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Working Paper

Pulling up or binding down: A review of upgrading trajectories in apparel and agroprocessing global value chains for developing countries

WIDER Working Paper, No. 2021/112

Provided in Cooperation with:

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

Suggested Citation: Pasquali, Giovanni; Krishnan, Aarti; Engel, Jakob (2021) : Pulling up or binding down: A review of upgrading trajectories in apparel and agroprocessing global value chains for developing countries, WIDER Working Paper, No. 2021/112, ISBN 978-92-9267-052-8, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki, <https://doi.org/10.35188/UNU-WIDER/2021/052-8>

This Version is available at:

<https://hdl.handle.net/10419/248326>

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WIDER Working Paper 2021/112

**Pulling up or binding down: a review of
upgrading trajectories in apparel and agro-
processing global value chains for developing
countries**

Giovanni Pasquali,¹ Aarti Krishnan,¹ and Jakob Engel²

July 2021

Abstract: There exist a plethora of developing country value chain studies based on a variety of methodological approaches, both in the academic literature and through policy reports. However, there has been little systematic synthesis of the findings and approaches taken in these studies. This study presents the results of a meta-analysis of 35 case studies (including 12 policy reports from the World Bank and 23 academic articles) on the determinants and outcomes of integration in apparel and agro-processing global value chains (GVCs) for primarily low-income developing countries. It explores the determinants of backward and forward participation in GVCs, and the factors that enable firms to achieve economic, social, and environmental upgrading. Furthermore, the study draws a connection between the causes and consequences of upgrading, shedding light on the economic, social, and environmental outcomes of the participation of firms in GVCs. Overall, this study aims to contribute to ongoing efforts to better understand how GVC analysis can inform economic transformation and job creation especially in low-income countries.

Key words: global value chains, upgrading, apparel, agro-processing, low-income countries

JEL classification: E2, G10, L2, Q11

Acknowledgements: We thank the ESRC-GCRF for the ES/S000453/1 grant to which this study is linked as part of the project ‘Shifting South: Decent work in regional value chains and South–South trade’; and the Hallsworth research grant at the University of Manchester. The report has also benefited from comments, advice, guidance, and technical discussions from Davida Louise Connon, Deborah Winkler, and Gonzalo Varela at the World Bank. A first version of this paper was prepared as part World Bank Group’s project ‘IDA-18 Inclusive GVC Analyses’ (P166258) and was funded through the Umbrella Facility for Trade. The views expressed in this paper are those of the authors and should not be attributed to the World Bank, its executive directors, or the countries they represent.

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This study has been prepared within the UNU-WIDER project [Structural transformation—old and new paths to economic development](#).

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ISSN 1798-7237 ISBN 978-92-9267-052-8

<https://doi.org/10.35188/UNU-WIDER/2021/052-8>

Typescript prepared by Ayesha Chari.

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1 Introduction

Global patterns of trade and production have changed dramatically over the past few decades. Trade is now characterized by the fragmentation of global value chains (GVCs) and production networks, with firms and countries developing an increasingly narrow specialization in tasks (Taglioni and Winkler 2016). GVCs are characterized by (i) customized production, (ii) sequential production decisions going from the buyer to the suppliers, (iii) high contracting costs, and (iv) global matching of goods, services, production teams, and ideas (Antras 2015). They account for a growing share of overall production and employment worldwide, especially in export-oriented industries. As such, GVCs have become the building blocks of an increasingly integrated global economy.

GVCs allow countries to trade know-how and make things together, with each step in the process adding value to the final product. As technology and trade patterns continue to disperse production globally, GVCs offer countries an opportunity to diversify into and specialize in specific tasks with lower entry costs. They can offer smaller and less diversified economies the opportunities to find niches in the global economy. This can connect remote firms into global supply networks, enabling technology and knowledge spillovers that facilitate rapid productivity gains.

However, welfare gains from GVC participation are not inevitable. Research has shown that the benefits from participating in GVCs vary considerably depending on where a country operates along the value chain (AfDB et al. 2014). Furthermore, different concerns about the costs and risks of joining GVCs exist between developed and developing countries (Baldwin 2016). Competitive advantages differ across countries in general, and in relation to GVCs in particular, with rich countries tending to engage in high-end and intangible production activities, such as research and development (R&D), design, brand building, marketing, promotion, and after-sale service in the post-fabrication stages (Baldwin et al. 2014). In turn, concerns in developed countries centre around the hollowing out of their manufacturing sectors as producers opt for lower-cost production facilities overseas. In developing countries, where tasks tend to centre on low-end and tangible production activities such as manufacturing and assembly, policy-makers often worry about the limited scope for knowledge transfer, diversification, and ‘moving up the value chain’. Many are concerned their economies will get locked into the bottom of the so-called smile curve of GVCs.¹

This latter concern is also central in the World Bank’s 2020 *World Development Report* (WDR) on GVCs. The WDR argues that a core tension in our understanding of GVCs is whether they are ‘pulling people out of less productive activities and into more productive manufacturing jobs’, or binding them to unrewarding, tedious tasks (World Bank 2020: 78). This question, which also informs the title of this paper, is treated with nuance and rigour in the WDR. It concludes that there is a set of variables, including factor endowments, market size, geography, and institutional quality, that impact entry into GVCs and growth in participation. Overall, the WDR presents a positive assessment of the relationship between GVCs, productivity, and growth. GVCs also

¹ The concept of the ‘smile’ curve was first proposed by Stan Shih (1996), the founder of Acer, a technology company headquartered in Taiwan. Shih (1996) highlighted that in the personal computer industry, both ends of the value chain command higher value added to the product in comparison to the middle part of the value chain.

deliver more and better jobs, contributing to poverty reduction. However, the distribution of gains is often unequal, and the environmental implications can often be negative.

This study aims to complement and deepen this aspect of the WDR's analysis, focusing in particular on causes and consequences of economic, social, and environmental upgrading. Economic upgrading occurs when a firm increases its rents through new or more sophisticated products, improved production processes, or the integration of new value-added functions; social upgrading indicates an improvement in the rights and entitlements of workers (Barrientos et al. 2011). In addition, environmental upgrading is used to indicate the process by which a firm reduces the environmental damage caused by its products, processes, or managerial systems (De Marchi et al. 2013). With an explicit focus on GVC analyses in agro-processing and apparel sectors in low- and lower middle-income countries, this study aims to improve our understanding of how GVCs can contribute to economic transformation and job creation. Large numbers of developing country value-chain studies are based on a variety of methodological approaches, both in the academic literature and through policy reports. However, there has been little systematic synthesis of the findings and approaches taken in these studies. Providing a more comprehensive overview of what is being learned across these studies, and how future GVC studies could be improved, remains a challenge. Moreover, there has generally been a focus on middle-income countries with a more limited focus on the poorest regions.

This study draws on a meta-analysis of 35 case studies on the determinants and outcomes of GVC integration and participation in the apparel and agro-processing sectors in low- and lower middle-income countries.² Of the 35 studies in this corpus, 11 were carried out in the context of World Bank projects.

To this end, this study focuses on the following research questions:

- What are some of the positive and negative consequences of GVC participation for firms and workers in these countries?
- What factors have enabled and constrained integration and upgrading within GVCs?

Following the elaboration of the conceptual framework (Section 2) and the methodology for case selection and analysis (Section 3), these research questions are addressed for the apparel (Section 4) and agro-processing (Section 5) sectors. Based on the results of this analysis of the two sectors, the study generalizes across these 35 country-sector experiences to determine whether different salient independent variables can in fact support positive economic and social upgrading trajectories (Section 6).

² Specifically, the focus is on the 74 countries that are eligible for World Bank International Development Association (IDA) borrowing. The gross national income per capita threshold for IDA support (\$1,185 in fiscal year 2021) is slightly higher than that for low-income countries. Moreover, there are a number of countries above this threshold that lack the creditworthiness to borrow from the International Bank for Reconstruction and Development (IBRD) as well as some 'blend' countries, such as Nigeria, Kenya, and Pakistan, that are IDA-eligible and also creditworthy for IBRD borrowing.

2 Aims and structure of this study

2.1 What is meant by GVC analysis?

The literature on GVCs has focused on how production and material flows are organized. It provides a heuristic framework for understanding the governance structures, power relations, and network dynamics within globalized, fragmented production structures. The GVC framework is geared towards understanding how inter-firm (vertical) linkages that span international borders between lead firms (multinational corporations) and suppliers are governed, as well as the related trajectories of upgrading (Gereffi 1999; Gereffi et al. 2005). Within economic geography, a related strand of literature, drew on network analysis to theorize the relational processes through which power is exercised in global production networks (GPNs) (Dicken et al. 2001). The GPN framework extends the linear nature of the vertical relationships put forward by the GVC approach to include horizontal actors other than firms (governments, business organizations, civil society organizations, unions) (Henderson et al. 2002; Coe et al. 2008).

GVC analysis focuses on firms as the core actors in the global political economy. It provides an analytical framework for analysing value-adding activities within processes of industrial production, focusing in particular on four dimensions: (i) the industry's input–output structure; (ii) the relationship between the industry and its geographical context; (iii) the relevant governance structure; and (iv) the institutional context in which the industry value chain is embedded. This has made it an increasingly popular framework within multilateral institutions, culminating in flagship reports on GVCs by the World Trade Organization, International Labour Organization, United Nations Conference on Trade and Development, and World Bank (Ravenhill 2014).

The development and diffusion of the GVC theory over the past two decades has led to a growing number of studies using a range of approaches. What often differentiates these is two aspects: first, whether they focus primarily on issues of power or policy—in other words, whether their primary interest lies in the role of systemic power dynamics within GVC governance structures or whether the focus is more at the technocratic level of altering specific policies that may enable upgrading. Second, most GVC analyses traditionally have either focused on individual countries and industries or more recently have used advances in both multi-region input–output tables and firm-level data to understand GVC dynamics at the global level (or encompassing the entire population of firms in a given country or region). This study aims to bridge both dichotomies. As discussed in more depth in Sections 2.2 and 3, it focuses both in-depth on the governance dynamics within the GVC that enable or constrain different forms of upgrading and examines the types of policies recommended to support this process. Moreover, it takes a large sample of single-country studies to aggregate and draw conclusions across countries.

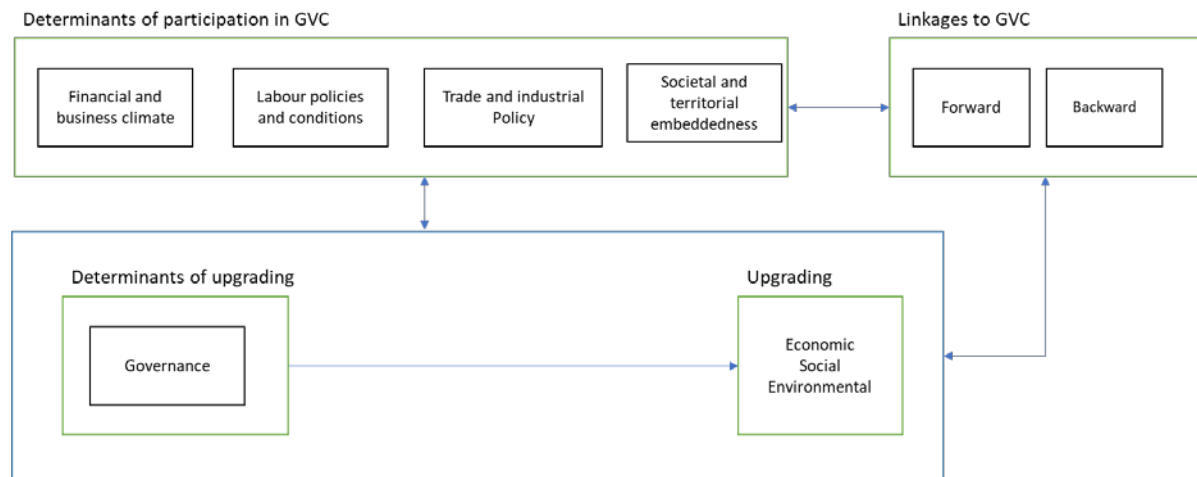
2.2 Conceptual framework for this study

This study is based on the comparative analysis of 35 case studies of the participation of low- and lower middle-income countries in apparel and agro-processing GVCs. It assesses the determinants of backward and forward linkages, as well as the factors that have enabled firms to achieve economic, social, and environmental upgrading. Furthermore, this study draws a connection between the causes and consequences of upgrading, shedding light on the economic, social, and environmental outcomes of the participation of firms in GVCs.

