter). However, such a quantitative reduction has coupled with an increasing focus on a broader array of key actors: large suppliers, global buyers, and platform leaders from emerging countries, which have been called ‘rising powers’ (Lema, Quadros, & Schmitz, 2015; Sinkovics, Yamin, Nadvi, & Zhang, 2014; Sturgeon & Kawakami, 2011) as well as a first-tier group of suppliers (Azmeh & Nadvi, 2014; Magnani, Zucchella, & Strange, 2018; Van Biesebroeck & Sturgeon, 2010).

Starting in the mid-2000s, the attention moved toward *governance ‘as linking’*, with the aim of understanding the different forms of integration and coordination of internationally dispersed activities led by global lead firms, as well as the resulting upgrading opportunities for firms and territories. Within this body of work, Gereffi et al. (2005) provide an operational theory of governance and identify different

⁷ Both here and in the following, please refer to Table A.1 in the appendix to verify the specific keywords that have been used to build up each category.

mechanisms of GVC coordination that leading firms implement to connect with their first-tier suppliers and beyond. Three network-based forms of coordination are identified: captive (or quasi-hierarchical) (Humphrey & Schmitz, 2000), relational (Sturgeon, Van Biesebroeck, & Gereffi, 2008) and modular (Sturgeon, 2002). Such network forms spans between market and hierarchy, suggesting the existence of a continuum of arrangements lying between these two opposite ends, which have been the traditional focus of IB studies (Hernández & Pedersen, 2017). Interestingly, the authors provide also a theory of the factors driving the choice among the different forms: complexity of transaction, ability to codify, and capabilities in the supply base.

Finally, contributions which conceptualize *governance 'as normalizing'* (Gibbon, Bair, & Ponte, 2008; Nadvi, 2008; Ponte & Gibbon, 2005) have opened up to the role of non-firm actors in shaping GVCs development, and the different “conventions” of quality that characterize transactions in GVCs. In this context, governance has been discussed as ‘multipolar’ (Ponte & Sturgeon, 2014): while initial contributions stressed the predominant role of leading firms (e.g., Dallas et al., 2019), the most recent ones emphasized the role of civil society organizations (e.g. NGOs) and of international organizations and policy makers in generating the so-called ‘social’ and ‘public’ governance of GVCs (Gereffi & Lee, 2016) (see also paragraph 3.4). This strand of GVC research also focuses on standards, which are stated into (industry or product) certifications that may be developed by key firms or non-firm actors, and have been found to play a key role in influencing production, the coordination among actors within the value chain and, more broadly, the developmental outcomes at the industry and country level.

On average, standards have been the focus for 14% of the GVC papers reviewed in this study, yet the attention on this issue reduced slightly during the last period of analysis (Table 3). Focusing especially on agri-food industries, and in the context of emerging economies, such papers provide insights into how standards might influence firms, regions, and industries’ development (Ras & Vermeulen, 2009). Such papers have critically assessed the impact of the codes of standards considering the perspective of different actors – i.e. workers (Barrientos & Smith, 2007), local suppliers, or farmers (Nadvi, 2008) – the process of standards’ development and implementation, and how this interacts with the existing governance structures in GVCs (Riisgaard, 2009; Taylor, 2005).

3.2.1. *The top-down perspective: GVC-IB connections and opportunities for future research*

The topic of governance has been central also in the IB literature (Narula, Asmussen, Chi, & Kundu, 2019). A large body of IB studies has developed around the control and coordination mechanisms needed to effectively orchestrate the MNE's geographically dispersed, and often dissimilar, units (Kostova, Marano, & Tallmann, 2016). A key difference, however, is the focus. The GVC literature has adopted an industry- rather than a firm-specific focus, and looked into the orchestration of relationships linking autonomous GVC actors, including second-tier suppliers. On the contrary, the IB scholars have mainly dealt with intra-organizational issues, exploring the arrangements that MNE headquarters employ to manage the complex relationship with subsidiaries belonging to the firm internal network (i.e. organizational design, intra-MNE power distribution, international human resource management practices). Progressively, the IB literature has evolved to account for the emergence of semi-autonomous, powerful and proactive MNE subsidiaries (e.g., Birkinshaw, 1997; Bouquet & Birkinshaw, 2008) and, simultaneously, has confronted with the orchestration of external agents (e.g., contract manufacturers and assemblers) (Jean, Kim, Chiou, & Calantone, 2018; Jean, Sinkovics, & Cavusgil, 2010; Levy, 1995). For instance, the literature stream on subsidiary embeddedness has addressed the role of external suppliers and distributors of individual foreign subsidiaries, highlighting how strategic ties with external actors in the subsidiary's local business context influence both the subsidiary's performance and its role within the MNE internal network (Andersson, Forsgren, & Holm, 2002). As MNEs evolve into differentiated networks that increasingly rely upon externalization options to manage their functional activities, the insights arising from the GVC literature become useful to advance existing theories of power and control in MNEs, and to extend their scope of applicability beyond the firm's boundaries.

Understanding the non-hierarchical nature of the relationship between MNEs and their external actors is likely to require greater emphasis on more collaborative, informal and decentralized mechanisms of coordination (e.g., Zaheer & Venkatraman, 1995; Das & Teng, 2008). Although partially addressed by the wave of IB studies on the so-called 'global factories' (Buckley, 2004; Buckley & Ghauri, 2004), these governance modes -and the resulting power dynamics- should be adapted to the underlying lack of ownership that characterize the relationships between MNEs and independent supply chain actors (Strange & Humphrey, 2018). To this end, IB scholars could find inspiration into the conceptualization of power offered by the GVC approach. In this literature, lead firms' power is based on "*their size and control over key corporate assets (such as investment capital, technology, managerial expertise and marketing channels)*" (Gereffi, 2019: 197). This suggests to IB scholars –who have typically

emphasized technological and manufacturing competences– that commercial resources and capabilities are also critical to the construction and exercise of power and deserve more scholarly attention. Thus, as highlighted by Strange and Humphrey (2018), the analysis of power asymmetries in GVC may offer important insights to understand the control mechanisms that firms (MNEs) can leverage in cross-border governance arrangements.

Another possible area of investigation that the GVC studies on governance open up refers to the multiplicity of actors that have come to play key roles both in the generation and in the appropriation of value in the context of GVCs (see also paragraph 3.4). In fact, the GVC approach has offered a privileged viewpoint on actors that - in other disciplines - are devoted only secondary and marginal attention, because they are “external” to the focal firm. In this respect, IB studies have been recently criticized for their almost exclusive focus on the MNE (Delios, 2017). Large suppliers, global buyers, e-commerce players and platforms, but also civil society organizations (e.g. NGOs) and policy makers have often remained in the background of IB analysis, and relatively lower theorizing efforts have been devoted to include these actors in established IB models.