The sectoral analysis follows a four-part structure for both the apparel and agri-business sectors. First, it identifies backward and forward linkages to GVCs from the analysed studies. Second, it summarizes the determinants of participation in GVCs along four macro-level categories: (i)

financial and business climate, (ii) trade and industrial policy, (iii) labour policies and conditions, and (iv) societal and territorial embeddedness. Third, it analyses the determinants of upgrading and downgrading once a country/sector has already entered a GVC. Three major determinants are identified and further explained in the subsequent sections: (i) the governance of the value chain, (ii) the sector's capabilities, and (iii) other macroeconomic and microeconomic factors inductively derived from the analysed studies. Finally, the forms and outcomes of economic, social, and environmental upgrading are explained and linked to their determinants (Figure 1).

Figure 1: Conceptual framework



Source: authors' elaboration.

Linkages to GVCs

The direction of trade in a GVC is relevant to a country's participation in global markets as it plays a crucial role in favouring knowledge and technology transfer (Taglioni and Winkler 2016). Backward linkages in GVCs occur when a country or a firm imports intermediate goods or services from abroad and utilizes these in the production of its exports. Backward linkages occur upstream in the value chain at the input and production node. Conversely, forward linkages occur when a country or firm exports an intermediate good or service that is later used in the exports of a foreign country (De Backer and Miroudot 2014); these are also synonymous with downstream operations within a value chain.

Backward and forward linkages are the primary transmission channels for economic and social upgrading, as they spur productivity in upstream and downstream in the value chain. This occurs in three ways: (i) demand and quality effects, as lead firms require better inputs from local suppliers, which further increases the availability of quality inputs in the buyer's economy; (ii) assistance and diffusion effects, as buyer's demand can be supported by knowledge and technology sharing, advance payments, and other forms of assistance that diffuse beyond the single firm; and (iii) pro-competition and demonstration effects, as the availability of foreign inputs increases competition and generates technological spillovers via imitation and reverse engineering. Backward and forward linkages also enable investments in infrastructure, supporting services, training, and improving the skills of the labour force that would not be possible without the scale generated by participation in GVCs (Taglioni and Winkler 2016: 28–29).

For the purpose of this study, we distinguish between forward and backward linkages to GVCs to identify when, and under what circumstances, suppliers in low- and lower middle-income countries participate and upgrade at different nodes of the value chain.

Determinants of GVC participation

This study has inductively developed a taxonomy of determinants of GVC participation (Table 1). We use these classifications at two stages: first, in the determinants of GVC participation; second, as part of the enabling environment to engender upgrading or downgrading post-participation. Each of these categories is further divided into sub-categories, derived from the analysed studies and summarized as follows:

- *Financial and business climate and related institutions*: This includes access to inputs, the presence of local entrepreneurship, established and protected ownership rights, functional and stable financial markets, and the presence of donor activities and funding.
- *Labour market policies and conditions*: This includes the availability of human capital of suitable quality, appropriate labour costs, and the functioning of labour market regimes.
- *Trade and industrial policy*: This includes access to relevant infrastructure, the presence of government support and training programmes, trade agreements, and the ability to attract foreign direct investments (FDI).
- *Social and territorial embeddedness*: These account for the quality, strength, and intensity of actors' networks and specificities of the territory where they operate, including factors that are often less easily quantified, such as cultural proximity, social norms, and environmental characteristics.³

Table 1: Macro-level determinants of GVC participation

Financial and business climate and institutions	Labour policies and conditions	Trade and industrial policy	Social and territorial embeddedness
Access to inputs	Availability of human capital	Access to infrastructures	Presence of cultural/territorial proximity with buyers
Presence of local entrepreneurship	Availability of cheap labour	Presence of state-driven support	Changing social norms
Established and protected ownership rights	Presence of stringent labour control regimes	Trade agreements	Shifts towards local consumption
Functioning and stable financial markets		Increase in research and development	Presence of interpersonal networks
Presence of donor funding		Increasing volumes of foreign direct investments	Environmental degradation

Note: GVCs, global value chains. Several macro determinants of GVC participation presented in Table 1 also play a crucial role in enabling the upgrading of firms in GVCs.

Source: authors' elaboration.

Determinants of upgrading

In the literature, the concept of governance is used to indicate how lead firms set up and govern globally dispersed economic activities across their production networks (Gereffi et al. 2005; Buckley 2009). However, governance is also used to indicate linkages between actors in the value chain and external institutions, such as governments, donors, business associations, non-governmental organizations (NGOs), unions, and civil society (Coe et al. 2008). For the purpose of this study, we use Gereffi and Lee's (2016) taxonomy of synergistic governance. Accordingly,

³ The concept of embeddedness implicitly accounts for the spatial and environmental dimension of territories in which firms embed themselves, including aspects such as social norms, biodiversity, and environmental degradation. Value chains are affected by the insertion of firms into specific countries of operation, carrying their own culture and histories (Hess 2004).

regulations and codes of conduct governing GVCs can originate from private, public, or civil society actors. Private governance involves regulating economic transactions among firms, which occurs both at the cluster level and via transnational interactions between global buyers and local suppliers. Public governance is driven by public actors, including local, regional, and national governments, as well as supranational organizations. The state plays four crucial roles as a facilitator (e.g., providing tax subsidies, negotiating trade policies, export processing zones (EPZs)), regulator (e.g., restrictions on foreign investment, tariffs, patent laws, labour regulation), producer (e.g., state-owned companies), and buyer (e.g., public procurement) (Horner and Alford 2019). Finally, social governance is exercised by civil society actors, such as NGOs and labour unions, and is usually targeted at regulating workers' rights and labour conditions through various forms of activism.

Types of upgrading and upgrading outcomes

- *Economic upgrading*: Gereffi (1999: 51–52) defines industrial upgrading as a 'process of improving the ability of a firm or an economy to move to more profitable and/or technologically sophisticated capital and skill-intensive economic niches'. Humphrey and Schmitz (2002) stylized economic upgrading in terms of (i) process upgrading, that is, reorganizing production systems or improving technology (embodied and disembodied technological change) to increase efficiency of production; (ii) product upgrading, that is, producing more sophisticated and complex product lines that are usually defined by increased quality and unit values; (iii) functional upgrading, that is, acquiring higher value-added functions in the same value chain (or abandoning lower-level ones); and (iv) chain upgrading, that is, organizational succession by a supplier shifting towards a new GVC.
- *Social upgrading*: Research on social upgrading, pioneered by Barrientos et al. (2011), has concentrated on workers, thereby shifting the focus from the firm. Social upgrading emerged because economic upgrading mostly failed to include labour within its remit. Social upgrading is defined in terms of measurable aspects, such as labour productivity and skills, wages and the permanency of employment, working hours, social protection, health, safety, and union or self-help group participation (Alford et al. 2017); as well as enabling rights based on principles of social justice (Sen 2000), freedom of association and non-discrimination (Barrientos and Smith 2007; Elliott and Freeman 2003). Social upgrading is thus a 'process of improvement in the rights and entitlements of workers as social actors, which enhances the quality of their employment' (Barrientos et al. 2011: 324).
- *Environmental upgrading*: As concerns about climate change and environmental degradation and its relationship to industrial production have increased in policy salience, the focus on environmental upgrading has also increased. In a GVC context, De Marchi et al. (2013: 66) define environmental upgrading as 'the process by which economic actors move towards a production system that avoids or reduces the environmental damage from their products, processes or managerial systems'. Reducing or avoiding environmental damage consists of lowering the ecological footprints of firms, be it greenhouse gas reduction, wasteful consumption of natural resources, or degradation. De Marchi et al. (2019) link process upgrading to eco-efficiency, wherein firms alter practices and processes by introducing new environmental goals and standards.

3 Methodological approach

3.1 Selection of case studies

We use a meta-analysis based on a combination of a bibliometric analysis (for journal articles) and purposive sampling approach (World Bank policy studies), with the aim of reducing researcher bias both by providing as much transparency as possible and by prioritizing existing evidence. The meta-analysis to select case studies was conducted in four stages.

Stage 1

Studies were selected based on the sectors in which countries eligible to borrow from the International Development Association (IDA) participate in GVCs. Using the Eora multi-region input–output (MRIO) database (Lenzen et al. 2012),⁴ ten key sectors/industries were selected in an initial step, to ascertain key export sectors for which the export share was higher than 3 per cent in 2011. These include agriculture; education, health and other services; food and beverages; hotels and restaurants; metal products, mining, and quarrying; petroleum, chemical, and non-metallic mineral products; textiles and wearing apparel; transport; and wood and paper. On average, the gross exports of IDA countries consist of mining and quarrying (28 per cent), followed by textiles and apparel (16 per cent), agriculture (11 per cent), and transport (8.9 per cent). About 65 per cent of total gross exports come from these four sectors.

Stage 2

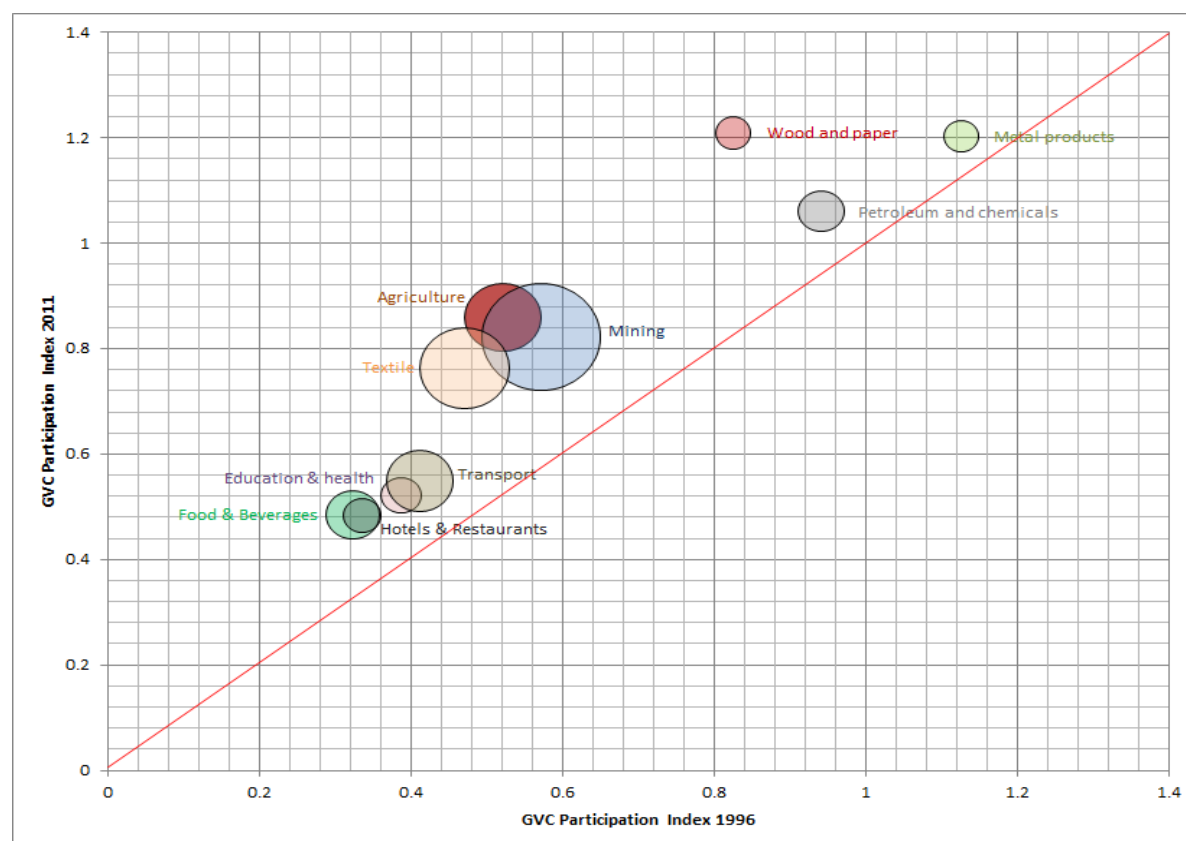
The average GVC participation index was calculated in the ten selected sectors identified previously. Following De Backer and Miroudot (2014), this was done by combining the foreign value-added (FVA) content of gross exports, which captures the value of imported intermediate goods and services that are embodied in a domestic industry's exports (i.e. backward linkages), and the indirect value added (DVX), which is the measure of exports of intermediate goods that are used as inputs for the production of exports of other countries (i.e. forward linkages). The summation of FVA and DVX is expressed as a share of gross exports to calculate the GVC participation index at the sector/industry level for low- and lower middle-income IDA countries in Figure 2, with the diameter of the spheres proportional to each sector's share of total exports in 2011. The figure alludes to the fact that, in all ten identified sectors, the GVC participation index has increased from 1996 to 2011, indicating that countries have become more integrated into GVCs.⁵ The largest increase in participation is seen in three sectors: wood and paper, agriculture, and textiles and wearing apparel.

⁴ The Eora multi-region input–output (MRIO) database provides a set of both national and global input–output tables, covering 189 countries (Lenzen et al. 2012). With 26 sectors Eora provides a relatively detailed sectoral classification. The decision to use Eora rather than Comtrade gross exports data for this study was to be able to draw on a source that also included services data. For an overview of limitations in using the Eora database, see Engel et al. (2016).

⁵ The values for FVA and DVX, used to calculate the participation index, have been calculated by averaging the GVC index across country/sector for low-income countries. This implies that each country/sector was given the same weight. While this approach disregards the relative size of each sector at the country level (e.g., trade in agriculture is much larger for Kenya than it is for Samoa), it allows to include smaller countries with low absolute value exports.

In this study, we focus on the agro-processing and apparel sectors. Agro-processing is important as it provides employment to a large population within low- and lower middle-income countries, and provides necessary intermediates into further processing, while apparel provides integration into limited manufacturing and possible value added into downstream activities. Furthermore, through a bibliometric analysis it was ascertained that these two sectors had the greatest availability of existing literature.

Figure 2: Average GVC participation index in 1996 and 2011 (IDA-eligible low- and lower middle-income countries)



Source: authors' calculation using the Eora multi-region input–output database.

Stage 3

To select case studies, a rigorous bibliometric analysis was carried out on the two selected sectors using the Web of Science/Web of Knowledge and Google Scholar (Table 2).⁶ Together, these databases provide a wide scope of resources for selecting a range of articles published between 2011 and 2019. Results were ranked by number of citations. Overall, this process served to minimize bias in the sample by selecting the key studies, regardless of country or source. Once specific articles and reports were selected, country sectors identified previously were matched with

⁶ The search focused on the terms 'global value chains (GVCs)', 'global production networks (GPNs)', 'agriculture', and 'textiles/apparel'. We ordered the papers in terms of the Web of Service and Google Scholar criterion 'relevance', 'year' of paper (which was put in as 2011–19), and number of citations. Additional search criteria were included in which journal articles or reports identified were investigating selected sectors in GPNs/GVCs: (i) single country focused, (ii) comparing between low- and lower middle-income countries, (iii) book chapters looking at low- and lower middle-income countries, and (iv) peer reviewed reports. Articles were excluded if they did not (i) study low- and lower middle-income countries included in the World Bank IDA-18 country list and (ii) look at a specific in-depth case study of a country in the selected sectors.

the export data to ensure a full gamut of studies that are most relevant to GVC participation and broadly representative. This allowed for the creation of a selection consisting of the most relevant and in-depth sector-level analysis. Applying this bibliometric criterion, a total of 22 articles were selected.

Stage 4

To provide a policy outlook, we further conducted a purposive selection of 11 relevant World Bank-produced GVC studies under the IDA-18 commitment (Table 3).

Table 2: Overview of selected GVC studies

Article/report title	Year	Authors	Country of focus	Publication
<i>Agro-processing GVC studies</i>				
The blue revolution in Asia: upgrading and governance in aquaculture value chains	2014	Stefano Ponte, Ingrid Kelling, Karen Au Jespersen, and Froukje Kruijsen	Bangladesh	<i>World Development</i>
Gendered global production networks: analysis of cocoa–chocolate sourcing	2014	Stephanie Barrientos	Ghana	<i>Regional Studies</i>
Global resource grabs, agribusiness concentration and the smallholder: two West African case studies	2012	Kojo Sebastian Amanor	Ghana/Côte d'Ivoire	<i>Journal of Peasant Studies</i>
Shifting regional dynamics of global value chains: implications for economic and social upgrading in African horticulture	2016	Stephanie Barrientos, Peter Knorringa, Barbara Evers, Margareet Visser, and Maggie Opondo	Kenya/ Uganda/ South Africa	<i>Environment and Planning A</i>
Spatialising the Melanesian Canarium industry: understanding economic upgrading in an emerging industry among three Pacific Island states	2016	J. Carter and E.F. Smith	Vanuatu/ Solomon Islands/ Papua New Guinea	<i>Geoforum</i>
Practices in international value chains: the case of the Kenyan fruit and vegetable chain beyond the exclusion debates	2013	Dannenberg and Nduru	Kenya	<i>Tijdschrift voor Economische en Sociale Geografie</i>
Global value chains and market formation process in emerging export activity: evidence from Ethiopian flower industry	2012	Mulu Gebreeyesus and Tetsushi Sonobe	Ethiopia	<i>Journal of Development Studies</i>
Making room for smallholder cooperatives in Tanzanian tea production: can Fairtrade do that?	2012	Allison Marie Loconto and Emmanuel Frank Simbua	Tanzania	<i>Journal of Business Ethics</i>
Processes of modernization in horticulture food value chains in Rwanda	2013	Ellen Verhofstadt and Miet Maertens	Rwanda	<i>Outlook on Agriculture</i>
Modern food supply chains and development: evidence from horticulture export sectors in Sub-Saharan Africa	2012	Miet Maertens, Bart Minten, and Johan Swinnen	Senegal/ Madagascar	<i>Development Policy Review</i>
Global value chains, large-scale farming, and poverty: long-term effects in Senegal	2017	Goedele Van den Broeck, Johan Swinnen, and Miet Maertens	Senegal	<i>Food Policy</i>
Beyond the vertical? Using value chains and governance as a framework to analyse private standards initiatives in agri-food chains	2011	Anne Tallontire, Maggie Opondo, Valerie Nelson, and Adrienne Martin	Kenya	<i>Agriculture and Human Values</i>

The origin and expansion of regional value chains: the case of Kenyan horticulture	2018	Aarti Krishnan	Kenya	<i>Global Networks</i>
<i>Apparel GVC studies</i>				
Explaining declining industries in developing countries: the case of textiles and apparel in Ghana	2015	Joseph Amankwah-Amoah	Ghana	<i>Competition and Change</i>
Labor control regimes and worker resistance in global supply chains	2015	Mark Anner	Bangladesh	<i>International Journal of Labour Research</i>
Contextualising compliance: hybrid governance in global value chains	2017	Jennifer Bair	Nicaragua	<i>New Political Economy</i>
Global, regional and domestic apparel value chains in Southern Africa: social upgrading for some and downgrading for others	2015	Shane Godfrey	Lesotho	<i>Cambridge Journal of Regions, Economy and Society</i>
Competitiveness and decent work in global value chains: substitutionary or complementary?	2011	Kenta Goto	Pakistan	<i>Development in Practice</i>
Industrialization trajectories in Madagascar's export apparel industry: ownership, embeddedness, markets, and upgrading	2014	Mike Morris and Cornelia Staritz	Madagascar	<i>World Development</i>
Global value chains, industrial policy, and sustainable development—Ethiopia's apparel export sector	2016	Cornelia Staritz, Mike Morris, and Leonhard Plank	Ethiopia	<i>Environment and Planning A</i>
Shifting trade preferences and value chain impacts in the Bangladesh textiles and garment industry	2015	Louise Curran and Khalid Nadvi	Bangladesh	<i>Cambridge Journal of Regions, Economy and Society</i>
Industrial upgrading and development in Lesotho's apparel industry: global value chains, foreign direct investment, and market diversification	2017	Cornelia Staritz and Mike Morris	Lesotho	<i>Oxford Development Studies</i>
Public-private partnership in labour standards governance: better factories Cambodia	2011	Anna Wetterberg	Cambodia	<i>Public Administration and Development</i>

Source: authors' elaboration.

Table 3: Overview of relevant World Bank GVC studies

Article/report title	Year	Authors	Country of focus
<i>Agro-processing GVC studies</i>			
A rapid review of the opportunities for the horticulture industry in Benin	2018c	World Bank	Benin
Chad: upgrading in the sesame seeds and Arabic gum global value chains	2018	Ghada Ahmed	Chad
Focus sector: fresh fruits and vegetables	2018a	Miles McKenna	Ethiopia
Upgrading Mali's global value chains in sesame seeds and cashew nuts	2018	Ghada Ahmed and Bonaventure Fandohan	Mali
The cashew value chain in Mozambique	2018	Carlos Costa	Mozambique
Mongolia's red meat value chain	2017	Miles McKenna	Mongolia
Strategic segmentation analysis: Nepal—medicinal and aromatic plants	2018b	Miles McKenna	Nepal
<i>Apparel GVC studies</i>			

Apparel GVC analysis: Bangladesh	2018a	World Bank	Bangladesh
Analyse des Chaînes Logistiques en Haïti Fiche Filière: Textile	2014	Benoit Faucheux, Jr, Del Rosario, Gomera Economistas Asociados, and Ayitika	Haiti
Sector case study: apparel	2013	Cornelia Staritz and Stacey Frederick	Kenya, Lesotho, and Swaziland
Pakistan in the apparel global value chain	2019	Stacey Frederick and Jack Daly	Pakistan
Apparel GVC analysis: Sri Lanka	2018b	World Bank	Sri Lanka

Source: authors' elaboration.

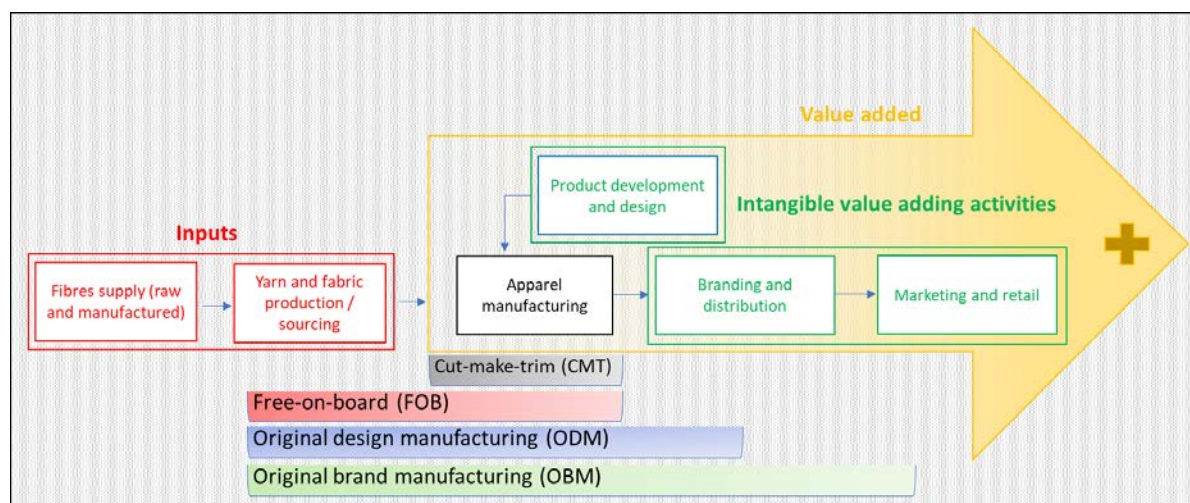
4 Developing countries in apparel GVCs

4.1 Overview of the apparel GVC

The textile and apparel value chain is organized along five main stages: (i) raw natural and manufactured fibres supply, (2) yarn and fabric production, (3) product development and design, (4) apparel assembly, and (5) post-production activities, including branding, distribution, and retail.