The phenomenon-driven GVC literature, with its sensitiveness to emerging trends, could enrich IB studies by providing insights into how the specific portion of the value chain at which global leaders operate may influence their strategic behaviour and the traditional IB sub-themes such as foreign entry modes, location choices and international competitive dynamics. For instance, combining IB and GVC approaches could uncover significant variations in the strategic behaviour of large international suppliers vs. global buyers. Similarly, building on GVC insights on the role of the civil society actors that populate the MNE international competitive environment could inform the emerging IB literature on MNEs’ irresponsible business practices (Fiaschi, Giuliani, & Nieri, 2017), and support theory building in the area of MNE institutional and organizational change driven by external stakeholders.

3.3 The bottom-up perspective: upgrading, innovation, sustainability

In addition to a ‘top-down perspective’, GVC studies adopted a ‘bottom-up perspective’ which focuses on how countries, regions, and economic stakeholders might climb the value chain (Ponte & Ewert, 2009) from basic assembly functions leveraging unskilled and low-cost labour to more advanced types of ‘full package’ and integrated manufacturing. *Upgrading*, a key pillar in GVCs studies, refers to the strategies that firms, countries, or regions implement to move toward higher value

activities and capture more value (Gereffi, 2005), as well as on the learning opportunities arising from the participation to GVCs (Giuliani, Pietrobelli, & Rabellotti, 2005; Pietrobelli & Rabellotti, 2011). Different types of (economic) upgrading, and the mechanisms through which they occur, can be identified (Fernandez-Stark & Gereffi, 2019; Humphrey & Schmitz, 2002). *Process and product upgrading* refers to moving toward new or more sophisticated products and introducing new or improved methods of production. This process of upgrading can be autonomously developed by the suppliers (Sako & Zylberberg, 2017) or supported by the lead firm (through standard-driven or mentor-driven dynamics) (De Marchi, Di Maria, & Ponte, 2013). *Functional upgrading* refers to moving toward higher value-added activities within the value chain. It occurs - for example - when a value chain actor moves from an Original Equipment Manufacturer (OEM) role to an Original Design Manufacturer (ODM) and/or an Original Brand Manufacturer (OBM) role (i.e. Lenovo), and entails a higher - yet more challenging - growth potential for firms and regions (Bair & Gereffi, 2001; Gereffi, 1999). *Inter-chain upgrading* is achieved when suppliers move toward more technologically advanced chains or industries, thanks to the participation to GVCs.

In terms of levels of analysis, the body of works on upgrading spans from a micro-level perspective – that accounts for individual firms, their workers and the skills they cater – to a macro-level perspective, documenting how entire countries can advance to strengthen their worldwide competitive position (i.e., Nahm & Steinfeld, 2014; Tokatli, 2007). Particular attention has been given to understanding how suppliers – especially those located in developing countries – can benefit from the interaction with global buyers (Ivarsson & Alvstam, 2011; Schmitz & Knorrunga, 2000).

A vast part of this literature explores how governance interacts with upgrading (Humphrey & Schmitz, 2002) – mostly via case studies but also, more recently, via quantitative analyses (Golini, De Marchi, Boffelli, & Kalchschmidt, 2018; Pietrobelli & Saliola, 2008). According to these studies, in captive forms of governance, lead firms are more likely to enable and guide product or process upgrading rather than other upgrading trajectories that could expose them to the rise of new direct competitors, i.e., new brands. In terms of functional upgrading, in fact, the decisions of suppliers to expand the value chain activities carried out internally – product design, brand or retailing – can also be the results of learning dynamics developed autonomously by suppliers (through processes of learning by exporting) or driven by institutional support. The most cited papers related to the bottom-up perspective are included in Table 4

According to our analysis, the topic of (economic) upgrading is examined in 18% of the sampled papers (see Table 3). To gain a more comprehensive understanding of the relevance of this construct in the GVC literature, it is worth combining the works dealing with *upgrading* with those focusing on *innovation* (15% of the total sample) (Morrison et al., 2008). The debate on innovation in GVC studies has received less explicit consideration than in other streams of research (Giuliani, De Marchi & Rabellotti, 2018; Pietrobelli & Rabellotti, 2011), partially because GVC scholars have approached innovation as a component of the concept of upgrading (Morrison et al., 2008). GVC scholars have explored innovation at multiple levels by analysing it within single firms (e.g., a supplier), inter-firm networks, or at the industry (GVC) level. The concept of (economic) upgrading lost relevance in the literature over time (investigated by 21% of papers in the earliest period; 13% in the latest) whereas the attention to innovation increased slightly. Such a decrease might be explained by the growing focus on the sustainability-related elements of upgrading.

As the content-analysis highlights, the concept of upgrading - previously limited to the economic angle - has been extended to account for the social and environmental aspects of development. This is consistent with the need to cope with the negative influences that the intense process of offshoring and global sourcing by lead firms may generate on labour forces and the environment (Gereffi & Lee, 2016; Lund-Thomsen & Lindgreen, 2014). Social upgrading has been described as the process of improvement in the entitlements and rights of workers aimed at enhancing the quality of their employment (Barrientos, Gereffi, & Rossi, 2011) and encompasses the debate regarding 'decent work' and human rights (Barrientos et al., 2011; Knorringer & Pegler, 2006; Selwyn, 2013). This debate affects both the efforts of global companies that seek to improve labour conditions, as well as the initiatives of NGOs, governances, and other non-corporate actors (Gereffi & Lee, 2016).

Following an initial focus on social upgrading, GVC studies have progressively grown to embrace the domain of (environmental) sustainability (De Marchi, Di Maria, & Micelli, 2013; De Marchi, Di Maria, & Ponte, 2013; Poulsen, Ponte, & Lister, 2016). Despite being barely investigated jointly from an empirical point of view (for an exception see Golini et al., 2018), the social and environmental aspects of GVCs are strongly complementary, as shown by the contributions rooted in the Corporate Social Responsibility (CSR) literature (Lund-Thomsen & Lindgreen, 2014).

Aspects related to environmental upgrading and, more generally, corporate social responsibility received growing attention in the last period, as recorded in Table 3. The social dimension of upgrading was a key topic of the early literature on non-

economic aspects of upgrading (40% of the papers published between 1994 and 2007) and retained the focus for one paper out of five in the latter period.

3.3.1. *The bottom-up perspective: GVC-IB connections and opportunities for future research*

The topic of upgrading is not new to the IB literature, which has explored this phenomenon in the context of the inter-firm relationships between MNE foreign subsidiaries and their local partners (e.g., Giroud and Scott-Kennel, 2009). These relationships generate *local linkages* both within or across industries, through which MNEs influence the productivity and capability development of partner firms (Forsgren, Holm, & Johanson, 2005) via on-going interactions and the flows of capital, people, knowledge and other resources (Giroud & Scott-Kennel, 2009). Linkages intensity determines the magnitude of inter-firm learning, as well as of pecuniary and technology spillovers (Eden, 2009) that diffuse to local firms through the activities of MNE foreign subsidiaries. Thus, the assumption behind the IB studies on linkage-mediated spillovers is that they are enabled by the proximity between the subsidiary and local firms, which allows for the emergence of direct exchange relationships in the host economy (Giroud & Scott-Kennel, 2009).

By documenting the existence of upgrading processes that take place regardless of the co-location between the MNE and its partner-firms, the GVC literature hints at other channels through which learning can occur within the network of actors that interact with MNEs. More specifically, it suggests that also *global linkages* can spur the development of capabilities and resources in partner organizations. This opens up opportunities for investigating whether local or global linkages are more powerful in terms of instigating upgrading dynamics.

Second, by documenting lead firms' attempts to control the dynamics of upgrading, the GVC literature offers useful insights into the *strategic posture* that these actors - often MNEs - adopt when determining the extent of learning they should facilitate in vertical partners that could potentially become direct competitors. This is a compelling topic for IB scholars (e.g., Perri, Andersson, Nell, & Santangelo, 2013), and represents a fruitful avenue for future work, especially given the recent IB attention to knowledge protection strategies of MNEs (e.g., Contractor, 2019; Inkpen, Minbaeva, & Tsang, 2019).

Third, the GVC classification of economic upgrading across the three categories of *product/process*, *functional* and *inter-chain* upgrading could be of inspiration to IB scholars who have long attempted to disentangle the different types of intentional and

involuntary effects that linkages generate (Eden, 2009). Technology spillovers are difficult to assess, and widely used measures based on changes in domestic productivity (e.g., Chung, Mitchell, & Yeung, 2003) prevent to isolate the direct linkage effect on individual local partners from the indirect effect that linkages might spur at the industry or national level. Focusing on more micro-founded, interfirm-specific outcomes of linkages, such as those proposed by the GVC literature, could offer to IB scholars the opportunity to address a research problem that “*tends to be dominated by economists*” (Eden, 2009: 1065). This could be particularly fruitful for the strand of IB literature on EMNEs, which could leverage the GVC studies on upgrading to better understand how the involvement in GVCs influences their access to regional strategic assets (Crescenzi, Pietrobelli, & Rabellotti, 2016) and, in turn, their genesis and evolution. While current IB research distinguishes between output and innovative capabilities of EMNEs (Awate, Larsen, & Mudambi, 2012), future studies might explore how such distinction interacts with traditional GVC concepts of upgrading to improve our understanding of EMNEs’ catch-up processes.

Finally, the attention that the GVC literature has devoted to the social and environmental sides of the economic activities can provide IB scholars an opportunity to expand the debate on the “*content of spillovers*” (Eapen, 2012) mediated by MNEs’ FDI. IB scholars have systematically focused on the technological knowledge that MNEs and their subsidiaries diffuse in their host economies via direct and indirect linkages. However, as this content-analysis suggests, the GVC literature emphasizes that the interaction with lead firms also requires suppliers in different areas of the world to comply with regulations and societal expectations in the field of labour conditions, product safety and environmental impact. IB scholars could leverage this stream of GVC literature to capture the wider, non-economic implications of standard schemes and other monitoring mechanisms that MNEs and their subsidiaries adopt. Accordingly, IB scholars have stressed the importance of this phenomenon (Buckley et al., 2017; Kolk, 2016) which is increasingly central in recent IB contributions on the human rights agenda (Giuliani & Macchi, 2014; Sinkovics, Sinkovics, Hoque, & Czaban, 2015; Wettstein, Giuliani, Santangelo, & Stahl, 2019). This is in line with the idea that firms - and the private sector in general - play a key role in achieving the Sustainable Development Goals (SDGs) (Scheyvens, Banks, & Hughes, 2016), calling for more attention towards understanding how both MNEs and GVCs may put forward a more responsible economic paradigm.

3.4. *The institutional context and the role of state and non-firm actors*

The GVC framework acknowledges that the institutional context plays a crucial role in influencing how GVC activities take place and how GVC actors can structure their behavior in response to threats and opportunities (Fernandez-Stark & Gereffi, 2019; Gereffi, 1995). Indeed, GVCs can be conceived as nested structures in which global production activities tend to be organized inside clusters and regions (Sturgeon et al. 2008). Institutions may shape international trade rules, define standards that facilitate or limit the access to GVCs and provide critical resources to support upgrading possibilities. As suggested by Gereffi & Fernandez-stark (2016: 11), “*the institutional framework identifies how local, national and international conditions and policies shape the globalization in each stage of the value chain*”.

On a broader, global level, GVC studies explicitly investigate how the evolution in trade agreements shape the structure of GVCs across countries (Bair & Gereffi, 2001; Bair & Werner, 2011; Gereffi, 2014). Moreover, with their analytical frameworks (e.g. input-output and governance analyses), GVC scholars have actively engaged with the agenda of international institutions and provided support in the design policies of interventions (Gereffi, 2019). At the country level, GVC studies have focused on the exploration of the institutional conditions that are most conducive to the development of specific industries with respect to working conditions, rules of competitions and FDI attractiveness policies, tax and labour regulation, innovation and education policies (Fernandez-Stark & Gereffi, 2019; Gereffi, Fernandez-Stark, & Psilos, 2011). On a more local scale (i.e. clusters), attention has been given to the institutional conditions that facilitate the growth of local firms in terms of pre-competitive initiatives, networking, training and the like (Giuliani & Rabellotti, 2017; Pietrobelli & Rabellotti, 2011)

According to our analysis, institutions have been a key element for 14% of the total sample of GVC papers. Yet, this interest has reduced over time. Different types of institutions have been analysed. Recently, also in light of the increasing relevance of environmental and social perspectives (see Section 3.3), special attention has been paid to the role of stakeholders such as trade unions or activists (e.g., Ibsen & Tapia, 2017).