To the extent that apparel production is a labour-intensive activity, requiring low technological and capital inputs, global brands have increasingly outsourced this production stage to suppliers in developing countries. Suppliers, in turn, have been competing to attract orders from large brands and retailers, by providing an increasingly attractive range of activities. As presented in Figure 3, production plants have been categorized depending on the number of services they perform: (i) cut–make–trim (CMT), in which activities of suppliers are limited to sewing the apparel and cutting the fabric under a processing fee; (ii) free-on-board (FOB), in which suppliers are also responsible for sourcing or producing fabrics; (iii) original design manufacturing (ODM), where suppliers provide design and product development; and (iv) original brand manufacturing (OBM), in which suppliers are also responsible for the branding and marketing (Farole and Winkler 2014).

Figure 3: Overview of apparel value chain



Source: authors' elaboration.

The literature classifies the apparel sector as a buyer-driven value chain governed by leading global retailers. In this context, the bulk of value added rests in downstream branding and marketing activities, with supplying firms located in low-cost production sites competing for a marginal share of the final value (Gereffi and Frederick 2011). This process has been further enabled by a set of

multilateral trade agreements, including the 1974 Multi-Fibre Agreement (MFA) and later the 2000 African Growth and Opportunity Act (AGOA), which was renewed in 2005 and 2015. The MFA was introduced to protect the markets of developed economies by imposing country-specific bilateral product category allocations. By doing so, however, it accelerated the outsourcing process to a growing number of developing countries (Gereffi 1999; Pickles 2012). Following the removal of quotas in 2004, competition among producing countries intensified as buyers shifted their attention to lead time management, production flexibility and quality, and delivery, further leading to an overall decline in unit values and wages across the value chain (Pickles et al. 2015).

The post-2005 liberalization period, however, was characterized by a set of bilateral and regional trade agreements. AGOA was introduced by the United States (US), granting duty-free, quota-free access to a number of goods originating from Sub-Saharan Africa (SSA), including apparel. Moreover, while AGOA rules of origin (ROOs) require both fabrics and apparel to originate from the exporting country, the ‘third-country fabric derogation’ allows duty-free access to less-developed countries in SSA under the single-transformation rule, effectively enabling the sourcing of fabrics from third countries. In addition, in 2001, the European Union (EU) Everything but Arms (EBA) trade regime granted all least-developed countries (LDCs) duty-free access to the EU market under a double-transformation ROO that was further relaxed in 2011 to single transformation. Similarly, since 2008, non-LDC Africa–Caribbean–Pacific (ACP) countries who signed an economic partnership agreement also benefit from duty-free access to the European Union under single-transformation ROO; these include, for instance, the Southern African Development Community (SADC) and East African apparel exporters such as Kenya, Madagascar, and Mauritius.

Several bilateral and multilateral trade agreements exist involving apparel industries in IDA-eligible countries. Among others, these include regional free-trade areas and custom unions, such as the Southern African Customs Union (SACU), SADC, East African Community (EAC), the Common Market for Eastern and Southern Africa (COMESA) free-trade area, and the Central American Free Trade Agreement (CAFTA) which further mandated the double-transformation rule for a set of countries, including Nicaragua, up to 2014. Furthermore, the Caribbean Basin Trade Partnership Act and the Haitian Hemispheric Opportunity through Partnership Encouragement (HOPE) Act allow Caribbean countries and Haiti to export apparel duty-free into the United States. While some of these agreements, such as AGOA and the Generalized System of Preferences (GSP)/EBA programmes, further entail a set of provisions on labour conditions to qualify for duty-free access, there are also multilateral agreements that concentrate specifically on labour and environmental standards. This is the case for the ILO’s Better Factories Cambodia (BFC) programme, which has been expanded to more than 1,600 factories employing more than 2.2 million workers across seven countries through the Better Work Programme (BWP).

4.2 Backward and forward linkages

In the apparel value chains, textile inputs originating from foreign countries and further processed into clothing constitute a proxy for backward linkages. Conversely, domestically produced apparel items sold abroad, or further embedded in the exports of foreign countries, represent a forward linkage. Particular attention is paid to North–South interactions between local suppliers and final markets in the United States and the European Union, which are the main end markets for almost the entire subset of countries considered in the studies. The only exceptions regarding South–South forward linkages are the works of Staritz and Morris (2017), which compares regional and global export markets for supplying firms in Lesotho, and Godfrey (2015), who focuses on labour conditions in a Lesotho-based plant operated by South African investors.

Backward linkages remain mostly unexplored, with almost all studies limiting their analysis to the geographical origin of fabrics. With few exceptions, most firms source both their natural and manufactured fabrics from China, Taiwan, and other East Asian countries. Concerning Pakistan, Goto (2011) and Frederick and Daly (2019) highlight how reliance on domestic cotton has favoured the emergence of the sector while, at the same time, constraining product quality and the competitiveness of firms. In the same way, backward integration into inputs (including elastics, buttons, and hangers) has been successfully ongoing among some large plants in Sri Lanka, mostly via joint ventures with foreign firms (World Bank 2018b). Overall, most of the sources focus on North–South forward linkages with the US and EU markets, while providing a very limited understanding of regional and South–South linkages both upstream and downstream.

4.3 Why do firms integrate into GVCs?

We identified four determinants of GVC participation: (i) business climate (access to inputs and presence of local entrepreneurs), (ii) industrial and trade policy, (iii) labour policy and conditions, and (iv) embeddedness. Access to inputs is highlighted by Goto (2011) and Frederick and Daly (2019) in their work on Pakistan. The presence of a local entrepreneurial class with the skills and capital to invest in an emerging sector has been also stressed as a trigger of participation in apparel GVCs for Bangladesh and Pakistan (Frederick and Daly 2019). In both cases, the large share of domestic ownership further prevented a downturn in the sector following the expiration of the MFA, which was much more severe in Cambodia and Sri Lanka where a comparable domestic entrepreneurial class did not exist.

Industrial and trade policy are considered a major determinant of the participation of countries in GVC. This includes presence of, and access to, hard infrastructures as pivotal. For instance, in Ethiopia, Kenya, and Madagascar, cheap access to electricity and water supply within fully serviced industrial parks and EPZs has contributed to attracting numerous foreign investors (Morris and Staritz 2014; Morris et al. 2016).

State-driven support (or lack thereof) is a critical enabler of participation in GVCs. In Sri Lanka, for instance, the government played a crucial role since the liberalization of the economy in 1977, providing various income and tax incentives along with rebates on imported inputs for foreign investors operating within the equivalent of EPZs. Conversely, the lack of such support, paired with political instability, has been identified as a major cause of the sector's decline and its inability to compete globally in Ghana (Amankwah-Amoah 2015) and Madagascar, where unrest in 2002 contributed to over 50 per cent loss in the sector's total exports (Morris and Staritz 2014).

The vast majority of the studies point to trade agreements as a main trigger of GVC participation. The MFA quota system was crucial in kickstarting the sector in Bangladesh, Sri Lanka, and Cambodia, as Korean and Taiwanese investors entered these markets looking for unexploited quotas (Wetterberg 2011; World Bank 2018a, 2018b). According to Bair (2017), CAFTA enabled duty-free access under single-transformation ROOs up to 2014, which was a major determinant of Nicaragua's emergence as a global apparel producer. In SSA, first the MFA and then AGOA supported the sector's boom in Kenya, Lesotho, and Swaziland, while Ethiopia and Madagascar diversified their export base across both the United States and the European Union, taking advantage of preferential market access granted by the EBA (Morris and Staritz 2014; Staritz et al. 2016). Concerning intra-regional trade and regional value chains, SACU has allowed South African apparel producers to relocate their manufacturing units to Lesotho and Swaziland while maintaining duty-free access to the entire region, further boosting the industry (Staritz and Frederick 2013). This has been the case especially in Swaziland where, despite the loss of AGOA status in 2015, regional exports to South Africa allowed the sector not only to survive but also to expand (Pasquali et al. 2020).

Labour policy and conditions also play an important role in triggering participation in GVC. Most studies indicate that the availability of a cheap labour force is a determinant of GVC participation. With the lowest labour costs in all of central America, Haiti was able to attract comparatively more FDI from the United States than other countries in the region (Faucheux et al. 2014). Similarly, low wages and a 'large law enforcement vacuum' allowed Cambodia to develop a fledgling apparel industry in the 1990s (Wetterberg 2011). Anner (2015) also stresses how repressive employers in Honduras and market-driven labour control regimes in Bangladesh represent a source of stability, encouraging investment and facilitating participation in apparel GVCs. The relative absence of studies referring to the availability of skilled human capital as a trigger of participation in GVC is particularly striking. This is only mentioned for Kenya, where the presence of a trained workforce originating from import substitution policies in the textile and apparel industry facilitated the country's participation in global markets (Staritz and Frederick 2013).

The last category underpinning the participation of countries in GVC is social and territorial embeddedness, identified in four studies). In Haiti, for instance, territorial proximity to the US market favoured the in-flow of American FDI that kickstarted the sector (Faucheux et al. 2014). In Madagascar, cultural and interpersonal ties between the French diaspora and buyers in the European Union played a crucial role in GVC participation (Morris and Staritz 2014; Morris et al. 2016). Similarly, market proximity and long-term trade relationships also favoured South African investments in Lesotho and Swaziland (Staritz and Morris 2017; Staritz and Frederick 2013).

Overall, the factors that enabled countries in the reviewed studies to enter GVCs span the country's business climate; industrial, trade, and labour policy; and aspects of social embeddedness and territorial proximity. In particular, most sources concentrate on state-driven support in the various forms described earlier. This once again stresses the crucial role that governments have in triggering industrial development and participation in GVCs through trade agreements, infrastructure, fiscal support, and other incentives that attract foreign investments.

4.4 What determines upgrading? The role of governance

Private governance through corporate social responsibility campaigns and private standards can have a positive impact on the social upgrading of firms. For instance, in the aftermath of the Rana Plaza incident, the Alliance for Bangladesh Worker Safety emerged as a buyer-driven initiative to ensure safety in factories producing for the US and EU markets (Anner 2015). Yet, as stressed by the World Bank (2018a), emerging buyers from non-traditional markets are much less concerned with labour safety. In Ethiopia, for instance, the lack of a legal minimum wage and the deficient labour legislation has recently pushed some lead firms to implement private codes of conduct—with often questionable results, as wildcat strikes continue in some of the country's largest industrial parks (Staritz et al. 2016). Again, in Honduras, the horizontal co-operation of firms has been aimed at repressing labour demands for improved working conditions through violence and blacklisting to prevent workers from being hired across the sector (Anner 2015).

Social governance can both favour and prevent upgrading. In Haiti, internal pressures and organized strikes from unions in 2013 led to an increase in minimum wages in 2014 (Faucheux et al. 2014). In Cambodia, widespread strikes against poor labour conditions in the late 1990s, along with increasing international pressures by the International Labour Rights Fund, the Lawyers Committee for Human Rights, and other American unions and NGOs led to the negotiations for the US–Cambodia Bilateral Textile Trade Agreement (USCBTTA) in 1999 (Wetterberg 2011). In Bangladesh, a fragmented labour movement has failed to counteract the hostile approach of the Bangladesh Garment Manufacturers and Exporters Association to any intervention aimed at improving labour standards (World Bank 2018a). Yet, following the 2013 Rana Plaza collapse in Dhaka, pressures from international NGOs and labour movements on buyers led to the signing

of the Accord on Fire and Building Safety (AFBSB), in which lead firms committed to pay prices that allow producers to operate in a safe environment (Anner 2015).

Public governance has been observed to enable upgrading. In Ethiopia, the creation of the Textile Industry Development Institute, along with a set of regulations protecting local producers from foreign competition while simultaneously encouraging exports, has led to the economic upgrading of the sector (Staritz et al. 2017). In Bangladesh, the introduction of back-to-back letters of credit allowed firms to claim credit for imports with local banks against final orders from foreign buyers, further enabling their expansion (World Bank 2018a). In Sri Lanka, the institutionalization of the Board of Investment in 1992, with export incentives given exclusively based on capital investment and employment, favoured the growth of the sectors and the in-flow of foreign knowledge through joint ventures. Moreover, the legislation of ‘free port’ status has provided new opportunities for global warehousing and distribution, favouring the upgrading of firms into shorter-run products (World Bank 2018b).