As suggested above, institutions have been explored at different geographical scales (country, regions, or clusters), which are considered to be complementary (Gereffi & Lee, 2016). Particular emphasis, however, has been devoted to the institutions characterizing the *region*, intended both as the macro-area including more than one country, and the subnational, within-country area. According to our

analysis, 22% of papers in our sample have focused on the regional dimension of GVCs. Such strand of literature mainly investigates the implications for governance and upgrading of the increasing concentration of trade within macro-regions (Smith et al., 2002), and the supporting role of regional innovation systems and regional policies in subnational areas (Chaminade & Vang, 2008). The consolidation of the interest in regions starting in 2008 – when the topic was addressed by almost one paper out of every five – is linked to the evidence on the regionalization of GVCs mentioned above (Section 3.1) (Gereffi 2014; Ferrantino & Taglioni, 2014) and is coupled with a relative decline in the interest in state and clusters (see Table 3). Interestingly, and consistently with the dynamic documented in Section 3.3, many of the recent papers focusing on regions are related to environmental and social upgrading opportunities and challenges (White, Hubacek, Feng, Sun, & Meng, 2018; Zhang, Zhu, & Hewings, 2017).

A number of studies in this field has been concerned with clusters. Focusing specifically on developing countries' clusters, this body of works seeks to explore how embedding into GVCs could affect a cluster's prospects in terms of prosperity and evolution (Bair & Gereffi, 2001; Giuliani et al., 2005; Humphrey & Schmitz, 2002). The focus on clusters got a boost during the post-recession period (2008-2016), when 10% of the papers analysed explored cluster-related issues, but decreased afterwards.

Finally, the focus on the country-state as a major institution influencing how (local) production is organized and positioned in GVCs characterizes 15% of the literature, although the number of articles naming this spatial scale gradually fell. This strand of literature suggests that cross-country differences in terms of policies and supportive regulatory frameworks affect the opportunities of local firms (suppliers) or local individuals (workers) to benefit from being a part of GVCs (upgrading). In turn, this influences the global leading firms' investments in selected countries (Staritz, Gereffi, & Cattaneo, 2011). A number of recent studies have underscored the key role that the states (or policy makers at other geographical scales) may play in supporting the genesis, evolution, and functioning of GVCs (Horner, 2017; Mayer & Phillips, 2017).

3.4.1. The institutional context: GVC-IB connections and opportunities for future research

Institutions – both formal and informal – represent a crucial pillar of IB studies. While these have been originally assumed to operate in the "background" of IB

strategy, in the last decade they have gained growing centrality in the discipline (Peng, Wang, & Jiang, 2008).

GVC studies have traditionally paid attention to institutional characteristics operating at different spatial scales, i.e., the country, the macro-region and the subnational area. Conversely, IB scholars' primary attention has been directed toward the nation-state. In fact, since MNEs are conceived as border-crossing organizations, IB literature has mainly focused on the discontinuities that national borders mark in the geographic space. More recently, IB research has acknowledged the importance of accounting for both international and subnational heterogeneity, noting that "MNEs decide to locate in particular agglomerations and not at random locations within a country" (Beugelsdijk & Mudambi, 2013: 413). On the other hand, macro-regional areas, and their institutional actors, have mainly inspired the streams on regionalization and semi-globalization (e.g., Rugman & Verbeke, 2004). Yet, the role of IOs and policy interventions – which has systematically informed and, in turn, been informed by GVC studies (Gereffi, 2019) – seems less ubiquitous in the IB literature.

In the IB work, institutional heterogeneity has been traditionally considered as a barrier to the foreign activity of MNEs, with institutional distance being depicted as one of the main reasons behind the existence of phenomena such as the liability of foreignness (Zaheer, 1995) and the psychic distance (Johanson & Vahlne, 1977). At the same time, it has been pointed out that the institutional diversity can be the source of arbitrages (Ghemawat, 2007) that MNEs, because of their geographically distributed organization, may be better equipped to exploit compared to single-location firms. While some research has been carried out to show how MNEs are able to take advantage of cross-country institutional heterogeneity via arbitraging mechanisms (e.g., Zhao, 2006; Berry, 2017), this topic could be further explored in IB studies.

In the GVC literature, institutional contexts have been deeply analysed both separately and comparatively, in the attempt to understand how the "rules of the game" (North, 1990) in different spatial areas facilitate or hamper the emergence and the functioning of GVCs. In this framework, institutional contexts do not only expose to risks, but also offer opportunities to take advantage of resources and capabilities in the context of specific industries. Accordingly, a GVC reflects the inter-firm relationships underpinning a system of organizationally fragmented economic activities that span different, often complementary institutional contexts. In GVC empirical studies, the role of states and other non-firm organizations is depicted as co-shaping the development of industries, rather than as context conditions against which MNE activities take place.

For this reason, IB research may benefit by drawing on GVC perspectives to better understand how institutions across different geographic contexts may serve as the source of potential advantages. This can help IB scholars to look at the portfolio of institutional environments in which MNEs operate in its entirety, as a complex system of nested and potentially synergetic contexts that – at different spatial levels – interact with each other to give rise to institutional arbitrage opportunities that MNEs can strategically orchestrate. At the same time, IB research should commit to identify the best practices through which institutional arbitrage opportunities can be calibrated to comply with a general logic of sustainability, and of socially and environmentally responsible models of behaviour.

More generally, the IB literature often conceives the evolution of MNEs from hierarchical organizations to a nexus of interconnected entities as a flexible response to the multiple institutional pressures arising from the MNE's different local operating environments (Cantwell, Dunning, & Lundan, 2010). Again, the GVC framework can inform IB scholars' understanding of the specific institutional features that have driven this evolution, possibly relating individual sources of institutional pressure to specific changes in the configuration of MNEs' economic activities. Ultimately, this would help to achieve greater knowledge of how institutional adaptation occurs in complex global organizations that are simultaneously exposed to multiple, potentially competing institutional forces. Combining these insights with the dynamic analysis of institutions that dominates GVC approaches, IB scholars could shed light into the processes through which organizations are not only shaped by, but also actively shape the distinct institutional contexts in which they are involved (Cantwell et al., 2009; Cano-Kollman, Cantwell, Hannigan, Mudambi & Song, 2016).