In other cases, the dearth of state-driven interventions has led to negative consequence in terms of both economic and social upgrading. In Ghana, weak enforcement by the Ghana Standard Authority of legal restrictions to the imports of sub-standard and used clothing introduced in 1994 along with deficient customs controls at ports and harbours have been partially responsible for the downgrading and demise of the industry (Amankwah-Amoah 2015). In Pakistan, the devolution process initiated in 2010 has shifted the responsibility for labour regulations to provincial governments, further resulting in increasing breaches and an overall lack of enforcement (Frederick and Daly 2019). The lack of minimum wage regulations, and of a legal framework for collective agreements, has so far constrained social upgrading in the Ethiopian apparel sector. Again, in Nicaragua, tension between different public bodies—the Ministry of Labour and the Free Trade Zone Commission—on responsibility for providing the official interpretation of the labour code led to scarce participation in the ILO’s BWP. This too had negative consequences for the sector’s social upgrading (Bair 2017).

International public governance, via regional and global trade agreements, is also crucial in shaping economic upgrading trajectories. In Bangladesh, following the 2001 EBA status that granted preferential access to the EU market under double-transformation ROO, many firms integrated knitted textile production, leading to a surge in the exports of knitted apparel. In 2011, the relaxation of the ROO to single transformation brought about a revival in the exports of woven apparel to the European Union as firms could now source woven fabrics from abroad (Curran and Nadvi 2015). In Haiti, the introduction of the HOPE Act and the Haiti Economic Lift Program (HELP) Act, in 2008 and 2010, respectively, made duty-free access to the US market conditional on the participation of firms in the Technical Assistance Improvement and Compliance Needs Assessment and Remediation Programme and compliance with internationally agreed labour standards (Faucheux et al. 2014)

Trade agreements often contain labour regulations that affect social upgrading. For instance, following their participation in the USCBTTA, Cambodia ratified the ILO conventions on forced labour, freedom of association, collective bargaining, discrimination, and child labour, with positive spillovers for labour conditions in apparel factories (Wetterberg 2011). Similarly, in Pakistan, marginal improvements in the share of women workers have come from UNDP’s Gender Promotion in the Garment Sector through Skills Development programme and the ILO’s Gender Equality for Decent Employment (Frederick and Daly 2019).

Public, private, and social governance often interact in multi-scalar context, with immediate consequences for upgrading and downgrading of firms. In Sri Lanka, private–public partnership between the government and firms has led to the creation of the Joint Apparel Association Forum

(JAAF), which defined a five-year strategic plan to build the sectors' competitiveness and improve labour conditions under the 'Garment without Guilt' campaign. Sri Lanka is also the only country where co-operation between academic institutions and firms is described as having favoured R&D, with a substantial impact on the sector economic upgrading (World Bank 2018b).

Multi-scalar forms of governance are particularly relevant when it comes to addressing labour issues. For instance, Anner (2015) examines how negotiations leading to the AFBSB in Bangladesh required a collaboration of international NGOs, labour movements, and global buyers. Similarly, in Honduras, the organization of effective transnational campaigns has called for the co-participation of local and international activists via cross-border campaigns. Again, the implementation of the ILO BWP across seven countries is built on a private–public–social partnership that includes buyers, supplying firms, national governments, unions, civil society representatives, and the ILO (Wetterberg 2011).

4.5 What are the outcomes of upgrading?

Economic upgrading

Ethiopia and Sri Lanka emerge as examples of economic upgrading. Through FDI and joint ventures with domestic firms, Sri Lanka managed to internalize the production of several components, such as fabrics, elastics, buttons, and hangers. Moreover, several firms successfully upgraded from CMT to FOB and ODM through close partnership with strategic buyers, while two firms ventured into OBM selling bras and womenswear in the Indian market. In terms of product upgrading, Sri Lanka's specialization in niche, design-intensive womenswear with shorter production runs translated into higher unit values and reduced lead times for local suppliers. Overall, the value added accrued to Sri Lankan suppliers has grown from 15 per cent in the 1980s, when a large share of components and fabrics were imported, to 55 per cent today (World Bank 2018b). In Ethiopia, a set of Turkish-owned firms serving the EU market have vertically integrated into textile manufacturing and, in some cases, even moved head offices to Ethiopia. In this context, Ethiopia has witnessed a staggering growth of apparel exports from USD 1 million to USD 68 million between 2005 and 2014, with over 70 per cent going to the EU market. Despite this, Ethiopia's young, relatively low-skilled workforce has translated into low unit values, relatively high production costs (on average 20 per cent higher than Bangladesh in 2014), and an inability to shift between lines in adapting to new product requirements (Staritz et al. 2016).

Haiti and Ghana are cases where economic upgrading mostly failed to occur. In 2014, Haiti had 28 firms mostly concentrated in one large industrial park (Parc Industriel Metropolitain of SONAPI) operating as CMT for the US market. Production is limited to large batches of simple items with relatively long lead times. Furthermore, the organization of production plants has not changed much over the last decade. The lack of access to the domestic market, dominated by second-hand clothing, presents a major constraint to the willingness of firms to upgrade into fast fashion as ODM and OBM (Faucheux et al. 2014). In Ghana, the industry has been dominated by hundreds of medium, small, and micro-enterprises (MSMEs) lacking the resources, managerial expertise, brand recognition, or economies of scales required to upgrade. Technological obsolescence and the incapacity to differentiate production led to a dramatic decline in the sector in the 1990s and early 2000s (Amankwah-Amoah 2015).

The cases of Pakistan, Bangladesh, Madagascar, and Lesotho present mixed evidence. Pakistan averaged 6.3 per cent annual growth in apparel exports since 2006. Yet, with most firms operating as OEM and second-tier CMT, the industry has not managed to diversify away from trousers and few other products. Nevertheless, private investments and duty-free access to the European Union have allowed some large exporters to reduce lead times up to 35 days and significantly increase

unit values, denoting product upgrading (Frederick and Daly 2019). Over the last 20 years, Bangladesh apparel production remains confined to large batches of relatively simple products in a slow-response segment. Lead times are generally 2–4 months and, with an output of 13–27 pieces per person per day, productivity is lower than the 15–35 pieces managed by an average firm in China, while reject rates are higher. Unit values are also among the lowest in the region. Notwithstanding this, Bangladesh export and market share grew over the last years (World Bank 2018a). While this was partially an outcome of the industry’s ability to contain costs by squeezing wages and profits, the double-transformation ROOs introduced in 2001 by the European Union pushed some actors to integrate knitted textile production, while the relaxation of this rule in 2011 favoured the functional upgrading of CMT woven-apparel units to FOB. Furthermore, the post-2001 growth of exports to the European Union compared with the United States, where unit values are twice as large, triggered an increase in the quality of knitwear products (Curran and Nadvi 2015).

In Lesotho and Madagascar, Asian-owned firms exporting to the United States produce large volumes of a few undifferentiated products with a low level of technical difficulty and an average work-in-progress inventory of 24 days. Their total exports have been declining since 2004. Conversely, South African-owned plants (in Lesotho) and Mauritian-owned plants (in Madagascar) serving the regional market perform more functions to increase the flexibility demanded by South African retailers. These firms produce shorter-run items with a larger fashion content, a 7-day work-in-progress inventory, and a quicker changeover compared with their counterparts exporting to the United States. Their total exports have been increasing since 2007 (Morris et al. 2016).

Overall, despite some clear cases of economic upgrading and downgrading (i.e. Sri Lanka, Haiti, and Ghana) most of the analysed literature points to mixed scenarios where more or less effective forms of upgrading coexist within different countries. This depends on a complex interaction of factors spanning trade regimes, end markets, ownership characteristics, and state-driven interventions, among others. Economic upgrading, however, does not occur in isolation from social upgrading. As we will observe in the next subsection, the two have been often analysed as a function of each other with causality running in both directions (Barrientos et al. 2011).

Social upgrading

Participation in GVCs has led to negative and positive consequences for the workforce. In Lesotho, South African investments have engaged in more extensive training programmes, resulting in skills upgrading and a larger presence of locals in supervisory and management positions. Conversely, Asian-owned firms serving the US market have been more likely to employ expatriates in nearly all management and supervisory positions, with training limited to single-task machine operators (Staritz and Morris 2017). Promotion of local workers into supervisory positions also remains an issue in Kenya with a 47 per cent rate, compared with 89 per cent in Swaziland and 93 per cent in Lesotho (Staritz and Frederick 2013). Similarly, in Madagascar, training and skills upgrading among the local workforce has been more preeminent among Mauritian-owned firms and French diaspora-owned firms (Staritz and Morris 2014). Despite this evidence, and the beneficial impact that FDI had for employment rates in these economies, wages often remain extremely low. In Lesotho, for instance, until the recent 2018 minimum wage reform, wages were almost three times lower than in many parts of South Africa (Godfrey 2015).

In Haiti, labour standards have been mostly guided by conditional access to the US market under the HELP and HOPE Acts, and the 20 per cent increase in minimum wage brought about by pressure from unions and civil society in 2014. Nevertheless, labour conditions in factories remain precarious, with a large informal cluster subcontracting for larger firms (Faucheux et al. 2014). Informalization is a common phenomenon in other producing countries, such as Kenya, where 60

per cent of textile and apparel firms are unregistered MSMEs operating in the domestic market with no linkage whatsoever with the export-oriented EPZ units (HIVOS 2016). In Bangladesh and Pakistan, despite the recent emergence of private and multi-stakeholder codes of conducts described in Section 4.4, compliance remains confined to large exporting firms, with violations of labour standards remaining widespread among formal and informal producers operating in the domestic and regional market (Goto 2011; World Bank 2018a). In Ethiopia, the limited number of training institutions, a large low-skilled workforce, and a weak degree of labour representation and regulation have resulted in low wages (USD 25–60 per month), high turnover rates, limited social rights, including sick leave and insurance coverage, low occupational health and safety, and a lack of skills creation. Lately, while large international buyers have tried to fill the void by means of private codes of conduct, wildcat strikes have disrupted production activities in the country's largest industrial parks with consequences that are yet to be assessed (Staritz et al. 2016; Bennett 2017).

The interactions of different forms of governance through the BWP and BFC in Cambodia and Nicaragua has had mixed effects in terms of social upgrading. In Cambodia, regular unannounced visits from ILO inspectors checking on a list of over 500 items agreed in concert by the government, employers, and union representatives led to significant improvements in factory compliance. As of 2011, 97 per cent of firms were paying minimum wages and compensating workers for overtime at time and a half, 96 per cent of the labour force was receiving the legal amount of annual leave days, with over 90 per cent being members of a union and anti-union discrimination reported in only 1 per cent of factories. Before the USCBITTA and BFC, there were three independent unions with few members; by 2004, there were 14 national labour federations and 499 registered factory-level unions (Wetterberg 2011). The BWP did not work as well in Nicaragua due to scarce participation, especially among US-owned firms, for reasons already discussed (Bair 2017).

Finally, in Sri Lanka, a partnership between firms and the state has proven particularly successful at improving labour conditions, with no known negative consequences for the economic performance of firms. In particular, JAAF's 'Garment without Guilt' campaign brought about a set of standards and regulations that resulted in state-of-the-art factories with high health and safety standards, air-conditioning, and unified cafeterias for management and production workers. Furthermore, higher educational attainment resulted in higher wages, leading to economic upgrading as more skilled workers allowed firms to improve production lead times and complexity (World Bank 2018b).

Overall, social upgrading presents very different results depending on the many characteristics that span public, private, and social governance and, more importantly, how these interactions enable firms to embrace or reject external calls for improved labour conditions. In some cases, as in Madagascar and Lesotho, social upgrading has been merely a function of the economic dynamics associated with demand from ownership and the end market. In others, such as Sri Lanka, Cambodia, and Nicaragua, pressures from the state and from international actors, along with the co-operation of firms, have triggered various forms of social upgrading.