Table 3 here

Table 4 here

4. Open issues and a future research agenda

The progressive transition from firm-level vertical integration to complex types of coordination between independent agents that are geographically distributed but functionally integrated, challenges the traditional IB literature, which focused primarily on the organization and strategies of the MNE. In line with the literature

suggesting the potential synergies between IB and GVC studies (De Marchi et al., 2014; Sinkovics et al., 2018), this paper has provided an overview of the GVC research taking the perspective of IB scholars who might be willing to nurture their agenda with insights from the GVC field. In fact, while the IB literature has been more effective in uncovering the causal mechanisms that govern the cross-border organization of firm activities (Kano et al., 2020), the GVC approach can be very powerful to inform the IB understanding of such dynamics. In an effort to support cross-fertilization between these two fields, we have adopted a viewpoint that is complementary to the recent work by Sinkovics & Sinkovics (2019), who have attempted to show how IB can support the development of GVC literature.

Informed by a systematic analysis of more than 1,200 academic articles, this study has discussed the four key dimensions of the GVC framework (the input-output analysis, governance, upgrading and the institutional framework) and their evolution over time, with the objective of highlighting points of contact and potential synergies with the IB research (Table 5).

Table 5 here

This has allowed us to elaborate on how each of the GVC pillar might provide inputs for IB scholars interested in boundary-spanning research, uncovering research trajectories that – while being very promising - are still largely neglected. Among these, three areas of cross-fertilization are worth special attention, given the breadth of their potential impact across different subjects of the two fields of literature. The first area refers to the regionalization of GVCs in the South-South peripheral trade context, a trend that resonates both with the IB stream on semi-globalization (Rugman and Verbeke, 2004; 2007) and with the studies on EMNEs' catch-up processes (Ramamurti, 2012), which might be enriched with a more explicit account of the GVC role of these “emerging giants” (e.g., buyers vs first-tier suppliers) and the resulting developmental trajectories. The second area refers to the role of the nation-state and other non-firm actors in co-shaping, together with MNEs, the evolution of industries at different spatial levels, with particular emphasis on societal and environmental aspects of such evolution. The third area, and probably the most far-reaching one, refers to the meso-level, yet fine-grained and product-driven analytical approach of the GVC studies, which might inspire a greater understanding of the configuration of MNEs' activities across the geographic and the organizational space.

Moving beyond the analysis provided, it seems plausible that the interaction between the two research streams will turn out to be even more necessary as the

current digitalization trends become more pervasive, challenging the established understanding of location advantages and of the relationships between MNEs and their target markets (Rehnberg & Ponte, 2018; Strange & Zucchella, 2017). The attention towards new forms of production (beyond mass customization) and the possibility to redesign the linkages between manufacturing and consumption in terms of proximity (co-location) expand and transform the organizational and operating options that MNEs have traditionally implemented (Ben-Ner & Siemsen, 2017; Hannibal & Knight, 2018). Similarly, the emergence of digital platforms such as Amazon or Alibaba is likely to dramatically impact the structure and governance of value chains and the resulting internationalization paths of firms in both advanced and emerging economies. All these trends represent open issues for future research, in which blending the expertise of GVC and IB scholars could be particularly fruitful.

This study is not without limitations. The identification of the most promising areas of IB-GVC cross-fertilization is clearly subjective and thus should be considered as a starting point upon which the future dialogue between the disciplines can build. Furthermore, while this study takes the IB perspective with the aim of uncovering research opportunities that could be fruitful primarily for IB scholars, there are many areas in which the latter have a comparative advantage, and could thus inspire future GVC work.

Our analysis is conservative in nature, as we focused only on the academic impact of GVCs (not considering the extensive grey literature) and only retained English-speaking studies that adopted GVCs as a relevant framework for analysis (that is, naming it in the abstract or title). The impact of this framework, however, spans far beyond the academic context, as revealed by the numerous studies carried out or commissioned by IOs. This supports our idea that the IB-GVC cross-fertilization could make the resulting studies highly influential. More generally, the vitality and progressive variety of the GVC research suggests that this approach is likely to maintain a privileged role among the toolbox that academic researchers, IOs, and policy makers can leverage to understand and approach globalization. Since several research questions in this realm are still to be addressed, we propose that the IB and GVC fields should more systematically engage in fruitful interactions.

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TABLES

Table 1 – The industrial focus of the GVC literature over time

	# of papers and share on total of the period			
	Total (1994-2018)	1994-2007	2008-2016	2017-2018
Traditional Manufacturing	179 (14%)	36 (30%)	107 (16%)	36 (8%)
<i>Textile</i>	113 (9%)	25 (21%)	66 (10%)	22 (5%)
Natural resource-based	306 (24%)	34 (29%)	164 (25%)	108 (23%)
Complex products	190 (15%)	15 (13%)	121 (18%)	54 (11%)
<i>Automotive</i>	65 (5%)	5 (4%)	46 (7%)	14 (3%)
<i>Electronics</i>	87 (7%)	9 (8%)	56 (8%)	22 (5%)
Services	167 (13%)	17 (14%)	85 (13%)	65 (14%)
Total # of papers	1257	119	661	477

Table 2 – The geographical focus of the GVC literature over time

		# of papers and share on total of the period			
		Total (1994-2018)	1994-2007	2008-2016	2017-2018
Developing/ Emerging	Asia	499 (40%)	41 (34%)	276 (42%)	182 (38%)
	<i>China</i>	239 (19%)	7 (6%)	130 (20%)	102 (21%)
	<i>India</i>	77 (6%)	7 (6%)	48 (7%)	22 (5%)
	Africa	143 (11%)	22 (18%)	67 (10%)	54 (11%)
	Central/ South America	101 (8%)	11 (9%)	65 (10%)	25 (5%)
	East Europe	29 (2%)	1 (1%)	18 (3%)	10 (2%)
Developed	EU (15)	340 (27%)	30 (25%)	155 (23%)	155 (32%)
	North America	112 (9%)	13 (11%)	56 (8%)	43 (9%)
Total # of papers		1257	119	661	477

Table 3 – The literature on the top down, bottom up and institutional context of GVCs over time

		# of papers and share on total of the period			
		Total (1994- 2018)	1994- 2007	2008- 2016	2017- 2018
Top Down	Governance	289 (23%)	25 (21%)	162 (25%)	102 (21%)
	Lead firm	107 (9%)	14 (12%)	65 (10%)	28 (6%)
	Standard	171 (14%)	16 (13%)	97 (15%)	58 (12%)
Bottom up	Upgrading	221 (18%)	25 (21%)	134 (20%)	62 (13%)
	Innovation	187 (15%)	15 (13%)	102 (15%)	70 (15%)
	Environmental upgrading	281 (22%)	20 (17%)	151 (23%)	110 (23%)
	Social upgrading	281 (22%)	48 (40%)	137 (21%)	96 (20%)
Institutional Context	Institution	176 (14%)	20 (17%)	101 (15%)	55 (12%)
	State	191 (15%)	22 (18%)	100 (15%)	69 (14%)
	Region	280 (22%)	18 (15%)	152 (23%)	110 (23%)
	Cluster	100 (8%)	8 (7%)	66 (10%)	26 (5%)
Total # of papers		1257	119	661	477

Table 4 – The top contributions on the top down, bottom up and institutional context of GVCs

Topic	Rank	Top cited papers (overall)	Top cited papers (published in 2017-2018)
Top Down	1	Gereffi et al. (2005)	Seabrooke and Wigan (2017)
	2	Humphrey and Schmitz (2002)	Horner (2017)
	3	Gereffi et al. (2001)	Mayer and Phillips (2017)
	4	Sturgeon (2002)	Horner and Nadvi (2018)
	5	Ponte and Gibbon (2005)	Hernández and Pedersen (2017)
Bottom Up	1	Gereffi (1999)	Tchamyou (2017)
	2	Humphrey and Schmitz (2002)	White et al. (2018)
	3	Bair (2005)	Acquaye et al. (2017)
	4	Coe et al. (2004)	Zhang et al. (2017)
	5	Giuliani et al. (2005)	Seabrooke and Wigan (2017)
Institutional Context	1	Humphrey and Schmitz (2002)	Tchamyou (2017)
	2	Bair (2005)	White et al. (2018)
	3	Coe et al. (2004)	Acquaye et al. (2017)
	4	Giuliani et al. (2005)	Zhang et al. (2017)
	5	Sturgeon et al. (2008)	Seabrooke and Wigan (2017)

Papers are ranked as per Scopus citations, as of the 30th of March 2020.

Table 5 – Synthesis of points of contact and potential synergies between GVC and IB literatures

	GVC key theoretical elements	GVC – IB connection	Opportunities for IB research
<i>Industry (I-O) and geography</i>	<ul style="list-style-type: none"> • Fine-grained analysis of value chain activities and actors • Overall value chain organization • Analysis of geographical scope and evolution of location patterns 	How activities are ‘sliced’ across different locations	<ul style="list-style-type: none"> • Finer-grained analysis of MNE activities and their interdependencies • Product-driven perspective (international configuration of multi-product MNEs) • Regionalization and firms-specific assets (FSAs) / focus on regional scope of downstream value chain activities
<i>Top-down (governance)</i>	<ul style="list-style-type: none"> • Governance as <i>driving</i> (buyer vs. producer VC) • Governance as <i>linking</i> (5 forms: hierarchy-captive-relational-modular-market) • Governance as <i>normalizing</i> (multipolarity) 	Power, control and coordination mechanisms in the intra-MNE network	<ul style="list-style-type: none"> • Power dynamics (asymmetries) beyond MNE organizational boundaries • Multiplicity of actors (brand vendors, global suppliers, public actors, “rising powers”)
<i>Bottom-up (upgrading)</i>	<ul style="list-style-type: none"> • Product/process – functional – interchain upgrading • Social upgrading • Environmental upgrading 	Subsidiary embeddedness, linkages, FDI spillovers, innovation	<ul style="list-style-type: none"> • From local linkages to global linkages • Content of FDI spillovers • EMNEs’ capabilities building
<i>Institutions</i>	<ul style="list-style-type: none"> • International trade rules and standards that facilitate / limit the access to GVCs • Role of supranational institutions (IOs) • Analysis of resources to support upgrading possibilities 	Country-level formal and informal institutions	<ul style="list-style-type: none"> • Institutional arbitrages • Co-evolution dynamics

APPENDIX A – Identification of keywords and categories

A manual classification of the papers has been performed, based on their titles and abstracts, adopting a deductive approach to coding, i.e., using the dimensions of GVCs identified in Gereffi and Fernandez-Stark (2016) to develop the coding schemes. Indeed, for each dimension, we defined a list of characterizing keywords, such as “China” for the geographical dimension or “Apparel” for the industry focus.

Next, using the software RapidMiner, we extracted from the papers’ titles, abstracts, and keywords the frequency of all the words employed in our dataset. In this way, we integrated and validated the initial list of relevant keywords and checked that all the high-frequency words were included, if relevant. This analysis was particularly helpful to keep track of variations in the spelling of a word (e.g., labour vs. labor) and to identify regions (e.g., Moldova) or industries (e.g., toy) not considered in the first round. Afterward, the relevant keywords were classified into categories. For instance, the words ‘Jordan’, ‘Bangladesh’, and ‘Cambodia’ were classified under ‘Asia’.

The emerging classification was revised to ensure the robustness of the analysis. We ended up with 236 keywords and 28 categories. The list of keywords for each category is reported in Table A.1. Finally, using Excel, we searched for the selected keywords in titles or abstracts. If a word was present, the paper was classified in the related category; hence, one paper can belong to different categories at the same time.

Table A.1 – The keywords used in the analysis⁸

Category	Keywords
Asia	Asia*, Bangladesh*, Cambodia*, Filipino, Hong Kong, India*, Indonesia*, Israel*, Japan*, Jordan*, Kazakhstan, Korea*, Lanka*, Malaysia*, Myanmar, Pakistan*, Philippines, Singapore, Taiwan, Thai*, Turkey, Vietnam, Zealand
Eu	Austria*, Belgium, Danish, Denmark, Europe*, Finland, Finnish, France, French, German*, Greece, Greek, Ireland, Irish, Ital*, Luxemburg, Netherlands, Portug*, Russia*, Scotland, Scottish, Spain, Spanish, Swed*, United Kingdom

⁸ Please note that, when appropriate, we have considered the root of the word instead of the full word, to include all relevant words (e.g., “innov” captures all words such as “innovation”, “innovating”, “innovative”,...). Additionally, for each of the words reported in the table we checked that their inclusion was not driving to the inclusion of unintended words (for example, we made sure to exclude the word “refusal” when searching for “USA”).