Environmental upgrading

Environmental upgrading is a less recurrent feature in the analysed articles. Ethiopia has one of the most advanced approaches to environmental sustainability in the sector in all of SSA. The government committed to 100 per cent renewable and clean energy and zero emissions by 2025, effectively favouring the relocation of factories to modern 'green business parks', such as the one in Hawassa featuring an effluent treatment plant, LED smart lighting system for electricity saving, natural ventilation, and zero-liquid discharge technology; yet, this is hardly in line with the country's

fragmented labour policy (Staritz et al. 2016). In Sri Lanka, the government has long promoted the introduction of internationally certified ‘green’ factories, with most plants relying on clean technology. This includes the use of laser for fading denim instead of sand blasting, ozone technology instead of bleaching, and the use of biomass boilers (World Bank 2018b). In Pakistan and Bangladesh, a few green factories exist but they are expensive and generally regarded as bait to attract buyers with no long-term incentive to sustain production, which is often shifted to less modern factories (World Bank 2018a; Frederick and Daly 2019).

5 Developing countries and agro-processing GVCs

5.1 Overview of the agro-processing GVC

Agricultural and agro-processing GVCs are buyer-driven and governed primarily by large supermarkets and wholesalers from the European Union and the United States (Evers et al. 2014). These consume over 70 per cent of exported produce from developing countries (ITC 2019). More recently, however, there has been a shift towards southern markets such as China and the Middle East (ITC 2019). Developing countries tend to have a comparative advantage when it comes to the export of agro-related products (Krishnan et al. 2020). For instance, some studies show that Kenyan horticulture, coffee, tea, and floriculture exports to developed countries, such as the United Kingdom, are major sources of foreign exchange for the country (Krishnan et al. 2018). This analysis focuses on a range of agricultural products from horticulture, floriculture, tea, coffee, and nuts to aquaculture and livestock, covering most primary food-based products exported by low- and lower middle-income countries.

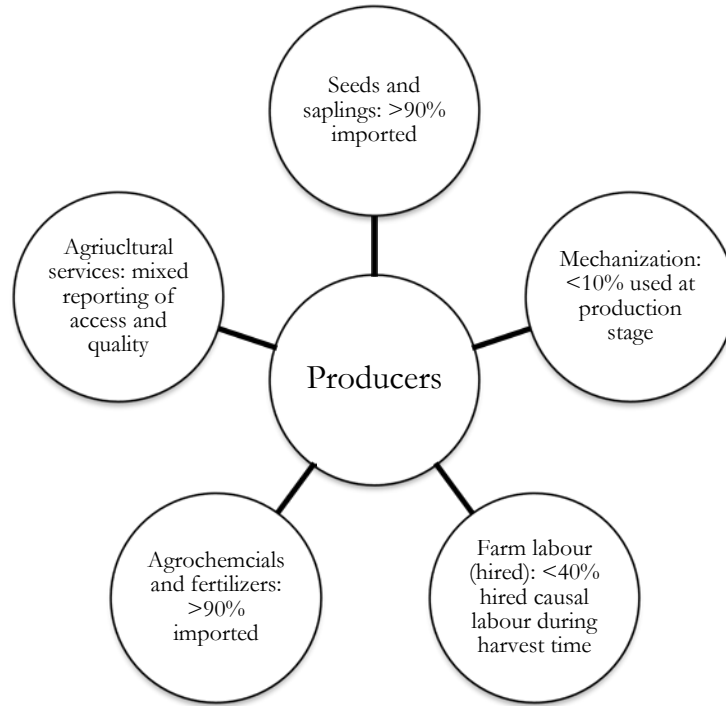
While trade preferences such as the GSP, GSP+, AGOA, and several bilateral agreements like the China–Kenya avocado deal exist (Ngwenya 2020), non-tariff measures are widely considered the key governing instruments for GVCs. For instance, to participate in EU markets, countries need to adhere to international food safety standards (e.g., sanitary and phytosanitary measures), private voluntary standards (business-to-business standards, including ISO 22000, and business-to-consumer standards, including GlobalGAP, Rainforest Alliance, and Fairtrade), and private codes of conduct (e.g., Tesco Nature, Marks and Spencer Field to Fork) (ITC 2019). Standards will vary in their level of complexity (and stringency) depending on the lead firm and the destination of the end market.

There are three key nodes in agro-processing GVCs. The first, the production node, is dominated by small producers, co-operatives, larger farmers, and vertically integrated farms. Small- to medium-scale farmers generally sell produce through farmer groups or co-operatives, either directly to a trading company or through intermediaries, such as brokers. Agrochemical and seed-related inputs purchased are usually imported in many developing countries, so they can adhere to international standards (Tallontire et al. 2011). Most farm labour is ‘hidden’ (i.e. within the family), while some of the labour hired during the harvest season are casual workers (Barrientos 2019). Since a predominant number of farmers in these countries are small-scale, there is limited mechanization used on the land, as alluded to in Figure 4.

Post-production ‘sorting’ and grading of produce ultimately determines whether it complies with international private and public standards and can therefore be sold in GVCs. Sorting occurs before grading and is usually performed by trained project management offices, brokers, or the lead firm. There are commonly three grades. Grade 1 is compliant with international standards and is procured by processors, export companies, or brokers (Okello et al. 2007; Dannenberg and Nduru 2013). GVC farmers are supported by a host of export firms and registered brokers, NGOs

and business associations, and banks, which provide extension services, financial services, and digital services. However, farmers have varied levels of access to these services. Raw products are then transported by road, rail, or air. Several low-income countries do not possess cold chain logistics and thus face considerable issues related to quality (Ponte et al. 2014).

Figure 4: Inputs at production stage



Source: authors' elaboration.

The second node involves cutting and processing. This entails a mix of mechanization and labour-intensive work depending on the type of agro-product and where processing takes place. This includes milling, drying, fermenting, cutting, and slaughtering. In general, simpler products are processed in low-income countries, whereas more complex products are exported as raw goods to other countries for processing. The third node is packing and labelling, which are downstream activities. Some of the packaging occurs at source through vertically integrated farmers, though most occurs post-processing. When raw products are the main export, many producers package and label the product themselves. However, processed goods are usually packed at source and branded before retail. The last stage is retail and consumption. Raw and processed products are either sold to large importers, auction markets, or directly to lead firms (supermarkets), e-commerce companies, and restaurants.

5.2 Backward and forward linkages

Within agriculture, backward linkages focus on the production node of the value chain, which refers to agricultural inputs and services originating from foreign countries that are embedded in the production and processing of final products. Forward linkages are the domestically produced agricultural products sold abroad and/or further embedded in the exports of foreign countries. They also account for the downstream functions of packaging, labelling, retail, and branding.

The dominance of backward linkages was identified in aquaculture in Bangladesh (Ponte et al. 2014), cocoa in Ghana (Barrientos 2014) and Côte d'Ivoire (Amanor 2012), and tea in Tanzania (Loconto and Simbua 2012). The common denominator in these articles was the prevalence of

small-scale farmers working under precarious contracts primarily with EU lead firms and depended on them for support in achieving standards. At the other end of the spectrum, some studies focused only on forward linkages—for example, the role of Mozambique’s Cashew Development Institute in processing kernels and shell liquid (Costa 2018).

Studies on horticulture in Rwanda (Verhofstadt and Maertens 2013) and floriculture in Ethiopia (Gebreeyesus and Sonobe 2012) showed the movement of agricultural products from production to packaging, and finally to retailers directly or through international auction markets. Mongolian red meat has limited backward and forward linkages, compared with other competitors in Asia, as producers do not import many intermediate inputs for its agricultural exports (McKenna 2017). Another important linkage revealed by studies (Barrientos et al. 2016; Carter and Smith 2016; Krishnan 2018) was the emergence of domestic and regional linkages. These emerged either because of strategic diversification, that is, proactive decisions taken by producers to sell to southern, regional, and local markets, or through product spillovers that occurred due to rejects from the GVC.

In sum, as with apparel, most of the analysed studies have a North–South focus. Farmers and lower-tier actors are integrated through backward linkages, and the rise of new markets, and forward linkages, provide a hedge against an over-dependence on EU buyers.

5.3 Why do firms in developing countries integrate into GVCs?

Similar to Section 4.3, the main determinants of participation are discussed here in relation to agricultural GVCs: business climate, industrial and trade policy, labour policy and conditions, and embeddedness.

Six of the articles analysed find a conducive business climate to be an important factor for participation in GVCs. Access to inputs (such as good-quality seeds, fertilizers, agrochemicals, and extension services) is highlighted within the cocoa and Melanesian Canarium industries (Barrientos 2014; Amanor 2012; Carter and Smith 2016). This was also echoed in World Bank studies on horticulture in Mozambique and red meat in Mongolia (Costa 2018; McKenna 2017).

The existence of local entrepreneurs was also seen as important for GVC participation. In the cashew processing industry in Mozambique, for instance, there were several highly skilled, technically savvy individuals with a competitive advantage over competitors in other parts of Eastern and Southern Africa (Costa 2018). Another important factor is the presence of land rights, which included the existence of land ownership and inheritance regimes at the national level. Not only does this affect farmers directly, but it also has considerable indirect implications for gendered access to land (Tallontire et al. 2011; Barrientos 2014).

Industrial and trade policies are an important determinant of the participation of countries in agro-processing GVCs. The presence and access to infrastructure, such as cold storage facilities, roads, and electricity, were critical to enabling participation, as horticulture, floriculture, and aquaculture are easily perishable products (Ponte et al. 2014; Maertens et al. 2012). A lack of access to good-quality transportation hindered travel between the Pacific Island states, affecting the quality of fish (Carter and Smith 2016). Mongolia was seen to be lacking in connectivity-related information and communications technology infrastructure, which considerably increased transaction costs (and product wastage) between buyers and producers (McKenna 2017).

Regulations, in terms of state support and trade agreements, were also seen as critical to GVC participation. For instance, the European Union banned imports of fruit and vegetables from Kenya from 2010 to 2014, because of an increase in minimum pesticide residue limits (Okello-

Obura and Magara 2008). To expedite the adjustment process, the Pesticide Control Products Board was given increased autonomy to verify its authenticity and efficacy of inputs (Krishnan 2018). Responding to more stringent private standards, Rwanda set up the Rwandan Bureau of Standards in 2002 to issue certificates for exported and imported produce (Verhofstadt and Maertens 2013). In Mongolia, the poor state support in the upkeep of sanctioned agro-processing zones led to difficulties (McKenna 2017).

Subsidies for purchasing inputs was another factor discussed under state support. Murang'a county (Kenya's largest avocado exporting region), for instance, subsidizes sapling purchases to promote growing avocados (Krishnan 2018). The EU–ACP Economic Partnership Agreements, the GSP, and the Comprehensive Africa Agriculture Development Programme are seen as important trade and regional agreements to reduce tariffs and increase public investments (Verhofstadt and Maertens 2013).

Labour policy and conditions are a third factor that the analysed studies mention as being critical in shaping GVC participation. Within floriculture in Ethiopia, comparatively low costs and availability of labour were seen as critical (Gebreyesus and Sonobe 2012). Similarly, in the aquaculture industry in Bangladesh, the processing of shrimp, prawns, tilapia, and pangasius requires access to a cheap and well-qualified labour force. So too for cashews in Mozambique (Ponte et al. 2014; Costa 2018). These reduce the overall disruptions in quality and the just-in-time requirements of processing.

How lead firms embed themselves in territories and networks is a fourth relevant factor for GVC inclusion. Dannenberg and Nduru (2013) emphasize that understanding the cultural contexts and social networks of a place improved the relational proximity between farmers, extension officers, and lead firms. Together, this was a significant driver facilitating increased participation. Shifts in local consumption, due to increased 'super-marketization'⁷ in Africa (Reardon et al. 2003), lead to alternate markets emerging for globally traded products (Barrientos et al. 2016).

5.4 What determines upgrading? The role of governance

In agro-processing industries, private governance can take the form of horizontal collaboration across firms/farms. For instance, this can happen through the formation of co-operatives and associations in reaction to growing market demand and the possibility of diversification. For instance, in the case of Kenyan avocados and beans, co-operatives were able to comply with GlobalGAP certification (a well-known private standard), and thus had more agency *vis-à-vis* the lead firm. They were able to improve their product quality, practices, and demand better extension support services from the government (Krishnan 2018). Similarly, the role of industry associations, such as Mozambique's Cashew Development Institute created by the government in 1997 to supervise the cashew value chain development, was critical to the growth of Mozambique's cashew sector (Costa 2018). Another example is the emergence and strengthening of community forest groups in Nepal exporting medicinal and aromatic plants to Northern markets such as Germany, Japan, and the United States, while simultaneously re-packing their products to market to a new segment: the growing middle class in Asia. With the support of donors, they were able to reduce transaction costs through efficient aggregation and increased productivity (McKenna 2018b).