Africa	Africa*, Benin, Botswana, Egypt, Ethiopia*, Ghana*, Ivoire, Kenya*, Lesotho, Malawi, Mauritius, Senegal, Swaziland, Tanzania, Uganda, Zambia
Central /South America	Argentin*, Bolivia*, Brazil*, Caribbean, Chile*, Colombia*, Costa Rica*, Dominican*, Guatemala, Latin America, Mexic*, Nicaragua, Panama, Peru, Uruguay
East Europe	Bulgaria*, Croatia*, Czech, Hungar, Moldova, Montenegr*, Poland, Romania, Serbia, Slovakia
China	Chengdu, Chin*, Dongguan, Guangdong, Hong Kong, Shanghai, Zhejiang
India	Bangalore, India*
North America	Canad*, North Americ*, USA

Traditional Manufacturing	Apparel, bicycle, button, ceramic, clothing, construction, football, footwear, furni*, garment, jeans, jewel*, leather, metalwork, plastic, polishing, semiconductor, sport* steel, surgical, textile, toy, toothbrush, watch
Natural Resource-Based	Agriculture*, aquaculture*, aromatic*, asparagus, banana, basmati, beef, biofuel, blackberry, cashmere, cassava, choco*, coal, cocoa, coffee, copper, cotton, crop, ethanol, fashion, fish, floriculture, flower, grape, horticultur*, marine, mining, oil, orange, palm, pepper, pineapple, potato, rare earths, raspberries, salmon, seafood, shrimp, sugar, tea, teak, timber, tobacco, tree, tuna, wheat, wine, wood, food, fruit
Complex Products	Aeronautics, aerospace, aircraft, automobile, biomedical, car, computer, electric motors, electronic, hard disk, ICT, information technology, integrated circuits, maritime shipping, micro-electronics, mobile intelligent terminals, mobile phone, mobile telecom, notebook, PCs, personal computer, pharmaceutical, shipbuilding, solar, television, white goods, wind
Services	Animation, banking industry, call cent*, call center, call centre, cruiss*, film, games, movie, service, shipping, software, tourism, TV format
Automotive	Automotive, car, automobile
Electronics	Computer, disk, electronic, ICT, Integrated circuits, micro-electronics, mobile intelligent terminals, notebook, semiconductor
Textile	Apparel, clothing, garment, jeans, textile*

Governance	Buyer-driven, captive, govern, governance, modular, power relationship, producer-driven, quasi hierarchical, relational
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Lead Firm	Global buyer, global corporation, global suppliers, lead firm, transnational company*, transnational corporation*
Standard	Fair, code* of conduct, standard, voluntary regulatory system
Lead Firm	Global buyer, global corporation, global suppliers, lead firm, transnational company*, transnational corporation*
Upgrading	Catch up, catching up, downgrading, upgrad*
Innovation	Innov*
Social Upgrading	Social upgrading, gender, poverty, woman, empowerment, rights, worker, poorest, welfare, labour standard, strike, sexism, inequalities, decent work
Environmental-upgrading	Environmental upgrading, sustainab*, green, environment*, corporate responsibility, corporate social responsibility, CSR, emissions, carbon dioxide, green technolog*, carbon footprint, responsible
Institution	Institution*, NGO*, trade union
Region	Region*, regional development
Cluster	Agglomeration, cluster, district
State	State, nation*, government

*Words ending with an * capture a root of multiple words; i.e., 'innov*' captures 'innovation', 'innovative', 'innovating' and the like.*

Table A.2 - Results of the robustness check via snowballing procedure.

Authors	Title	Year	Contribution type	Times cited by articles in the sample
Porter	The Competitive Advantage: Creating and Sustaining Superior Performance.	1985	Book	46
Hopkins, Wallerstein	Commodity Chains in the World-Economy Prior to 1800.	1986	Research paper	49
Eisenhardt	Building Theories from Case Study Research.	1989	Research paper	31
Gereffi	The Organization of Buyer-Driven Global Commodity Chains: How US Retailers Shape Overseas Production Networks.	1994	Book Chapter	246
Gereffi, Korzeniewicz	Commodity Chains and Global Capitalism	1994	Book	397

Feenstra	Integration of Trade and Disintegration of Production in the Global Economy	1998	Research Paper	53*
Humphrey, Schmitz	Governance and Upgrading: Linking Industrial Cluster and Global Value Chain Research	2000	Working Paper	75
Kaplinsky	Globalisation and unequalisation: What can be learned from value chain analysis?	2000	Research paper	65*
Schmitz, Knorringa	Learning from global buyers	2000	Research paper	58*
Gereffi, Humphrey, Kaplinsky, Sturgeon	Introduction: Globalisation, Value Chains and Development.	2001	Research paper	56*
Hummels, Ishii., Yi	The nature and growth of vertical specialization in world trade	2001	Research Paper	81*
Ponte	The latte revolution winners and losers in the re-structuring of the global coffee marketing chain	2001	Research Paper	30*
Ernst, Kim	Global production networks, knowledge diffusion, and local capability formation	2002	Research Paper	45*
Henderson, Dicken, Hess, Coe, Yeung	Global Production Networks and the Analysis of Economic Development	2002	Research paper	154
Sturgeon	Modular production networks: a new American model of industrial organization	2002	Research Paper	86*
Gereffi, Memedovic	The Global Apparel Value Chain: What Prospects for Upgrading by Developing Countries?	2003	Report	31
Bair	Global Capitalism and Commodity Chains: Looking Back, Going Forward	2005	Research paper	102*
Gereffi	The global economy: organization, governance, and development.	2005	Book chapter	33
Gibbon, Ponte	Trading Down: Africa, Value Chains, and the Global Economy	2005	Book	106
Ponte, Gibbon	Quality standards, conventions and the governance of global value chains	2006	Review	76*
Barrientos, Smith,	Do workers benefit from ethical trade? Assessing codes of labour practice in global production systems	2007	Research paper	35*
Morrison, Pietrobelli, Rabellotti	Global value chains and technological capabilities: A framework to study learning and innovation in developing countries	2007	Research paper	53*
Coe, Dicken, Hess	Global production networks: realizing the potential	2008	Research paper	109
Grossman, Rossi-Hansberg	Trading Tasks: A Simple Theory of Offshoring.	2008	Research paper	54
Levy	Political contestation in global production networks	2008	Research Paper	37*
Nadvi	Global standards, global governance and the organization of global value chains	2008	Research Paper	53*

Sturgeon	From Commodity Chains to Value Chains: Interdisciplinary Theory Building in an Age of Globalization.	2008	Working Paper	48
Sturgeon, Van Biesebroeck, Gereffi	Value chains, networks and clusters: Reframing the global automotive industry	2008	Research paper	50*
Gibbon, Bair, Ponte	Governing global value chains: an introduction	2009	Editorial	89
Barrientos, Gereffi, Rossi	Economic and social upgrading in global production networks: A new paradigm for a changing world	2011	Research paper	71*
Neilson, Pritchard	Value chain struggles: Institutions and governance in the plantation districts of South India	2011	Book	57
Johnson, Noguera	Accounting for intermediates: Production sharing and trade in value added	2012	Research Paper	79*
Baldwin, Lopez-Gonzalez	Supply-chain Trade: A Portrait of Global Patterns and Several Testable Hypotheses	2015	Research Paper	49*
Dicken	Global shift: Mapping the changing contours of the world economy	2007	Book	48