⁷ A 'tidal wave of FDI' commenced in the mid-1990s across South America, East Asia, and South Africa, followed by a second wave in South-East Asia, Central America, and Mexico in the late 1990s, and eventually in Sub-Saharan African countries (except South Africa) in the third wave that was set in motion in the early 2000s (Reardon et al. 2003).

Private governance also includes standards and certifications used by lead firms to shape their interactions with suppliers. However, the effectiveness of these private-vertical governance structures varied, with several studies alluding to only partially effective governance structures. For instance, Loconto and Simbua (2012) found the profit margins of Tanzanian farmers squeezed because of the implementation of Fairtrade standards by large international firms, as these firms own large estates and operate vertically by hiring contract workers. Several farmer groups reacted to this by attempting to create shared relational structures through co-operatives and even pooling funds to buy processing equipment. Similarly, in Senegal, Kenya, and Rwanda, smallholder farmers have faced increasing marginalization pressures due to an inability to adhere to GlobalGAP. Farmers and farmer groups had no agency in the process, causing significant contestation within the value chain and impinging on overall productivity and cohesion (Tallontire et al. 2011). In Ghana this situation was exacerbated by farmers having to not only adhere to lead firm standards but also codes of conduct set by Cargill, ADM, and other large intermediary trading firms (Amanor 2012). In sum, the dominance of private governance seems to reiterate a common understanding of power asymmetries in GVCs, with lower-tier actors contesting the control of lead firms and struggling to comply with increasingly stringent standards that govern food safety. One study showed different ways in which farmers groups in horticulture in Kenya were able to bypass private-vertical governance structures and re-enter with the support of informal social networks (Dannenberg and Nduru 2013).

Civil society can play a pivotal role in shaping social upgrading by exerting pressure on lead firms and governments. There are several successful cases. For example, Barrientos (2014) shows that Kuapa Kokoo, a local civil society organization engaged in Ghana's cocoa industry, successfully supported women by pressuring the government and lobbying lead firms to increase minimum wages and improve labour conditions (e.g., health and safety, sexual harassment at work). Similarly, the Tanzania Plantation and Agricultural Workers Union was able to form an alliance with Fairtrade and the Tea Association of Tanzania to bargain for better rights and provide a platform for workers to voice their concerns (Loconto and Simbua 2012).

Public governance can also be used by governments to shape participation and upgrading in agro-processing GVCs. The state can play the role of a relatively effective *regulator and facilitator*, yet it can also negatively affect GVC governance, for example, through corruption, collusion, or poorly formulated industrial policy priorities. For instance, through the growth of export zones, the government of Ethiopia took several measures to benefit producers. These further included lifting the ban on imports of agrochemicals, increasing spending on market infrastructures, and promoting the development of local standards in the floriculture sector (Gebreyesus and Sonobe 2012; McKenna 2018a). In a similar vein, Benin attempted to create local standards to benchmark against GlobalGAP for horticulture, while simultaneously improving land reform to support commercial farm growth (World Bank 2018c). In 2001, the government of Mozambique adopted a new strategy that benefited cashew production. By locating processing units in rural areas (closing the larger factories placed in urban areas that were far from the raw cashew nut sources), raw materials and total processing costs were reduced, and more jobs were provided (Costa 2018). To promote the local processing industry, the government also introduced an export tax of raw cashews of between 18 and 22 per cent. However, this was not successful.

There were also cases where the government was unable to fill deficits in private or social governance, and instead deepened issues around the marginalization of farmers and processors from effectively participating in GVCs. For instance, Ponte et al. (2014) and McKenna (2017) find that in both Bangladesh and Mongolia weak national regulatory capacity reduced the effectiveness of public-horizonal governance. This manifested itself in price-distorting quotas and subsidy schemes (export tax breaks and subsidies to build and operate poorly equipped processing plants), cumbersome export procedures, and no national regulation around food contamination and

diseases. In parallel, corruption issues in land governance were highlighted by Amanor (2012) and Barrientos (2014). These prevented livelihood security in the cocoa and pineapple industries in Ghana and Côte d'Ivoire.

International trade agreements are crucial in shaping economic upgrading trajectories. For instance, Ponte et al. (2014) discuss the importance of benefits from AGOA and GSP+ that LDCs possess, while Ahmed and Fandohan (2018), in their study on sesame seeds in Mali, emphasize the importance of donor engagement as pivotal to kickstarting the industry. Broadly, donors were seen as promoting the creation of local standards, supporting infrastructure development, and providing extension services in several studies (McKenna 2018b). However, they were usually overshadowed by the dominance of private-vertical governance structures.

Most of the articles point to the multi-scalar interaction of public and private governance with different impacts on farmers. In many cases, the interaction of governance structures led to enhanced opportunities for value chain integration. Public-private governance interactions in Kenyan horticulture and Ethiopian flowers, for example, enabled the creation of European-Kenyan and Dutch-Ethiopian public-private partnerships, which were instrumental in the development of the local codes of conduct (Tallontire et al. 2011; Gebreeyesus and Sonobe 2012). Such partnerships had important spillover effects as they strengthened local associations, improve infrastructure, and traceability. Some studies have indicated effective public and private governance structures leading to investment in specific assets (e.g., infrastructure) and improving industrial and agricultural policies (e.g., McKenna 2018b; Krishnan 2018; Costa 2018). Yet others have pointed to the accumulation of rents at the top, without effective mechanisms in place to (i) promote value addition at the backward linkages of the value chain, or (ii) support effective redistribution of rents to the poorest (e.g., Ponte et al. 2014).

5.5 What are the forms and outcomes of upgrading?

Economic upgrading

Among studies focusing on product upgrading, the most common type was linked to improvements in product quality. This was evident in the cocoa industry. Here, increasing the number of drying and fermenting days from five to ten reduced the rejection rate of the product in both Ghana and Côte d'Ivoire, while increasing overall returns (Barrientos 2014; Amanor 2012). In Tanzania, controlling the moisture in the air through adequate storage, the spreading of tea leaves, and drying time facilitated improving the overall quality of tea (Loconto and Simbua 2012). However, in most cases, the increase in returns was negated by the increase in input costs and the inability to resell rejected produce (Krishnan 2018).

Product differentiation is another common type of upgrading. This was found to be especially prevalent within the flower and fresh fruit industries, where international breeders supported the Ethiopian and Kenyan governments to create new rose varieties and the grafting of avocado rootstocks to grow Haas avocados for export (Gebreeyesus and Sonobe 2012; Krishnan 2018). In the cashew industry in Mozambique, product differentiation was achieved by cracking nuts by hand and breaking the shells (Costa 2018). In sum, of the studies analysed that mentioned product upgrading, two-thirds claimed that there was some level of income increase, while the remaining claimed the increase was only marginal (see Table 4).

The second form of economic upgrading is process upgrading. Due to the increase in investment from donors, lead firms, and the national government of Bangladesh, fish processing factories have improved their equipment and made gains in their technical hygiene services. Yet, the benefits of improved technical knowledge have been offset by problems in quality due to a lack of training

in documentation maintenance for traceability, poor post-larvae maintenance, no handling knowledge by brokers, and almost no oversight from the government. Almost all studies echoed the importance of access to high-quality inputs as a key source of process upgrading. For example, the improved distribution of seedlings, access to nurseries, and subsidies to purchase seeds and agrochemicals, in Kenya and Mozambique, were crucial steps in process upgrading (Dannenberg and Nduru 2013 Costa 2018). Improvement mid-stream in the GVC is critical to facilitating process upgrading. For instance, Carter and Smith (2016) find that, in small Pacific Island states, better infrastructure (electricity), soil and pesticide testing centres, and improved warehousing and storage facilities have created conditions conducive for process upgrading to take place.

Increasing technical prowess and use is another way to achieve process upgrading. Costa (2018) found that in Mozambique, processors adopted a mix of manual and mechanical technologies to achieve a better balance between the need to create employment, increase capacity, and reduce costs. They replaced part of the old labour-intensive technology with new semi-automatic equipment, increasing productivity and reducing the harmful effects on workers' health in handling the liquid from cashew nut shells. Costa (2018) found that adopting a mechanized system allows for reduction in costs by USD 30/tonne processed. However, despite this improvement, domestic processing still operates by less than 50 per cent of the registered average annual production.

The most important mode for achieving process upgrading was adhering to stringent international standards (such as GlobalGAP, Organic) and the private codes of conduct of lead firms. The dominant discussion in the articles suggested that upgrading was a contested and complex process, with farmers unable to cope with the new standards. In some cases, such as cocoa in Ghana (Barrientos et al. 2016), it led to an increase in income. In many others, standards adherence was inadequate (Tallontire et al. 2011; Verhofstadt and Maertens 2013).

Functional upgrading also emerged from a number of studies. This was discussed primarily in strategic diversification, where farmers were able to simultaneously sell into multiple markets and diversify their product base to new markets. For instance, Ponte et al. (2014) illustrate that Bangladesh was able to sell fish products to Russia and countries in the Middle East (although low value-added products), while McKenna (2017) suggests that Mongolia was able to diversify red meat sales to Iran, the European Union, Japan, Qatar, South Korea, Russia, and Vietnam, moving away from an exclusive dependence on China.

The most common outcomes of economic upgrading relate to changing incomes. Due to poor land inheritance rights, patriarchal social norms, and precarious working conditions, women in Ghana were not adequately remunerated for their work on cocoa farms and were even marginalized from participation in GVCs (Barrientos 2014). Similar results were described by Carter and Smith (2016) and Loconto and Simbua (2012), who found that the squeeze from suppliers, and the unproductive investments of Fairtrade premiums, often reduced total income levels and savings. However, Maertens et al. (2012) and Van den Broeck et al. (2017) both show that income levels increased, especially for the poorest, as there was a reduction in absolute poverty levels for farmers in the lower quartile of income distribution through GVCs.

Another positive outcome of economic upgrading was increased productivity. For instance, both Ethiopian case studies on fresh fruit and vegetables and flowers showed an increase in the efficiency of use of agrochemicals, easier access, and increased support from the government (Gebreyesus and Sonobe 2012; McKenna 2018a). Articles on horticulture in Benin and sesame seeds in Mali both revealed a minimal increase in yield, even when standards were adopted (Ahmed and Fandohan 2018; World Bank 2018c). Productivity seemed to increase when farmers formed co-ops or were part of a farmer group (Barrientos et al. 2016). In sum, achieving positive economic

outcomes in terms of productivity and income changes were quite mixed, with more successful farmers and processors able to capture greater value.

Social upgrading

The use of voluntary standards (Fairtrade, Organic, GlobalGAP) emerge as a major contributor to driving up minimum wages in several countries, especially Fairtrade that offers a living wage. The cashew nut sector in Mozambique and horticulture in Kenya both experienced an increase in wages of contract and packhouse workers (Costa 2018; Barrientos et al. 2016). Yet, the organization of farmer groups and co-operatives to facilitate standard compliance shows mixed results. While a few articles discuss the ability of such groups to improve wages and terms of contracts (e.g., Barrientos et al. 2016), others suggest that the impact of being part of a farmer group is mixed. For instance, Krishnan (2018) finds that groups that are formed organically, and through bottom-up processes over time, are more cohesive and proactive, compared with groups formed from the top-down for the purpose of economies of scale and driving down costs for exporters. Top-down groups usually disband after exporters leave a specific area. Thus, many of these farmer groups are ineffective in bargaining for higher wages.

Key social improvements identified were job creation, increase in informalization, and welfare changes. The studies on medicinal plants in Nepal, cashews in Mozambique, and the sesame industry in Mali all clearly stated a significant increase in the number of jobs. However, many claimed that job creation was a low road growth strategy that could lead to a race to the bottom, as contracts were precarious and jobs were seasonal (Ponte et al. 2014). Furthermore, in Côte d'Ivoire and Ghana, for cocoa and pineapples, respectively, lead firms increasingly hired migrant and casual labour, reducing overall wage rates (Amanor 2012).

While there has been an increase in the opportunity to work for women in the cocoa, horticulture, and floriculture industries, there is also an increasing trend towards casualization, particularly among those in packhouses that do not have permanent positions or supervisory roles (Barrientos 2014; Dannenberg and Nduru 2013; Gebreyesus and Sonobe 2012). In Mozambique, for example, a lack of gender equality limits access to agricultural inputs, credit services, and markets for female farmers, leading to social downgrading.

Some level of welfare benefits accrued to most participants in GVCs, especially in terms of better health and safety training, including sanitary standards. This involved teaching farmers to use pesticides in a safe way, frequently washing hands, and wearing protective gear before spraying crops (Gebreyesus and Sonobe 2012). Verhofstadt and Maertens (2013), for instance, found that an SPS code implemented by the Rwandan Bureau of Standards in 2002 helped to strengthen the sanitary standards in the country. Furthermore, processors and intermediaries also received training in handling produce and protection against diseases (McKenna 2018b; Ponte et al. 2014). Thus, social upgrading and downgrading seemed to occur simultaneously across almost all articles.

Environmental upgrading

The threat of climate change is critical to decisions to participate in GVCs. However, despite this being a pressing issue, there appears to be a dearth of research considering the environment and GVCs conducted in low-income countries. Only two articles mentioned any form of environmental upgrading, which is surprising considering the implications it has on crop yields and incomes (Adger et al. 2012). In Mozambique, the roasting process of cashews releases a thick black smoke that produces an irritating odour and is a public nuisance for the surrounding environment (Costa 2018). Biodiversity loss due to deforestation and unsustainable harvesting and collection practices was mentioned in Chad (sesame and gum Arabic), Ethiopia (fresh fruit and

vegetables), and Nepal (medicinal plants) as an important cause for degradation of soil quality and increased wind erosion (Ahmed 2018; McKenna 2018b; World Bank 2018c; De Marchi et al. 2019).

6 Mapping the trajectories of upgrading and downgrading in apparel and agro-processing GVCs

This section aims to develop a simple heuristic model to help elicit whether there are similarities in the upgrading trajectories across sectors (agro-processing and apparel value chains) and countries, and where the ‘deficits’ or ‘gaps’ lie. This is intended to help identify key leverage points in the value chain by assessing whether effective governance structures, good micro and macro indicators (business climate, trade and industrial policy, embeddedness and labour conditions), and a high level of productive and linkage capabilities can support positive economic and social upgrading trajectories, across these 35 case studies.

6.1 Governance and micro and macro factors affecting upgrading

Articles that stated that governance structures were effective, capabilities relatively high, and micro and macro factors were in place are categorized as Type 1. We assume that Type 1 would lead to a higher probability of economic and social upgrading. Type 2 combinations are created by categorizing studies finding that governance structures were only partially effective, only intermediate levels of capabilities existed, and relatively poor macro/micro supporting factors were in place. Finally, Type 3 cases consist of those studies stating that governance structures were poor/inadequate, capabilities low, and micro/macro factors poor. Appendix Table A1 classifies all the studies under these three combinations.

Only two studies—Ethiopian floriculture and apparel in Sri Lanka—fall into the Type 1 combination. This demonstrates that, in a relative sense, these studies had the most effective governance structures, the best level of capabilities, and well-functioning micro and macro factors compared with the other studies. Most of the apparel (approximately 53 per cent) and agro-processing studies (75 per cent) fall under Type 2 combinations, and the remaining fall under Type 3. This shows that agro-studies generally seem to find partially effective governance structures and intermediate level of capabilities, whereas a significant number of apparel studies actually find poor or inadequate governance structures and low capabilities.

6.2 Trajectories of economic and social upgrading and downgrading

To better understand the trajectories of economic and social upgrading and downgrading we create two indexes of economic and social outcomes. The economic upgrading index consists of quality improvements, income improvements, asset accumulation, and productivity increases; the social upgrading index consists of job creation, welfare improvements, formalization, and freedom of association (see Appendix A). We use a polychoric principal component analysis⁸ to develop the indices. The aim is to collapse data into a single unitless index, which is scaled between zero and one for easy interpretation, where values close to zero suggest upgrading has occurred.

⁸ We do not use a simple principal component analysis (PCA) as it is a linear procedure and non-robust because of distributional assumption violations, especially the normality assumption. As we are using ordinal variables, we use polychoric PCA that computes correlations between ordinal variables using assumptions similar to ordered probits.

To nuance the results, we create a scale of best to worst of these outcomes. We do this by dividing the economic and social outcomes indexes generated into four quartiles. Q1 presents the best scenario and value closest to zero and Q4 the worst case, with values close to one. The results (Table 4) depict the decreasing index value of economic and social outcomes from Q4 to Q1 across both value chains. For instance, within apparel Q4 (worst) shows an index value of 0.84 for economic and 0.77 for social, whereas Q1 (best) shows index values of 0.19 and 0.11, respectively.

Table 4: Economic and social upgrading outcomes

Quartile	Economic		Social	
	Mean	Standard error	Mean	Standard error
Apparel				
Q1 (best)	0.19	0.05	0.11	0.04
Q2 (moderate)	0.51	0.05	0.31	0.01
Q3 (poor)	0.70	0.04	0.40	0.02
Q4 (worst)	0.84	0.05	0.77	0.06
Agriculture				
Q1 (best)	0.32	0.07	0.20	0.02
Q2 (moderate)	0.55	0.02	0.30	0.01
Q3 (poor)	0.67	0.02	0.37	0.01
Q4 (worst)	0.77	0.01	0.73	0.02

Source: authors' analysis.

6.3 Pathways to upgrading: types of determinants and economic-social outcomes

We now illustrate whether, in the 35 case studies analysed, the types of combinations of factors that determine upgrading (Type 1, 2, and 3) are suitable pathways to achieving positive upgrading outcomes (Table 5).

Table 5: Trajectories of upgrading

Type	Mean index value	Standard error
Economic		
Apparel		
Type 1 (effective)	0.12	0.02
Type 2 (moderate)	0.62	0.08
Type 3 (poor)	0.65	0.09
Agriculture		
Type 1 (effective)	0.47	0.04
Type 2 (moderate)	0.52	0.04
Type 3 (poor)	0.64	0.10
Social		
Apparel		
Type 1 (effective)	0.17	0.07
Type 2 (moderate)	0.39	0.10
Type 3 (poor)	0.61	0.11
Agriculture		
Type 1 (effective)	0.24	0.06
Type 2 (moderate)	0.31	0.03
Type 3 (poor)	0.34	0.02

Source: authors' analysis.

The results presented in Table 5 show that, on average in apparel and agriculture, Type 1 has the lowest index value of upgrading outcomes (suggesting upgrading) and Type 3 the highest index value (suggesting downgrading). This is as we expected, as the probability for upgrading to occur depends considerably on effective governance structures, high capabilities, and good level of micro/macro factors. In the apparel sector, there is a significant difference in the magnitude of both economic and social index, between Types 1 and 3, suggesting that increasing the effectiveness of governance structures and capabilities can make a substantial difference in upgrading outcomes. The magnitudes in agriculture are not as stark, alluding to the fact that there may be other triggers that could affect agriculture, such as climate change, which have not been accounted for in this study.

7 Conclusion

On the basis of this review of 35 GVC case studies, a few central lessons emerge. These are as follows.

- *Dynamic pathways of upgrading and downgrading:* These results indicate that upgrading is not a linear process, but instead in over 80 per cent of the case studies both economic upgrading and downgrading as well as social upgrading and downgrading occurred concurrently. This suggests that from a policy perspective there are considerable trade-offs of focusing on one at the exclusion of the other.
- *Policy deficit and capability gaps:* In developing countries many states lack the *de facto* capacities needed to regulate industries, even when they have the appropriate *de jure* legislation. In most cases, the public sector did not play a *facilitative role* through tax incentives, subsidies, EPZs, and the implementation and negotiation of favourable trade policies. It also did not play an effective *regulatory role* by improving labour regulation, quality controls, and standards implementation (Horner and Alford 2019). As such, the case studies confirm the critical role of government policies in facilitating integration into GVCs, in both a facilitative and a regulatory role. Only two case studies—apparel in Sri Lanka and floriculture in Ethiopia—mentioned a significant improvement in capabilities due to investments by the public sector, private sector, and donors. In most cases, significant gaps exist due to lack of training, experience, and challenges transferring knowledge and technology.
- *Expansion of regional value chains:* Multiple case studies point to the potential role of regional markets as upgrading platforms for local firms (Horner and Nadvi 2018). For instance, in the Southern African apparel sector, the SACU has enabled Lesotho and Swaziland to diversify their exports and achieve some limited forms of economic upgrading. In a similar vein, Kenyan horticulture farmer groups and processors, have been able to use the ‘rejected produce’ from GVC markets in the European Union and repackage these for the Middle East and regionally within the EAC. Yet, the lack of environmental and labour provisions contained in regional trade agreements, such as SACU, SADC, and COMESA, constitutes a major obstacle to social and environmental upgrading.
- *Focusing on environmental upgrading:* While a rich body of literature is emerging discussing environmental upgrading in connection with emerging economies, few studies do so within the context of the poorest countries. With the exception of the Sri Lankan and Ethiopian apparel sectors, where environmental upgrading has been led by both public and private governance, references to the industry’s environmental impact are marginal. Studies across middle- and high-income countries suggest that firms are increasingly including the environment within their codes of conduct; however, this is usually achieved

as a strategy to ‘shift’ environmental costs upstream onto suppliers (Ponte 2020). More research is therefore warranted to shed light on the implications that participation in GVCs has for the environment, especially in low-income countries, and how this further relates to dynamics of economic and social upgrading.

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Appendix

Table A1: Classification of 35 global value chain case studies by type

Type 1 (effective)	Type 2 (moderate)	Type 3 (poor)
<i>Apparel</i>		
Apparel_Sri Lanka (World Bank 2018b)	Apparel_Haiti (Faucheux et al. 2014)	Apparel_Kenya (Staritz and Frederick 2013)
	Apparel_Pakistan (Goto 2011)	Apparel_Bangladesh (World Bank 2018a)
	Apparel_Bangladesh_Honduras (Anner 2015)	Apparel_Pakistan (Frederick and Daly 2019)
	Apparel_Bangladesh (Curran and Nadvi 2015)	Apparel_Nicaragua (Bair 2017)
	Apparel_Madagascar (Morris and Staritz 2014)	Apparel_Lesotho (Godfrey 2015)
	Apparel_Lesotho (Staritz and Morris 2017)	Apparel_Ghana (Amankwah-Amoah 2015)
	Apparel_Ethiopia (Staritz et al. 2016)	
	Apparel_Cambodia (Wetterberg 2011)	
<i>Agro-processing</i>		
Agri-business_Ethiopia (Gebreeyus and Sonobe 2012)	Agri-business_Bangladesh (Ponte et al. 2014)	Agri-business_Ghana (Amanor 2012)
	Agri-business_Ghana (Barrientos 2014)	Agri-business_Pacific Islands (Carter and Smith 2016)
	Agri-business_SSA (Barrientos et al. 2016)	Agri-business_Benin (World Bank 2018c)
	Agri-business_Kenya (Dannenberg and Nduru 2013)	Agri-business_Mali (Ahmed and Fandohan 2018)
	Agri-business_Tanzania (Loconto and Simbua 2012)	
	Agri-business_Rwanda (Vernhofstadt and Maertens 2013)	
	Agri-business_Senegal-Madagascar (Martens et al. 2012)	
	Agri-business_Senegal (Van den Broeck et al. 2017)	
	Agri-business_Kenya (Tallontire et al. 2011)	
	Agri-business_Mongolia (McKenna 2017)	
	Agri-business_Kenya (Krishnan 2018)	
	Agri-business_Mozambique (Costa 2018)	
	Agri-business_Chad (Ahmed 2018)	
	Agri-business_Ethiopia (Gebreeyus and Sonobe 2012)	
	Agri-business_Nepal (McKenna 2018b)	

Source: authors' analysis.