*Source: Authors' elaboration. Only works not included in the sample are shown. Articles reporting a * in the last column have been included in the sample after the snowballing procedure.*

APPENDIX B - Key characteristics of the GVC literature

To assess the magnitude of the GVC research in academic journals and explore its development, we analysed the number of articles in our sample per year of publication, as reported in Figure B.1. Three periods can be clearly identified, accounting for the growth rate of the literature and its development, which are going to be used subsequently for the content-analysis reported in paragraph 4. First, an introduction stage can be identified, dating until 2007, in which the annual number of papers published remained moderate. Starting in 2008, the number of papers being published yearly almost doubled that of the previous period. Such a growth was spurred by the 2005 publication of the seminal contribution by Gereffi et al. (2005). Finally, after 2016, the resultant growth was rather exponential, testifying a persistent and wide influence on the academic literature.

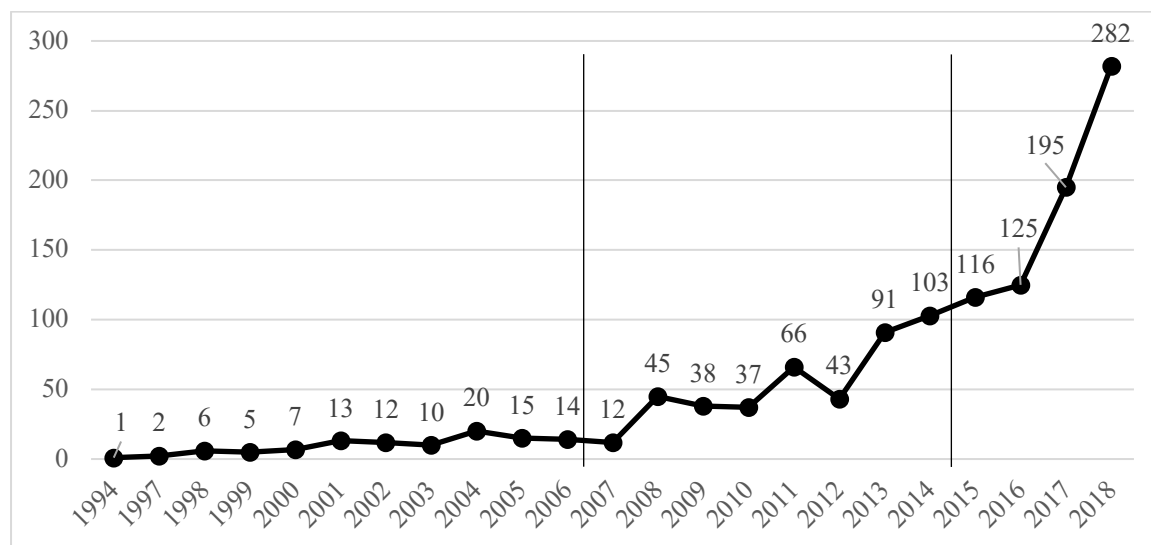


Figure B.1 – Number of papers published annually on GVCs (black line)- Source: authors' elaboration based on Scopus results

Table B.1 lists the most important scholars of the GVC literature in terms of contributions and reputation in the research community, ranking the top authors by the number of articles written and by the quantity of citations received for the GVCs articles identified in the analysis. Gereffi, Humphrey and Sturgeon are the most cited scholars, being the authors of the most cited paper (Gereffi et al., 2005). As for the period considered, Gereffi is the most prolific author among the three, followed by Ponte and Nadvi. Most of the scholars on both lists specialize in the fields of development studies, sociology, or political-economy studies.

Table B.1 – Top authors that contributed to the GVC literature

	Total citations		Weighted citations
Gereffi G.	7299	Gereffi G.	491.8
Humphrey J.	5193	Sturgeon T.J.	3537
Sturgeon T.J.	5139	Humphrey J.	328.3
Schmitz H.	1929	Ponte S.	183.9
Ponte S.	1921	Schmitz H.	122.7

Citations refers to Scopus citations for the papers considered in the analysis, as of the 30th of March 2020. Weighted citations are calculated accounting for the year of publication of each of the articles published, i.e. dividing the citations of each article by the number of years since it has been published.

Table B.2 completes the analysis by listing the top journals that embrace the GVC debate. *Review of International Political Economy, World Development and Journal of International economics* rank the highest for citations received. *World Development* ranks as the most prolific source, while also being the most cited, followed by the *International Journal of Technological Learning, Innovation and Development*, which published two special issues on GVC studies in 2008 and 2009, spurring the debate on GVC and innovation. An interesting insight coming from the analysis of results reported in Table B.2 regards the multidisciplinary nature of the GVC literature, which has been hosted in journals focused on disciplines as diverse as economics, social studies, international studies, geography, and environmental studies.

Table B.2 – Top journals for contributions on the GVCs literature

	Total citations		Weighted citations
Review of International Political Economy	3587	Review of International Political Economy	330.7
World Development	3373	World Development	274.3
Journal of International Economics	2869	Journal of International Economics	186.0
IDS Bulletin	1368	Journal of Business Ethics	106.9
Regional Studies	1230	Journal of Economic Geography	103.1
Research Policy	1148	Competition and Change	102.2

Citations refers to Scopus citations for the papers considered in the analysis, as of the 30th of March 2020. The same top5 applies if discounting the citations of each paper for the number of years since its publications, apart for Research Policy, entry at the expenses of IDS Bulletin. Weighted citations are calculated accounting for the year of publication of each of the articles published, i.e. dividing the citations of each article by the number of years since it has been published.

The pervasiveness of the GVC framework across different disciplines is further testified by the analysis reported in Table B.3, which includes the distribution of all the papers based on the fields they belong to, as classified by Scopus⁹. Social science is the most relevant field of research, yet it represents just 29.6% of the total contributions, while fields such as economics and management contribute about 22.7% and 18.5%, respectively. It is interesting to note that a significant share of papers specializes in hard science fields, especially environmental science (8.9%) and engineering (3.3%).

Table B.3 - Top 5 fields for contributions on GVCs

Field	# Articles	Share on total
Social Sciences	686	29.6%
Economics, Econometrics and Finance	491	22.7%
Business, Management and Accounting	422	18.5%
Environmental Science	211	8.9%
Engineering	85	3.3%

Note: each article might belong to more than one category

⁹ Same journal might belong to more than one field. Calculations do not include the articles added through the snowballing procedure.